

III. INTERNATIONAL LIBERTY INTERDISCIPLINARY STUDIES CONFERENCE

January 13-15, 2023 / Miami



Edited By

Dr. Carlotta Antonelli

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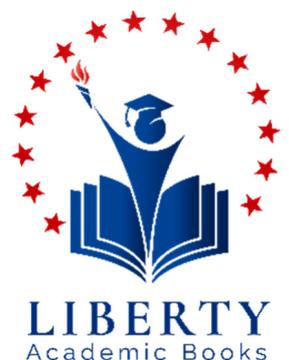
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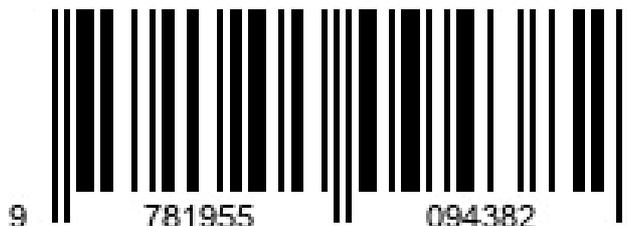
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Conference Program



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exp. H- 1, Rena HUSEYNOVA**

CONGRESS LANGUAGES: English and All Turkish Dialects

 14.01.2023 Hall-1	 Miami Time 09⁰⁰ : 11³⁰	 Ankara Time 17⁰⁰ : 19³⁰	 ID: 849 0375 0466 Password: 003003
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HEAD OF SESSION: Assistant Prof. Rena HUSEYNOVA

Authors	Affiliation	Presentation title
Assistant Prof. Rena HUSEYNOVA	<i>Azerbaijan State University</i>	IMPROVING THE APPLICATION OF INTELLECTUAL CAPITAL IN PRODUCTION
Emin Shahin oghlu Aslanov	<i>Azerbaijan State University</i>	ANALYSIS OF THE POLICY FOUNDATIONS OF THE FORMATION OF THE MODERN SECURITIES MARKET IN AZERBAIJAN
Dr. Neslihan DERELİ		DIRTY MONEY, MONEY LAUNDERING AND ITS ASPECT OF TAXATION
Bağırzadə Lalə	---	HIDDEN HUMAN PSYCHOLOGY IN "GOD OF THE FLIES"
Leyla DİLEK	<i>Kurtalan District Directorate of National Education Bozhöyük 80. Yıl Primary</i>	ANALYSIS OF INTERJECTION ART IN GAGAUZ LITERATURE IN THE SEMANTIC PERIOD
Kıymet DİRİCAN	<i>Dokuz Eylül University</i>	19th CENTURY AMERICAN ART and THE HUDSON RIVER SCHOOL

(All speakers required to be connected to the session 10 min before the session starts)
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 14.01.2023 Hall-2	 Miami Time 09⁰⁰ : 11³⁰	 Ankara Time 17⁰⁰ : 19³⁰	 ID: 849 0375 0466 Password: 003003
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HEAD OF SESSION: Ivan Pavlovic

Authors	Affiliation	Presentation title
Besnik Jakaj Ervin Toçi	<i>University of Medicine</i>	ADMINISTRATION, MANAGEMENT AND STRATEGIC PLANNING POLICIES OF THE HEALTH SYSTEM - TARGETED RESULTS OF THE HEALTH CARE SYSTEM
Euglent Hoxha Artan Simaku	<i>University Hospital Centre "Mother Teresa"</i>	TREATMENT OF CANCER PATIENTS WITH RADIOTHERAPY AND CHEMOTHERAPY
Minal Sharma Simon Kaweesa	<i>King Ceasor University</i>	TREATMENT OUTCOMES CAUSED FROM DEFAULTING TUBERCULOSIS TREATMENT AND THE FACTORS CONTRIBUTING TO TREATMENT DEFAULT: A CASE STUDY OF TUBERCULOSIS SUFFERERS REPORTING FOR TREATMENT AT MULAGO NATIONAL REFERRAL HOSPITAL, UGANDA
Naun Sinani Enver Roshi	<i>Ministry of Health and Social Welfare</i> <i>University of Medicine</i>	ORGANIZATION OF HEALTH PRACTICES, BASED ON THE INTERACTIONS AT THE SECONDARY CARE LEVEL, ALBANIA
Sara Ahmed Adam Musa Taha Ahmed Elmukashfi	<i>University of Khartoum</i>	HEALTH PROMOTION EDUCATION PROGRAM EFFECTS ON HEALTH STATUS OF ELDERLY IN GERIATRICS HOMES AT KHARTOUM STATE, SUDAN, 2017; PRE- AND POST- INTERVENTION STUDY
Zekirja Shabani Marigonë Rizani	<i>Candidat at Istanbul University</i>	HISTORY OF PUBLIC HEALTH IN KOSOVO'S VILAYET
DMD Cosoroaba Raluca Prof Denisa Abrudan Edida Maghet	<i>University of Medicine and Pharmacy Victor Babes</i>	RECRUITMENT CHALLENGES FOR DENTAL PRACTICES COVID 19 EDITION
Binuni Rebez E Hemavathi A Venugopal	<i>Rajiv Gandhi Institute</i>	STUDY ON JUVENILE GROWTH PERFORMANCE OF NON-DESCRIPT COUNTRY CHICKEN UNDER INTENSIVE SYSTEM OF MANAGEMENT IN PUDUCHERRY
Ivan Pavlovic	<i>Scientific Institute</i>	AMEBIASIS IN PET DOGS IN BELGRADE AREA DURING 2021
Augusto Peñaranda Lucia C. Pérez-Herrera Sergio Moreno-López Daniel Peñaranda	<i>Universidad de Los Andes</i> <i>Fundación Universitaria</i>	SALUD MENTAL EN PROFESIONALES DE SALUD VS ORLS EN LATINOAMÉRICA DURANTE LA PANDEMIA DE COVID19: UNA EXPLORACIÓN AL PROBLEMA

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HEAD OF SESSION: Prof. Chahid Slimani

Authors	Affiliation	Presentation title
Matea Cvjetkovic	<i>University North</i>	THE ROLE OF TECHNOLOGY IN BUILDING A POST-PANDEMIC TALENT-ORIENTED ORGANIZATION: EMPLOYER BRANDING IN THE DIGITAL ERA
Dr. Phan Thi Yen Dr. Dang Vinh	<i>University of Danang Vietnam - Korea University</i>	IMPACT OF CORPORATE CULTURE - FACTORS PROMOTING SUCCESS
Ly Dai Hung Pham Anh Tuan	<i>Vietnam Institute of Economics Vietnam National University</i>	ECONOMIC GROWTH AND REAL ESTATES IN VIETNAM ECONOMY
Assist. Prof. İlhan DOĞAN Ezgi ÜNAL Prof. Yanqing DUAN Prof. Ram RAMANATHAN Lect. Bernd KLEINHEYER	<i>Istanbul University Bielefeld University</i>	JOB POSTING ANALYSIS TO DISCOVER THE OCCUPATIONAL PROFILES OF DIGITAL TRANSFORMATION MANAGERS
Abdenbi BELGHITI Mohammed BELGHITI Hicham MIZAB	---	MONETARY POLICY AND PRICE STABILITY IN MOROCCO: A STOCHASTIC STUDY
Assoc. Prof. SERKEBAYEVA R.K. Assoc. Prof. KOZHAKMETOVA M. K Assoc. Prof. ILYASSOV D.	<i>Narxoz university</i>	BANKING RISK MANAGEMENT AND ITS IMPACT ON LIQUIDITY
Prof. Chahid Slimani Samah Bouhazama	<i>Sidi Mohamed Ben Abdellah University</i>	BANKER'S VIGILANCE DUTY AND PROTECTION OF MOROCCAN CUSTOMERS' PERSONAL DATA
Kaltume Mohammed Kamsalem	<i>Bayero University</i>	EMPLOYEE EMPOWERMENT AND SERVICE QUALITY DELIVERY: THE MEDIATING EFFECT OF ORGANIZATIONAL CITIZENSHIP BEHAVIOUR AMONG NURSING STAFF
Sheeba Irfan	<i>University of the Punjab</i>	ENDURING LEGACIES OF PARTITION
Alfredo Guatemala Mariano German Martínez Prats Francisca Silva Hernández	<i>Universidad Juárez Autónoma de Tabasco</i>	MODEL OF CONSTRUCTION OF TECHNOLOGICAL CAPABILITIES FOR DIGITAL PLATFORM-BASED SOCIAL TECH STARTUPS

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HEAD OF SESSION: Assoc. Prof. Rashidah Albaqami

Authors	Affiliation	Presentation title
Carlotta Antonelli	<i>University of Rome "La Sapienza"</i>	UNIVERSITY AS A PLACE OF CONSTRUCTION OF THE IDENTITY: OBSTACLES, BEST PRACTICES AND TECHNOLOGIES FOR INCLUSION
Sabika Alisher Dr Anila Fatima Shakil Dr Rabia Abdul Karim	<i>Jinnah University for Women</i>	IMPORTANCE OF INTERNSHIP PROGRAM FOR PROFESSIONAL DEVELOPMENT AMONG STUDENTS AT COLLEGE LEVEL IN PAKISTAN
Assoc. Prof. Rashidah Albaqami	<i>Taif University</i>	FIGURING OUT THE ROLE OF MOTHER TONGUE INTERFERENCE IN MASTERING ENGLISH PHRASAL VERBS AMONG FOREIGN LANGUAGE LEARNERS FROM DIFFERENT FIRST LANGUAGE BACKGROUNDS
Serik Meruert Kadyrova Gulnur Maksatkhanovna Seitova Zhanat Adilbekovna	<i>Eurasian National University</i>	INTERNET-ASSISTED ENVIRONMENT IN TEACHING ENGLISH TO VISUALLY IMPAIRED LEARNERS
Assist. Prof. Dr. Shaista Jabeen Assist. Prof. Dr. Zill E Huma	<i>Govt. Graduate College</i>	IMPACTS OF DOMESTIC VIOLENCE ON FEMALES – A STUDY IN PUNJAB (PAKISTAN)
Olayinka Elizabeth Omotayo	<i>City University</i>	STRESSORS AND COPING MECHANISMS AMONG MOTHERS OF HEARING IMPAIRED CHILDREN IN THE SCHOOL FOR HEARING IMPAIRED, AKURE, ONDO STATE
Dr. Ferenc ADAMOVICH	<i>Târgu Mureş University</i>	THE ROLE OF MULTIMODAL STUDIES FROM THE PERSPECTIVE OF AFFECTIVE MOVEMENT PEDAGOGY IN THE STUDY OF KINESTHETIC REPRESENTATION

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HEAD OF SESSION: Neslihan BALCI

Authors	Affiliation	Presentation title
Assist. Prof. Amber Nawab Lect. Javeria Sheikh Dr. Subia Jamil Lect. Najaf Farooq Bushra Kamali Musharraf Iqbal	<i>Jinnah University for Women</i>	A MEDICAL BURDEN: GLAUCOMA, ITS PREVALENCE AND OUR AWARE COMMUNITY
Khaoula Mkhayar Souad Elkhatabi Samir Chtita	<i>Sidi Mohamed Ben Abdellah-Fez University</i> <i>Hassan II University of Casablanca</i>	DRUG LIKENESS, ADMET AND MOLECULAR DOCKING DYNAMICS STUDIES FOR DISCOVERY ANTI-SLEEP DISORDERS AGENTS
Renzo Guarnieri Rodolfo Reda Alessio Zanza Marco Seracchiani Dario Di Nardo Luca Testarelli	<i>Sapienza University of Rome</i>	PERI-IMPLANT MARGINAL BONE LOSS PROGRESSION AND A-MMP-8 CAN BE CONSIDERED AS INDICATORS OF THE SUBSEQUENT ONSET OF PERI-IMPLANTITIS. A 5-YEAR STUDY PERI-IMPLANT MARJINAL
Aliye Demet DEMİRAG Emrullah FEDAI Mustafa YILDIRIM Gürkan BAL	<i>Yeditepe University</i> <i>Humboldt-Universität zu Berlin</i>	TARGETING THE LXR RECEPTOR IN PANCREAS CANCER: A STUDY IN SILICO
Aliye Demet DEMİRAG Melike OZTURK Mustafa YILDIRIM Gürkan BAL	<i>Yeditepe University</i> <i>Humboldt-Universität zu Berlin</i>	TARGETING INFLAMMATORY RESPONSE IN PROSTATE CANCER: A STUDY IN SLICO
Faisal Sophia Suleiman Amos Ronald Kalukusu	<i>King Ceasor University</i>	ANALYSIS OF ISSUES ASSOCIATED WITH LEGALIZING INDUCED ABORTION AMONG WOMEN OF REPRODUCTIVE AGE IN UGANDA: A SITUATIONAL ANALYSIS AMONG DOCTORS, LAWYERS AND UNIVERSITY MEDICAL STUDENTS.
Sabano Shalom Mary Kaweesa Simon Peter Amos Ronald Kalukusu	<i>King Ceasor University</i>	DETERMINATION OF DRUG-DEFAULTER-RATE AMONG TUBERCULOSIS PATIENTS REPORTING FOR TREATMENT AT MULAGO NATIONAL REFERRAL HOSPITAL, UGANDA
Jasim Mohammed Muhsin Shrooq Ali Hussein Jaleel Samanje	<i>Middle Technical University</i>	CORRELATION OF HTLV-I INFECTION WITH HEART DISEASES AMONG SAMPLE OF IRAQI PATIENTS

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HEAD OF SESSION: Prof. Adil Geybulla

Authors	Affiliation	Presentation title
Dr. Kərimova Rəna Cabbar kızı Vəliyeva Zeynəb Yəhya kızı Ağayeva Asiya Hacı kızı Həsənova Xumar Əliövsət kızı Ələkbərova Mehriban Qəni kızı Yusifova Mətanət Yusif kızı	<i>Azerbaijan Medical University</i>	PHYSIOLOGICAL CHARACTERISTICS OF IRON DEFICIENCY IN THE BODY AND IMMUNE SYSTEM LOWERING LEVELS DUE TO ITS EFFECT
Dr. Kərimova Rəna Cabbar kızı Ağayeva Asiya Hacı kızı Quliyeva Nigar Təryel kızı Dr. İsmayilova Könül İdris kızı Dr. Məşədiyeva Bayramova Səbinə Ənvər kızı Bayramov Adil Allahyar oğlu	<i>Azerbaijan Medical University</i>	PHYSIOLOGICAL, HISTOLOGICAL CHARACTERISTICS OF IRON DEFICIENCY AND ITS CHANGES ON THE ENDOCRINE SYSTEM
Prof. Adil Geybulla	<i>Azerbaijan Medical University</i>	PERSPECTIVES FOR CONTROLLING BIOFILM-FORMING BACTERIA IN INFECTED DIABETIC FOOT SYNDROME
Assoc. Prof. Mahira Amirova Ellada Hüseynova Sabina Guliyeva Firangiz Guliyeva	<i>Azerbaijan Medical University</i>	THE RIGHT RESEARCH METHODS DICTATED BY HISTORICAL EXPERIENCE
L.I. Rustamova F.H. Heydarova T.I. Həjiyeva M.M. Hamzayeva Kh.B Pashayeva J.S.Mammadova	<i>Scientific-Research Institute of Medical Prophylaxis</i>	EPIDEMIOLOGICAL PROFILE OF INFECTION COVID-19 IN CHILDREN POPULATION IN BAKU CITY
Dr. Mehmet Fatih BURAK Asst. Prof. Dr. Polathan KÜSBECİ	<i>Beykent University Cappadocia University</i>	THE EFFECT OF THE METAVERSE ON THE HEALTH SECTOR
Res. Assist. Dr. Asuman ARKAŞ ALKLAY	<i>Dicle University</i>	MORPHOLOGICAL INVESTIGATION OF THE FETAL PERIOD IN SIMMENTAL CATTLE
Res. Assist. Dr. Asuman ARKAŞ ALKLAY	<i>Dicle University</i>	EXAMINATION OF TEXTURES WITH LIGHT MICROSCOPIC DYES; ANATOMY TO HISTOLOGY

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HEAD OF SESSION: Assist. Prof. Gunratna Sontakke

Authors	Affiliation	Presentation title
Assist. Prof. Dr. Elsadig Hussein Fadlallah Ali Assist.Prof. Dr. Musadhique Kottaparamban Lecturer Mohammed Jabir Kannanchery Kunnath	<i>King Khalid University</i>	MANIFESTATION OF A DYSTOPIAN GOVERNMENT SYSTEM IN ALDOUS LEONARD HUXLEY'S BRAVE NEW WORLD
Dr. Halit ALKAN	<i>Mardin Artuklu University</i>	LINGUISTIC FEATURES IN JAMES JOYCE'S A PAINFUL CASE
Elonora Hodaj	<i>University "Ismail Qemali" Vlore</i>	THE POLITICS OF FICTIONAL LITERATURE: A CROSS-DISCIPLINARY APPROACH
Dr (MC) Hergie Alexis SEGUEDEME Dr Orierien Olivier ABODOHOUI Dr Koumabe BOSSOUN	<i>Enseignant-Chercheur à l'Université d'Abomey</i>	CROSSING OVER THE DEMYSTIFICATION OF THE MIRAGE OF CULTURE IN L.P. HARTLEY'S THE GO- BETWEEN
Elizabeta Dimitrova	<i>Ss Cyril and Methodius University</i>	FRAGILE HERITAGE
Assist. Prof. Gunratna Sontakke Dr Anjali Kurane	<i>Savitribai Phule Pune University</i>	CASTE IN URBAN MILIEU: AN ANTHROPOLOGICAL STUDY IN PUNE CITY, INDIA'

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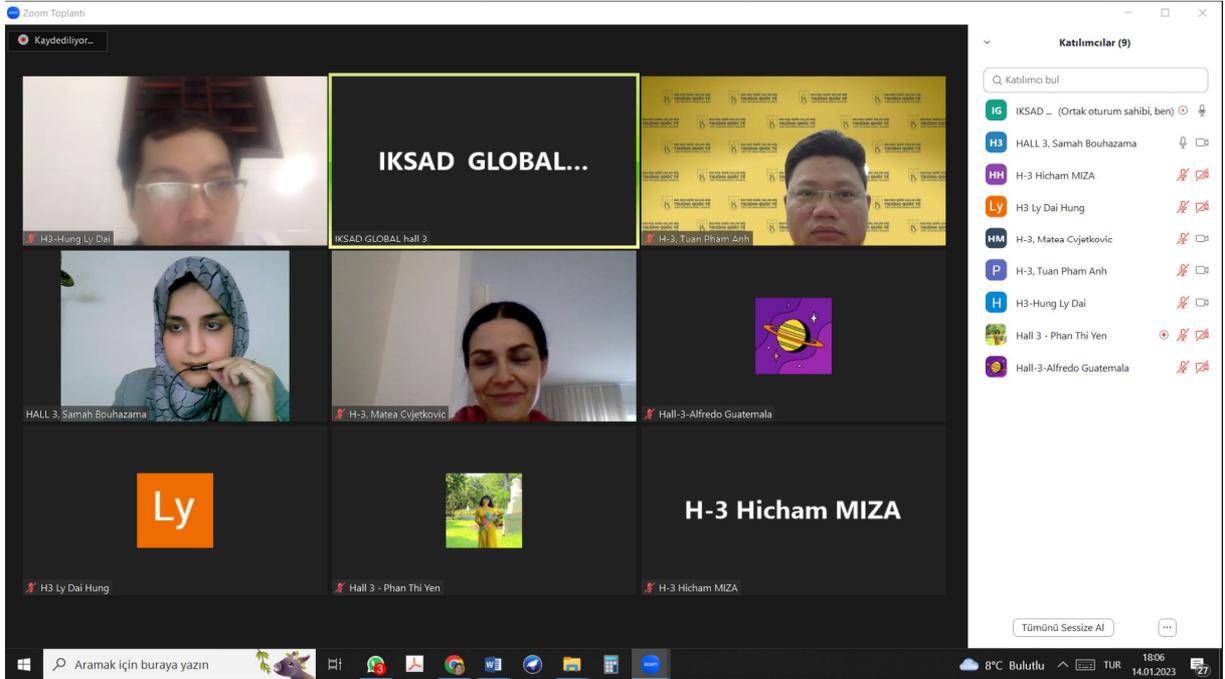
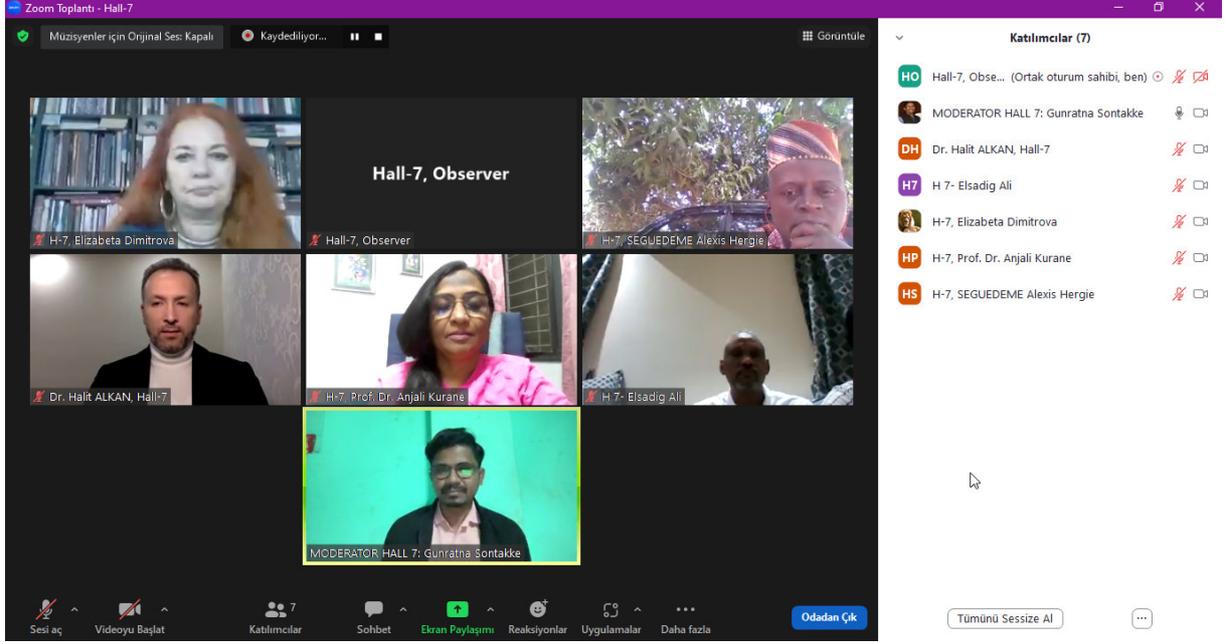
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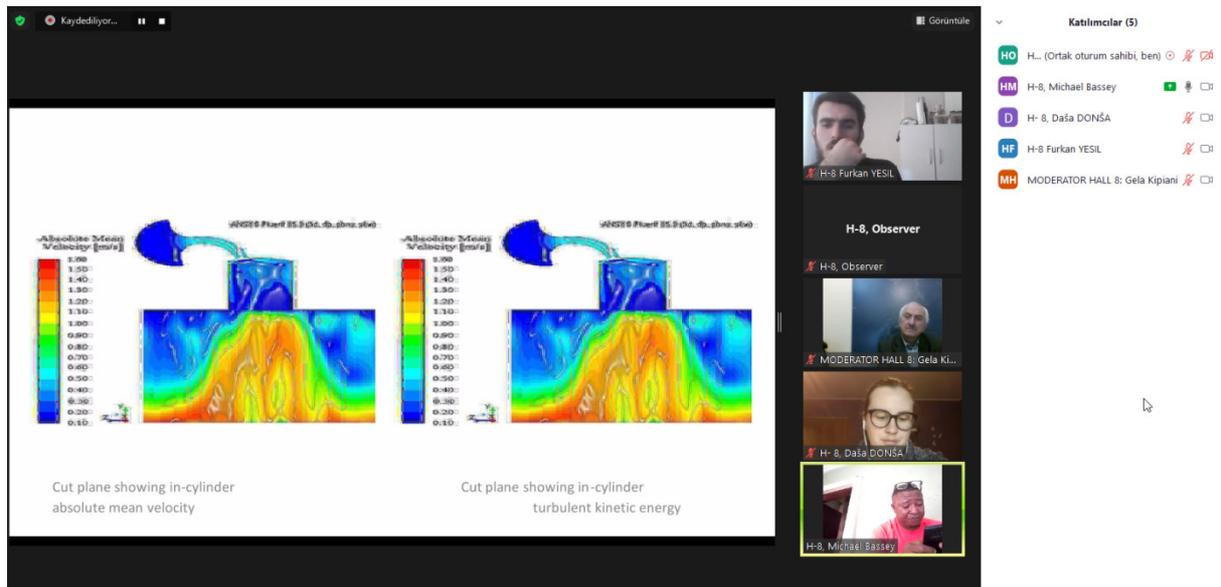
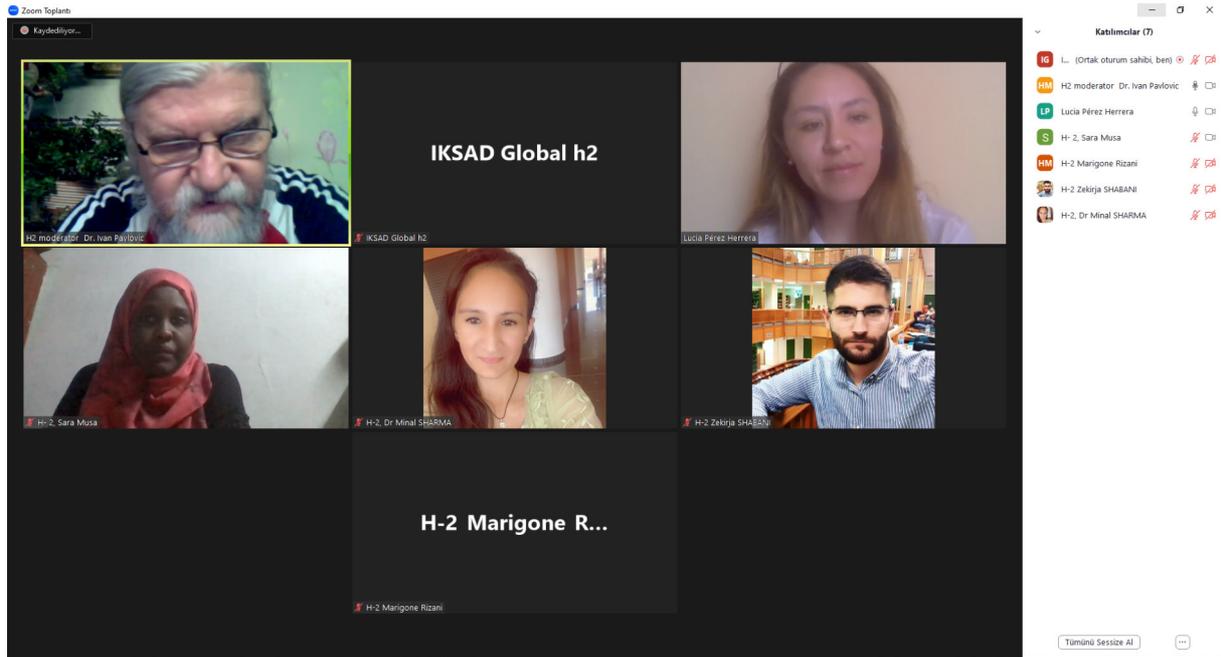
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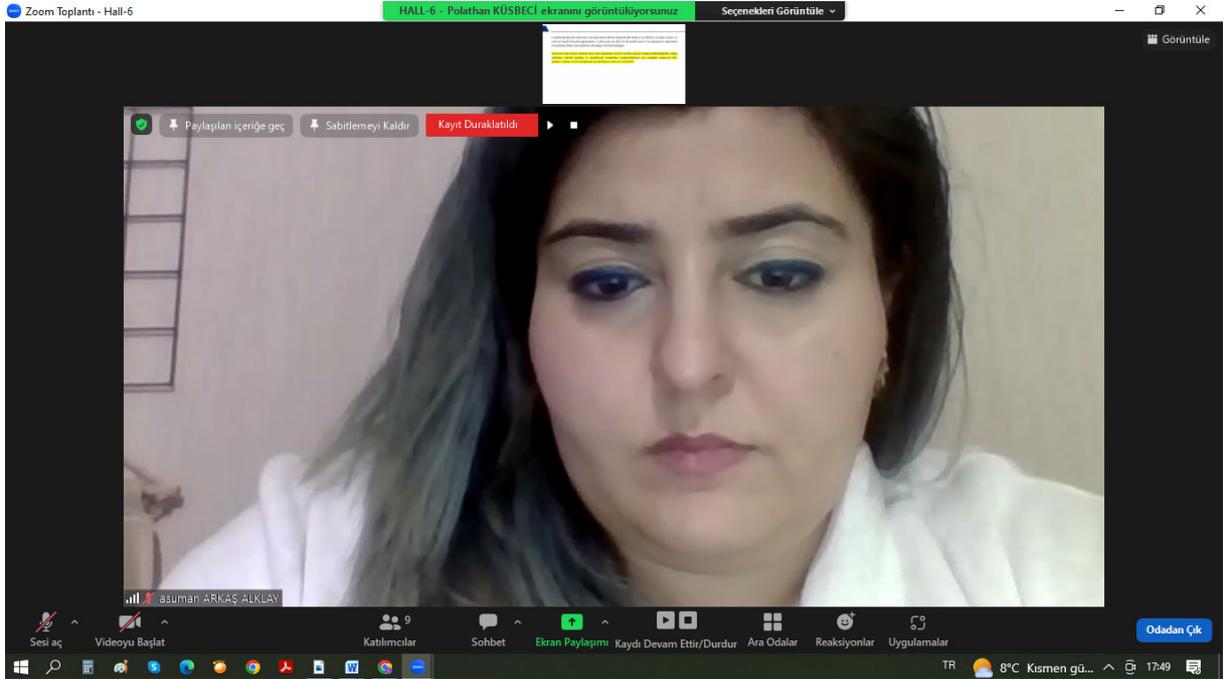
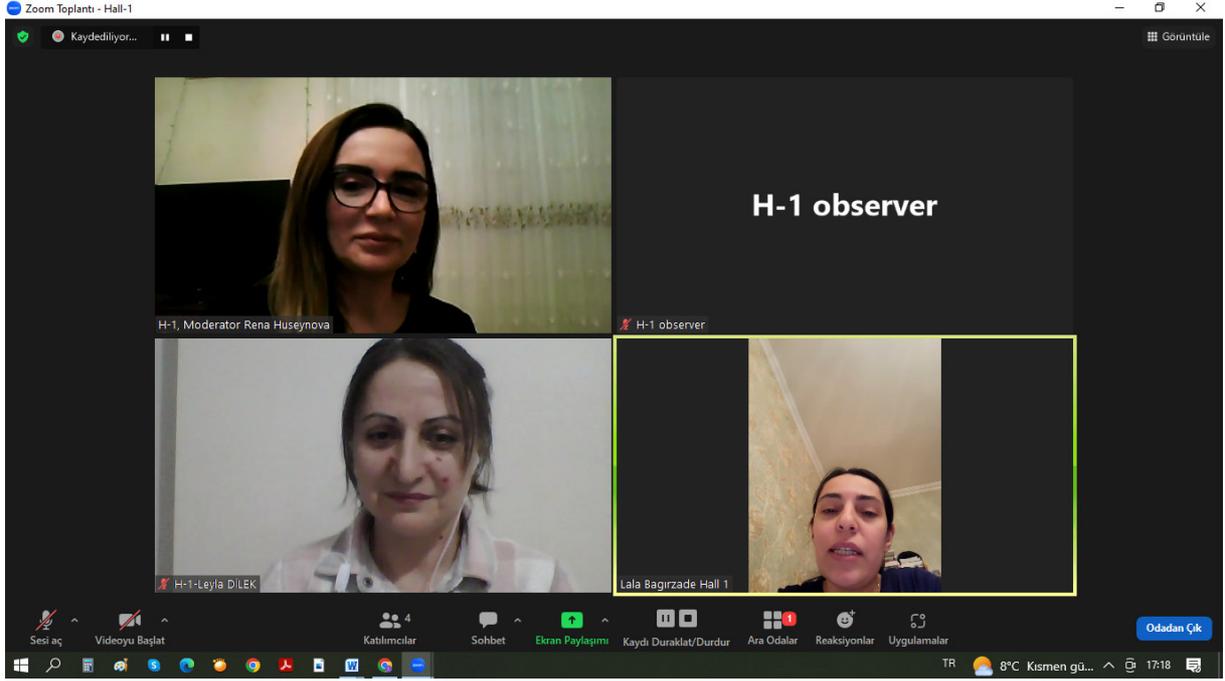
Authors	Affiliation	Presentation title
Furkan Yeşil	<i>Ankara Yıldırım Beyazıt Üniversitesi</i>	IN MICROCHANNEL HEAT EXCHANGER PERFORMANCE ENHANCEMENT WITH FLUIDIC OSCILLATOR INVESTIGATION BY TRANSIENT REGIME
Aniekan Essienubong Ikpe Michael Okon Bassey Victor Okon David	<i>Akwa Ibom State Polytechnic</i>	COMPUTATION OF IN-CYLINDER TRANSIENT THERMODYNAMICS AND VALVE LIFT EFFECTS ON FOUR STROKE RECIPROCATING PISTON INTERNAL COMBUSTION ENGINE
Daša Donša Petra Cajnko	<i>University of Maribor</i>	PROJECTS TO CO-CREATE SCIENCE AND THEIR GROWTH TREND - EMPIRICAL VERIFICATION
Mai Duc Nghia Ho Duc Tuan	<i>Air Force Officer's College Nha Trang University</i>	A SIMULATION STUDY OF COMBUSTION CHARACTERISTICS OF THE CUMMINS DIESEL ENGINE BY KIVA SOFTWARE
Prof. Dr. Gela Kipiani Prof. Dr. Medea Dzotsenidze Prof. Dr. Ketevan Korkia Prof. Dr. Tinatin Magradze	<i>Georgian Technical University</i>	ANTI-SEISMIC MEASURES OF CIVIL CONSTRUCTIONS

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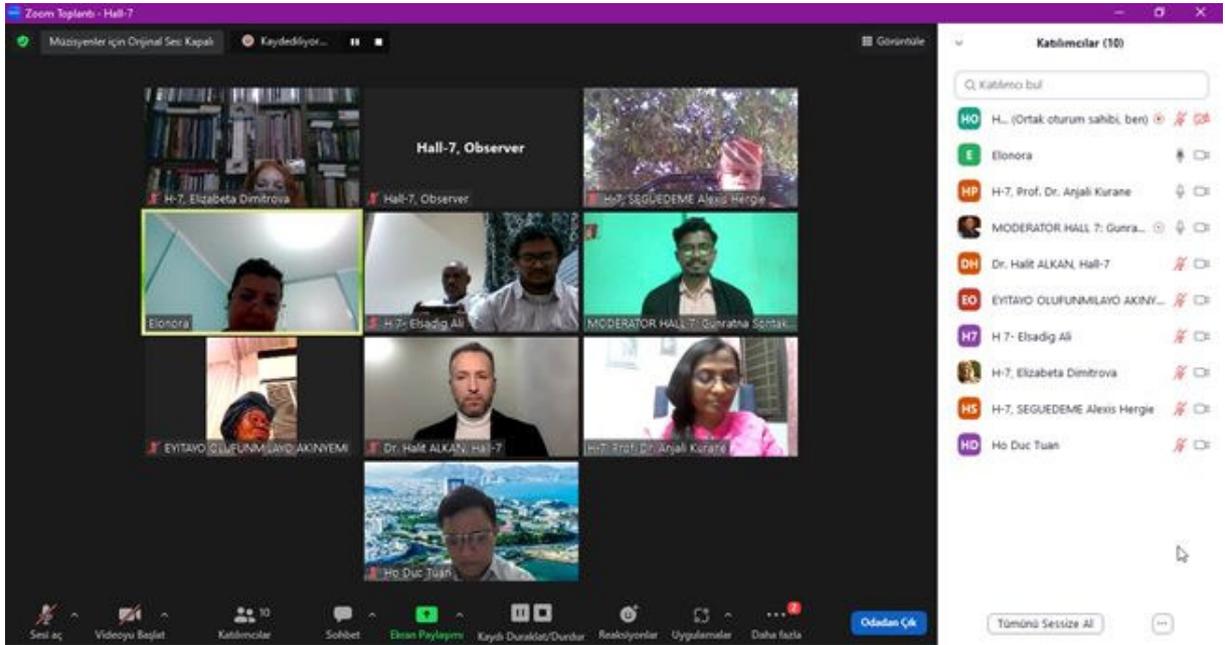
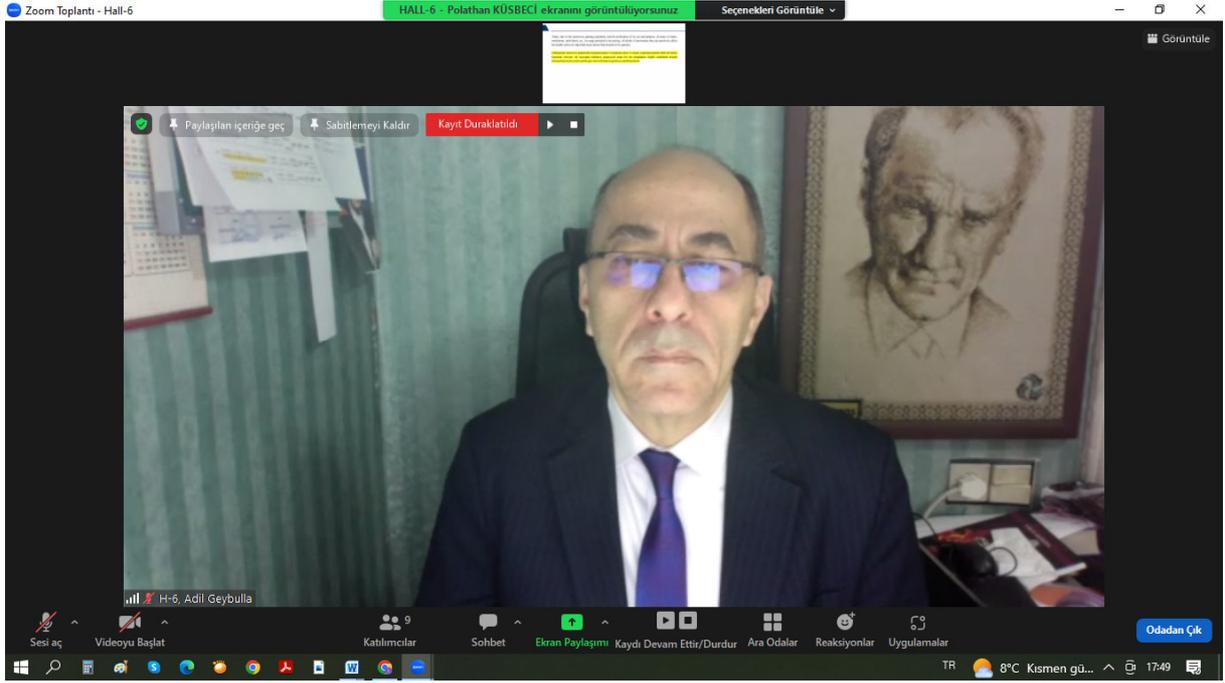
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IMPROVING THE APPLICATION OF INTELLECTUAL CAPITAL IN PRODUCTION

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ABSTRACT

This article discusses the current status and importance of the application of intellectual capital in modern enterprises. In particular, the strategies implemented to increase the profit obtained during the management of intellectual capital and its application to production are analyzed from a scientific point of view.

Effective use of intellectual capital allows to increase the competitiveness of enterprises and organizations, to obtain additional income due to unique competitive advantages.

At the same time, the intellectual capital of enterprises is formed in all its life cycles, and the economic function is performed by ensuring the efficiency of economic activity by using knowledge.

The research shows that the creative function of intellectual capital of enterprises serves to spread the knowledge and experience accumulated in enterprises. Its development function acts as a promoter of scientific and technical progress.

A complex approach is required for accurate preparation and implementation of the correct management strategy of intellectual capital of enterprises. For this reason, the formation and development of the intellectual capital of enterprises applied to production in the conditions of the innovation economy is of particular relevance. It should be taken into account that the formation and development of intellectual capital directly depends on the scientific and scientific pedagogical environment necessary for the formation of intellectual capital, mechanisms that create fertile conditions for fundamental and applied research.

Keywords: intellectual capital of enterprises, intellectual capital management, commercialization of intellectual capital, technological innovations

Introduction

The mechanisms of intellectual capital formation and general trends of its reproduction are characterized by three particular stages: knowledge collection, knowledge use and production of intellectual products based on them, distribution and exchange of intellectual products. In addition to the above, certain specific factors affect the formation and development of intellectual capital in the economy of each country, depending on the specific situation.

Accordingly, it should be noted that the level of education in the USA, Germany, France, and Japan is quite high, and in those countries, taking into account the logic of global scientific and technical progress, scientific and technical policy is actively implemented that serves the purpose of achieving sustainable economic growth.

According to the statistics in industrially developed countries 75-80% of GDP growth is due to new knowledge embodied in technologies, equipment and production. The volume of the global science-intensive products market accounts for 2.3 trillion US dollars. The USA, Germany, Sweden, Taiwan, Canada, South Korea, Japan, and some other countries of the European Union have become leading actors from the perspective of technological progress. Electronics, computers, software, telecommunications, manufacture of robotics, information services, carbohydrate processing are at the core of the high-tech.

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In order to achieve the above-mentioned level of development, the annual increase of expenditures on education, human capital, and intangible assets in the USA as the main directions of social and economic development can be indicated. For example, in the USA in 1940, 15% of 18-21-year-old graduates from high school were admitted to colleges, while in the 1990s, this figure was over 60%. Today, 90% of Americans between the ages of 14 and 17 attend high school. In the USA, 560 billion dollars are spent on education, and 60% of these funds are from the state budget. At the same time, the private sector also spends quite a lot of money on training and improving the level of professional training in the United States.

In the American education system, there is a special emphasis on finding talent at home and abroad at all levels of education. The fundamental basis of the US leadership is the country's innovation potential, and the country has developed a multi-level, wide-ranging national innovation system. The strategy of this country is based on scientific and technological leadership. Gaining this position is based on resource provision, efficient institutional base, dynamic improvement of interaction mechanisms of individual elements of the national innovation system, developed system of forecasting scientific and technical progress.

During the surveys conducted by the Economist Intelligence Unit, it was found that 94% of business leaders prefer to be informed about intellectual capital issues. On the other hand, the development of the theory of intellectual capital and the application of its main provisions from theory to practice are also important for increasing the efficiency of production.

Based on the study of the views of T. Stewart, K. Sveby, L. Edwinson, E. Brooking, S. M. Klimov, L. I. Lukchiyev and others, it could be concluded that intellectual capital creates a synergistic effect as institutionalized knowledge, and it is possible to use those effects in production. It should be noted that the following functions attract attention during the application of intellectual capital to production:

- information carrier - collection and exchange of knowledge, skills and information;
- cognition - acquisition of new knowledge;
- transformative and formative - turning knowledge into products of intellectual activity (information services, management rules, etc.);
- scientific-researcher - conducting scientific researches;
- integrative - directing the results of scientific research of various fields to the creation of new products;
- practical - assistance in solving various issues in production, in a specific production field.

On the basis of all the above-mentioned ideas, the economic, creative and developmental functions of the application of intellectual capital to production have been specifically specified and summarized by us (see figure 1):

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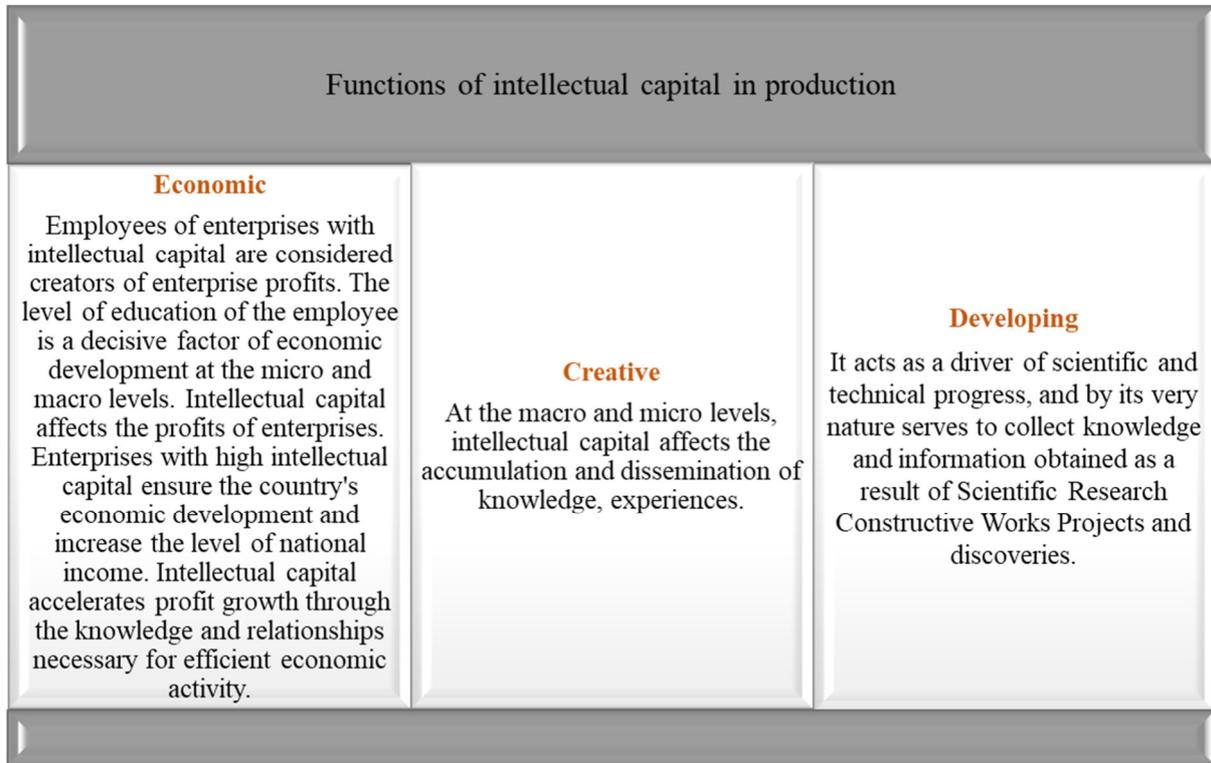


Fig. 1. Functions of intellectual capital in production
Compiled by the author

It would be appropriate to pay attention to the structure of intellectual capital applied to production. It should be noted that it would be appropriate to add one more element to the structure of intellectual capital proposed in the economic literature by the scholars of economics, such as T. Stewart, L. Edvinson, E. Brooking, etc. Here we are talking about management capital (figure 2).

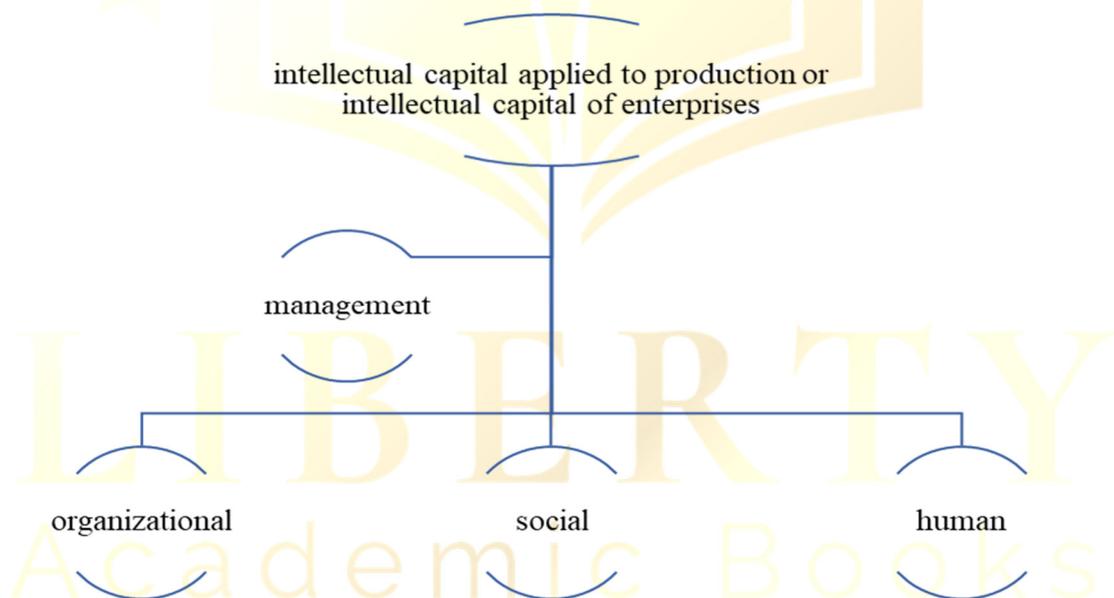


Figure 2. The structure of intellectual capital used in production

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The components of intellectual capital are formed and developed in interaction with each other at all stages of life cycles.

Accordingly, it would be appropriate to pay attention to the content of the elements included in the structure of intellectual capital applied to production.

Table 2. The content of the main elements included in the structure of intellectual capital applied to production

Categories	Contents of categories
Human capital	Education, knowledge, habits, skills, motivation, employee's potential that enable the enterprise to earn income during its application in production.
Management capital	Enterprise or production management, management procedures, management decisions that enable income generation.
Social capital	Interaction and relationship between people, structural divisions of enterprises.
Organizational capital	They are organizational factors for the creation of products and act as an organizational structure, system organizations of production, quality, sales, and information technologies.
Intellectual capital	The totality of knowledge, skills, experience of employees at all stages of the life cycle of intellectual capital, organizational and social relations between employees, structural units, managers. In essence, it attracts attention as institutionalized knowledge that is used in production and creates synergistic effects.

Source: Nikolaeva Yu.R., Formation of the intellectual capital of an enterprise, Moscow 2013, p. 13

The main place in the management of intellectual capital is the evaluation of its level. Here, solving the task of assessing the quality and quantity of intellectual capital is set as a goal. The solution of this issue is solved according to the basic principles of qualimetry.

Evaluation of the results of intellectual capital management is determined based on the following requirements of qualimetry: usefulness, sufficiency, uniqueness, reliability, integrity, individuality, dynamism, operability, possibility of improvement, globality, reproducibility, economic efficiency, etc.

There is a reciprocal relationship between the increase in the amount of intellectual capital applied to production and its development stages: the value of intellectual capital increases depending on the development stage of the companies where intellectual capital is applied: the amount of intellectual capital also increases during the growth stage or vice versa. Accordingly, it is possible to observe the following relationships between the development stages of enterprises and the growth stages of intellectual capital (see table 2).

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Table 2. Stages of development of intellectual capital applied to production

No	Development stages of enterprises	Growth stages of intellectual capital
1.	Establishment of enterprises, production area	Selection and assembly of personnel
2.	Formation of necessary resources for the production area	The process of combining human capital with structural capital
3.	Commencement of production activity	The process of combining human, structural and consumer capital
4.	Exceeding the limit of harmlessness	Intellectual capital is formed
5.	Achieving area averages	Intellectual capital is increasing
6.	Achieving higher than average performance in the field	Intellectual capital is increasing
7.	Bankruptcy of enterprises	Intellectual capital is not efficiently applied (no consumption capital)

The table was compiled by the author

Findings and Discussion

Our research shows that the issue of improving the methodology of applying intellectual capital to production should be made a little more concrete, and it should be noted that the reproduction of intellectual capital at the level of managers managing enterprises in Azerbaijan is not very well organized. At the same time, the planning of intellectual capital formation and application processes does not go beyond the planning of individual elements of intellectual capital. Here, the action procedures are carried out in the following order:

- budget costs related to the application of intellectual capital (expenditures for software, information and communication technologies of companies) should be agreed upon first;
- in order to increase the level of professional training of personnel and especially to organize the acquisition of new knowledge arising on the basis of the scientific and technological challenges of the time, a cost plan should be drawn up, clarifying the issue of the effect of the acquisition of knowledge on increasing the competitiveness of enterprises, and new calculation methods should be used (because here we are talking about intangibles assets and their separate elements and mechanisms);
- the costs spent on the purchase of intangible assets to be applied to production should be calculated, and a corresponding consumption plan should be developed and prepared.
- marketing and management of intellectual capital should be developed in order to improve the method of managing the application of intellectual capital to production.

Of course, in order to achieve successful results in the directions mentioned above, it is necessary to solve a number of tasks. Here we are talking about solving the following issues:

- accurate identification of the consumers of intellectual capital applied to production and especially of enterprises is required. The mentioned consumers can be new or traditional consumers and they can be entrepreneurs (shareholders), investors, insurers, customers, employees, intermediaries, suppliers. The current situation related to the needs of intellectual capital consumer and their preferences should be clarified;

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- the main principles in the application and use of intellectual capital, the goals set for strategic and tactical, short, medium and long-term perspectives must be chosen correctly, at the same time, the value of the intellectual capital should increase so that it can meet those goals and requirements, and special programs should be developed that serve to increase the quantitative and qualitative indicators;
- the structural and type components of intellectual capital should be formed in such a way that they are further increased in the process of their application to production, and relevant works are carried out in a systematic and complex manner (here we are talking about creating new jobs, solving the problem of employment and development of carriers of intellectual capital, more precisely, constantly improving their professional training level, opportunities to build a career, as well as increasing the diversity of high-tech applications, modern software, trademarks, brands, etc.);
- another important task is the correct determination of the pricing mechanism for the components and structural elements of the intellectual capital (i.e. wages of staff included in various categories, the cost of licenses, know-how, the cost of software projects, the services of internal consultants, the budget of insurance programs, the cost of brands, etc.);
- advertising and presentation events should be held in order for intellectual capital to gain popularity in the market, etc.

Results

Another complex and urgent issue in the practice of intellectual capital management is the management of the use of intellectual capital for commercial purposes. Because the successful solution of the mentioned problem creates conditions for obtaining the final positive results of innovation and investment activities in science-intensive enterprises. One fact should be specially taken into account that the problem of commercialization of intangible assets is identified with the commercialization of intellectual property. However, the commercialization of intellectual property means the involvement of intellectual activity in the economic cycle, or the use of it in private economic activity.

However, we believe that the commercialization of intellectual capital should be understood as the use of internal and external intellectual assets of enterprises to obtain income and profits. For this reason, income is obtained here, indirectly, by organizing the business process more efficiently. On the face of it, the circulation of intellectual property and the use of intellectual assets are similar.

Accordingly, it should be noted that the external manifestations of the use of intellectual assets are as follows:

- investment of intellectual assets in the charter capital of other enterprises;
- franchising of intellectual assets;
- leasing of intellectual assets;
- transfer of rights over intellectual assets through license agreements;
- selling intellectual assets.

As it can be seen, in order to include intellectual assets in commercial and economic circulation, their values should be determined by market prices. The mentioned evaluation operations are very complex and difficult issues.

Observations of theoretical and practical importance regarding the application of intellectual capital to production show that in the modern era, at the stage of post-industrial development, it is necessary to choose the most correct version of the intellectual capital management strategy, which includes the principles, goals and objectives, methodology and functions of intellectual capital management.

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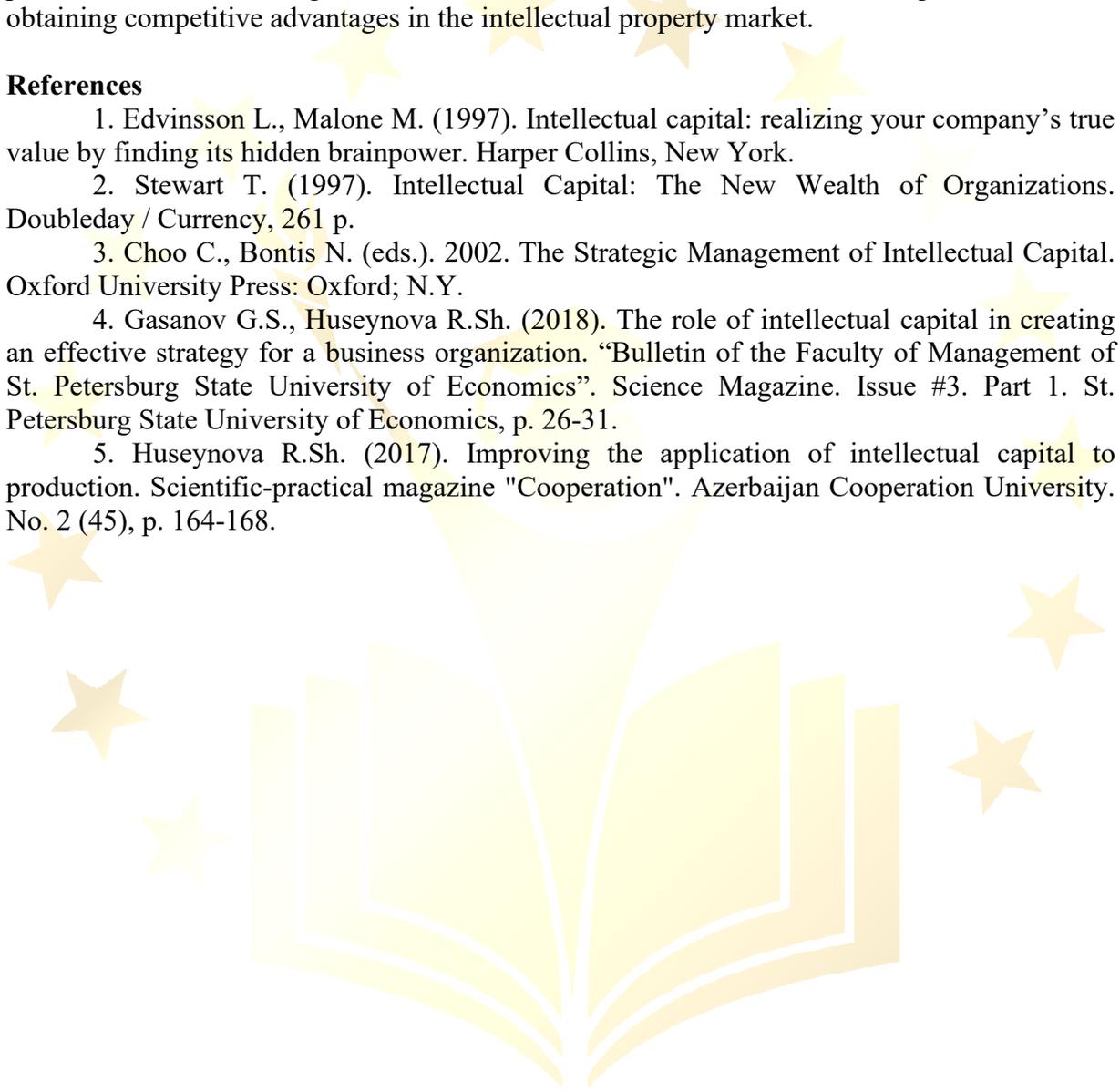
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The main goal here is to achieve the transformation of intellectual capital into corporate assets that are difficult to imitate in the market and, most importantly, have no analogues. All this enables the transformation of enterprise and company employees, personnel knowledge and powers, brands, technological innovations, new business models into intangible assets, and obtaining competitive advantages in the intellectual property market.

References

1. Edvinsson L., Malone M. (1997). Intellectual capital: realizing your company's true value by finding its hidden brainpower. Harper Collins, New York.
2. Stewart T. (1997). Intellectual Capital: The New Wealth of Organizations. Doubleday / Currency, 261 p.
3. Choo C., Bontis N. (eds.). 2002. The Strategic Management of Intellectual Capital. Oxford University Press: Oxford; N.Y.
4. Gasanov G.S., Huseynova R.Sh. (2018). The role of intellectual capital in creating an effective strategy for a business organization. "Bulletin of the Faculty of Management of St. Petersburg State University of Economics". Science Magazine. Issue #3. Part 1. St. Petersburg State University of Economics, p. 26-31.
5. Huseynova R.Sh. (2017). Improving the application of intellectual capital to production. Scientific-practical magazine "Cooperation". Azerbaijan Cooperation University. No. 2 (45), p. 164-168.



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ANALYSIS OF THE POLICY FOUNDATIONS OF THE FORMATION OF THE MODERN SECURITIES MARKET IN AZERBAIJAN

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Summary

Every culture and nation's financial system depends heavily on the securities market. Giving economic subjects access to financial services is one of the key elements in the growth of the contemporary national economy. It is inevitable that the securities market will play a part in gaining access to financial resources. It should be emphasized that one of the most crucial economic variables for the expansion and growth of the country's economy is the establishment and effective operation of the securities market in Azerbaijan. When comparing the Azerbaijani securities market to those in other nations, it is clear from an analysis of its growth how young it is. However, it should be emphasized that the recent rapid economic growth in our nation and the structural changes successfully implemented by President Ilham Aliyev of the Republic of Azerbaijan have laid significant political foundations for the growth of this industry.

Furthermore, the country's leadership's policies for economic diversification and the growth of the non-oil sector have laid a number of key foundations for the development of this industry. It is significant to note that President of the Republic of Azerbaijan Ilham Aliyev approved the State Program "Development of the Securities Market in the Republic of Azerbaijan in 2011-2020" in 2011, which is crucial for the development of this field, when analyzing the political foundations of the formation of the securities market. The key objectives for Azerbaijan in this sector are to boost market participation, raise market liquidity for securities, as well as establish values based on openness and corporate ethics in the execution of transactions. The efforts made in this regard have laid the groundwork for significant advancement in this area.

Increased market awareness, an explanation of the sector's primary advantages to the market's major participants, and the launch of the Baku Stock Exchange's Listing Advisory Program are just a few of the noteworthy developments in the sector's development during the past few years. In this article, the political underpinnings of the development of the contemporary securities market in Azerbaijan were examined, and the primary political underpinnings of the Azerbaijani securities market were identified. It should be emphasized that the development of this subject was greatly influenced by the economic reforms implemented by President Ilham Aliyev.

Keywords: President Ilham Aliyev, Securities market, Azerbaijan, Economic growth, Economic reforms

Introduction

Oil and gas resources in the Republic of Azerbaijan started to become significantly more significant to the growth of the country's economy after it attained independence in 1991. Azerbaijan negotiated agreements in 1994 with international oil firms about the production of Azerbaijani oil, and these agreements allowed Azerbaijan to sell its oil and gas in global markets and make sizable profits (Hoffman, 1999, p. 8). Additionally, over the past ten years, Azerbaijan's economic reform agenda has come to emphasize the growth of the non-oil sector and the diversification of the economy (Babayev, 2020).

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In particular, the frequent changes in the price of oil in the global market, as well as the developing trends in the international economy and politics make the broad economic reform agenda an important part of the state policy for Azerbaijan (Babayev, 2019, p.537). It should be underlined that the state is committed to implementing these changes, and they are currently being sustained for the full development of the economy. In Azerbaijan, reforms pertaining to the growth of several significant sectors are successfully ongoing. These essential sectors cover the development of regional transportation corridors, information technologies, and support for small and medium-sized businesses, among others (İsmailzadə və Babayev, 2020, p. 79; Babayev, 2020, p.92).

In addition, it should be noted that the reforms carried out under the leadership of President İlham Aliyev include the development of the country's financial subjects. It is very important to note that the development of the country's financial sector plays an important role in the formation of a sustainable economy (Babayev and Hacıyev, 2019, p. 312-219). Duisenberg (2001, p. 1) writes that the financial system, which includes financial markets, instruments, and institutions, ensures that financial resources are channeled from those with excess funds to those with a shortage of funds through direct, market-based financing or indirect, bank-based financing. Securities market is one of the forms of financial market.

As a result, the development of this industry, which is important for economic growth, requires special attention. It should be noted that the volume of the securities market, which is part of the global financial markets, is increasing day by day. Currently, the volume of securities sold in these markets is trillions of dollars. It is important to note that the total value of the US stock market alone is \$30 trillion and the total value of the bond market is \$40 trillion. There are a number of main factors that attract investors and issuers (bond issuers) to these markets (Babayev R, 2020). One of the main advantages of such markets for investors is the liquid markets. That is, the capital invested by the investor is not invested in any property, but in securities. When the investor and the individual who buys the security need money, they can quickly sell the security on the stock exchange.

In addition, the security does not wear out physically and its maintenance does not require additional costs (Babayev R, 2020). On the other hand, companies can use their securities as collateral when taking a loan from a bank. The general advantages of issuing securities to companies are recognition of companies in national, regional or global financial markets, as well as increasing the efficiency of their activities. By developing the state financial markets, it creates favorable conditions for the growth of the non-oil sector, as well as the development of entrepreneurial activity.

Securities Market

A security is a financial commodity that can be traded. The term securities is used to describe any financial instrument, but the legal meaning of the term varies depending on different legal systems (Bansal, 2017, p. 46). Bansal notes (2007, p.48) that the securities market is a part of the financial market, and in this market, securities are bought and sold on the basis of supply and demand among the subjects of the economy. Stock markets, bond markets and derivative markets can be cited as forms and examples of the securities market.

As for the forms of the securities market, primary and secondary markets are used for the exchange of securities. Primary securities markets are markets in which market participants, for example, governments and businesses, issue new securities for trading. Secondary securities markets are markets where previously issued securities are traded by market participants. In other words, secondary securities markets exist for the exchange of used securities (Glen and Madhavan, 1998, p. 2).

We live in a time where different people make different investments. Along with the financial sector and the state budget, securities are one of the most important options for financing the economy in international practice (Mammadov, 2008, p. 29-40).

By increasing the interest in the mobilization of financial capital, the securities market provides a prospective (future-oriented) and profitable redistribution of financial resources among various sectors and areas of the economy. Considering all this, it is very important to develop the securities market in Azerbaijan. It should be noted that the organization of this sector has the ability to influence the solution of these problems, which directly affect the current economy of the country. Taking into account that the securities market plays an important role for the economy, the government of Azerbaijan is implementing major reforms in this area.

The current situation of the securities market in Azerbaijan

After gaining independence in 1991, oil and gas have been the leading sectors of Azerbaijan's economy. However, in the last 10 years, the main goal of Azerbaijan has been to diversify its economy. One of the important goals of the government of Azerbaijan is to develop all sectors of the economy and reduce the economy's dependence on oil revenues in order to build a stable economy. Under the leadership of the President of the Republic of Azerbaijan, Ilham Aliyev, numerous reforms are being carried out in the direction of economic diversification, development of agriculture, regional transport corridors and support of ownership.

Thus, one of the ways to solve the liquidity problem of the economy is to strengthen the securities market in Azerbaijan. In order to develop this field, the President of the Republic of Azerbaijan Ilham Aliyev approved the State Program "Development of the securities market in the Republic of Azerbaijan in 2011-2020" in 2011. As a result of the implementation of the State Program "Development of the securities market in the Republic of Azerbaijan in 2011-2020", great support was given to the development of the securities market (E-law, 2011).

The approved document states that the Securities market is a series of economic relations reflecting the issuance and circulation of securities among market participants. Securities are the main object of the securities industry. At the same time, the document states that the securities market is one of the most relevant markets in the current market economy. The strategic document is the main document prepared by the government of Azerbaijan, which explains the definition of the securities market in Azerbaijan, and is one of the main strategic documents that plays an important role in the formation of the main political basis of the formation of the securities market in our country. As for the legislative framework of the securities market in Azerbaijan, this sector is regulated by the Law of the Republic of Azerbaijan "On the Securities Market".

It is significant to highlight that trading in stocks, corporate and governmental bonds, as well as derivatives based on currencies and commodities, is currently possible in Azerbaijan. There are dealers that compel the primary market participants to purchase certain corporate bonds and various derivatives at any time on the domestic market, which is a factor that promotes supply and demand. Simplifying documentation and speeding up account opening procedures are only two of the steps and initiatives Azerbaijan has taken to draw in foreign investors. The growth of this industry will be accelerated in the future by specific tax and transparency improvements. In order to raise awareness, it is also advised that the government launch another awareness effort in this area.

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The State Program "Development of the securities market in the Republic of Azerbaijan in 2011-2020" approved by the President of the Republic of Azerbaijan Ilham Aliyev in 2011 considered a number of measures for the development of the sector, which included the mobilization of temporary free financial resources for certain investments, the world formation of market infrastructure that meets the standards, development of secondary market of securities, determination of ownership relations, improvement of market mechanism and management system, provision of real control of fund capital based on state regulation, reduction of risks for investments, formation of portfolio strategy, development of pricing, as well as prospective development directions includes forecasting (E-qanun, 2011, p-2-4).

In general, the most sold investment instrument in the securities market of Azerbaijan is defined as bonds of the State Oil Company of the Republic of Azerbaijan (SOCAR). These securities are SOCAR bonds issued by the State Oil Company. These bonds are designed for the domestic market. SOCAR Bonds account for more than 76% of transactions in the Azerbaijan bond market (Banco.az, 2017). The growth of the capital markets can be seen as a result of President Ilham Aliyev's solid and long-term economic strategy in Azerbaijan. Thus, by ensuring the diversity of financial instruments and the depth of financial markets, the development of the securities market, which is a key component of the state's financial policy, broadens the scope of the non-oil economy.

Currently, the interest of the companies operating in the public and private sector in Azerbaijan to the securities market is increasing day by day. It would be important to note that the issue of bond securities of the Azerbaijan state-owned "AzerGold" (a state-owned gold company) through an initial public offering is a clear example of this. The bonds offered by "AzerGold", one of the leaders in the field of precious metals in the non-oil industry, create conditions for the diversification of the company's financial resources and directing its resources to new projects, the development of the country's securities market, as well as profitable and reliable investment opportunities. This, in turn, gave the company the opportunity to make low-risk, high-yield profits against the background of the negative impact of the coronavirus pandemic on the world economy.

In addition, citizens - individuals and legal entities will have the opportunity to contribute to the development of the national economy and mining industry with "AzerGold" bonds. Both institutional (banks, insurance companies, investment companies) and individual investors (individuals) will earn 4% per annum by purchasing AzerGold bonds from the initial public offering market. The nominal value of the bonds is 100 US dollars, the maturity is 3 years, and the volume is 20,000,000 dollars. Bonds are sold at an auction at the Baku Stock Exchange. Interest is paid quarterly to investors four times a year. These conditions are currently considered one of the most favorable offers for the country's financial market (Babayev, 2020). Some of the work done towards the development of this sector in recent years includes increasing market awareness, explaining the advantages of the sector to key issues, as well as establishing the Listing Advisory Program of the Baku Stock Exchange.

Analysis of the Political Foundations of Securities Market Formation

In Azerbaijan, the first stock market institute was founded in 1991. At the same time, a new phase in the development of the securities market began in 1991 as a result of the Cabinet of Ministers of the Republic of Azerbaijan's decision "On the issuing of short-term government bonds." Thus, the initial legal foundation for the stock market was established as a result of the privatization process's start in 1996. As a result, on July 14, 1998, the Republic of Azerbaijan's government approved the "On the Stock Market" law.

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The State Committee on Securities under the President of the Republic of Azerbaijan was founded on December 30, 1998, serving as a regulatory body. All these phases resulted in the establishment of the Republic of Azerbaijan's first stock market regulatory framework in 1998–1999, encouraged the growth of commercial and governmental securities, and thereby strengthened the foundation for the market's future development.

The Baku Stock Exchange market was established in 2000 by 19 of the top banks and financial institutions in the nation using private cash. This was the committee's first move and had a significant impact on the institution's economic growth and the recruitment of foreign direct investments. On September 1, 2000, the first trading transaction was noted, which mostly involved a security issued by the government. But beginning in 2001, more businesses in the private sector started to sell their shares, which gave the industry a strong foundation, financial security, and demand (Mammadov, 2008, pp. 29-40).

The law titled “State Program for the Development of the Securities Market in the Republic of Azerbaijan in 2011-2020,” which was adopted by President Ilham Aliyev, will affect how the country's stock market develops in the next years. Authorities from the government continue to administer this initiative since it is still necessary (Babayev R, 2020). Since it was signed on May 16, 2011, the program's primary objectives have been to raise the securities market to an international level, automate the synchronization of the local market with the global market, increase the services provided to clients, and establish a securities market at a modern level (E-law, 2011, p. -5-8). Three phases of implementation comprised the state program.

The first phase, which spanned the years 2011 through 2014, saw government officials concentrate on creating securities market tools at the institutional level in order to compete with the global market.

The nation is currently working to complete meeting the requirements of the securities market and opening its borders to foreign trade. The laws and modifications put into effect under the direction of the President of the Republic of Azerbaijan, Ilham Aliyev, make this abundantly evident. It can be seen that the government has set the securities market as one of its improvement priorities in the development concept “Azerbaijan 2020: a vision of the future” that was signed by the President in 2012. The institutional development of the market, the growth of corporate investments and the development of supporting instruments, the improvement of market transparency, and other objectives were mostly accomplished during this time. It is significant to highlight that every objective stated during this time period has been accomplished.

The second phase, which spans the years 2015 to 2017, focuses primarily on regional development and expansion. As an issuer at the time, SOCAR had a significant impact on the movement of securities. The third stage, which actually began in 2018 and is still going on, is distinguished by an increase in the securities market's cyclicity and the entry of more active players. During that time, SOCAR issued a further bond with a face value of \$1000 for a term of five years, yielding 5% to the bondholder. The local populace had little trouble purchasing the bonds that SOCAR had issued. As a result, SOCAR discovered a local funding source without really contacting foreign financial institutions. As a result, each person of the nation contributed to the local financing of SOCAR and earned 5% of the proceeds.

Results

Development of financial markets in the country leads to effective use of existing economic resources. The development of the securities market provides ample opportunities for companies to finance both large and private projects, as well as to attract debt funds. Also, the value of securities is formed based on information about the issuer of securities.

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In this case, the development of the financial security market leads to a more efficient allocation of resources and the adoption of efficient investment (capital investment) decisions. This factor determines the superiority of the securities market circulation over the banking sector. Thus, the need for companies to disclose information leads to the dissemination of this information and making investment (capital investment) decisions more efficient. Banks receive the information themselves and make their decisions based on this information. Financial securities also respond to the efficiency of companies and actually control the management of companies.

The following positive results can be noted while evaluating the results achieved in the establishment of the securities market of Azerbaijan. The necessary trading infrastructure has been established, which is now quite efficient and developed even compared to the most mature markets. Professional intermediaries and their employees are quite competitive and able to perform their functions efficiently. The legislation is detailed and meets the best international standards. However, in the coming years, more educational work should be done regarding the market participants, and the transparency of the sector should be increased. The establishment of the Baku Stock Exchange and the implementation of reform programs in the sector are promising.

However, as mentioned earlier, the financial securities market in Azerbaijan has not been able to fully realize its potential, despite the fact that SOCAR bonds are the most popular product. Although a training center on financial markets was established by the previous Financial Markets Control Chamber of the Republic of Azerbaijan, the center failed to achieve its goal in terms of increasing awareness of financial markets, especially the securities market, and was closed as a result. There is a need to bring this sector to the attention of the government within the current reform agenda.

LITERATURE

Azernews. (2018). AASMP: Azerbaijan's stock market uses just small part of its potential. <https://www.azernews.az/business/136745.html>.

Babayev, B. (2019). Studying the case of the UAE in Economic Diversification and NonOil Export Growth: Public Policy Lessons for Azerbaijan. *Journal of Economic Sciences: Theory & Practice*, 76(2). 70th International Scientific Conference on Economic and Social Development – Baku, 25-26 June, 2021 74

Babayev, B. (2020). Main Directions of the Non-Oil Export Sector in Azerbaijan. *Journal of Economic Sciences: theory and practice*, 77(1), 92-99.

Babayev, B. N. O. (2019). Main Directions of the Non-Oil Export Sector in Azerbaijan. *Problems of Economic Transition*, 61(6), 537-548.

Babayev, B., & Hajiye, N. (2019). Building An Innovation Ecosystem In Azerbaijan-On The Basis Of The Study Of Israeli Practice. *Economic and Social Development: Book of Proceedings*, 312-319.

Babayev, R. (2020). Qiymətli kağızlar bazarı yenidən canlanır: Bazarın yeni iştirakçıları hansı perspektivlər vəd edir? *Azergold*. <https://azergold.az/media/press-relizler/qiymetli-kagizlar-bazari-yeniden-canlanir-yeni-istirakciları-hansi-perspektivler-ved-edir>

Banco.az. (2017). Azərbaycanca ən çox alınan qiymətli kağız – MƏLUM OLDU. <https://banco.az/az/article/azerbaycanda-en-cox-alinan-qiymetli-kagiz-melum-oldu>

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WEB: <https://www.libertyacademicbooks.com/libertyconference>

E-MAIL: editor@libertyacademicbooks.com

Bansal, M. K (2017). Evolution and Contribution of Security Market in Economic Development of India. International Journal of Business Administration and Management 7 (1).

Duisenberg, W. F. (2001). The role of financial markets for economic growth. The Single Financial Market: Two Years into EMU. Oesterreichische Nationalbank, Vienna, 31.

E-qanun. (2011). “2011-2020-ci illərdə Azərbaycan Respublikasında qiymətli kağızlar bazarının inkişafı” Dövlət Proqramının təsdiq edilməsi haqqında . <http://www.e-qanun.az/framework/21672>

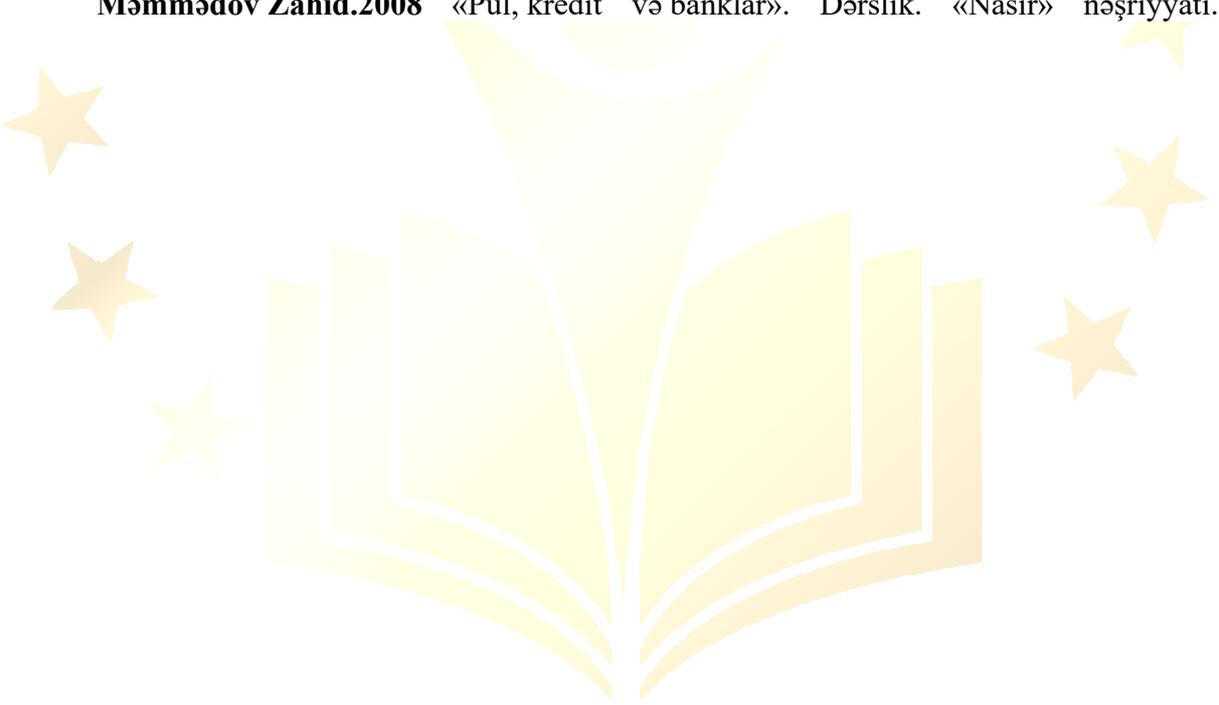
Glen, J., & Madhavan, A. (1999). Primary securities markets in emerging nations: A case study of Peru. Emerging Markets Quarterly, 3, 30-37.

Hoffman, D. I. (1999). Oil and development in post-Soviet Azerbaijan. NBR ANALYSIS, 10, 5-28.

Ismailzade, F., & Babayev, B. (2020). Strategic advantages of transport network in the Caspian sea region. Розвиток методів управління та господарювання на транспорті, 4(73), 79-91.

Kasumov, A. (no date). Security Market in Azerbaijan. UNESCAP. https://www.unescap.org/sites/default/files/Session%2010_Mr.%20Asif_Azerbaijan.pdf

Məmmədov Zahid.2008 «Pul, kredit və banklar». Dərslik. «Nasir» nəşriyyatı.



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“MİLÇƏKLƏRİN TANRISI” ƏSƏRİNDƏ GİZLƏDİLMİŞ İNSAN PSİKOLOGİYASI

Bağırzadə Lalə

ÖZET

Villiam Golding İngilis ədəbiyyatının önə çıxan adlarından biri olmuşdur. Əsərləri ilə daim insan psixologiyasının dərininə işıq salan yazıçı 1954-cü ildə “Milçəklərin Tanrısı” romanını qələmə almışdır. Romanı ilk vaxtlar heç bir nəşriyyat qəbul etməmişdir, lakin kitab çap olunar-olunmaz yazıçıya böyük şöhrət gətirmişdir. Romanda cəmiyyətdəki problemlərin insanların qüsurlarından yarandığını, hətta keçici xarakter daşdığına dair məsələlər önə çəkilmişdir. Yazar bu əsərində uşaqların davranışında əslində böyüklərin barbar davranışlarına güzgü tutmuşdur. 6-12 yaş aralığındakı uşaqları müharibədən uzaqlaşdıran təyyarə qəzaya uğrayar və insan tərəfindən kəşf edilməmiş, cənnət kimi gözəlliyə malik bir adaya düşürlər. Əsərdə Ralph demokratik, Jack avtoritar, Simon spiritüel, Roger vəhşi qüvvənin, Donuzcuk isə intellektual gücün simvoludur. Donuzcuğun Roger tərəfindən öldürülməsi, vəhşi qüvvənin intellektual güc üzərindəki hakimiyyətinin göstəricisidir. Yazar bununla barbarlığın hələ də öndə olduğuna diqqət çəkmək istəmişdir. Golding bu romanı Nasizm siyasətinə qarşı olaraq yazmışdır. Onun düşüncələrinə görə insanları içlərindəki vəhşiliyin ortaya çıxmasından qorumağın əsas yolu onları müəyyən qanunlar içərisində yaşatmaqdır. Normaların yox olması insanlar arasındakı iqtidar hissənin ortaya çıxmasına səbəb olmuşdur. Romanın sonunda Ralphın digər uşaqlar tərəfindən öldürülməyə çalışılmağı, demokratik düşüncənin nə qədər az olduğuna işarə edilmişdir.

Açar sözlər: güc, liderlik, roman, qorxu, daxili psixologiya.

HIDDEN HUMAN PSYCHOLOGY IN “GOD OF THE FLIES”

ABSTRACT

William Golding was one of the prominent names of English literature. The writer, who constantly explores human psychology with his works, wrote the novel "The Lord of the Flies" in 1954. At first, the novel was not accepted by any publishing house, but the book brought great fame to the unpublished writer. In the novel, the problems in the society are caused by the defects of people, and even they are transient. In this work, the author has actually mirrored the barbaric behavior of adults in the behavior of children. A plane carrying children between the ages of 6 and 12 away from the war crashes and they land on an undiscovered island of paradise-like beauty. In the work, Ralph is democratic, Jack is authoritarian, Simon is spiritual, Roger is a symbol of brute force, and Piglet is a symbol of intellectual power. Roger's killing of the pig is an indication of the power of brute force over intellectual power. The author wanted to draw attention to the fact that barbarism is still ahead. Golding wrote this novel against the policies of Nazism. According to his thoughts, the main way to protect people from the emergence of brutality in them is to make them live within certain laws. The disappearance of norms leads to the appearance of power anger among people. At the end of the novel Ralph is tried to be killed by the other children, it is pointed out how little democratic thinking there is.

Keywords: power, leadership, novel, fear, inner psychology.

William Golding İngilis ədəbiyyatının önə çıxan adlarından biri olmuşdur. Əsərləri ilə daim insan psixologiyasının dərininə işıq salan yazıçı 1954-cü ildə “Milçəklərin Tanrısı” romanını qələmə almışdır. Romanı ilk vaxtlar heç bir nəşriyyat qəbul etməmişdir, lakin kitab çap olunar-olunmaz yazıçıya böyük şöhrət gətirmişdir.

Romanda cəmiyyətdəki problemlərin insanların qüsurlarından yarandığını, hətta keçici xarakter daşdığına dair məsələlər önə çəkilmişdir. Yazar bu əsərində uşaqların davranışında əslində böyüklərin barbar davranışlarına güzgü tutmuşdur. 6-12 yaş aralığındakı uşaqları müharibədən uzaqlaşdıran təyyarə qəzaya uğrayar və insan tərəfindən kəşf edilməmiş, cənnət kimi gözəlliyə malik bir adaya düşürlər. Kimsəsiz ada da bir müddət sonra uşaqlar öz qanunlarını qoymağa başlayar və bununla da necə vəhşiləşdiklərinin şahidi olarıq. Golding uşaqların simasında böyükləri kiçildərək necə mənəviyyatsız-laşdıqlarını göstərmək üçün distopya yaratmışdır. Əsər insanın heç bir zaman dəyişməyən, sadəcə olaraq gizlədilməyə çalışılan pisliliyə yönələn meylinə həsr olunmuşdur. Lakin yazıçı yalnız bunu göstərməyə çalışmamış, həm də onun həlli yolları barədə də düşüncələrini qələmə almışdır. Goldingə görə insanın mənəvi pisliliklərdən uzaqlaşmasının yolu mədəniyyətə qovuşmağıdır. O, yaxşılıq və pisliliyin insan üzərində təsirlərini göstərmək üçün əsas iki obraz seçmişdir. Bu obrazlardan yaxşılığı təmsil edən Ralph və pisliliyin təcəssümü olan Jackdir. Lakin roman içində Ralph və ya Jackı tamamilə yaxşı və pis deyərək adlandıra bilmirik. Romanın əsas qəhrəmanları bunlar olsalar da, əsərdəki heç bir pislilik bilməyən Simon və pisliliklə şeytani belə geridə qoyacaq olan Roger əsas qütbləşmə hesab oluna bilər.

Digər bir önəmli mövzu isə güc və liderlikdir. Bu gücün ilk göstəricisi dənizqabığıdır. Dənizqabığını ilk tapan “Donuzcuk” ləqəbli uşaq olur və daha əvvəldə belə bir qabıq gördüyünə görə onu necə istifadə etmək lazım olduğunu bilir. Donuzcuk “bu dənizqabığı kimdə olsa, söz haqqı da onda olmalıdır.” ideyasını ortaya atır. Bundan sonra uşaqlar özünə bir lider seçməyə məcbur olurlar. Bu zaman dənizqabığı Ralphın əlində olar və bunun təsiri ilə uşaqlar Ralphı özlərinə lider seçirlər. Dənizqabığı kimdədirsə, danışmaq haqqının onda olması adadakı demokratik fikirlərin var olduğunu göstərir.

Ada digər güc simvolu Donuzcuğun eynəyidir. Çünki onun vasitəsilə ocaq yandırılır və bu da ilk olaraq Ralphın ağına gəlmişdir. Donuzcuğu yanında tutaraq Ralph bu gücü əlində saxlamışdır. Lakin liderlik ruhu təkə Ralphda deyil, həm də Jack bu liderliyə maraqlıdır. Romanın sonlarına yaxın Donuzcuğu öldürüb, eynəyi oğurlayaraq Ralph üzərində bir hakimiyyətə malik olur. Jack eynəyi ovladığı donuzları bişirmək üçün oğurlayır, bu hərəkəti ilə duman vasitəsilə xilas olma ümidi olan uşaqların da ümidlərini əlindən almış olur. Berlenin dediyi kimi “Güc dünyəvidir. Hər kəs böyük ya da kiçik ölçüdə, qısa ya da uzun bir zaman ərzində onu əlində tutmağa çalışır”. Biz bunu romanda bütün obrazların simasında görürük. Hər biri güc sahibi olmaq ruhundadır, lakin bu savaşa daha güclü olanlar önə çıxdı. Əsərdə Ralph demokratik, Jack avtoritar, Simon spiritüel, Roger vəhşi qüvvənin, Donuzcuk isə intellektual gücün simvoludur. Donuzcuğun Roger tərəfindən öldürülməsi, vəhşi qüvvənin intellektual güc üzərindəki hakimiyyətinin göstəricisidir. Yazar bununla barbarlığın hələ də öndə olduğuna diqqəti çəkmək istəmişdir.

“Milçəklərin tanrısı” romanını daha yaxşı anlamaq üçün hər bir obraza ayrılıqda və bir-biri ilə qarşılıqlı münasibətdə nəzər yetirmək lazımdır.

Ralph

Adadakı ən böyük uşaqlardan biridir və roman boyu liderliyini davam etdirir. Donuzcuğun ağıl sayəsində öz hakimiyyətini qoruyurdu. Romanda Ralph daha çox əxlaq cərəvəsində liderlik etdiyi üçün daim diqqət mərkəzində olmuşdur. Mədəni davranışları, demokratik sistem qurması, uşaqlara bərabər şəkildə yanaşması oxucuda vəhşilik içərsində belə insanlığın var olduğuna ümid bəslətməkdir. Ralph düşükləri adadan xilas olmağın yolunu axtaran və böyük ümidi olan obrazdır. Lakin yenə də qərarlı deyil. Çünki adada canavarın var olduğunu biləndə qorxuya qapılır və bəzən səhvlər edə bilər. Jack avtoritar siteminə qarşı çıxmaması, hətta yeri gəldikdə liderliyi buraxmaq istəməyi, bununla belə Jackın qəbiləsinə qoşulmağı və Simona edilənlərə qarşı çıxmamağı, əslində pisliyə məğlub olmağın nə qədər rahat olduğunu göstərməkdədir.

Jack

Güc baxımından Ralphın ən böyük rəqibidir. Pisliyi təmsil edən Jack uşaqları öz diktatorluq sistemi ətrafında toplamaq istəyindədir. Jackın qrupunda olan uşaqlar əslində onun kimi pisliyin tərəfdarları deyillər, sadəcə olaraq gücsüzdürlər. İnsanın yaradılış şəkli elədir ki, hər zaman zəif xarakterlər idarə olunmağa meyilli olurlar. Bu uşaqlar da zəiflik, aclıq və digər səbəblər ucbatından Jackın qrupuna daxil olmuşdurlar. Jack roman boyu dinamik inkişafda olmuş və əsərin sonuna doğru bir vəhşiyyə çevirilmişdir. İlk donuz ovunda balaca donuzu vurmağa ürəyi gəlməyən Jack zamanla artıq daha da qəddarlaşır. İkinci ov zamanı balalarının yanında ana donuzu öldürməsi Jack və Rogerin əsl simasını açır. Romanda bəzən Jack Hitler rejminin təmsilçisi kimi də göstərilməkdədir. O daxilən nə qədər qəddar olduğunun fərqiindədir və üzünə çəkdiyi boyalarla bir növ şəxsi kimliyindən gizlənməyə çalışmaqdadır. Uşaqların canavar əhvalatına inanlardan ilki Jack olmuşdur. Çünki o öz içindəki canavardan xəbərdardır və belə bir şeyin var olmağına inanır. Simonun, Donuzcuğun ölümünə səbəb olması, Ralpha etdiklərinə, əsasən, Jackın simasında pisliyin necə hakimiyyət əldə edə biləcəyini görürük.

Donuzcuk

Emosional və gücsüz olan bu uşaq adadakı yoldaşları içində ən intellektual olanıdır. Fiziki görünüşü baxımından digər uşaqlar tərəfindən hər dəfə təhqir olunan Donuzcuk, heç kimin görə bilmədiyi təhlükələri duymaq iqtidarındadır. Lakin Ralph xaric digər uşaqlar tərəfindən çoxda ciddiyyə alınmamaqdadır. Dənizqabığını tapan, ocağı yandırmaq, sığınacaq tikmək kimi məntiqli fikirlərin hamısı Donuzcuk tərəfindən irəli sürülmüşdür.

Simon

Bu obraz romanın ən mistik və bənzərsizidir. Ralph və Jack arasındakı güc savaşında tərəf tutmayan yeganə obrazdır. Simon yaxşılığın bütünlənmiş bir nümunəsidir. Sipiitual hissələrə malik Simonu bəzi tədqiqatçılar roman içində İsa peyğəmbərin obrazı kimi dəyərləndirirlər. Miləçəklərin tanrısının nə olduğunu bilən və canavarın var olmadığını dərk edən tək obraz Simondur. O “bizdən başqa canavar yoxdur” deyərək insanlığın necə bir xəstəliyə düşər olduğunu göstərir. Canavarın əslində insanların içindəki pislik olduğunu dərk edən Simon bunu uşaqlara xəbər vermək üçün dağdan enir və onu canavar hesab edən uşaqlar tərəfindən öldürülür.

Roger

Uşaqlar içərisində ən cəsurdur. O özünü göstərmək üçün liderlərə ehtiyac duymayan sadist ruhlu bir obrazdır. Qəddarlıq etmək üçün ən kiçik hadisə belə hərəkətə keçməsi üçün səbəb ola bilər. İlk başlarda kiçik uşaqlara qarşı zorbalıq etməyə çalışsa da, cəmiyyətdəki əxlaq davranışları üzündən bundan yayınar, amma zamanla bütün mənəvi kimliyini itirər və amansız birinə çevirilər.

Milçəklərin tanrısı

Canavarın varlığına inanan Jack və digər uşaqlar ovladıqları donuzun başını bir mızrağa keçirib ona hədiyyə olaraq təklif etdiklərini düşünərək meşəyə qoyarlar. Buna da Milçəklərin tanrısı adı verilir. Qədim inanışa görə cəhənnəm hökmdarı, donuz mələyinin şefi Baalzebub, yəni milçəklərin tanrısı olaraq adlanırmış. Milçəklərin tanrısının insan nəfsini, kibrimini bəsləyən pisliliyi simvolizə etdiyi düşünülməkdədir. Goldingin anlatmağa çalışdığı insanın içindəki pisliliyin şeytanla birgə yaşadığını göstərməkdir.

Uşaqlar içində yalnız Simon Milçəklərin tanrısının nə olduğunu anlayır. Onunla qarşılaşdıqda, Milçəklərin tanrısı ona gülərək, “Sən bilirdin deyilmi? Sizlərin bir parçası olduğumu bilirdin? Hər şeyin baş vermə səbəbi mənəm. Bunu bilirdin deyilmi?” deyər. Bununla da Simon canavarın var olmadığını sadəcə içimizdə yaşadığını yenidən dərk edər. Uşaqların canavar bildiyi varlıq isə ölü bir paraşütdür.

“Milçəklərin tanrısı” əsərində uşaqların düşünüldüyü kimi bir mələk qədər təmiz olmadığını, onların da müstəqil bir insan olduğunu və nə qədər çalışılsa da, bəzi duyğuların yox edilə bilmədiyinin yazıçı tərəfindən çatdırıldığını görürük. Əsərdə canavar insanın içindəki qəddarlıq, milçəklər isə uşaqlardır.

Bu roman oxucular tərəfindən daim sevilərək oxumaqdadır. Son illərdə dünyada müharibələrin yenidən başlaması bu əsərə olan münasibətin yenidən aktivləşməsinə səbəb olmuşdur. Romanın mövzusu məşhur filosof Şopenhauerin bu sözləri ilə səsləşməkdədir:

“Əslində insan vəhşi və qorxunc bir heyvandan başqa bir şey deyil. Biz onu əhliləşdirilmiş və təmkinli bilirik, buna sivilizasiya deyirik. Ona görə də hərdən onun əsl mahiyyəti üzə çıxsın, dəhşətə gəlirik. Qanunun və asayişin buxovları və zəncirləri boşaldıqda özünü bütün çılpalığı ilə, amansız qəddarlığı ilə ortaya qoyur. Gündəlik həyatda kiçik miqyasda və tarix səhifələrində geniş miqyasda üzə çıxdığı kimi, hər bir insanda böyük bir hürriyyətlə hüquq və ədalətin sərhədlərini pozan böyük bir eqoizm vardır. Avropada qəbul edilən güc balansına ehtiyac, insanın yanında zəif bir insan görün kimi dərhal onun üstünə atılan ov heyvanından heç bir fərqi olmadığını göstərmirmi? Gündəlik münasibətlərdə də belə deyilmi? Məncə, varlığın daimi iztirabları ilə getdikcə daha da acılaşan yaşamaq istəyi, başqalarına əziyyət verməklə öz dərini yüngülləşdirmək axtarışdır. Amma bununla da insan öz içindəki əsl qəddarlığı, pisliliyi getdikcə daha çox qidalandırır. Buna aşağıdakı müşahidəni də əlavə etmək olar: Kanta görə, materiya ancaq genişlənən və daralan qüvvələrin qarşılıqlıması ilə yaşaya bildiyi kimi, insan cəmiyyətləri də ancaq qorxu ilə nifrət və ya qəzəb toqquşmasında özünü saxlaya bilər...”

Golding bu romanı Nasizm siyasətinə qarşı olaraq yazmışdır. Onun düşüncələrinə görə insanları içlərindəki vəhşiliyin ortaya çıxmasından qorumağın əsas yolu onları müəyyən qanunlar içərisində yaşatmaqdır. Normaların yox olması insanlar arasındakı iqtidar hissənin ortaya çıxmasına səbəb olmuşdur. Romanın sonunda Ralphın digər uşaqlar tərəfindən öldürülməyə çalışılmaması, demokratik düşüncənin nə qədər az olduğuna işarə edilməkdir.

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ƏDƏBİYYAT SİYAHISI

1. GOLDING, W. (2008). Sineklerin Tanrısı. (Çev.) Mina Urgan. İstanbul: Türkiye İş Bankası Kültür Yayınları.

2. Mina Urgan: İnsanların içindeki kötülük; Sineklerin Tanrısı

3. Vedi Aşkaroğlu, Sineklerin Tanrısı: İnsanın Özünün ve Diktatörlük Çağının Anlatısı, s:358

4. <https://www.edebiyathaber.net/sineklerin-tanrиси-ya-da-insani-kotuluk-uzerine-emel-bayrak/>

5. <https://www.neokuyorum.org/ayrimcilik-literaturu-baglaminda-william-goldingin-sineklerin-tanrиси-eserinin-incelesmesi-nida-boz/>

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GAGAUZ EDEBİYATINDA NİDÂ SANATININ SEMANTİK PERİYOTTA ANALİZİ

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ÖZET

Yazınsal olgunun semantik düzleminde reaksiyona giren duygu ve düşünce eksenini, söz sanatları basamağında işlenerek betim kuşağında özgün bir izlenim yaratmaktadır. Bu nedenle sanatçının düş merceğinden yansıyan bürünsel motifler, sanatsal imajın sıra dışı sesletimini odağa taşımakta, gramatikal ögenin imgelem potansiyelini açığa çıkarmaktadır. Hayal izleğini sanat vektörüyle birleştiren bu estetik dizge, düşsel boyutta beliren gizil örüntülere lirik ve otantik bir ivme kazandırmaktadır. Polisemi yapıyı güçlendiren söz konusu özgün tasarımı, edebi sanatlar dairesinde şekillenen nida sanatı ile harmanlanmaktadır. Böylece anlatım mekanizmasına âhenk ve heyecan yüklenmekte, söylem piramidi estetik katmanda yeniden inşa edilmektedir.

Çalışmada coşkun hislerin anlamsal bileşimini simgeleyen nida sanatına vurgu yapılmış, armoni yelpazesindeki saklı ifadeye dikkat çekilmiştir. Yorumsal güç aracılığıyla çözümlenen bu kinestetik desen metin bağlamında anlamlandırılmıştır. Gagauz literatürüne özgü taranan metinler seslenme unsuru doğrultusunda incelenmiş, doküman analizi metoduyla irdelenmiştir. Araştırmaya yönelik teorik açılımın veri kapsamı anlambilim süzgecinden geçirilmiştir.

Çalışmada etkin bir seslenişin hissel yoğunluğunu işleyen nida sanatının, ünlem veya ünlem değerindeki sözcükler vasıtasıyla acı, öfke, üzüntü ve korku gibi duygusal izdüşümleri kişilere ya da kişileştirilen varlık, olay ve olgulara hissettirdiği görülmüştür. Teşhis ve tekrar sanatıyla kimi zaman aynı çizgide konumlanabilen bu aktif birimde dilin estetik bir görünüm sergilediği tespit edilmiştir. Düş ile gerçeğin birleşim noktasında yoğun bir coşkuyla iletilen bu aktif sesleniş, dilin anlam ve sembolik gücünü işleme yetisini görünür kılmıştır. Sanatçının duygu şemasındaki heyecanın yükselişe geçtiği an'ı sembolize eden nida, hitabet ögesini anlam dağarcığında tekrar dizayn etmiştir. Semantik periyoda coşkun ve estetik bir sınır çizilemek adına, görünüm itibarıyla tekrar sanatına çağrışımsal bir yönelim arz ettiği, buna karşın işlevsel açıdan bütünüyle farklı bir donanıma sahip olduğu belirmiştir. Düşünsel önermenin aktif iletimini sağlayan nida sanatı, Gagauz edebiyatına güç ve derinlik katarak anlatıma estetik bir renk katmıştır.

Anahtar Kelimeler: Gagauz edebiyatı, nida sanatı, semantik, estetik, analiz.

ANALYSIS OF INTERJECTION ART IN GAGAUZ LITERATURE IN THE SEMANTIC PERIOD

ABSTRACT

The axis of emotion and thought, which reacts on the semantic plane of the literary phenomenon, is processed at the level of rhetoric, creating a unique impression in the descriptive generation. For this reason, the prosodic motifs reflected through the artist's dream lens bring the extraordinary pronunciation of the artistic image into focus, revealing the imagination potential of the grammatical element. This aesthetic system, which combines the theme of imagination with the vector of art, gives a lyrical and authentic impetus to the hidden patterns that appear in the imaginary dimension.

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The original design, which strengthens the polysemy structure, is blended with the art of interjection, which is shaped in the department of literary arts. Thus, harmony and excitement are loaded into the expression mechanism, and the discourse pyramid is reconstructed in the aesthetic layer.

In the study, the art of interjection, which symbolizes the semantic combination of exuberant feelings, was emphasized, and attention was drawn to the hidden expression in the harmony spectrum. This kinesthetic pattern, which is analyzed through interpretive power, is interpreted in the context of the text. The scanned texts specific to the Gagauz literature were examined in line with the addressing element and were examined with the document analysis method. The data coverage of the theoretical perspective for the research has been filtered through semantics.

In the study, it has been seen that the art of interjection, which processes the emotional intensity of an effective call, makes emotional projections such as pain, anger, sadness and fear to people or personified entities, events and phenomena through exclamation or exclamatory utterances. It has been determined that the language exhibits an aesthetic appearance in this active unit, which can sometimes be positioned in the same line with the art of diagnosis and repetition. This active appeal, conveyed with intense enthusiasm at the junction of dream and reality, made the language's ability to process meaning and symbolic power visible. Interjection, which symbolizes the moment when the excitement in the artist's emotional scheme rises, has redesigned the element of rhetoric in its meaning. Therefore, in order to draw an exuberant and aesthetic boundary to the semantic period, it has been revealed that it has an associative orientation to the art of repetition, but it has a completely different equipment in terms of functionality. The art of calligraphy, which provides the active transmission of intellectual proposition, has added an aesthetic color to the expression by adding strength and depth to Gagauz literature.

Keywords: Gagauz literature, the art of interjection, semantics, aesthetics, analysis

GİRİŞ

Şiirsel üslubun duygu atmosferinde beliren coşku, heyecan, sitem, merak ve şaşkınlık tarzındaki tinsel motifler ile genellikle “ey, hey, ya” türündeki sesleniş örüntüleri nidâ sanatını işaretlemektedir. Ancak ünlemsel desenler olmadan da seslenme eylemi gerçekleşebilmektedir. Nidâ; olay, olgu, düş ve sezgileri coşkunun bir dille yansıtan, söylemi ahenk düzleminde görünür kılan aktif ve yaratıcı bir desenleme işlemidir. Nidâ unsuru aracılığıyla betimlenen dizgeler sanatçının his periyodunun yoğun etkileşimini sembolize etmektedir. Seslenme sanatının esas gayesi, anlatım dokusuna estetik güç ve heyecan yüklemektir. Düşünce tablosundaki his şeridini sağlamlaştıran nidâ, sanatsal tepkimeyi etkin kılmaktadır. Coşku ögesinin doruğa vardığı an'ı resmeden sanatçı, nidâ sanatının retorik yörüngesinden ilham alarak anlam yelpazesini çok katmanlı yapıya dönüştürmektedir.

Nazımda veya nesirde; korku, sevinç, şaşkınlık, acı, öfke gibi güçlü duyguları ifade etmek gayesiyle başvuru olan heyecana bağlı bir edebi sanat (Köklügiller, 2009: 231) olan nidâ; anlatıma güç kazandırmak için okuyucuya ya da odağındakilere seslenmedir (Karadağ, 2000: 228). Nidâ; cümlelerin anlam ve akışını kuvvetlendirmek, vurguyu sağlamlaştırmak, ruhun heyecan ve hüznelerini yansıtmak amacıyla yapılan seslenme sanatıdır (Elgün, 2000: 180). Daha doğrusu muhatapın ilgi ve dikkatini çekebilmek adına, onunla iletişim kurmayı talep etmektir (Akt. Maral, 2019: 6). Nidâ; “ey, hey” gibi ünlemlerle ya da olumlu ve olumsuz fiillerin emir şekilleriyle seslenmektir. Buna karşın seslenen varlık her zaman insan olmayabilir (Tanç, 2006: 15). Nidâ denildiğinde akla her ne kadar seslenme edatları gelse de edat olmadan da nidâ yapılabilir (Selçuk, 2017: 1040).

BULGULAR

Gagauz edebi metinlerinden elde edilen verilerin semantik periyottaki analizi, nidâ sanatının görünüm düzleminde şu şekilde yansımıştır:

1.

Ey, Ata, gel da bak benim milletimâ –
o da senin gibi kula, maavi gözlü,
senin gibi girgin, derin köklü,
emin basmaz, hodul hem pak üzlü,
senin gibi o! **Hey**, Oguz oolu,
Sana büünkü peetim, türküm,
benim Ulu Atam, Ulu Bobam, Atatürküm...

(Zanet, 2021: 8)

Sanatçı; Türkiye Cumhuriyeti'nin kurucu lideri Ulu Önder Mustafa Kemal Atatürk'e hitap ederek, ona olan sevgi, saygı ve özlem duygusunu nidâ sanatının coşkun ritmiyle dile getirmektedir. Şiirde “ey” ve “hey” ünlemesiyle Ata'ya sesleniş, sanatçının heyecanını yansıtırken, aynı zamanda söz ve anlam evrenine coşkun ve estetik bir renk katmaktadır.

2.

Ya, karımca, gel bizâ,
Hızlı-hızlı kon sözâ.
Sözümüzü sän kestir.
Gözâlimizi ayır!

(Zanet, 1998: 241)

Şiirde; “Ya” ünlemesiyle karıncaya seslenen şair, teşhis (kişileştirme) sanatının estetik yörüngesinden ilham almıştır. Nidâ sanatının otantik atmosferiyle kuşatılmış olan dörtlükte, şairin etkili bir söylem yaratarak ifadeye güç ve âhenk yüklediği görülmüştür.

3.

Ha buyurun, dostlarım,
Kalmasın filcan yarım.
Ko gençlâr olsun mutlu,
Uşaklarda – bereket,
Yaşamakta – büyük kısmet,
Evleri varlık dolu!

(Zanet, 2018: 280)

Şair, “ha” ünlemiyle dostlarına hitap etmekte, iyi dilek ve temennilerini sanatsal düzlemde yansıtmaktadır. Nidâ ögesi aracılığıyla semantik düzlemi varsıl bir katmana taşıyan şair, duygu dağarcığını estetik doğrultuda yeniden dizayn etmektedir.

4.

- “Kara hem aar sonsuzluktan,
Yaratıcı, kurtar beni,
Bil, dayma te ozamandan
Şannayacam hep bân Seni;

Göktâ Saabi, istâ bendân
Neyi istârsân – yok hiç paa,
Zerâ ömür kaynaa da sân,
ölüm verân da sân, Allaa;

(Zanet, 2018: 403-404)

Şair, dua teminin anlam yelpazesinden yansıttığı duygu yoğunluğunu, nidâ sanatının coşkun donanımıyla harmanlamıştır. Böylelikle anlatım mekanizmasına güç ve âhenk yüklemiş, dilek ve isteklerini kutsal otoriteye içten bir dille arz etmiştir. Doğrudan Allah’a yönelen şair, O’ndan yardım istemiş ve yine O’na sığınmıştır. “Yaratıcı” ve “Göktâ Saabi” hitapları vasıtasıyla şiirsel yapının güçlendiği, sanatçının iç dünyasındaki heyecan ögesinin dışa vurumunun gerçekleştiği görülmüştür.

5.

Kimsin- neysin, gururlu sevdam?
Okadar sesli cana girân,
Duygulu türküylân aktaran,
İçimi, hem soluumu verân...

(Bujilova, 2019: 61)

Şiirde; “kimsin-neysin” ibaresiyle seveda unsuruna hitap eden şair; istifham (soru sorma) sanatını estetik reaksiyonla işleyerek etkileyici bir söylem temin etmektedir. Soru sorma sanatı ile seslenme sanatının sanatsal etkileşimi sonucu his ve heyecanın görüngü düzleminin zenginleştiği görülmektedir. Şair, seveda kavramının kapsam alanını tasvir ederken nidâ sanatının güç potansiyelinden faydalanmaktadır.

6.

Êh, sesläyin lafımı:
Severim bân tarafımı,
Onda solumak kolay,
Çiçekli bütün dolay.

Açık onun buludu –
Yaşamının umudu.
Geceleri ay-aydın,
Benizi ayın baygın.

Yıldızları pak ateş,
Nasıl kırmızı aşes,
Benizsiz, duruk suyu,
Topraan benizi koyu.

(Tukan, 2010: 28)

Şair; “Êh” nidâsıyla muhataplara seslenmekte, ardından var olan durumu arz etmektedir. Dolayısıyla burada seslenme unsurunun değil, sonrasında ifade edilen ya da vurgulanan hususun ön planda olduğu belirmektedir. Şiirde; nidâ sanatıyla renklenen şiirsellik, şairin içten üslubuyla birleşerek estetik bir bağdaşım sergilemektedir. Şair ilk etapta dinleyicilerin kendisine kulak vermesini istemektedir. Bu isteğinin pekişmesi için nidâ sanatının heyecan ögesine başvurmuştur. Daha sonra yaşadığı yer hakkında tasviri bir evren yaratarak odak noktasını canlı kılmaktadır.

7.

-Ha bä, çoban, otlatsana koyunnarı,
Deredä hem sulasana sän onnarı.
-Of, of, yaamurlar da yaayıyor,
Of, of, malcaazlar da yıslanıyor.

**-Ne korkêrsın kendini suukladağan mı,
Ne o boyun tatlı, ergin şekerdän mi?**

-Of, of, ilişmääz o yaamurlar,
Of, of, ko annatsın bayırlar.

(Filioglu, 2005: 111)

İlk dörtlükte “ha bä” nidâsıyla çobana seslenen şair; ondan, koyunları otlatmasını ve onlara gereken bakımı yapmasını istemektedir. Bunun için elini çabuk tutmasını, çünkü yağmur yağdığını ve malların ıslandığını endişeli bir dille haber vermektedir. İkinci dörtlükte ise istifham sanatıyla bağdaşım kuran şair, hitabet unsurunu soru sorarak işlemektedir. Çobanın söz konusu durum karşısında hissedilen pasifliğinin şairin kızgın bir üsluba yönelmesine sebebiyet verdiği görülmektedir.

8.

Selâm, topraam, keskin sesli,
Ne günnerin senin geldi –
Kâmil tükü gibi oldun,
Umutlarmı hep doydurdun!

(Kösä, 2011: 5)

Şiirde “selâm” nidâsıyla toprağa hitap eden şair, heyecana dair bir anlam sanatı olan seslenme sanatına gönderme yapmıştır. Teşhis sanatıyla estetik tepkimeye giren nidâ sanatı, şairin coşkun ruh halini betimlemiştir. Vatan temiiyle aynı katmanda buluşan toprak izleği, umut aşıl原因 yönüyle de dikkati çekmiştir.

9.

-Ah, mari Nadi, sän miysin?
Kalk, mari Nadi, oruç tutulıy.
-Nasıl kalkayım, mamu ma?
Başım kalkarsa, güüdäm kalkmıy,
Güüdäm kalkarsa, başım kalkmıy.

(Gaydarcı, 2018: 29)

Şiirde kızına seslenen bir annenin sevgi ve şefkat unsurlarıyla bütünleşen seslenişi konu edilmektedir. “Ah” ve “kalk” nidâsıyla gün yüzüne çıkan his vektörü, odak noktasındaki gizil duyguya etki ederek söylemi estetik yönde aktivize etmektedir.

10.

Sus, benim sert, korkunç acım,
Ko sessiz zeatlensin canım
O bitki ana kadar,
Açan sonsuzlaa geçâr!

(Karagançu, 2015: 151)

Şiirde “sus” emir ögesi vasıtasıyla soyut bir kavram olan acı temine hitap eden şair, tinsel bir dalgalanmanın estetik yankısını aktarmaktadır. Bıkkınlığın, kabullenmenin, boş vermişliğin, hüznün, sitemin iç içe geçtiği hissel yoğunluk, nida sanatının estetik aynasından yansıtılarak anlatıma lirik bir ivme kazandırmaktadır. Şair; içindeki hüzne seslenerek kendi acizliğini, güçsüzlüğünü gerekçe gösterip yaşama sevincinin ve umudunun tükendiğini dile getirmektedir.

11.

Hey, bulut, **hey**, bulut,
Ver bizâ bir büyük umut:
Kırlara – gözâl yaamur,
Tekneyâ – kaba hamur,
Fırına da – somuncuk, –
Sevinsin kızçaaaz, çocuk
Hem ana, hem da boba,
Hem da çatlamış soba.
Hepsinâ uzun ömür
Hem da büyük kısmet götür!

(Kuroglu, 2011: 86)

Şair, buluta seslenerek ondan umut, bereket, mutluluk, kısmet ve uzun ömür dilemektedir. Tekrar sanatıyla bütünleşen nidanın anlam çerçevesinde etkileyici ve otantik bir anlatım yansıtmaktadır. Dolayısıyla iyi dilek ve temennilerle inşa edilen şiirsel oluşum, şairin duygu ve düşünce periyodunu estetik bağlamda desenlemektedir.

SONUÇ

Sanatçının estetik düşlemine vurgulayan nidâ sanatı, edebi eserin âhenk şemasını yaratı düzlemine aktararak onu yeniden inşa eder. Nidanın kullanım alanına etkileyen ünlemlerin varlığı, söylemi güçlendirerek anlam yelpazesini polisemi yapıya taşır. Nidâ, her ne kadar “ey, hey, ya, ah” türünden ünlemlerle estetik reaksiyona girse de ünlem olmaksızın da yaratı alanında etkin rol üstlenebilir. Bu tarz hitap etme eylemi zengin çağrışımların ve motiflerin oluşum sürecine sanatsal bir ivme kazandırır. Söz sanatları yörüngesinde beliren estetik çarkın anlam kapsamı, sanatçının düş potansiyeline etki ederek coşkun sesletimleri açığa çıkarır. Vokal ve edatların tekrar sanatıyla olan tepkimesi ise aliterasyon ve asonans grafiğinin estetik yönlü çizelgede görünür kılınmasını sağlar. Böylece âhenk vektörünün sanat düzleminden sıra dışı geçişi sağlanarak imgesel koordinatların yaratış işlemi gerçekleşir. Nidâ sanatının çok yönlü işlevsel açılımı aracılığıyla sanatçının gizil his örüntüsü orijinal ekseninde aktifleşerek betim evreninden yansır. İşlevsel yapının anlam şeridinde beliren istek, yalvarış, hüznün, öfke ve meydan okuma tarzındaki tinsel izdüşümler nidâ unsurunun sanat platformunda işlenerek estetik bir çağrışım dizayn eder. Bu kinestetik reaksiyon ile somut ve soyut kavramlar nidâ çatısı altında birleşerek ruhsal devinimlerin coşkun iletimi vurgulanır.

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Çalışmada retorik bağlamda tasvirlenen nidâ sanatının, sanatkârın saklı izleniminin ve tinsel heyecanının yansıtıcı yüzeyi olarak Gagauz şiirsel metinlerinde sıkça kullanım sergilediği, edebi eserin söz varlığına ve semantik boyutuna derinlik, güç ve âhenk yüklediği görülmüştür. Dolayısıyla nidâ ögesinin yalnızca ünlem ve edat bileşiminin ortak paydasından ibaret olmadığı, aynı zamanda eserin gizil doğrultudaki zengin ve orijinal evrenin lirik ve otantik görüngüsü olduğu tespit edilmiştir.

KAYNAKLAR (REFERENCES)

- [1] Bujilova, V. (2019). *Soluyan Sözlär* (haz. Bülent Hünerli). İstanbul. Paradigma Akademi.
- [2] Elgün, A. Ç. (2000). *Edebi Söz Sanatları, Kayseri*. Laçın LTD. ŞTİ.
- [3] Filioglu, V. (2005). *Can Sızıntısı*. Kişinöv.
- [4] Gaydarcı, G. (2018). *Gagauzologiya XIX – XXI Asirlerdä Gagauzların Halk Yaratmaları*, Gagauziya M. V. Maruneviç adına Bilim – araştırma merkezi.
- [5] Karadağ, M. (2000). *Edebiyat Bilgi ve Kuramları*. İzmir. Ürün Yayınları.
- [6] Karagançu, V. D. (2015). *Yaprak Dökümü*, Chişinău. Tehnika – Info. Gagauziya M. V. Maruneviç adına Bilim – araştırma merkezi.
- [7] Kökligiller, A. (2009). *Edebiyat Sözlüğü*, İstanbul. Uğur Eğitim Pazarlama ve Yayıncılık A.Ş.
- [8] Kösä, M. (2011). *Dattım Ömürdän* (haz. Güllü Karanfil). M. Maruneviç adına Bilim Aarştırmaları Merkezi Genel Üretmäk Müdürlüü. Ankara.
- [9] Kuroglu, S. (2011). *Canımı Baaşlarım*. Kişinöv. Gagauziya Bakannık Komiteti.
- [10] Maral, C. Taberi Tefsirinde Belağı Üsluplar (İstifhâm, Nidâ, Takdim, Tehir, İtnâb ve İcâz). Kars. Turkey: Kafkas Üniversitesi İlahiyat Fakültesi Dergisi. Cilt: 6, S: 11. 2019.
- [11] Selçuk, B. Klasik Türk Şiirinde Nidâ. Erzurum. Turkey: Atatürk Üniversitesi Türk Dili ve Edebiyatı Araştırmaları / Makaleler- 12-14. Mayıs 2017.
- [12] Tanç N. Sâlim Divanı'ında (Gazellerde) Edebi Sanatların Kullanımı. Aydın. Turkey: Adnan Menderes Üniversitesi Sosyal Bilimler Enstitüsü. TDE-YL-2006-0002.
- [13] (2010). *Şiirlär*. Chişinău. İ. S. Firma Editorial – Poligrafică “Tipografia Centrală,
- [14] Zanet, T. (1998). *Akar Yıldız*. Chişinău. Chişinev Concernul Presa,
- [15] Zanet, T. (2018). *Seçmä Yaratmalar “60 yaşına”*. Chişinău. Pontos Yayınları.
- [16] Zanet, T. (2021). *Ana Sözü “Seçme Şiirler”*. Ankara. Bengü Yayınları.

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19th CENTURY AMERICAN ART and THE HUDSON RIVER SCHOOL

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ABSTRACT

Founded in 1776, The United States of America aimed at development and growth with the influence of the Industrial Revolution in the 19th century. It has land where it will provide the necessary natural resources for its industrial structuring. The 'West' is seen as a place of opportunity waiting to be discovered, where a new life will begin, both for Americans and those who want to immigrate to America, in cultural and sociological terms.

He said that these periods, which Bruce Kuklick (1720-1868) described as the age of Pragmatism in America (with speculative thought), were critical, healing and distinctive features of the cultural products of American civilization. The Hudson River School was the first indigenous painting school in the United States. The Hudson River School is independent and high nationalistic. The geographical richness of the American continent can be seen in the Hudson River School Paintings. Especially the Hudson River School paintings are the documents of the plain natural beauties of the American continent. American painting style Thomas Cole (1801-1848) and his artists reflect American landscapes; "Everything in the nature of this country is new to art". Thomas Cole was born in England and painted images of the Hudson River Valley after immigrating to the United States at the age of 17. Cole is a founder of the New York Apollo League. The union, which gives prints to anyone who buys tickets by selling pictures through lottery drawings, offers the opportunity to collect works of art to a large segment of the population across the continent. It was later renamed the American Art Association. Its administrators took on the task of establishing a 'national art school' themselves. They declared that being inspired by ancient sculptures and European old masters goes against the spirit of time. In this research, it is aimed to analyze the works of Hudson River School and 19th century American painters.

Keywords: 19th Century American Culture, Hudson River School, Luminsist.

19 YÜZYIL AMERİKAN SANATI ve HUDSON NEHRİ OKULU

ÖZET

1776'da kurulan Amerika Birleşik Devletleri, 19. yüzyılla birlikte, Sanayi Devriminin de etkisiyle kendi gelişimini ve büyümeyi hedeflemiştir. Endüstriyel yapılanması için gerekli doğal kaynakları sağlayacağı arazilere sahiptir. 'Batı' kültürel ve sosyolojik boyutta hem Amerikalıların hem de Amerika'ya göç etmek isteyenlerin yeni bir hayatın başlayacağı keşfedilmeyi bekleyen fırsat olarak görülmektedir. 1776'da kurulan Amerika Birleşik Devletleri, 19. yüzyılla birlikte, Sanayi Devriminin de etkisiyle kendi gelişimini ve büyümeyi hedefledi. Endüstriyel yapılanması için gerekli doğal kaynakları sağlayacağı arazilere sahiptir. 'Batı' kültürel ve sosyolojik boyutta hem Amerikalıların hem de Amerika'ya göç etmek isteyenlerin yeni bir hayatın başlayacağı keşfedilmeyi bekleyen fırsat diyarı olarak görüldü. Bruce Kuklick'in (1720-1868) Amerika'da Spekülatif düşünceyle Pragmatizm çağı olarak nitelendirdiği bu dönemlerin, Amerikan medeniyeti kültürel ürünlerini eleştirel, iyileştirici, ayırt edici nitelikte olduğunu söylemiştir. Hudson Nehri Okulu, Amerika Birleşik Devletleri'ndeki ilk yerli resim okuludur. Hudson Nehri Okulu bağımsız ve son derece milliyetçidir.

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Hudson Nehri Okulu Resim sanat eserlerinde Amerikan kıtasının coğrafi zenginliği görülmektedir. Özellikle Hudson Nehri Okulu resimleri, Amerika kıtasının yalın doğa güzelliklerinin belgesi niteliğindedir. Amerikan resim stili Thomas Cole (1801-1848) ve Amerikan manzaralarını yansıtan sanatçıları; “bu ülkenin doğasındaki her şey sanat için yenidir” görüşündedir. Thomas Cole, İngiltere’de doğmuştur ve 17 yaşında ABD’ye göç ettikten sonra Hudson Nehri Vadisinin görüntülerini resmetmiştir. Thomas Cole, New York Apollo Birliğinin kurucularındandır. Piyango çekilişiyle resim satarak bilet alan herkese baskılarını veren birlik, tüm kıtada nüfusun geniş bir kesimine sanat eseri toplama imkânı sunmaktadır. Daha sonra Amerikan Sanat birliği adını almıştır. Yöneticileri ‘Ulusal bir sanat okulu’ kurma işini kendileri üstlenmiştir. Antik heykeller ve Avrupalı eski ustalardan ilham alınmasının zamanın ruhuna aykırı düşüğünü’ ilan etmişlerdir. Bu araştırmada Hudson Nehri Okulu ve 19. Yüzyıl Amerikan resim sanatçılarının eserlerinin çözümlenmesi hedeflenmiştir.

Anahtar Kelimeler: 19. yüzyıl Amerikan kültürü, Hudson Nehri Okulu, Luminsist

GİRİŞ

American artists have equated keeping up with the times with keeping up with their own country. Artists of the Hudson River school used anthropomorphic symbols or symbolic personifications of nature. The Hudson River School was the first indigenous painting school in the United States. It is independent and extremely nationalistic. National art is in the act of developing its own country. American artists, who wanted to do different things from Europe, took a train journey to Europe to return. The artist who most effectively started an art movement appealing to the growing nation is Thomas Cole. Having painted landscapes along the Hudson River in the 1820s. Cole met Turner in London in 1832. He encountered the almost all-encompassing epic art of Turner who he used for a historical account of the rise and fall of empire expressed in the cycle of five visionary landscapes (Bell J. 2007, p.331). The forms and meanings that have an important source in the allegorical images of 17th and 18th century emblems or books are anthropomorphic. Symbolism is important in a historical context. The Hudson River helps bring out the complexity and sophistication of school painting. Such a school of work revives an important artistic tradition.

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Thomas Cole (1801-1848)



Figure 1. Thomas Cole, *The Ages of Life: Youth* 1842 Oil on canvas, 134 x 195 cm National Gallery of Art, Washington <https://www.nga.gov/collection/art-object-page.52451.html>

Artists who reflect American landscapes have an edge over all other artists because everything in the nature of this country is new to art. Cole was born in England and painted images of the Hudson River Valley after immigrating to the United States at the age of 17. He is a co-founder of the New York Apollo League. By selling pictures in lottery drawings, this association gave prints to anyone who bought a ticket, and provided a large segment of the population across the continent with the opportunity to collect works of art. It was later renamed the American Art Association. Its administrators took on the task of establishing a 'national art school' themselves. They declared that taking inspiration from ancient sculptures and European masters 'contrary to the spirit of the times' (Fleming J., Honor H. (2016, p. 674). Thomas Cole; "My attention is often drawn to the view of action and the expressions of surrounding objects, especially trees. This is due to the fact that trees somewhat resemble the human form. There is an expression of compassion in the intertwined branches of the trees. "Exposing them to challenges and upheavals reveals a thousand original characters fighting for existence or supremacy." Cole used the meaningful presence of anthropomorphic symbols to underline the formal and symbolic end of his life's journey. Cole painted a stormy, cloud-covered landscape. In the landscape of rocks and trees split by the storm, the tree expresses the pain of the traveler. Cole dramatically increased anthropomorphic expressions in his final paintings. In *The Voyage of Life* series, Cole has skillfully used emblems as natural landmarks to express travel. Cole wrote of Childhood: "The dark cave is symbolic of our earthly origin and mysterious past... The pink light of the morning, the lush flowers are symbols of the joy of early life" (Sweeney J.G. 1988).

With the death of Thomas Cole in 1848, seniority at the Hudson River School passed to Asher B. Durand (b. 1796), but it is the younger generation who will bring the most important innovations and advances in the following years. The oldest of the group is John Frederick Kensett (b. 1816), but all major artists are older than him: Martin Johnson Heade (b. 1809).

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Thomas Worthington Whittredge (b. 1820), Jasper Francis Cropsey (b. 1813), George Inness (b. 1825), Frederic Edwin Church (b. 1826), Jervis McEntee (b. 1828), and Albert Bierstadt (b. 1830) They have depicted many different geographical areas with various stylistic approaches and influences. Still, their commitments and methods are similar enough to be seen as a "school" (Avery K.J., Kelly F. 2004).

Cole paints a stormy, cloud-enclosed landscape in *Manhood*; Here, bare cliffs soar approaching in terrifying light, demonic forms floating in the air, and rocks and trees shattered by the storm are allegorically depicted. In this painting, the rocky hills that were at a gentle rest in childhood are tense with fear and are expressed as if they were tortured. The rocky head in the center looks down the cliff to the boiling waterfall into which the traveler will enter. On the right, a tree twisted in agony indicates the traveler's suffering. The faces of suicide, intemperance, and death, as Cole puts it, "the temptations that engulf people in their greatest distress," are outlined in the clouds. The last painting in the series, *Old Age*, depicts the traveler entering a scene where he contemplates a vast midnight ocean. Behind him, the now battered and the rock, resembling a collapsed skull, reflects the old man's weathering.

Old Stone Face has a tremendous influence on the imagination of Cole, who is probably already aware of the emblem image and is looking for ways to revive and humanize America's wilderness landscapes.



Figure 2. Thomas Cole, *The Course of Empire: Destruction*, 1836, Oil on canvas, (84.5 × 160.7 cm) <https://www.metmuseum.org/art/collection/search/692371>

During the last decade of his career, Cole significantly increased the use of anthropomorphic emblems and enhanced their role in creating the expression of emotions. Cole's last work, *The Cross in the Wilderness*, of 1845, particularly reveals his evolving technique (Sweeney J.G. 1988).

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Asher B. Durand (1796-1886)

Dubbed the 'Hudson River School', this group sketches outdoors. As Asher B. Durand (1796-1886) writes in 'Letters on Landscapes' (New York 1855), they prefer untouched nature 'laden with lofty and sacred lessons that only the light of Revelation can transcend'. He applies the formal customs of European painters, the dark façade strip, and adds a few small human figures to indicate scale (Bell J. 2007, p.332).

In 1836, Durand quit his carving business. Its reputation is built on solid foundations. His major works in this section are Morghen, Strange, and Sharp, and are valued among collectors as recognized examples of high art. For several years he worked mainly as a figure and portrait painter. This is the second and significant period in his life. Edward Everett's portrait, which started to attract attention as an orator at that time, received great acclaim. Durand arranged it with a cape thrown over one shoulder, according to the then-current Spanish fashion; used a wide black velvet lining that contrasts with its bright color (Ankele D. 2015: p.167).



Figure 3. Asher Brown Durand, *Kindred Spirits* 1849 Oil on canvas, 117 x 92 cm Private collection, <https://www.metmuseum.org/art/collection/search/18957>

Despite the popularity of the emblem in the early 19th century, the anthropomorphic forms used by artists to personify nature are only one source. In the Romantic era, nature is often perceived as imitating art. There are fewer geological formations that evoke associations with the human form. Discovered in Franconia Notch, New Hampshire in the early 1800s, the Old Stone Face is one of the most famous American specimens (Sweeney J.G. 1988).

Durand draws a human figure from antique and living model. It is capable of simplicity and precision. Such training can be found in mountain rocks, forests, cloud structure, wave lines, etc. quickly shows itself in the modeling of forms. The forms of inanimate nature require absolute drawing accuracy.

Durand, with his customary accurate and precise knowledge of figures, especially portraits, paid great attention to the qualities that depend on the rules and mysteries of art. The changing effects of the atmosphere are seen in the flying clouds. John Durand has a medal awarded by Carl Muller from the Arts Union (Ankele D. 2015: 172).

Frederic Edwin Church Niagara Şelalesi



Figure 4. Frederic Edwin Church, Niagara Falls 1857 Oil n canvas, 108 x 230 cm National Gallery of Art, Washington, <https://www.nga.gov/collection/art-object-page.166436.html>

Frederic Edwin Church (1826-1900) applied the Hudson River school methods to the Niagara Falls landscape. One of the wonders of the world, the waterfalls on the Canadian border have been seen as a kind of American emblem. The spectator feels lonely, alone, standing in danger at the edge of a roaring stream; He is under the influence of the volume of water, its irresistible force. It is depicted with great delicacy, in violet and pink colours. The rainbow among the foam mists is natural yet religious. Charles Dickens said: “As I stood there, I felt very close to the Creator.”

Church; Sanford served as an important example to Gifford and others in the use of religious iconography. His paintings feature trees bowing and moving in honors before the sacred icon, a rocky profile directly influenced by the emblem book prototype but refined by Cole throughout the process (Sweeney J.G. 1988).

The Roman Aqueduct worked in Florence in 1832. The Titan Goblet was made abroad in 1833. It is a fantastic painting in which a huge goblet, the trunk of which is a large tree trunk, is placed in a landscape. The chalice contains an ocean on which ships sail. At the edge of the goblet are forests and plains, where buildings and ruins appear. This is said to be an example of the Norse Tree of Life myth. The Vaucluse Valley was pictured in Rome in 1841. The scene is located near Avignon, in a place made famous by Petrarch. He used techniques such as light and atmosphere, rainbows, fogs, sunsets, eruptions (Avery K.J., Kelly F. 2004).

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Figure 5: Frederic Edwin Church, *The Icebergs*, 1,64cmx2,86 cm, 1861, Dallas Museum of Art <https://dma.org/icebergs-civil-war-and-american-art>

In his three masterpieces of the early 1860s, 'Icebergs, Cotopaxi and Twilight in the Wild', Church painted epic landscapes of ice, fire, and the firmament. All three works are filled with occult anthropomorphic symbolism that contributes significantly to their meaning. *Icebergs* (1861, Dallas Museum of Fine Arts) reveals how Church ingeniously expanded and refined the tradition of symbolic personification that Cole helped define (Sweeney J.G. 1988).

Albert Bierstadt (1830-1902)

Born in Albert Bierstadt, Germany, he was raised in Massachusetts since he was two years old. He returned to Germany and attended the Desseldorf Academy. He started his research by making sketches of the mountains, cliffs and canyons of the Far West and photographing them. He worked on large canvases by collecting the materials he gathered together.

His work, "Between the Sierra Nevada Mountains" in California, gives the impression of sunlight emerging through the clouds after a storm in the mountains, combined with a still lake, waterfowl and deer. As one of the Boston Post writers put it, "it's the perfect embodiment of what our landscapes should be like, even if it really isn't."

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Figure 6: Albert Bierstadt, Yosemite Valley at Sunset 1864 Oil on cardboard, 30 x 49 cm, private collection, <https://www.wga.com>

The enchanting landscape, Ludlow, is made up of enormous cliffs, huge cliffs and the world's highest waterfall. It is integrated with Native American legends, giving an aura of the human spirit in inanimate geology. Gazing into Yosemite Valley depicted the uplifting, visually immersed life. Valley; It shines in the summer sunlight under a good-natured, partly cloudy sky. The meadow in the foreground is depicted with transparent shadows. The Merced River flows slowly in the middle distance. El Capitan rises on the left, opposite Bridal Veil Falls, in front of its Cliffs, the water volume is at a seasonal low. The painting was acquired by the Haggin Museum in 1930. By mid-1864, Bierstadt had completed at least two Yosemite scenes and a few other western subjects. The larger of the two Yosemite landscapes, on a vertical canvas dated 1864 and entitled Cho-looke, The Yosemite Fall (sick), depicts a campground at the edge of the forest. At the end of the day, the camp and its residents are covered in a darkening shadow against the brightly lit backdrop of Yosemite Falls emerging from the fog. Bierstadt is thought to be among the men sitting around the fire (Howart K.J. 1988 p.289).

Thomas Birch (1787-1851)

The nature and origin of anthropomorphic symbols are clearly seen in the works of Thomas Birch (1787-1851) and Thomas Cole (1801-1848). It is seen in Thomas Birch's *The Rescue* that he is a direct example between an emblem book prototype and nineteenth-century pictorial images. In Birch's painting, a prominent rocky cliff is outlined above the sunken sailors in the lower right. There is a craggy face carved into the rock with a stern expression. Yet the effect appears to resemble a small-printed emblem in one of the many editions of *Emblems Divine and Moral* by Francis Quarles.

In this emblem source of Birch's painting is his profile in the rock looking towards the sinking ship on the horizon. The forehead, nose, eye sockets, mouth and chin are depicted.

As with typical emblem prints like this, the head, recognizable in the cliff, has hair in the form of shaggy bushes hanging from the forehead of the face (Sweeney J.G. 1988).

Sanford Robinson Gifford

Gifford was born in 1823. He is one of the leading members of the Hudson River School of Landscape Painters. Like his contemporaries Frederic Edwin Church, Jasper F. Cropsey, Worthington Whittredge, and John F. Kensett, Gifford played an important role in mid-nineteenth-century American art of landscape painting. Gifford's aesthetic; He has developed special qualities as a landscape painter. The impact of Gifford's work on individuals is difficult to define. The same is true for his contemporaries. The words "poetic", "sympathetic", "deep", "graceful", "sensitive" and "serious" were used about Gifford. Gifford's art is poetic and evocative. It is not realistic in the classical sense. According to Gifford, the artist is both a painter and a poet. It tries to reproduce the impressions they get from beautiful things in nature. It is the poet's job to reproduce these impressions with words. According to John Ferguson Weir, (1880), Gifford's art is "nature passing through a finely organized retort of sensibility." The retort is a vessel used for distillation of raw materials into essences. The retort, commonly associated with alchemy, is a means of purification and also of condensation: the substances that pass through it thus appear transformed. Likewise, Gifford's paintings present nature as refined and intensified by the "finely organized sensibility" of her aesthetic. They did not try to copy the experience of a real place, but instead transformed it into something else entirely: they created art that embodies the essential qualities of the experience. In 1854, Gifford painted a pair of large-scale oval canvases called *Morning in the Adirondacks* and *Set on Shawangunk Mountain*. Also known as *Sunrise in the Adirondacks* and *Sunset in the Catskills*, these paintings are; he refers to the contrasts of sunrise and sunset, as well as to Cole's imaginary pendants, such as *Past and Present*, with his depiction of the American landscape (Avery K.J., Kelly F. 2004).



Figure 7. Sanford Robinson Gifford, *Isola Bella in Lago Maggiore*, Oil on canvas, 51.4x91.4 cm), 1871, <https://www.metmuseum.org/art/collection/search/10945>

Gifford visited Isola Bella in Lago Maggiore, Italy, in 1856. He has repeatedly illustrated the city and developed his vision. In July 1868, the artist worked in the area for several days: "It was a perfect day, not too hot," said Gifford. I concluded that this part of Maggiore is the best of all the Italian Lakes." reflected the width.

Martin Johnson Heade (1819-1904)



Figure 8. Martin Johnson Heade *Approaching Storm: Beach near Newport 1861-62* Oil on canvas, 71,1 x 111,8 cm Museum of Fine Arts, Boston
<https://www.metmuseum.org/art/collection/search/11050>

Heade was born in Lumberville, a small rural location in Doylestown in Buck's County, Pennsylvania. He is the eldest son of Joseph Cowell Heed's extended family, which owns a farm and a sawmill. The youngsters received their first art lessons locally from Edward Hicks and possibly Edward's cousin, Thomas Hicks. Heade's artistic sophistication soon increased significantly (Howart K.J. 1988 p.163).

In the 1860s he made long voyages in the United States, South America, the West Indies, and Europe. But he returned to the East Coasts, Massachusetts, Rhode Island, and New Jersey to paint more than a hundred views of saltwater marshes. These landscapes include meadows and haystacks stretching as far as the eye can see with their meandering rivers, ponds left behind by the receding waters, and occasionally a few cattle, people or a small boat with sails to break the horizontal. There are also depictions of clear or cloudy, sometimes stormy skies at various times of the day in these works (Fleming J., Honor H. 2016, p. 689).

His work, *The Impending Storm*, depicts the gathering of a summer torrential rain. Heade portrayed this painting differently from the old-fashioned tradition. In this painting, the space is unassuming and somewhat barren, a place where mundane business goes on. He preferred a serious simplicity in Heade's artistic vision that he hadn't had before, and used strong contrasts in terms of the values of toning in painting. Horizontal recordings of shore, sea, and sky have progressed from a buff foreground surrounded by dark green to a brown-black of water graying in the distance. In the background, the hills on the horizon range from dark to light gray and eventually merge into a similar-toned sky. Storm clouds are surrounded by a pale light. The horizon stretches seamlessly from one end of the canvas to the other.

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The bay in front of it is almost an exact figure eight, anchored by a centrally moored sailboat. It is evident from the traces of the painting that this work progressed over time. Just as the rock on the shore was previously in the water, and the hills on the horizon are initially higher and more jagged (Howart K.J 1988 p.165).

Author, Ralph Waldo Emerson; "I am standing on the bare ground. My head gleefully bathed in the air and hovered high in the endless sky. All this means egoism is disappearing. I have become a transparent eyeball; I am nothing; I see everything; currents of universality circulate in me; He explained the effects of the period with the expression "I am a part and a part of God".

This transcendental attitude towards nature in the nineteenth century; Shared by Church and Bierstadt. Heade's paintings of salt marshes found buyers but were rediscovered in the 1940s. The term 'Luminist' was used in the 1950s to describe Heade and some of his contemporaries (Fleming J., Honor H. 2016, p. 677).

Caleb Bingham (1811-1879)



Figure 9. Caleb Bingham, Fur Traders Descending the Missouri, 1845, Oil on canvas, 73.7x 92.7 cm Art Museum of Metropolitan, New York, <https://www.metmuseum.org/art/collection/search/10159>

Fur Traders Landing from Missouri by Caleb Bingham (1811-79). He is described as a luminist. Rarely have the early morning lights dispersing the mists been portrayed with such beauty. The contrast between the trees appearing in the misty weather and the careful figures dressed in brightly colored clothes, reflected in the slowly flowing water, adds a realm of imagination to the painting. This painting was purchased by the American Artists Association for seventy-five dollars. It was later sold by lottery drawing. The American Artists Guild also purchases a painting called A Boat Ride in Missouri. Later, he sold and distributed about ten thousand of his engravings to the whole continent.

The demand for paintings on outdoor life continued after the civil war, which was the source of debates on the issue of national identity, which was reflected in writing more than in visual arts (Fleming J., Honor H. 2016, p. 691).

Jaspar F. Cropsey'nin (1823-1900)

Jaspar F. Cropsey went to the National Academy of Design to see paintings by Thomas Cole. In 1840, Cropsey took lessons from Edward Maury, an English Watercolorist hired by Joseph Trench. This training, together with drawing classes at the National Academy of Design, formed Cropsey's art education. Using the Pre-Raphaelite technique, he achieved a lively and detailed style. Cropsey went to Gettysburg and sketched a small Civil War study of the battlefield. Of these, the largest oil painting Gettysburg was made in 1866. In 1860, Cropsey began to express the Christian faith more vividly in his paintings. His works often feature the otherworldly heavens, symbols of God's blessing on America. Cropsey spent most of his time painting landscapes near Hastings-on-Hudson (Ankele D. 2015: 409).



Figure 10. Jasper Francis Cropsey, Greenwood Lake 1870 Oil on Canvas, 97 x 173 cm
Museo Thyssen-Bornemisza, Madrid.

<https://www.museothyssen.org/en/collection/artists/cropsey-jasper-francis/greenwood-lake>

Cropsey made a trip to Europe in 1840, visiting England and the Continent of Europe. He based his canvases on sketches he made outdoors. He sought serenity in his paintings and presented this mood in the style of expression of the period. Like the other members of his band, he made great successful paintings. The Narragansett series has a simple, fresh, nuanced and cool color sensibility.

Cropsey became a painter of rural New England scenes in his mature years. He also worked on new canvases made in Cole's romantic style. "Storm in the Wild" of 1851 was made by Cropsey before his visit to England in 1856. Cropsey's special talent is the autumn scene, which provides naturally violent elements to create a dramatic composition. Cropsey became famous for his canvases exhibited at the Royal Academy.

He also painted in Continental Europe and England, later returning to his country to paint the Hudson River, Genesee and Ramapo Valleys (Avery K.J., Kelly F. 2004).

Winslow Homer (1836-1910)



Figure 11. Winslow Homer, *Northeaster* 1895 Oil On Canvas, 87 X 128 Cm Metropolitan Museum Of Art, New York <https://www.metmuseum.org/art/collection/search/11130>

Winslow Homer is an artist who dedicates himself to national identity. Born and educated in the USA, he is the first internationally renowned painter to work in this country. He started working as an illustrator for various publications. During the Civil War, he was sent to the front to design for Harper's Weekly. He worked with photographers who went to the front for the same mission.

Homer visited France in 1867. He painted the landscape of Long Branch, New Jersey, a sought-after resort with trendy-dressed people (often done by French artists such as Eugene Boudin). Its asymmetrical aspect, silhouetted forms and light, with its luminous color scheme (white, pale blue, fresh greens and sandy yellows), are very similar to Manet's contemporary paintings. But it is also thought to have been influenced by Japanese prints or photographs. It has a distinctly American feel to it, with its emphasis on its plain, solid and unified reality, as well as a sense of open space where the figures' individuality is evident, even alienated from one another. Even the aspects that women look at are different. There are psychological tensions in Homer's other paintings as well. Henry James, who admired Homer in 1875, said in an article that 'He is a very genuine painter, so seeing and reproducing what he sees is the only thing he cares about' (Fleming J., Honor H. (2016, p. p.677).

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Winslow Homer, *Dressing for the Carnival*, 1877, Oil on Canvas, 50.8x76.2 cm. New York.
<https://www.metmuseum.org/art/collection/search/11116>

Homer, in fact, has dealt with the most serious problem in the post-war period more deeply than any other painter. He paid particular attention to the plight of African-Americans who were freed from slavery but could not be integrated into a democratic society. Painted in bright, energetic colours, 'Dressing for the Carnival' from 1877 appears at first glance to be a glamorous, sunny Southern scene with light hitting sturdy bodies. The man in the middle is dressed as clowns by two women with no trace of the holiday mood on their faces. He is in an unnatural silence, including children. After the war, his paintings focused on nostalgic village life, turning his attention to children and young women. In the painting he named *Crossing the Pasture* (1871-1872), he idealized the hope of a united future with two brothers after a war that killed brother against brother. Homer also illustrated the relations between society after the war with his paintings (Fleming J., Honor H. 2016, p.680).

Henry Ossawa Tanner (1859-1937)

Tanner is of partially African descent. He started his painting work with landscape, sea and open air scenes and went to Paris in 1891 for his education, where he would spend the rest of his life. His painting 'First Lesson' shows the teaching of banjo playing. The serious and poignant depiction of the human relationship between grandparent and grandson in this painting indicates that relationships among African-Americans should be treated in the same way.

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John F. Kensett (1816-1872)



Figure 12. John Frederick Kensett, Newport Rocks, 1872, Oil on canvas, (78.7 x 121.9 cm)
<https://www.metmuseum.org/art/collection/search/11316>

It provides an example of John F. Kensett's vitalist understanding of nature. Reverend Samuel Osgood praised the artist in his criticism. He described how Kensett depicted the cliffs of Newport, where the artist had a summer home. Kensett accepted the anthropomorphic symbolism of the Hudson River school. He presented it in a style that was emotional rhetoric of the Victorian era. Kensett's rocks have been recognized as more than direct transcriptions from nature (Sweeney J.G. 1988).

The stark composition of this painting and Kensett's "A Foggy Sky" may represent the most familiar genre in the artist's output, and was introduced in the mid-1850s after his first visits to Newport, Rhode Island, and the Shrewsbury River in New Jersey. North coast. The tip was unquestionably popular with customers. Kensett repeated this with only nominal variations until his death in 1872, and it increased during the civil war years. For the artist's clients, the simple arrangement of rocks on either side against the seeming infinity of an ocean horizon expresses a longing for stability, certainty, peace and eternity. He is a master of the technique called luminism in American landscape painting.

Thomas Eakins (1844-1916)

His first important painting, 'Gross' Clinic', features natural-sized figures on the front. He continued the anatomy lessons of the medical faculty and made drawings at the Academy. He went to Paris, where he studied under Delaroche and studied under Léon Gérôme (1824-1904). The painters who inspired him to found the nineteenth-century American school of 'realism' were Rembrandt, Velazquez, and Ribera. American surgeon Dr. Gross's Clinic and Rembrandt's Dr. It is also possible that Tulp wanted to compete with the Anatomy Lesson. Eakins also illustrated the application of therapeutic surgery to an anesthetized patient as one of the achievements of modern science. Dr. The skillful use of light falling on Gross's forehead and the patient's bare limb are depicted; Dr. The expression of intense attention on Gross's face is given by dramatic lighting (Fleming J., Honor H. 2016, p.682).

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Conclusion

On 1879, the Hudson River School of art reiterated that it had its shortcomings. So much was covered in these American landscape school paintings and they tried to be very realistic. Thus, the attention given to details has drawn attention. The main idea gave the impression of the general effect in the artwork that activates the imagination. The materials used by the artists are weak compared to nature, which is always toned and harmonized by the atmosphere. An important image of American nature, The Cross in the Wilderness later made a huge impact. Cole completed this painting just before his final series, The Cross and the World. Cole's romantic imagination and religious disposition led him to see architectural and anthropomorphic forms in clouds. The only constant element in all five paintings, a mountain reigns as a symbol of the continuity of nature throughout the rise and fall of civilization. In 1877, the Hudson River School was defined as the school of landscape painters. It is noted that as before the war, it developed peacefully and was cosmopolitan, with the admiration of the people. Using visual metaphors for national unity and prosperity of landscapes, painters who were united in their beliefs developed different artistic goals and methods. Kensett pursued an increasingly simple aesthetic. Cropsey continued to paint autumn for the rest of his life. Bierstadt specializes in American West scenes. Church lived with his family on the Hudson coast. He developed his career with Church's important paintings such as Morning in the Tropics after 1870. Gifford and his friends Whittredge and McEntee for a while continued the school's pre-war aesthetic with its main effect atmospheric aspect. Appreciation and understanding of Gifford's art increased markedly in the postwar period.

In the Hudson River School, the themes of earthly suffering and divine salvation are at the core of the meaning of trees. A tall evergreen tree, a common symbol of immortality, stretches out into the light. The themes of the deciduous tree with the splendor of autumn colors, the loss of its leaves with the arrival of winter and the exploding tree in the foreground crumpling its branches in a dance of death were used. Complementing the iconography with these trees is a natural cross on a larger scale.

After the discovery of America, it became a promising continent for people, people from other nations formed a national unity. Thus, they developed a very different vision of the world. The geographical richness of the American continent is seen in the works of art. The paintings of the Hudson River School school period are the documents of the plain natural beauties of the American continent.

References

- Ankele D. (2015). Hudson River School. Ankle Publishing.
- Bell J. Sanatın Yeni Tarihi (2009), Ünlü C. İleri N. Gürtuna R. (Çev.), İstanbul, doğuş grubu yayıncılık
- Honour H., Fleming J. (2016), Dünya Sanatı, Abacı H. (Çev.), İstanbul, Alfa Basım Yayın
- Burroughs B. (1997) The Hudson River School of Painters, The Metropolitan Museum of Art Bulletin,
- Francis S. H. (1947) Two Pictures of The Hudson River School, Cleveland Museum of Art
- Sweeney J.G., The Nude of Landscape Painting, Emblematic Personification in Art of the Hudson River School, cilt 28 sayı 4 s.24-29, Chicago University Press
- Avery K.J., Kelly F. Ed (2003), Hudson River School Visions, New Haven and London, The Metropolitan Museum of Art New York, Yale University Press
- <https://www.wga.com>

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<https://dma.org/icebergs-civil-war-and-american-art>

<https://www.metmuseum.org/art/collection/search/18957>

<https://www.nga.gov/collection/art-object-page.166436.html>

<https://www.nga.gov/collection/art-object-page.52451.html>

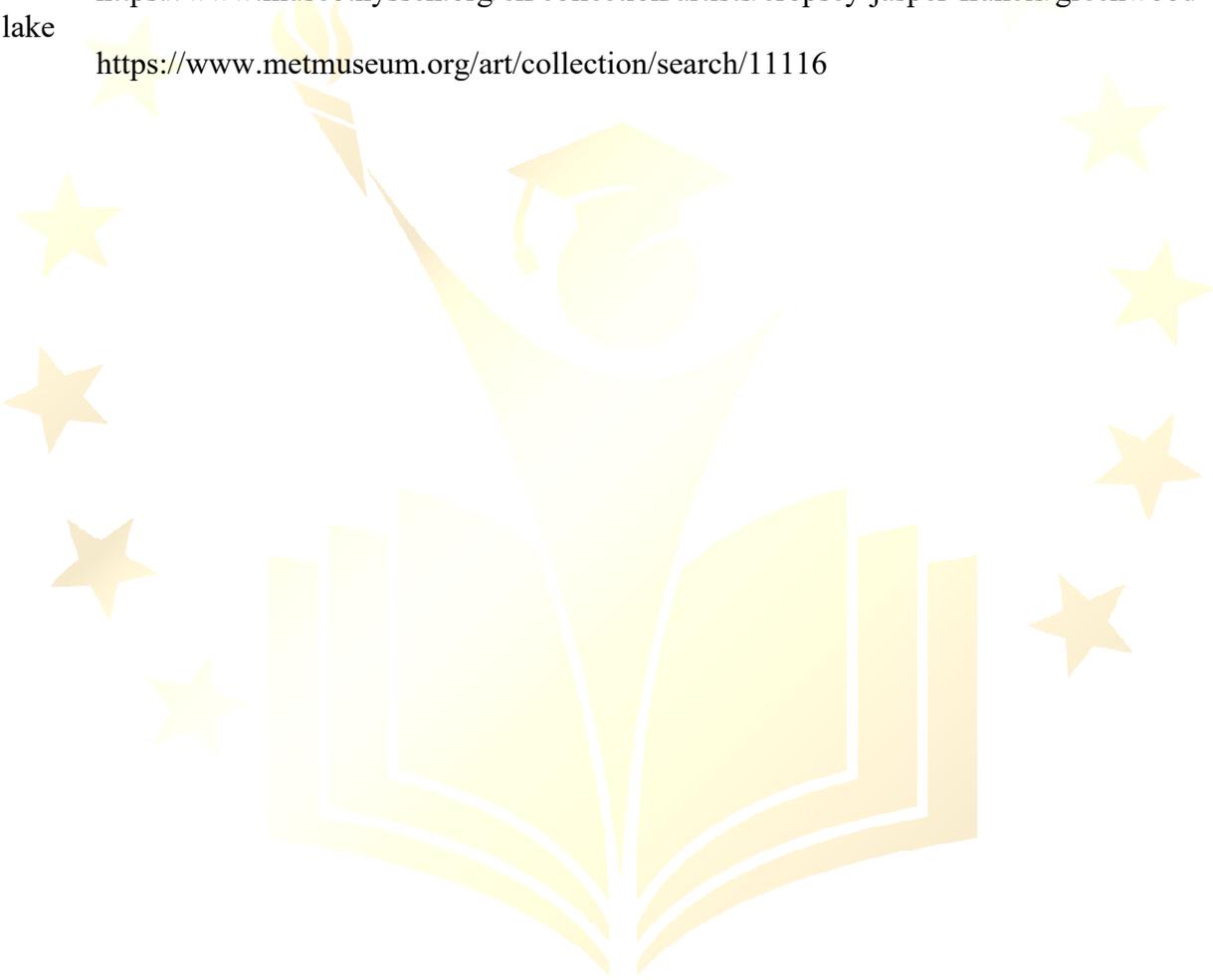
<https://dma.org/icebergs-civil-war-and-american-art>

<https://www.metmuseum.org/art/collection/search/11130>

[https://www.museothyssen.org/en/collection/artists/cropsey-jasper-francis/greenwood-](https://www.museothyssen.org/en/collection/artists/cropsey-jasper-francis/greenwood-lake)

lake

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**ADMINISTRATION, MANAGEMENT AND STRATEGIC PLANNING POLICIES
OF THE HEALTH SYSTEM - TARGETED RESULTS OF THE HEALTH CARE
SYSTEM**

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ABSTRACT

Health systems everywhere in the world are constantly changing, transforming and reforming in an effort to increase their efficiency, to be cost-effective and to improve the quality of health care within existing limited resources. The purpose of this brief literature review was to illuminate one of the aspects where the administration, management and strategic planning policies of the health system should focus: the intended outcomes of the health care system. This issue is of interest to health policies since their re-formatting and adaptation should be in line with these trends. Strategic planning in health care organizations involves outlining the actionable steps needed to reach specific goals. While there are different strategy types and levels, the purpose of all strategies is to bring an organization's actions into alignment with its stated mission or values. Today, health care providers require more patient-centric, value-based approaches, whereas many of their current systems follow older, more traditional strategy models. Increasingly, organizations are having to recalibrate their health care strategies to suit current market trends and changing approaches to patient care. Any professional looking to better understand the inner workings of health care institutions needs to know the different types of strategies used in health care, along with their importance for an organization's success.

Keywords: Administration policies, expectations, health system. management, reform, strategic planning.

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TREATMENT OF CANCER PATIENTS WITH RADIOTHERAPY AND CHEMOTHERAPY

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ABSTRACT

Background: Uterine cervical cancer in Albania is among the ten most frequent cancers in women, and among top ten cancers with the highest mortality **Aim:** To compare five-year recurrence-free and overall survival among patients treated with concurrent chemoradiation and those treated with radiation alone.

Material and methods: This is a retrospective cohort study. Patients' charts from 2002 to 2010 at the Oncology Hospital were reviewed. Patients with uterine cervical cancer diagnosis, treated with either radiation or concurrent chemoradiation who completed full treatment were selected for the study. Kaplan-Meier survival analysis and multivariate Cox regression were conducted to determine the effect of treatment on survival. A p value ≤ 0.05 was considered statistically significant.

Results: Number of patients that fulfilled study's selection criteria was 381. One hundred forty (61.7%) deaths occurred in radiation as compared to 56 (36.4%) in chemoradiation group ($p < 0.001$). Five year recurrence-free survival (Logrank=23.6 $p < 0.001$) and overall survival (Logrank=25.9 $p < 0.001$) were significantly higher in chemoradiation group vs radiation alone. Multivariate Cox regression analysis revealed that patients in the chemoradiation group had a hazard ratio of recurrence of 0.48 (95% CI: 0.35-0.65) compared to radiation treatment. Hazard ratio of recurrence for stage IIB patients was 1.9 (95% CI: 1.26-2.67) and for stage III patients was 3.7 (95% CI: 2.58-5.72) as compared to the early stage cancer patients. Age and histopathology were not found statistically significant factors.

Conclusion: Concurrent chemoradiation treatment improved recurrence-free and overall survival more than radiation treatment alone in uterine cervical cancer patients. The only significant predictor factors for recurrence were stage and treatment group.

Keywords: cervical cancer, recurrence, chemoradiation, survival

**TREATMENT OUTCOMES CAUSED FROM DEFAULTING TUBERCULOSIS
TREATMENT AND THE FACTORS CONTRIBUTING TO TREATMENT
DEFAULT: A CASE STUDY OF TUBERCULOSIS SUFFERERS REPORTING FOR
TREATMENT AT MULAGO NATIONAL REFERRAL HOSPITAL, UGANDA**

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Abstract

Background: Antibiotic defaulting is very common amongst patients suffering from tuberculosis, and this can lead to various treatment outcomes. This aim of this study was to investigate the prevalence of the different treatment outcomes caused from defaulting antibiotic therapy amongst patients suffering from tuberculosis, as well as the factors leading to treatment default.

Methods: This was a Cohort Retrospective Quantitative study, and secondary data was collected by reviewing medical records of patients that defaulted Tuberculosis treatment between April 2018 and March 2022 to identify those that returned for treatment after defaulting. Primary data was also collected using a structured questionnaire to investigate factors that lead to treatment default.

Results: The most common treatment outcome in these patients was prolonged illness (38.7%), 38.5%, while 35.8% cured in 6 months. 11.9% of the patients died and 7.3% of them developed multi-drug resistant tuberculosis. However, a small percentage (6.4%) of them defaulted treatment again. The most common reason given for defaulting treatment was forgetting to take drugs which accounted for 33%, the second most common reason was symptoms disappearing and so they did not feel a need to continue taking drugs. 16% of the patients stopped treatment as a result of experiencing side effects, others stated that the pills were too many to take (11%). Long distance from hospital and long lines in the hospital were the two other reasons for defaulting, and these accounted for 10% each.

Conclusion: In this study, it was found that most patients that defaulted treatment experienced prolonged illness while a few developed MDR-TB and others died. The most frequent reasons cited by patients were forgetting to take drugs and symptoms disappeared coupled with inadequate knowledge of patients about TB.

Keywords: Factors; Mulago; treatment default; treatment outcomes; tuberculosis

1. INTRODUCTION

1.1. BACKGROUND

Tuberculosis (TB) is a global health concern; nearly one third of the global population is infected with *Mycobacterium tuberculosis* and at risk of the disease [2]. It is an ancient human disease caused by *Mycobacterium tuberculosis* which mainly affects the lungs, making pulmonary disease the most common presentation [1]. Treatment default is defined by WHO as treatment interruption of at least 2 months following treatment initiation. Loss to follow-up (LTFU) patients are defined as “TB patients who did not start treatment or whose treatment was interrupted for two consecutive months or more” and were previously called defaulters. LTFU patients are more likely to redevelop infectious active TB, and are at higher risk of developing MDR-TB [9].

Defaulting on TB medication is a major barrier to its local and global control. Numerous studies have argued that tuberculosis cases are still exceptionally high in Uganda and mortality is one of the most frequent unsuccessful outcomes. A study conducted in Arua district, Uganda showed that defaulting first-line anti-TB treatment was associated with development of MDR-TB [10]. Data from several studies have identified barriers leading to treatment default among TB patients, and these include lack of knowledge about TB, high cost of transportation, difficulty making a daily visit to health facilities for DOT programme due to distance of the facilities from their residencies, TB-related stigma, lack of family support, seeking traditional healers and treatment related factors such as side-effects of drugs. Other factors include forgetting to take the drug, the cost of the drug, lack of awareness, and remission of symptoms. (Ahmed, 2018). The most commonly chosen reasons for default in one of the studies were; resolution of symptoms (32%), side effects (14%) or “other” (32%) [4]. Financial incapability to purchase full dose and long duration of treatment are other causes [5].

Research from numerous studies have identified that incomplete or failure of TB treatment increases the risk of treatment failure, antibiotic resistance, disease transmission, morbidity, mortality and increased health care costs. It also increases the risk of relapse and may prolong infectiousness. (Jasmer et al, 2004). The research to date has tended to focus on the rate of tuberculosis treatment default and the factors contributing to it. Few studies have been undertaken to evaluate the prevalence of the different treatment outcomes caused from defaulting TB treatment. Moreover, there is no clear information on the most common consequence of defaulting TB treatment in patients registered at Mulago National Referral Hospital. It is therefore necessary to evaluate the different outcomes and the factors leading to treatment default. This will enable us to assess the most common treatment outcome of defaulting tuberculosis treatment and the factors that lead to treatment default. It will therefore help policy makers to make decisions on the effective intervention measures to reduce treatment default and plan for the management of the treatment outcomes.

1.2. AIMS OF THE STUDY

To determine the proportion of TB treatment defaulters that returned for treatment to Mulago National Referral Hospital; to identify the different treatment outcomes and the most common one amongst these patients; and to identify the factors that lead to treatment default.

2. MATERIALS AND METHODS

2.1. Study design, study site and data collection

A facility based Retrospective Cohort study design was conducted in Mulago National Referral Hospital. This hospital is located on Mulago Hill in the northern part of the city of Kampala, immediately west of the Makerere University College of Health Sciences. It is approximately 5 kilometres by road, north-east of Kampala's central business district [7]. Secondary data was collected using pretested structured data extraction forms from TB registry for all patients and the outcomes of those that defaulted treatment was recorded. Information available from the records included: residence, age, sex, disease site, HIV status and treatment outcomes. Primary data was collected using a structured questionnaire to interview patients.

2.2. Study population

The study population included tuberculosis patients reporting to Mulago National Referral Hospital that defaulted treatment between April 2018 and March 2022. An estimated total of 150 patients returned for treatment after defaulting TB treatment. I.e. loss to follow up patients. The sample size was 109 patients determined using the Yamane's formula and compared with the Morgan's and Krejcie table. Simple random sampling technique was used to select patients. A list of all the registered TB patients that defaulted treatment was obtained and assigned numbers from 1 to 6 alongside their names, and all those bearing even numbers were selected. To enhance the knowledge on risk factors for treatment default, another group of patients reporting for treatment to Mulago National Referral Hospital were recruited using simple random sampling. Patients with incomplete records were excluded from the study, as well as patients with unknown treatment outcomes. In addition, to answer the questionnaires, patients less than 15 years of age were excluded from this study.

2.3. Data Analysis

Data was edited and coded, and entered into SPSS version 29.0 for windows. Descriptive summary values such as frequency and percentages were used to describe the study variable. Frequency was obtained and then manipulated to obtain percentages. Univariate analysis and multivariable logistic regression analysis were conducted to assess the effect of the different variables on the outcome variable. The treatment outcomes and risk factors for default were presented in pie charts.

3. RESULTS

3.1. Socio demographic characteristics of tuberculosis treatment defaulters

The TB patient registration book between April 2018 and March 2022 at Mulago National referral hospital was reviewed. A total of 150 TB patients out of 4,080 (3.7%) returned for treatment after defaulting medications. Of these, 109 patients were included in the study cohort. More than half 74 (67.9%) of the patients were males. The age distribution of the patients ranged from 15–65 years, the mean age was 37.8 years and majority aged between the ages of 35-44 years (29.4%). HIV/TB co-infection was observed in 47 (43.1%) of the patients. More than half, 101 (92.7%) of the patients were classified as pulmonary TB and more than half 57 (52.3%) lived in rural areas.

Table 1: Socio-demographic characteristics of patients that defaulted treatment

Variables		Frequency	Percentage (%)
Sex	Male	74	67.9
	Female	35	32.1
Age group (years)	<15	0	0
	15-24	19	17.4
	25-34	27	24.8
	35-44	32	29.4
	45-54	22	20.2
	55-64	8	7.3
	≥65	1	0.9
Residence	Urban	52	47.7
	Rural	57	52.3
Type of TB	Pulmonary	101	92.7
	Extra pulmonary	8	7.3
HIV Status	Positive	47	43.1
	Negative	62	56.9

It is apparent from Table 1 that, more than half of the patients were males which accounted for 67.9%. The most common age group was 35-44 accounting for 29.4%. Most of the patients resided in rural areas (52.3%) and had pulmonary tuberculosis (92.7%). 56.7% of the patients were HIV negative.

3.2. Treatment outcomes of tuberculosis treatment defaulters

The proportion of death amongst TB treatment defaulters was 11.9% and the prevalence of MDR-TB was 7.3%. The majority of the patients (38.5%) experienced a prolonged illness of more than 6 months and 6.4% defaulted treatment again. 35.8% of the patients cured after a treatment of only 6 months. (Figure 1)

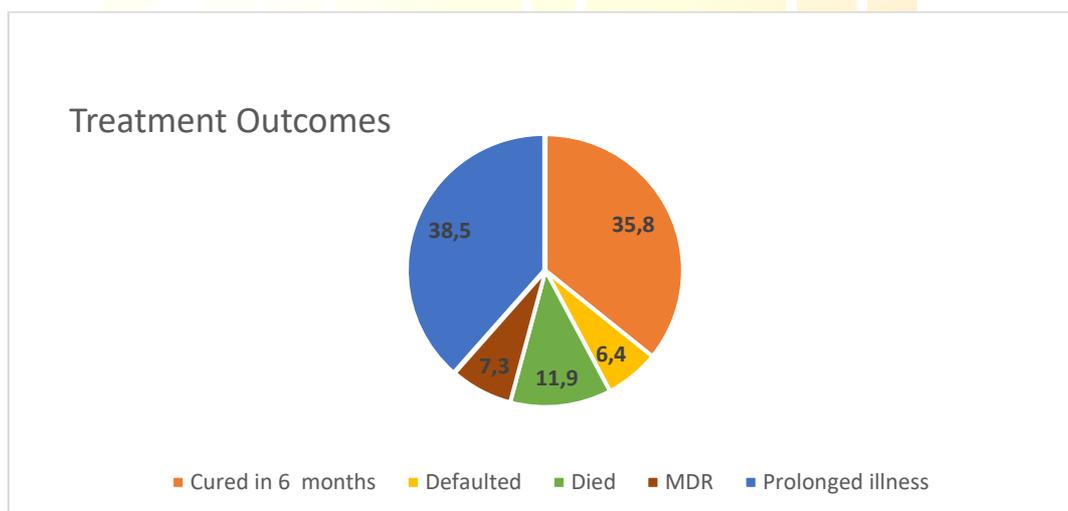


Figure 1: A Pie chart showing the different treatment outcomes in TB treatment defaulters. It is apparent from this chart that a majority of the patients experienced prolonged illness which accounts for 38.5%, while 35.8% cured in 6 months. 11.9% of the patients died and 7.3% of them developed multi-drug resistant tuberculosis. However, a small percentage (6.4%) of them defaulted treatment again.

3.3. Demographic characteristics of respondents

A total of 109 patients participated in the study with a 96.3% response rate; of whom males were 64 (61%) and females were 41 (39%), by age group the 40 to 49 age group account for 24.8% and 54.3% had completed secondary education. Majority of the participants (43.8) were Protestants while farmers constitute for 34.8%.

3.4. Factors associated with poor treatment adherence

Among respondents, the participants listed different factors related to individual patient, health system and treatment- related, which affect adherence to their treatment and follow-ups.

3.4.1. Patient factors;

Among personal factors raised by respondents, the major is forgetting to take drugs which account for 32.8%. Only 61.9% had someone to remind them to take their drugs. Patients also replied that TB drugs can be stopped once symptoms completely disappear, these accounted for 41.0% while 27.9% were not sure whether they can be stopped or not and only 31.1% disagreed with this.

Univariate analysis of socio demographic factors as shown in table 2, indicated that males (95% CI 1.39-1.67) were at a higher risk of defaulting than females (95% CI 1.11-1.38). It also indicated that the elderly aged 60 years and above (95% CI 1.37-1.81) were at a higher risk of defaulting than young adults (95% CI 1.27-1.75).

3.4.2. Health system related;

Majority of the patients (57.1%) also said that health care workers are rude. And only 64.8% of the patients agreed that health care providers always emphasize the importance of adherence to drugs. Most of the patients (63.8%) disagreed when asked whether health care providers gave enough health education on TB. In addition, 9.8% of the patients mentioned that long lines in the hospital was one of the reasons that led to defaulting treatment.

3.4.3. Therapy related;

Some patients replied that they defaulted because symptoms disappeared (19.7%) and they experienced side effects (16.4%).

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Table 2: Univariate analysis of socio-demographic factors of respondents that have ever defaulted medication

Variable		Odds Ratio (OR)	95% confidence interval	
			Lower	Upper
Gender	Male	1.0	1.39	1.67
	Female	0.8	1.11	1.38
Age category	Under 18	1.3	2.00	2.00
	19-29	1.0	1.27	1.75
	30-39	0.8	1.07	1.45
	40-49	0.9	1.13	1.49
	50-59	1.0	1.24	1.70
	60 and above	1.1	1.37	1.81
Education	Primary	1.0	1.34	1.60
	Secondary	0.9	1.20	1.55
	Tertiary	0.9	1.10	1.65
Religion	Muslim	1.0	1.34	1.79
	Catholic	1.3	2.00	2.00
	Protestant	0.9	1.21	1.50
	Other	0.9	1.11	1.44

The data in Table 2 shows that the probability of males defaulting treatment was increased by 1.0 Unit and that of females was increased by 0.8 Units. Likewise the chance of the elderly above 60 years was increased by 1.1 units and that of the young adults was lower. Education also played a role in that those that only attended primary school had a higher probability of defaulting than those that attended higher levels of education.

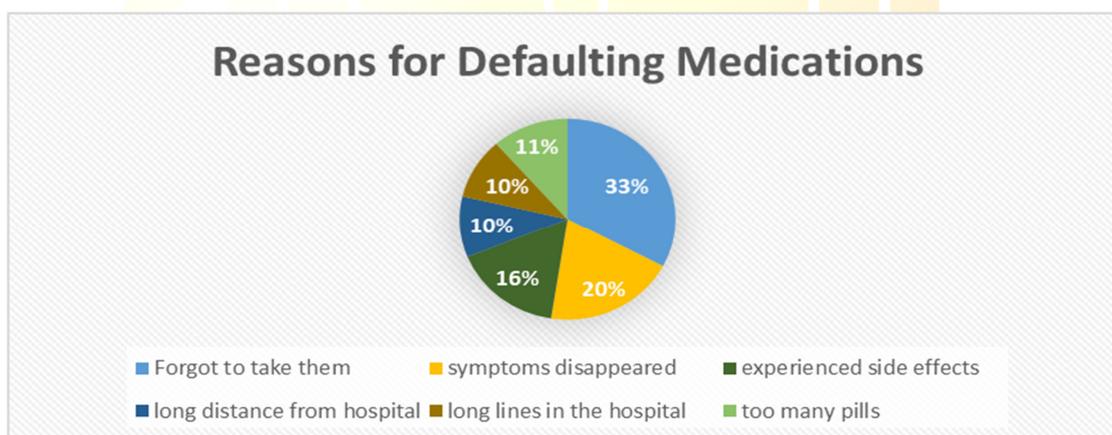


Figure 2: Reasons for defaulting tuberculosis treatment. The most common reason given for defaulting treatment was forgetting to take drugs which accounted for 33%, the second most common reason was symptoms disappearing and so they did not feel a need to continue taking drugs. 16% of the patients stopped treatment as a result of experiencing side effects, others stated that the pills were too many to take (11%). Long distance from hospital and long lines in the hospital were the two other reasons for defaulting, and these accounted for 10% each.

4. DISCUSSION

The study findings indicated that there are various outcomes associated with defaulting TB treatment. The most common was prolonged illness, however a good proportion of these patients also cured with treatment of 6 months. It was found that defaulting TB treatment can lead to prolonged illness, MDR-TB, death and some of the patients defaulted treatment again. This was in line with a study carried out in Southern Ethiopia that mentioned antimicrobial resistance, death and increased health care costs as the major consequences of defaulting TB treatment [6]. No study that talked about the incidence of the each of the treatment outcomes was found, and hence the most common outcomes wasn't known. In this study the most common was prolonged illness whereby patients were treated for more than the usual 6 months of treatment. In this study, the incidence of TB treatment defaulters that had missed at least one daily dose was 58.1% which is higher than previous studies conducted within the same region and elsewhere. Previous studies showed a default rate of 11.9% in Mulago [3]. All other studies done in other regions had values less than this, for example, 14% in Brazilian Amazon [5]. The difference may be due to the size of the study participants. However, in a study carried out in Southern Ethiopia, the rate of non-adherence was 60.1% [6]. Hence, the rate of TB treatment default is increasing and this is attributable to many factors discussed below.

The factors that lead to treatment default were identified as patient factors, health-related and therapy-related factors. These included sex (male), age (elderly), low education level, poor knowledge about source of TB infection, prevention, and transmission. It also included long distance from hospital, long lines in the hospital, lack of education about importance of adherence to TB treatment, drug side effects and forgetting to take drugs. These findings are consistent with the findings of studies carried out in Southern Ethiopia, Khartoum and Nairobi. For instance, forgetting to take the drug, discomfort (medication side effect), lack of awareness, insufficient knowledge about antibiotics, and remission of symptoms [6]. Long distance from the hospital was a factor in Khartoum. (Ahmed, 2018), and inadequate knowledge about TB in Nairobi [8]. Similar factors were mentioned in several studies including, but not limited to Urban Morocco [4] and Brazilian Amazon [5].

5. CONCLUSION

In this study, it was found that most patients that defaulted treatment experienced prolonged illness while a few developed MDR-TB and others died. The most frequent reasons for treatment default as cited by patients were forgetting to take drugs and symptoms disappeared coupled with inadequate knowledge of patients about TB. Defaulting was common among males and in the elderly aged 60 and above.

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REFERENCES

- [1]. Adigun, R. et al (2022). Tuberculosis. Treasure Island: StatPearls. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK441916/>
- [2]. Dye, C. et al (1999). Global Burden of Tuberculosis: estimated incidence, prevalence and mortality by Country. J Am Med Assoc.

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E-MAIL: editor@libertyacademicbooks.com

[3]. Batte, C. et al (2021). Prevalence and Factors Associated with non-adherence to multi-drug resistant Tuberculosis (MDR-TB) Treatment at Mulago National Referral Hospital, Kampala, Uganda. African Health Sciences, 24(0), 244. Retrieved from African Health Sciences.

Available from [fa580f13cf5da5195339050eaf4e9bd17fd2.pdf](https://www.semanticscholar.org/paper/fa580f13cf5da5195339050eaf4e9bd17fd2.pdf) (semanticscholar.org)

[4]. Cherkaoui, I. et al (2014). Treatment Default amongst Patients with Tuberculosis in Urban Morocco: Predicting and Explaining Default and Post-Default Sputum Smear and Drug Susceptibility Results. PLOS ONE, 1, 3.

Available from: [pone.0093574](https://doi.org/10.1371/journal.pone.0093574) 1..9 (plos.org)

[5]. Garrido, M. d. et al (2012). Factors Associated with Tuberculosis Treatment Default in an Endemic Area of the Brazilian Amazon: A Case Control Study. PLoS ONE, 2, 3. Available from [pone.0039134](https://doi.org/10.1371/journal.pone.0039134) 1..7 (plos.org)

[6]. Hareru, H. E. et al (2022). Antibiotics Non-adherence and its Associated factors among households in Southern Ethiopia. SAGE Open Medicine, 6-7.

Available from: <https://journals.sagepub.com/doi/pdf/10.1177/20503121221090472>

[7]. Mulago National Specialised Hospital. (2022, April 11). Retrieved from Wikipedia: https://en.m.wikipedia.org/wiki/Mulago_National_Specialised_Hospital

[8]. Muture, B. N. et al (2011). Factors Associated with Default from Treatment among Tuberculosis patients in Nairobi Province, Kenya: A Case Control Study. BMC Public Health, 2, 5. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3224095/pdf/1471-2458-11-696.pdf>

[9]. Wohlleben, J. (2017). Risk Factors Associated with Loss to Follow Up from Tuberculosis treatment in Tajikistan: a Case Control Study. BMC Infectious Diseases, 1. Available from: <https://bmcinfectdis.biomedcentral.com/track/pdf/10.1186/s12879-017-2655-7.pdf>

[10]. Denis, O. et al (2019). Multidrug-resistant tuberculosis outbreak associated with poor treatment adherence and delayed treatment: Arua District, Uganda, 2013-2017. Retrieved from National Library of Medicine: <https://pubmed.ncbi.nlm.nih.gov/31064332/>

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**ORGANIZATION OF HEALTH PRACTICES, BASED ON THE INTERACTIONS
AT THE SECONDARY CARE LEVEL, ALBANIA**

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ABSTRACT

Objective: to understand the organization of health practices, based on the interactions at the secondary care level, and to analyze how the actions and services at this level of care contribute to the development of best practice in health.

Method: a qualitative approach, based in Grounded Theory. Data was obtained from individual interviews, with managers, health care professionals and health service users making up the sample group representing the secondary level of healthcare. The theoretical model was formulated based on four categories, analyzed based in the elements of the network modeling of health care theoretical framework.

Results: The organization of health practices at a secondary level is in the process of consolidation and is contributing to the development of best practices in the locale studied.

Conclusion: The broadening of access to consultations and specialized procedures, and the articulation of the network's points, are aspects of this level of care which are considered essential for care which is effective and integral. This study contributes to the analysis of health practices from the perspective of network modeling, based on the interactions between secondary care and the health system's other health facilities, which are shown as going through a process of consolidation in the locale studied.

Keywords: Public Health Practice; Unified Health System; Health Systems; Delivery of Health Care.

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**HEALTH PROMOTION EDUCATION PROGRAM EFFECTS ON HEALTH
STATUS OF ELDERLY IN GERIATRICS HOMES AT KHARTOUM STATE,
SUDAN, 2017; PRE- AND POST- INTERVENTION STUDY**

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Abstract

Background: The benefits of health promotion include slowing down functional decline, improving independence, reducing illness burden, increasing healthy life span, and enhancing quality of life among elderly. This study aimed to evaluate the effectiveness of health promotion education program on health problems and status of elderly. **Methods:** A Quasi-experimental study was used. Twenty two participants were selected at Khartoum State, Sudan; 2017. A structured close-ended questionnaire was used to collect data pre- and post-intervention. It was composed of 8 questions related to personal and socio-demographic characteristics; and (5) questions related to assessment of health status. The total health problems assessed were 13 problems. Data was analyzed using (SPSS) version (25). The statistical test used for determination and comparison of differences in health status was (Paired t-test). The level of statistical significant was considered at $P\text{-value} \leq 0.05$. **Results:** All symptoms were declined obviously from pre- to post-test. The common health problems were blindness, arthritis, hypertension and diabetes. Regarding degree of health status, majority of elderly had a good health at pre- test and improved to very good at post-test. Overall score of health status parameters were improved. Improvement of their health status, at post-intervention, results in improvement of their physical fitness, giving a positive effect reflected through walking for 30 minutes daily. **Conclusion and Recommendations:** Educational health promotion program, result in improving health status of elderly. Co-operation between governmental and non-governmental organizations is highly recommended to improve environmental situation and other services in these homes.

Keywords: Health Education; Health Promotion; Health Status; Elderly; Khartoum State; Sudan

HISTORY OF PUBLIC HEALTH IN KOSOVO'S VILAYET

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Abstract

The history of public health is derived from many historical ideas, medical trial and error, the development of basic sciences, technology, and epidemiology. History gives a window through which to understand community health issues and how to address them. The goal of this research, based on Ottoman archive documents, is to examine how infectious diseases were conceptualized, controlled, and treated in the Vilayet of Kosovo between 1877 and 1912. We will also examine the scope of infectious illnesses, health institutions during this time, medical staff activities, immunization and everything else relevant to public health in the Ottoman Empire, specifically in the Vilayet of Kosovo. Because the evolution of public health is a continuously and changing process with innovative ideas, experience from Kosovo's historical past of health is an important resource in the formation of current health policies.

Keywords: Kosova Vilayet, Ottoman Empire, Health Public, Hospitals, Epidemics, etc.

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RECRUITMENT CHALLENGES FOR DENTAL PRACTICES COVID 19 EDITION

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Abstract

The pandemic has forced the traditional recruitment activities to a massive transfer to online and digital, these technologies quickly becoming an important ally of the human resources departments all over including the medical fields.

The purpose of the study: to investigate the way in which the recruitment and selection process is carried out in two dental clinics located in Timisoara Romania using a status of digital facilities, the involvement of Web and Social Media means within the Human Resources processes.

Research method: survey based on questionnaire. The questionnaire was distributed to the two dental clinics cumulating a total of 50 subjects. Data were collected in May 2022. Sample type: semi-probability unstratified simple random.

Results and conclusions: The research investigated which of the recruitment platforms are the most effective, and the answers received show that the respondents from one clinic find the recruitment site eJobs the most productive while the smaller scale clinic preferred the SM LinkedIn platform. The results obtained following the processing of the questionnaires are not general, but particular in nature, as they were applied only to the two clinics, but they bring to the fore the challenges faced by those in charge of the recruitment and selection process within the dental services at the local level in conditions where everything is dynamic.

Keywords: pandemic , human resources, recruitment ,medical field recruitment , dental office management

**STUDY ON JUVENILE GROWTH PERFORMANCE OF NON-DESCRIPT
COUNTRY CHICKEN UNDER INTENSIVE SYSTEM OF MANAGEMENT IN
PUDUCHERRY**

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ABSTRACT

A study was conducted to evaluate the growth performance of Country chicken under intensive system of management in the poultry unit of Livestock Farm Complex (LFC), Rajiv Gandhi Institute of Veterinary Education and Research (RIVER). Country chickens are widely known for their distinctive characteristics like multi-coloured plumage, adaptability, disease resistance, sturdy nature and good brooding capacity. The advantages of desi chicken have increased the interest among the rural folk to rear the desi chicken in large numbers in semi-intensive and intensive management. A total of 150 day-old chicks were procured from hatchery unit to study growth parameters. The average body weight at 11 weeks was 816.04 ± 41.31 g. The peak weight gain of 103.76 g was at 8 weeks. The cumulative FCR recorded was 3.26. The cumulative mortality was 3.32 %. The total cost of production/bird up to 11 weeks of age was Rs.158.66 with the returns per bird of 1.18 and was profitable.

Keywords: Country chicken, body weight, FCR.

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AMEBIASIS IN PET DOGS IN BELGRADE AREA DURING 2021

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ABSTRACT

Constantly increasing the number of dogs is a serious health problem in urban environments. Dogs pollute public and green areas with their feces which represent an epidemiological danger, because that these animals are carriers and true hosts of a large number of zoonotic parasites species. For these reasons, since 1993, in Belgrade parks and public areas have been continuously inspected for parasitic contamination with dog excrement. At the same time, the feces of owned and non-owned dogs from those areas are control for the presence of parasites. In our paper we presented result of examination of pet dogs in Belgrade area to presence of protozoan infection with a special focus on amoebiasis. During 2021 we examined feces of 137 pets dogs that had symptoms of dysentery, diarrhea, weight loss, fainting and abdominal pain. Amoebiasis was found in 41 animals (29.92%) by finding parasites in the native fecal preparation (which was stained with Lugol's solution). Amoebiasis of dogs is most commonly caused by the amoeba *Entamoeba histolytica*. Humans are the natural host of this parasites. A common source of infection of dogs is food or water contaminated with feces that contains cysts as well as coprophagy (common in dogs) and the primary sites of infection are parks and green areas where dogs are walk. Similar prevalences have been reported in dogs in most cities around the world. The presence of dog amoebiasis indicates an unfavorable epidemiological situation, constant contamination of green areas and ultimately the irresponsibility of pet owners who do not clean their pets' feces from public areas.

Keywords: dogs, amoebiasis, epidemiology, zoonoses

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**SALUD MENTAL EN PROFESIONALES DE SALUD VS ORLS EN
LATINOAMÉRICA DURANTE LA PANDEMIA DE COVID19: UNA
EXPLORACIÓN AL PROBLEMA**

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ABSTRACT

Introducción: La pandemia por COVID-19 generó una carga física y mental significativa en los trabajadores de la salud. Este estudio compara la prevalencia de ansiedad, depresión y estrés, así como los cambios en sus actividades cotidianas y ocupacionales en otorrinolaringólogos de Colombia y de otorrinolaringólogos pediátricos en Latinoamérica con los profesionales de salud en Colombia durante la pandemia por COVID-19.

Métodos: Se realizó un estudio a nivel nacional tipo observacional, transversal entre febrero y junio del 2021. Por medio de encuestas que incorporaron herramientas validadas de salud mental como el “*Generalized Anxiety Disorder-7*”, “*Patient Health Questionnaire-9*”, “*Perceived Stress Scale-10*” y “*fear of COVID-19 scale*”. Se realizó una regresión logística ordinal multivariada para determinar los factores asociados con alteraciones en la salud mental de los trabajadores.

Resultados: Entre 1345 profesionales de la salud en Colombia la prevalencia de ansiedad, depresión y estrés fue de 75.61%, 59.18%, 53.09% y 34.3%, respectivamente. En contraste, la prevalencia de ansiedad, depresión y estrés en otorrinolaringólogos de Colombia fue de 56.1%, 28.05% y 28.05%. Por último, la prevalencia de estas tres condiciones en otorrinolaringólogos pediátricos de Latinoamérica fue de 67.27%, 45.45% y 40%. Entre los factores asociados a estas alteraciones se encontró que la ansiedad (OR:1.44; 95%CI:1.16-1.8), depresión (OR:1.74; 95%CI:1.27-2.37), y estrés (OR:1.51; 95%CI:1.18-1.94) fueron más frecuentes en mujeres y en los trabajadores que expresaron miedo de un desenlace negativo por COVID-19 (muerte o secuelas) (OR:2.25; 95%CI:1.60-3.25), (OR:1.49; 95%CI:1.03-2.16) y (OR:2.36; 95%CI:1.69-3.29), respectivamente.

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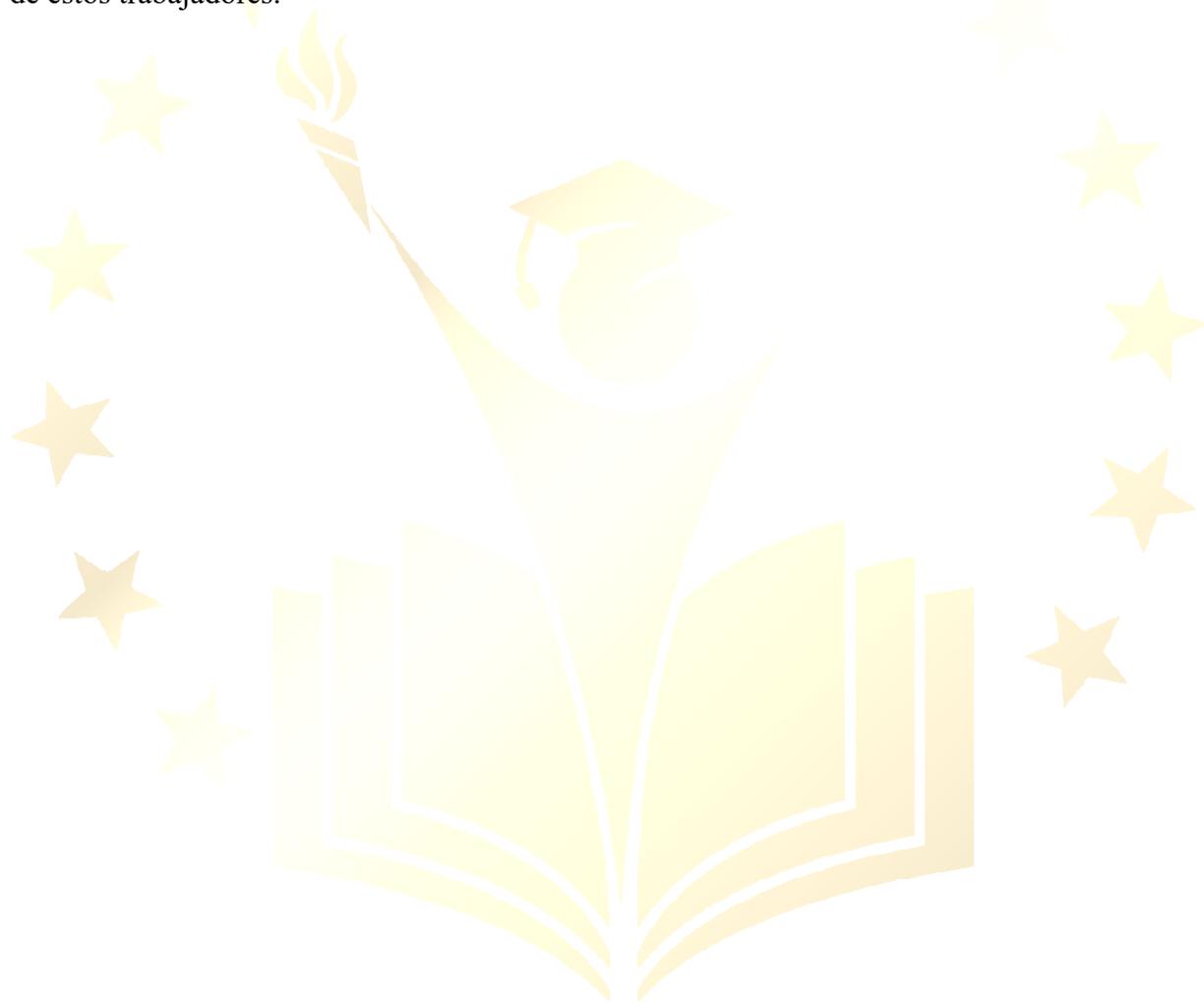
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La reducción en consultas y cirugías (OR:1.01; 95%CI:1.0-1.01) fue asociado positivamente con la ansiedad. Debido a la pandemia, gran parte de los especialistas reportaron que esperan incorporar cambios drásticos importantes a largo plazo (> 1 año) en sus actividades cotidianas y en su práctica clínica.

Conclusiones: La prevalencia de ansiedad, depresión y estrés es alta entre otorrinolaringólogos pediátricos en Latinoamérica es la más alta en comparación con profesionales de salud colombianos y con reportes internacionales previos. Deben desarrollarse estrategias de intervención y prevención tempranas para proteger la salud mental de estos trabajadores.



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THE ROLE OF TECHNOLOGY IN BUILDING A POST-PANDEMIC TALENT-ORIENTED ORGANIZATION: EMPLOYER BRANDING IN THE DIGITAL ERA

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Abstract

The COVID-19 pandemic has severely affected many organizations' practices, including talent management. As a consequence, in the post-pandemic period, numerous businesses are struggling to attract and retain their employees, and are starting to realize the importance of employer branding as a strong marketing, human resources, and communications tool directed toward the existing and potential future employees. New, emerging technologies bring to light many opportunities, but also challenges in successfully managing talents while maintaining the employer brand positive in the minds of all stakeholders. By applying the method of analysis, synthesis, and comparison of the existing literature on employer branding, this paper presents a detailed assessment of the impact of technology on external and internal employer branding practices. A systematic overview is provided of the changes occurring in today's business environment, new trends are discussed and possible future developments are projected. This paper, thus, contributes to the existing literature on employer branding and talent management while giving valuable insights to key people in organizations regarding the possible paths of the direction of employer branding strategies.

Keywords: employer brand, employer branding, information-communication technologies, knowledge workers, talent management

1. INTRODUCTION

Fast technological development, accompanied by the 2020 COVID-19 pandemic, brought unprecedented changes in the business environment causing companies to rapidly transform their work practices [1]. Many industries and organizations were severely affected by the pandemic and put in the hard position of either firing their employees or reducing their salaries [2]. Several predictions state that it will take more than 5 years for some industries to recover and return to their normal, pre-pandemic state [3]. Consequently, numerous companies are developing new business processes, new working models, and new marketing channels while at the same time implementing additional technologies – all requiring changed and expanded workforce skills [4], which is causing many employees to rethink their career paths and goals, and to change their working environments [5]. Moreover, many organizations do not have the knowledge or the capabilities to handle so many changes at once, or even worse, they expect their employees to adapt gradually, on their own [6]. So, another puzzling situation is happening in which the current workers are quitting their jobs and leaving their companies in search of better work conditions [6].

It is true that the pandemic has sped up the digital transformation of many businesses, but this improvement didn't happen by chance – humans worked together and created so many fascinating innovations that helped businesses survive through the hardest times [7]. Employees themselves were put in a difficult position having to adapt to a new environment, working and learning remotely, while at the same time dealing with other social changes of living in constant prohibitions and isolation periods [8]. These new conditions required self-management and exceptional organizational skills. It is no wonder that employees have changed [9]. Their expectations, aspirations, goals, and life views have altered.

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This changing workforce is in search of new meanings, new purposes, and new connections, which strongly involve bringing back the human aspect to their jobs. As a result – over 19 million US employees have quit their jobs since mid-2021 [6]. The time has come to change the work practices and the attitudes toward the existing employees while at the same time, businesses have to transform themselves into post-pandemic organizations that understand the fears and aspirations of their employees and fulfill their new needs. And while many business leaders acknowledge the change in the workforce attitude, there is a gap in employee expectations and the reactions of the management [6]. In order to overcome this gap, human resource departments started to adopt new practices and solutions aiming to retain their best employees. One of those solutions is found in employer branding (EB).

In its simplest form employer branding unifies marketing activities and the HR processes of attracting, recruiting, and retaining employees [10]. From the very first definition coined in 1996 [11] (p. 187) "as the package of functional, economic, and psychological benefits provided by employment, and identified with the employing company", the term employer brand has developed into multiple meanings while encompassing several different dimensions [12]. It actually embraces all the possible ranges of positive or negative feelings that an employee can develop towards an organization. Taking that into consideration, it is worth noting that every employer in fact has already built its employer brand, whether they would or wouldn't like to be associated with it [12]. Employer brand can also be observed as the organization's image that past, current, and potential future employees create in terms of workplace attractiveness [13]. It is precisely the image that is one of the most important assets and indicators of an organization's success today [14]. Very often people perceive organizations through human characteristics attributing different personality traits to them [15]. Once the image is created, it is very hard to change its perception in the minds of different stakeholders. The collection of all perceptions is observed as the image of the organization. But creating a positive image in the minds of the stakeholders is very demanding when taking into consideration all the changes occurring in the 21st century [16]. With the influence of new rapidly developing technologies, building a positive image doesn't depend only on the company's efforts, but involves many other organizations, people, or events, participating directly or indirectly [14].

Taking into account all the stakeholders involved in the creation of the employer brand, the literature very often distinguishes between internal and external employer branding [17]. External employer branding focuses on potential employees, that is the applicants or the ones in search of new jobs. It is considered that job-seekers display behaviors similar to the consumers since their motivation to apply for a certain job position depends on the image they create about the attractiveness of a certain company as an employer [18]. While doing so they give thought to both instrumental benefits (e.g., compensation package) and psychological benefits (e.g., culture) that a company offers [17]. On the other hand, internal employer branding takes into account the existing employees' perspectives and views of the organization [17]. The main goal of the activities directed toward the existing employees is to incorporate the organization's brand into a company's culture which is then transferred from the employees to the customers [19]. The current employees are the best ambassadors of the company's image and reputation, and in that sense are an extremely important element to consider when developing an employer branding campaign [17]. Just as the former CMO of The Coca-Cola Company would conclude: "Before you can even think of selling your brand to consumers and customers, you have to sell it to your employees" [20] (p. 204).

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It is often emphasized that every employer brand consists of three main components [21]: (1) reputation, as an extremely important part of the prospective or current employee's decision to join or stay within a company (since they are aware that the company's reputation can affect their own reputation); (2) employer value proposition (EVP) which is for some scholars ([22], [18]) one of the most important parts of EB strategy since it contains and encompasses all the promises that one company offers to its employees, and (3) experience, which builds upon the EVP. If the company fulfills all the promises incorporated into EVP, the result will be a positive employee experience which will most likely translate into an organizational commitment [23], job satisfaction [24], or intention to stay within the organization [25]. Since employees are the key factor in building the employer brand, their behavior can either enhance the brand's values or destabilize its credibility if the message communicated is not consistent with the EVP [26]. For that reason, it is very important to take into account the values and principles of employees when creating an employer brand, and that means: (1) constant communication with employees, (2) making sure they understand the intended values, while at the same time (3) aligning every job position with the "brand essence" [27]. The foundations of employer branding lay in the human relationships and emotions which are created around an organization and its employees [14].

Many organizations have begun to realize the numerous benefits that come out of effective employer branding. Using innovative and creative solutions to advertise their values and culture through multiple channels, both offline (newspapers and TV), and online (social media), and in various forms such as YouTube videos, social media ads, native articles, newsletter campaigns, etc., they are directing their efforts on creating high-quality employer brands that will reflect their employer attractiveness [28]. But even though many scholars emphasize the role of technology and its influence and importance in building the employer brand ([28], [29], [30]), there is still little research that systemizes and analyzes its effect. This paper aims to fill the identified research gap. By applying the method of analysis, synthesis, and comparison of the existing literature on the influence of technology on employer branding practices, the goal of this paper is to present a detailed review of the impact of technology on external and internal employer branding practices.

Previous research has shown that employer branding strategies today have gone mostly digital with social media being a widely used channel of communication, especially in terms of attracting millennials as target employees [22]. Moreover, it was shown that communication lies at the heart of the employer branding process, with more employees wanting to stay connected through digital channels, which allow bi-directional, easy-to-handle and fast-response interaction [29]. Thus, in creating a digitally oriented, engaging, and continuously connected work environment, several questions arise, which are the basis of this research paper:

RQ1. How can new, emerging technologies help in building successful employer brands?

RQ2. What are the main challenges that organizations face in managing their employer brands in the post-pandemic digital era?

RQ3. What are the possible future trends that will affect employer branding strategies?

The paper is structured as follows: after the introduction, detailed technological influence is examined – both concerning external employer branding and internal employer branding. The third section examines the challenges that organizations face in building their employer brands. Section four deals with the possible future trends and the development of employer branding, and section five concludes the paper and outlines the recommendations for future research.

2. INFLUENCE OF TECHNOLOGY ON EMPLOYER BRANDING PRACTICES

The development of technology has influenced the organization's communication strategies and affected its nature [31]. Its direction has changed from one-way to complex multiple-ways with the use of new media such as the internet, e-mail, social networks, and collaboration tools (Zoom, Teams, Meet, etc.). The 21st century faces the greatest digital transformation since the industrial revolution and is often characterized by digitalization, artificial intelligence, data analytics, and cloud computing that led to the creation of new markets and new ways of conducting business operations [29]. Technology has erased the concepts of space and time, meaning that more often even hotels, bars, trains, buses, and airport terminals are used as workplaces and offices for many workers [32]. As a consequence, larger organizational networks are starting to emerge that consist of multi-generational and multi-cultural employees living in different parts of the globe [32], and their collaboration is mediated through information technologies [33].

A lot has changed in employer branding practices since the term was first defined in 1996, especially when Web 2.0 emerged subsequently allowing two-way communication and interaction [34]. Social media influenced the way people think, behave, buy, watch, eat and read. But social media also became a channel for sharing work experiences and feelings towards employers, which resulted in the creation of electronic word-of-mouth that could seriously impact an organization's employer brand and its image as a desirable employer [34]. Nevertheless, it is considered that the implementation of digital solutions and tools could aid in creating a better image in the minds of current and potential employees, thus improving the competitive advantage of an organization and positioning the company as a valuable and desirable employer – which is the ultimate goal of any employer branding strategy [35].

The effects of technology on the organization's employer branding practices are numerous and are systematized in table 1. The methodology of the study consisted of a keyword search-based approach to find and identify papers relevant to the field of study [53]. Keywords such as "employer branding", "technological influence", "talent management" and "digital employer branding" were used on Scopus and Google Scholar databases, which were then examined to make sure they are contributing to the literature in the context of technological influence on employer branding practices. The studies that were selected are of different types, including doctoral dissertations, journals, and conference proceedings. Since technology affects both internal and external branding processes, for precise presentation, the table is divided into two parts.

Table 1. Influence of technology on employer branding processes and strategies

EXTERNAL BRANDING	INTERNAL BRANDING
<p>Enhances communication:</p> <ul style="list-style-type: none"> • Communication is limitless, with possible powerful effects [14] • Enables the use of several online platforms, apps, and social media [36], as well as the company's website, online newspapers, e-recruitment portals, and professional job networking sites [30]. Other channels include instant messaging, micro-blogging, e-learning, podcasts, web conferences, and gamification [29] - the access is instant and the content is visible the entire time 	<p>Enhances communication:</p> <ul style="list-style-type: none"> • Breaks down the communication barriers [31], which aids in maintaining good relationships and connections between employees at all levels of positions [40] • Contributes to the democratization of the workplace allowing two-way communication [31] • Enables cooperation and collaboration regardless of geographic location and time zone [34] • Facilitates the change acceptance and fastens the organization's transformation [43]

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- Helps in communicating the company's vision, mission, values, and culture more effectively [31], in various formats (video, photo, presentations) which allows future employees to create a better perception of the workplace [26].
- Enables organizations to reach all their stakeholders simultaneously and manage more effectively their reputation as desirable employers [37]
- Evokes truthful, critical reactions and opinions of the public due to the anonymity and lack of censorship in online communication [14]
- Helps to measure and keep track of electronic word of mouth – of people's opinions and experiences with other employers [38]
- Allows precise measuring of the effectiveness and results of the campaigns delivered through digital channels via different metrics [36]

Enables precise potential employee targeting:

- Enables targeting a specific pool of potential future employees, as well as identifying exactly the right potential employee for the exact vacant position [36]
- Enables the continuous visibility of job postings, which can be examined from any location at any time of the day [39]
- AI can track users' behavior on websites and adapt the content based on the user's profile [41]
- Chatbots can be used in real-time to answer all the potential candidates' questions and concerns [41]
- Enables easier collection and storage of received job applications [40]
- With the use of big data and artificial intelligence, the screening of job applications and resumes is reduced, and locating the right candidate for the job position is enhanced, resulting in reduced time, cost, and manual effort [39]

- Helps in more successful strategy implementation which enhances business agility and resilience [43]

- Enables performing work from every location, making it possible to work from home which results in a lower rate of absenteeism [40]

- Enables a wider recognition of an employee as a stakeholder who is important for an organization's success, which can increase motivation, loyalty, satisfaction, and the rise of innovative ideas [31]

Facilitates time management:

- Reduces time-consuming work = greater employee satisfaction and experience [29]

- Enables faster collaboration via virtual teams which improves the skills of adaptability, innovative thinking, flexibility, intercultural communication, and intercultural intelligence [29]

- It can be used as an assistance tool for new employees - augmented and virtual reality can create an exact work environment through which training and education are performed which saves time for HR management [39]

Improves employee evaluation:

- The use of different data analytic tools provides a better understanding of the work performance of newly employed personnel [36]

- With the assistance of artificial intelligence, talent management can be simplified and enhanced; such as monitoring and keeping track of employee progress, managing employee performance feedback, and setting the benchmarks for the compensation package [39]

- Enables systematizing key performance indicators of current employees which makes promotion policies transparent and fair [39]

- Aids in maintaining an organization's transparent and visible pay structure [39]

Affects employee retention:

- Makes it possible to create an ethical organizational climate and contribute to socially responsible behavior [31], which can result in reducing the retention rate of employees [40]

Aids in reliable candidate selection:

- The development of high-speed 4G and 5G networks and collaboration tools allow real-time conversation with potential employees all around the world thus simplifying the interviewing process [39]
- The use of AI chatbots can help in screening, clarifying, and simplifying the interpretation of answers provided during the interview [39]
- Gamification allows incorporating gaming elements into the selection process thus creating a virtual and fun, challenging, and interactive environment for the candidates [42]
- Could also help in maintaining well-being and wellness by monitoring health indicators via various smart devices and apps [39]
- Indirectly contributes to the development of the digital skills and competencies of HR and Marketing departments [36], requiring re-training and education of existing employees which affects their motivation for continuous progress and growth [39]

As is visible from the table, the implementation of digital solutions, accompanied by the rise of 4G and 5G technologies, the internet-of-things, chatbots, artificial intelligence, and even the elements of gamification, brought and will continue to bring lots of changes in the work environment, influencing employer branding practices and the creation of employer brands. On the other hand, such a dependence on technology can lead to decreased security, virus threats, and hacker attacks that can result in the loss of confidential data [44]. All of these new challenges will require a different set of skills and knowledge from the workforce to effectively put all the new practices into organizational processes [39].

3. CHALLENGES OF MANAGING AN EMPLOYER BRAND IN THE DIGITAL WORLD

The influence of technology on employer branding practices and its impact on HR and marketing departments have been discussed in the previous sections. What is crucial for organizations is to realize the importance that the employer branding strategy has for the success of the organization [39], which is in fact the first challenge that many organizations have failed to acknowledge. The constant shortage of knowledge workers has created a sense of urgency among organizations generating a need to build their employer brand effectively by developing a unique employer value proposition in a way that differentiates them in the labor market [45]. That means that the traditional approach of just posting a job ad on relevant channels is simply not enough anymore and many organizations will have to rethink and change their practices. In that sense, communication and advertising may become key tools that will help the company reach, employ and retain skilled talent for their organizations [45]. There is a need to integrate and align marketing communications to deliver a unique image to the internal and external stakeholders, which is not easy. At the moment, many organizations are just getting acquainted with the branding concept, and are still struggling with differentiating the concepts of brand equity, brand loyalty, corporate image, and reputation [45].

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The second challenge lies in creating an employer brand while aligning and organizing the communication towards different generations of employees [39]. The usage of different digital (e.g., Dropbox) and collaboration technological tools (e.g., Teams, Meet, Zoom), erased the geographical distances and time zones between the employees and the organization [13]. This change was followed by other changes in work perception, such as the importance of work-life balance, flexible working hours, the possibility to work from home, etc. The indicated job values are perceived differently by employees of diverse generations [39], which is very challenging to handle taking into consideration that currently, four generations are present in the labor market: the Baby boomers, Generation X, Generation Y, and Generation Z, all manifesting various working styles, expectations and preferences [46]. Moreover, they display different attitudes toward technology. For example, Baby boomers manifest traditional values and prefer in-person communication, while on the other hand Generation Z (or the Digital Natives) lacks interpersonal skills and prefers communicating through digital channels [46]. What is even more challenging is that this evolving workforce comprises full-time and part-time employees, as well as freelancers and contractors that do not develop formal ties with the organization [16]. To retain new talent and ensure stable collaboration, organizations will have to develop new practices and frameworks [16]. New bonds and relationships will be created between the employer and the employee, such as "partnership talent" (joint venture employees), "borrowed talent" (outsourcing companies), "freelance talent" (independent individuals on contract), and "open source talent" (value chain partners). It is more than obvious that managing talent becomes very challenging for today's organizations, which is why the current condition is often named as "an open talent economy" and is characterized by a cooperative, technology-orientated, and rapidly changing way of doing business [16]. Another challenge stems from communicating the brand to employees of other cultures in different countries, for those companies that operate in international markets. All these challenges result in increased demand for different types of management skills often named e-leadership skills that will be common for jobs in all industry types and sectors [47]. The third challenge arises from dealing with all the new technologies that are emerging [36]. That calls for urgent training and education of the existing employees so they could cope easily with many simultaneous changes happening at once. The above-mentioned adjustments in the work environment affect the adoption and utilization of digital solutions that speed up the organizational processes which results not only in the improvement of the activities but also in reducing the repetitious, tedious and time-consuming work-load, allowing the employees to concentrate on other, creative tasks [35]. Moreover, to cope with all the changes happening in the dynamic markets in which organizations operate, companies need to become resilient and agile. In that sense, departmental cooperation is a must. Even though digital advertising and communication were considered to be only in a domain of a marketing department, HR managers need to realize that through digital platforms companies can target precisely their ideal candidates and assign them to specific jobs positions; they can hire new employees more easily with less cost and monitor their progress, which allows for more accurate career planning and development [36]. All of the above-mentioned challenges can be effectively managed only through coordinated internal and external communication processes and efforts [39]. These actions should promote a brand message, culture, and values, which will lead to a synchronous collaboration that meets the unique goal of providing current and future employees with a desirable place to work [48].

4. FUTURE TRENDS IN THE DEVELOPMENT OF EMPLOYER BRANDING PRACTICES

The speed of change makes it very hard to predict future employer branding trends with confidence [49]. One of the major problems that will continue to arise in the time ahead definitely lies in finding talented employees for filling vacant job positions, especially the ones that have the capabilities to handle all the newcoming trends. Questions of automated job positions, outdated roles, new emerging jobs positions, new skills, and evolving technologies arise, upon which another concern stems – where will the companies find the qualified and skilled people they need [49]?

Other than global scarcity of knowledge workforce, additional trends are expected, such as (1) an elderly workforce, out of which many are close to retirement, (2) a rise of generational differences at work, (3) new work practices and expectations (flexible work hours, remote work, supportive leaders), (4) rise of the virtual team collaboration, and (5) new types of relationships (simultaneous work for several different organizations) [50]. These trends will have a large impact on employer branding practices causing companies to shift their focus from a local perspective to a global one; since organizations will come to realize that employees may not be physically part of the organization, but their knowledge definitely is.

New technologies already brought flexibility into the workplace [29]. But despite the tremendous impact and importance of new technologies, the attention still must remain on employees in creating a human-oriented workplace and excellent experience [29]. Just then, the efforts in creating a positive employer brand can result in increased productivity and innovative orientation, flexibility, higher cooperation, and the resilience and agility of the organization. In that sense, technology can aid in reducing communication obstacles and barriers while aligning the work tasks and duties all around the organization [29]. Companies that can accept these changes will be more effective and efficient in their knowledge management and will be able to optimize the performance of their employees [32]. In providing such a workplace to their employees, companies can follow four key principles: (1) support the mobility of employees (flexible workplace and adoption of technological solutions to reinforce mobility), (2) encourage cooperation and exchange of ideas with constant, consistent and open communication between all departments, (3) motivate the smart use of technologies to gain maximum results and to diminish time and space barriers between employees, while at the same time (4) adapting company's culture and incorporating it into HR policies that can be communicated through unified and well thought-out employer brand [51]. Accepting different personalities, while allowing them to work in the surroundings they prefer at the time of the day when they are the most productive will result in less stress, more creativity, and better performance [32]. The reason why the focus should be moving from the importance of technology to the importance of talent in gaining a competitive advantage is that it is easier for the competition to imitate and copy new technology and technological processes, but they cannot imitate talent [52]. Organizations operating in a knowledge-based economy owe their success to the talents of their employees, which is why technology ought to be observed as an assisting tool that helps and improves the work of the organization if used effectively by skilled employees.

Another trend that will emerge and become important for organizations is reputation management, as a very important part of employer brand, since it affects the image of the organization and helps the company in competing and succeeding in the market [37]. That means gaining new customers, new employees, additional financing, new business partners, and other important resources.

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All the new emerging trends, combined with the influence of so many stakeholders will require coherent, strategic, and unified work within the organizations. In that sense, employer branding creates a much-needed bond between human resources, reputation management, marketing, public relations, and information and communications technologies [37].

5. CONCLUSION

Is employer branding just another fashionable buzzword that will soon be replaced by another trend? This literature review has shown that employer branding will likely become an important part of every company's future strategy to compete and survive in today's turbulent and ever-changing business environment. Organizations cannot survive without their employees. For that reason, the competition between companies to attract employees is getting more intense. They compete not only based on the job title, exciting opportunities, and additional benefits, but they are also competing as brands [5]. It was emphasized that every organization already has its employer brand, even though some of them may not know what image they project or what elements constitute their brand. Maybe certain organizations were able to operate like that in the past, but today, with all the emerging technologies, it could be very dangerous not to take care of the company's brand, image, and reputation – because new arising media will shape them by itself. And that is not the recommended road to take.

This paper presented a detailed analysis of the post-pandemic business environment in which the role of employer branding was emphasized. It also showed the tremendous influence that technology has had on employer branding practices, and projected some possible future trends of development. In that sense, more research in the future is needed, especially in the terms of studying the influence of technology on employer branding. It would be interesting to see the empirical analysis and the results of the influence of technology adoption and usage on different dimensions of employer branding, as well as the effect it has on the productivity of employees, their innovativeness, or their intention to stay within the organization. It would also be useful to present different case studies that show the direct effects of technology implementation on employer branding practices. Another recommendation goes in the direction of exploring long-term organizational plans in terms of employer branding practices, investments, and communication and marketing activities.

REFERENCES

- [1]. A. Priyono, A. Moin, and V. N. A. O. Putri, "Identifying digital transformation paths in the business model of SMEs during the COVID-19 pandemic", *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 6, 2020.
- [2]. X. Cirera, M. Cruz, E. Davies, A. Grover, L. Iacovone, J.E.L. Cordova and J. Torres, J. "Policies to support businesses through the COVID-19 shock: A firm level perspective", *The World Bank Research Observer*, vol. 36, pp. 41-66, 2021
- [3]. (2020) The McKinsey & Company website [Online]. Available: <https://www.mckinsey.com/featured-insights/coronavirus-leading-through-the-crisis/charting-the-path-to-the-next-normal/covid-19-recovery-in-hardest-hit-sectors-could-take-more-than-5-years>
- [4]. W. Cukier, K.E. McCallum, P. Egbunonu, and K. Bates, K. "The mother of invention: Skills for innovation in the post-pandemic world". *Public Policy Forum*, 2021
- [5]. J. Palmer (2022). "Turn Your Employer Brand Into a Growth Driver"[Online]. Available: <https://www.linkedin.com/business/marketing/blog/brand/turn-your-employer-brand-into-a-growth-driver?src=direct%2Fnone&veh=direct%2Fnone>

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January 13-15, 2023 Miami

WEB: <https://www.libertyacademicbooks.com/libertyconference>

E-MAIL: editor@libertyacademicbooks.com

[6]. A. De Smet, B. Dowling, M. Mugayar-Baldocchi and B. Schaninger (2021). "Great Attrition" or "Great Attraction"? The choice is yours "[Online]. Available: <https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/great-attrition-or-great-attraction-the-choice-is-yours?fbclid=IwAR2sVPsijP0xXCfYg3fGLO8dX2G5aoogq94HP7VAbWLzIUd5wQzmvmlT73U>

[7]. C. Anderson, C. Bieck and A. Marshall, "How business is adapting to COVID-19: Executive insights reveal post-pandemic opportunities ", Strategy & Leadership, 2020

[8]. V. Bikse, I. Lusena-Ezera, P. Rivza and B. Rivza, "The development of digital transformation and relevant competencies for employees in the context of the impact of the COVID-19 pandemic in Latvia ", Sustainability, vol. 13, 2021.

[9]. J. Moss (2022). "The Pandemic Changed Us. Now Companies Have to Change Too". [Online]. Available: <https://hbr.org/2022/07/the-pandemic-changed-us-now-companies-have-to-change-too>

[10]. K. Backhaus, "Employer Branding Revisited", Organization Management Journal, vol. 13, pp.193–201, 2016.

[11]. T. Ambler and S. Barrow, "The employer brand", Journal of brand management, vol. 4, pp. 185-206, 1996

[12]. R. Mosely, Employer Brand Management Practical Lessons From The World's Leading Employers, West Sussex, United Kingdom: John Wiley and Sons Ltd., 2014

[13]. A. Dabirian, P. Berthon and J. Kietzmann, "Enticing the IT crowd: employer branding in the information economy", Journal of Business & Industrial Marketing, vol. 34, pp. 1403–1409, 2019

[14]. A. Lubecka, "Employer branding: a dialogistic communication tool of a competitive employer". Journal of Intercultural Management, vol. 5, 2013

[15]. A. J. Spector, "Basic Dimensions of the Corporate Image". Journal of Marketing, vol. 25, pp. 47–51, 1961

[16]. Deloitte, "The Open Talent Economy". Resetting Horizons – Human Capital Trends, 2013

[17]. K. E. M. De Stobbeleir, I. De Clippeleer, M.C.J. Caniels, F. Goedertier, J. Deprez, A. De Vos and D. Buyens, "The inside effects of a strong external employer brand: how external perceptions can influence organizational absenteeism rates", The International Journal of Human Resource Management, pp. 1–31, 2016

[18]. K. Backhaus and S. Tikoo, "Conceptualizing and researching employer branding". Career development international, 2004

[19]. C. P. Theurer, A. Tumasjan, I.M. Welpe and F. Lievens, "Employer Branding: A Brand Equity-based Literature Review and Research Agenda", International Journal of Management Reviews, vol. 20, pp. 155–179, 2016

[20]. S. Zyman, and A.A. Brott, The end of advertising as we know it. New Jersey: John Wiley & Sons, 2022

[21]. B. Adams (2022), "Make Your Employer Brand Stand Out in the Talent Marketplace" [Online]. Available: <https://hbr.org/2022/02/make-your-employer-brand-stand-out-in-the-talent-marketplace>

[22]. S. Ivančević and T. Vlastelica, "Effective Content for Digital Employer Branding". CroDiM, vol. 5, pp. 77-88, 2022

[23]. G. Rana, R. Sharma, S.P. Singh and S. Jain, "Impact of employer branding on job engagement and organizational commitment in Indian IT sector", International Journal of Risk and Contingency Management (IJRCM), vol. 8, pp. 1-17, 2019

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- [24]. K. Tanwar, K and A. Prasad, “The effect of employer brand dimensions on job satisfaction: gender as a moderator“, *Management Decision*, Vol. 54, pp. 854–886, 2016
- [25]. A. K. Singh, and S. Jain, “Employer branding: a tool for motivating and retaining employees“, *Indian Journal of Current Trends in Management Sciences*, vol. 6, pp. 1-14, April 2013
- [26]. P. Berthon, M. Ewing, and L.L. Hah, “Captivating company: dimensions of attractiveness in employer branding“, *International Journal of Advertising: The Review of Marketing Communications*, vol. 24, pp. 151-172, 2005
- [27]. A. Bergstrom, D. Blumenthal and S. Crothers, “Why Internal Branding Matters: The Case of Saab“, *Corporate Reputation Review*, Vol. 5, pp. 133–142, 2002
- [28]. M. Bali and S. Dixit, “Employer brand building for effective talent management,“, *International journal of applied sciences and management*, vol. 2, pp. 183-191, 2016
- [29]. P. Arriscado, H. Quesado and B. Sousa, “Employer branding in the digital era attracting and retaining millennials using digital media“, In *Communication: Innovation & Quality*, pp. 391-403, Springer, Cham, 2019
- [30]. P. Banerjee and R. Gupta, “Talent attraction through online recruitment websites: Application of web 2.0 technologies“, *Australasian Journal of Information Systems*, vol. 23, 2019
- [31]. N. M. De Bussy, M. T. Ewing and L.F. Pitt, L. F. “Stakeholder theory and internal marketing communications: a framework for analysing the influence of new media“, *Journal of Marketing Communications*, vol. 9, pp. 147–161, 2003
- [32]. J. Bennett, M. Pitt, M and S. Price, “Understanding the impact of generational issues in the workplace“, *Facilities*, vol. 30, pp. 278–288, 2012.
- [33]. J. Cordery, “Teamwork“, in Holman, D., Wall, T.D., Clegg, C.W., Sparrow, P. and Howard, A. (Eds), *The New Workplace: A Guide to the Human Impact of Modern Working Practices*, Wiley, Chichester, pp. 95-114., 2003
- [34]. A. Dabirian, J. Kietzmann, and H. Diba, “A great place to work!?Understanding crowdsourced employer branding“, *Business horizons*, vol. 60, pp. 197-205, 2017
- [35]. D. Kurek, “Use of Modern IT Solutions in the HRM Activities: Process Automation and Digital Employer Branding“, *European Research Studies*, vol. 24, pp. 152-170, 2021
- [36]. A. D. Mihalcea, “Employer branding and talent management in the digital age“, *Management Dynamics in the Knowledge Economy*, vol. 5, pp. 289-306, 2017
- [37]. G. Martin, P. J. Gollan and K. Grigg, “Is there a bigger and better future for employer branding? Facing up to innovation, corporate reputations and wicked problems in SHRM“, *The International Journal of Human Resource Management*, vol. 22, pp. 3618-3637, 2011
- [38]. A. Dabirian, *Unpacking Employer Branding in the Information Technology Industry*, Doctoral Thesis. KTH, School of Industrial Engineering and Management (ITM), Industrial Economics and Management (Dept.), Industrial Marketing and Entrepreneurship, 2020
- [39]. S. Thomas, S. Kureshi, S. Suggala and V. Mendonca, “HRM 4.0 and the shifting landscape of employer branding“, In *Human & Technological Resource Management (HTRM): New Insights into Revolution 4.0*. Emerald Publishing Limited, 2020
- [40]. I. Figurska and E. Matuska, “Employerbranding as a human resources management strategy“, *Human resources management & Ergonomics*, vol. 7, 2013
- [41]. O. Ungerman and J. Dědková, “Marketing innovations in Industry 4.0 and their impacts on current enterprises“, *Applied Sciences*, vol. 9, 2019

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- [42]. I. Nikolaou, "What is the Role of Technology in Recruitment and Selection? ", The Spanish journal of psychology, vol. 24, 2021
- [43]. R. E. Morgan, "Business agility and internal marketing ", European Business Review, vol. 16, pp. 464–472, 2004
- [44]. M. Mabić, M. Lasić and J. Zovko, "Web 2.0 Technologies in Business: Why not? ", Interdisciplinary Description of Complex Systems: INDECS, vol. 17, pp. 304-314, 2019
- [45]. M. T Ewing, L. F. Pitt, N. M. de Bussy and P. Berthon, "Employment branding in the knowledge economy", International Journal of Advertising, vol. 21, pp. 3-22, 2002
- [46]. J. Bejtkovský, "The employees of baby boomers generation, generation X, generation Y and generation Z in selected Czech corporations as conceivers of development and competitiveness in their corporation", Journal of Competitiveness, 2016
- [47]. European Commission, E-Skillsfor Jobs in Europe Measuring Progress and Moving Ahead, Eds. W. B. Korte, K. Gareis, T. Hüsing, January 2014
- [48]. W.F. Cascio and B.Z. Graham, "New strategic role for HR: Leading the employer-branding process", Organization Management Journal, vol. 13, pp. 182-192, 2016
- [49]. PwC, People strategy for the digital age: A new take on talent - 18th Annual Global CEO Survey, [Online]. Available:<https://www.pwc.com/gx/en/services/people-organisation/publications/people-strategy.html>
- [50]. A. Al Ariss, W.F. Cascio and J. Paauwe, "Talent management: Current theories and future research directions", Journal of World Business, vol. 49, pp. 173–179, 2014
- [51]. Steelcase (n.d.), "Talent Search- It's all about a great employee experience", [Online]. Available: https://www.steelcase.com/search/?gsc_q=war+for+talents&engine=_all
- [52]. J. Bhasin, S. Mushtaq and S. Gupta, "Engaging employees through employer brand: An empirical evidence", Management and Labour Studies, vol. 44, pp. 417-432, 2019
- [53]. J.K. Dwivedi, E. Ismagilova, N.P. Rana & R. Raman, "Social media adoption, usage and impact in business-to-business (B2B) context: A state-of-the-art literature review ", Information Systems Frontiers, pp. 1-23, 2021

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IMPACT OF CORPORATE CULTURE - FACTORS PROMOTING SUCCESS

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Abstract

In the context of globalization and integration among nations in the world, the demand toward enterprises in the era of knowledge economy is not only the competition on markets or revenues but also the development of scale and sustainability. Besides the traditional factors such as capital and technology, enterprises need to focus appropriately on non-material factors in order to achieve long-term strategic goals successfully based on manpower. Enterprise culture is a connecting factor among members of an agency to promote the internal strength of the enterprise. This study introduces the concept of “corporate culture” or “workplace culture”, and evidences of the impact of culture on the success of enterprises. Successful businesses have learned the importance of culture in a company and how it can increase employee morale, encourage equitable workplaces, and boost profits. Companies realized that they needed to invest in their employees and fully embrace the importance of culture in the workplace.

Assessing the impact of cultural factors on the success of the business in the current period, contributing to promoting and affirming the brand of the enterprise. Research shows that cultural factors have an impact on more than 70% of the success of businesses. Suggestions are also proposed to build enterprise culture that is consistent with directions and policies of the government in the current time.

Keywords: Culture, corporate culture, assess, impact, successful businesses

Introduction

In today's knowledge-based economy, the resource that plays a decisive role in an enterprise is people. "Corporate culture" is the factor that connects and multiplies the strengths of each individual, forming Great internal resource for businesses. Thus, businesses need to exploit cultural factors as a competitive advantage, a way to build an image, a way to make a positive working environment to reap success and develop sustainably. Corporate culture is being considered as the core value and foundation of the sustainable development of each business. In-depth study of corporate cultural factors that have an impact on the success of businesses today helps businesses determine their position among consumers.

Corporate culture is reflected in the core value of ethics, behavior, conduct and working environment of each company. This will make each company unique and affect other factors, from the image of an individual to the image of an organization. If employees adhere to and share the value chain of the corporate culture, it will positively affect the company profits. When a company has a positive culture that aligns with long-term goals and strategies, it creates individual pride, thereby helping employees to strive and dedicate themselves to achieving common goals. This contributes to making it easy for leaders to manage work and efficiency, and for employees to feel comfortable contributing.

Literature Review

Definition of corporate culture

There are many studies on the concept of corporate culture, some of which include the following concepts:

Corporate culture is the use of cultural factors in the subject's business activities, is the culture that the subjects create in the business process, forming stable and specific business types its 0.

Corporate culture is a system of values, standards, concepts and behaviors of an enterprise, which governs the activities of all members of the enterprise and creates its own business identity **Hata! Başvuru kaynağı bulunamadı.**

Corporate culture is defined as a system of meanings, values, dominant beliefs, perceptions and ways of thinking that are agreed upon by all members of an organization and have a wide-ranging influence on the entire organization members' behavior 0.

In conclusion, corporate culture can be understood as the whole set of cultural values built up during the existence and development of an enterprise, becoming values, concepts, customs and traditions deeply into the activities of that enterprise and govern the feelings, thinking patterns and behaviors all members of the enterprise in the pursuit and realization of common goals.

Factors affecting corporate culture

2.2.1. Mission, vision of the corporate

Businesses with a good strategic vision will help employees orient their customers well. A vision is an image, an imaginary picture of the future of an enterprise, conveyed clearly and convincingly, and is an orientation that will be attached to all activities of the enterprise. A leader's vision will not be the vision of a business.

- Vision is the plan of the business where it wants to grow. It is the combination of values and development goals of the business.
- Vision is about the future, is the ultimate goal that the business wants to achieve in a certain period of time.
- Vision helps businesses determine the direction of future development, when businesses want to deploy to achieve their goals, and how businesses implement the vision implementation.
- The characteristic of the vision is to clarify the ambiguity in the business of enterprises. Describes a bright future for businesses, demonstrating realistic and achievable desires that are aligned with the values of the business 0.

Mission is a statement, an official announcement of companies and businesses. Understandably, the main mission is to determine why the company exists, develops and what is the overall goal that the company is aiming for.

2.2.2. Core values of the corporate

Core values are the most important values, the soul of the company, capable of deciding the "life and death" of the company or business. Different from the values in the conventional sense, the core values of the company, the business focuses on depth, sustainability and long-term. The core of corporate culture is the value of that company or business. If the vision will clearly guide the company's goals, then the values will guide the behavior and thinking to realize that vision. These values can indicate what an organization's people are (e.g. dynamic, young or professional) or its business motto (e.g. sustainable development, stable, customer is king,...).

2.2.3. Practice elements

Practice elements are discrete techniques found within a broad range of programs and interventions that are effective in enabling change; they are the common building blocks of programs that have been shown to work to bring about better outcomes. This is one of the factors that create corporate culture. All values will not matter if we do not practice them. Specifically, if an organization proclaims, "People are our greatest asset," it should be willing to invest in people in many ways 0.

Content of corporate culture

2.3.1. Personal awareness

Corporate culture is related to perception. Individuals perceive the organization's culture through what they see and hear within the organization. Although members may have different levels of knowledge, different working positions, they always tend to describe the corporate culture in the same way. That is the "sharing" of corporate culture.

2.3.2. Authenticity in corporate culture

The corporate culture is authentic. Corporate culture refers to how members perceive the organization, that is, they describe, not systematically evaluate, the meanings and values of the organization.

2.3.3. Individuality in corporate culture

Corporate culture has a individuality. Each organization and each agency has different operating conditions, sizes and goals and is run by a team of personnel with different personalities and business philosophies. Moreover, the benefit of building a corporate culture is to create a unique identity and identity for the business that distinguishes one business from another. Therefore, corporate culture in each organization will have different characteristics, different strengths and weaknesses, richness and diversity.

2.3.4. Consistent in corporate cultures

Corporate culture has the characteristics of unifying communication and behavior of all people in the same organization. It is the unification of people's behavior for all activities inside and outside the enterprise that has brought business results to the enterprise.

2.3.5. Systematic in corporate culture

Corporate culture is not acquired in a day or two, but through a process of building and cultivating. The process of building corporate culture has no beginning and end, but corporate culture must be built over a long period of time. Corporate culture is not constant but over time will always change to suit the new development trend of the business.

Research Methods

The study employed a combination of methods, namely theoretical research, qualitative method, and quantitative methods. The theoretical research method is used to review and analyze documents related to assessing evaluate the impact of corporate culture on the success of the business. Research the elements of corporate culture, mission, vision, and core values of the business. Survey of consumers about the value of the business to confirm the impact of culture on the sustainable value of the business.

Results and Discussion

The role of vision and mission for the corporate

Research on consumer and stakeholder opinions shows that the benefits of mission and vision for business success are shown in Table 1.

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Table 1. Evaluation of the effectiveness of the mission and vision

No.	Effectiveness of the mission and vision	Impact level
1	Vision and mission help create a common goal in the business, so that the staff can work together to implement and implement all actions to quickly complete the development direction of the business	78,6%
2	Vision and mission are like a compass, providing the whole business with a certain goal or purpose, to implement work and take action to achieve the desired effect	81,3%
3	Vision and mission also help guide the company's leaders, businesses effectively allocate resources, develop departments according to different tasks and specializations, thereby helping to develop the business in a timely	83,3%
4	The vision and mission statement helps to clearly define the purpose of the business and translate these goals into specific goals to accomplish. Evaluate the effectiveness of target implementation based on criteria such as implementation cost, completion time and achieved numbers	79,8%
5	Vision and mission statements also help create a common goal within the business, helping people work toward a goal. At the same time, they can be linked together, thereby helping to increase work efficiency	84,7%

Factors affecting corporate culture

The factors affecting corporate culture are divided into two sides: objective and subjective. To avoid unnecessary mistakes in the future, every business needs to pay attention to these influencing factors. In addition, the study shows the impact of each factor on corporate culture, the scale is built with 5 levels (from the lowest level 1 to the highest level 5) for customers and stakeholders to choose.

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4.2.1. Subjective factors

Table 2. The degree of influence of subjective factors

Factors	Influential content	Evaluate
Leader	The leader is the person who is directly involved in running the business, who sets the rules and manages the surrounding activities related to his work and employees. Through the process of operating a business, a leader's thoughts, views and personality will directly affect the culture of that business.	4,76
Staff	Human resources are also part of the factors affecting corporate culture. It is the way the members interact with each other that largely creates the working atmosphere of the room. After working hours at the office, business trips and team building also have a strong impact on the cultural development in the enterprise.	4,25
Working environment	Working environment is a factor that affects corporate culture, when a noisy and messy workspace will negatively affect concentration, make you uncomfortable, thereby reducing labor productivity. In addition, a positive working environment such as: friendly colleagues, psychological boss, flexible hours, less restrictive rules, etc will be a plus point for businesses.	4.12
Recruitment plan	To get the right employee for your company culture, businesses must always carefully consider the candidate's performance in the interview. The recruitment department is considered the first impression, the one who transmits the initial corporate culture to the candidate. Therefore, this department also needs professionalism and attention to recruit the right talent.	4.11

The evaluation results show that the leadership factor has the greatest impact on the formation of corporate culture.

4.2.2. Objective factors

Research shows that there are two objective factors affecting corporate culture, in which the factor of national cultural identity has a great impact on the formation of corporate culture.

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Table 3. The degree of influence of objective factors

Factors	Influential content	Evaluate
Native culture	Enterprises are the gathering place of many cultures, ethnic groups, of all working ages and genders across regions. Each individual has a different cultural identity and belief, making their way of thinking, seeing problems and reacting different. Once in the same organization, the special things about everyone's culture will influence and affect the corporate culture.	4,16
External factors	In fact, in the process of operation and development, the fact that businesses connect with many customers and partners is also one of the factors affecting corporate culture. Through that contact, businesses have learned and exchanged cultures with each other. From there, select and summarize good and appropriate values to apply in building your corporate culture.	4,08

Whether it is a subjective or an objective factor, it has an influence on the formation of corporate culture. This has a great influence on the growth of the business. Corporate culture promotes competitive advantage in the market, attracts potential human resources, motivates employees to work, reduces internal discord.

The impact of corporate culture factors on business success

4.3.1. Corporate culture affects employees

Corporate culture has a direct impact on employees, when a positive culture will be a source of energy for employees to work effectively. This will create 3 positive factors. First, attract and retain talent in the business. Employees will be loyal and stick with the business for a long time when they are interested in the corporate environment. Second, reduce management principles and regulations because they are aware of their own role in the collective and the organization. Finally, to help improve performance because there is a good working environment, employees are respected to give opinions and ideas to improve work efficiency.

4.3.2. Corporate culture affects the organization

Each company has its own identity that carries its own characteristics of the business. A company that builds good corporate culture will have a positive impact on the organization. Corporate culture helps distinguish one business from another, creating its own distinctive features. Not only that, corporate culture is also a source of competitive advantage for enterprises. A good culture helps businesses attract and retain talented people, reinforcing loyalty to the business. From those special features, create a competitive advantage with competitors in the market.

4.3.3. Corporate culture affects customers

Facing the current 4.0 technology era, enterprise size is no longer a distinct competitive advantage. Therefore, businesses need to focus more on taking care of customers, which is customer-centric. This will positively impact business performance, specifically:

Corporate culture will create the style of the business, is the way to identify between one brand and another. We see this most in the way of greeting, the airline's dress. It is the business philosophy, customs, rituals, habits, training, education ... that constitute the typical culture of the enterprise.

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Creating attractiveness for the business, including talent attraction and attraction for loyal, devoted employees to the company. A good corporate culture will create good people who dedicate themselves to the development of the company.

Encourage the process of reform and innovation. In businesses with a good working culture, all employees are always encouraged to come up with ideas and initiatives... This encouragement will contribute to promoting the creative dynamism of the employees. On the other hand, the success of employees at work will motivate them to stick with the company for a long time and more actively.

Conclusion

Corporate culture is a factor that has existed for a long time, but the concept of it and its application has only been acquired in recent years. Most large enterprises have realized the importance and exploited this factor. It needs to be understood not as a project or a work to have a design, then a material, then a paint, then an expiration date, but it is a lasting value, a real property element of the enterprise and should be shaped from the unique characteristics of the business. From the behavior of both leaders and employees, the emotional connection between them and the social community, the sharing of business benefits business with personal interests as well as the burden of personal responsibility with collective and social responsibility.

The impact of corporate culture on business success is assessed at over 70%, which shows the importance of building and maintaining its own culture, a positive corporate culture is a sustainable asset. to grow your business in the future.

REFERENCES

- [1] Chorpita, B. F., Daleiden, E. L., Park, A. L., Ward, A. M., Levy, M. C., Cromley, T., et al. *Child STEPs in California: A cluster randomized effectiveness trial comparing modular treatment with community implemented treatment for youth with anxiety, depression, conduct problems, or traumatic stress*. Journal of consulting and clinical psychology, 85(1), 13, 2017.
- [2] Đảng Cộng sản Việt Nam, *Văn kiện Hội nghị lần thứ năm BCH Trung ương khoá VIII*, NXB Chính trị Quốc gia, Hà Nội, 1998.
- [3] Đỗ Minh Cương, *Văn hóa kinh doanh và triết lý kinh doanh*, NXB Chính trị quốc gia, Hà Nội, 2001.
- [4] Đỗ Minh Cương, *Quản trị văn hóa doanh nghiệp trong bối cảnh Cách mạng công nghiệp lần thứ tư*, Tạp chí Cộng sản, số 921 (7-2019), tr. 69-74, 2019.
- [5] Edgar Schein, *Organizational Culture and Leadership, in Classics of Organization Theory*. Jay Shafritz and J. Steven Ott, eds. Fortress Worth: Harcourt College Publishers, 2001, p. 373 -374.
- [6] Hồ Chí Minh, *Toàn tập*, NXB Chính trị Quốc gia, Hà Nội, 1995.
- [7] Ngô Quang Thuật, *Xây dựng và thay đổi văn hóa doanh nghiệp*, NXB TP HCM. Tháng 1/2006.
- [8] Nguyễn Mạnh Quân, *Đạo đức kinh doanh và văn hoá công ty*, NXB Đại học Kinh tế quốc dân, Hà nội, 2011.
- [9] Phùng Xuân Nhạ, Đỗ Minh Cương, *Nhân cách doanh nhân và Văn hóa kinh doanh ở Việt Nam trong thời kỳ đổi mới, hội nhập quốc tế*, NXB Đại học Quốc gia Hà Nội, 2011.

ECONOMIC GROWTH AND REAL ESTATES IN VIETNAM ECONOMY

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Abstract

Objective:

The paper analyzes the dependence pattern of economic growth on real estates in the Vietnam economy. The data is a time-series sample of Vietnam economy over the 2019-2022 time period. And the research objective is to examine the fluctuation of real estates price as well as their supply over time.

Methodology:

The research methodology is based on a combination of qualitative analysis with the quantitative analysis. The qualitative method reviews the recent literature on the real estates market, with a focal point on a developing economy context of Vietnam economy. Then, the quantitative method examines the dynamic pattern of real estates over time.

Findings:

The literature review shows that the real estates plays a crucial role on economic growth by stimulating the construction sector and also by providing a financial asset to the domestic investors to accumulate over time. The evidence in the Vietnam economy records that the real estate serves well both these two theoretical functions over the period of 2019-2022. Moreover, the real estate can also attract a large foreign investment inflows in the Vietnam economy.

Implications:

The empirical results suggest that the real estates can be a prioritized objective of public policy so that they can make a significant contribution on the stability of domestic macroeconomic environment. In particular, the policy can improve the information system on the real estates, thus, preventing the riskiness of asset bubble in the real estates market.

Keywords: Real Estates; Quantitative Analysis; Qualitative Analysis; Vietnam economy.

1. INTRODUCTION

The real estates are one crucial sector in an economy, for both advanced and developing economies. According to the Vietnam Ministry of Construction (2023), the real estates account for about 4,5% of output, measured by the gross domestic product (GDP) in 2022. On combination of real estates and related construction sector, the joint contribution is about 11% of GDP, or about over 30 billion USD in current price. The data proves the importance of the real estates in the context of Vietnam economy.

This paper analyzes the dependence pattern of economic growth on real estates in the Vietnam economy. The data is a time-series sample of Vietnam economy over the 2019-2022 time period. The theoretical investigation shows that the real estates have three main functions: (i) providing a financial asset to the domestic investors; (ii) housing service; and (iii) working as one final-good sector. The evidence in the Vietnam economy records that the real estate serves well both these three theoretical functions over the period of 2019-2022.

Especially, the real estates market tends to be counter-cyclical to the real business cycle, and also have assymmetric adjustment over lower and upper market segments.

The paper makes contribution to the related literature on the economic growth. The economic growth is driven by the technology progress according to the neoclassical growth theory (Solow, 1956; Swan, 1956). Within this theory, the accumulation of capital over time stimulates the convergence of an economy to its steady state, i.e, the long-run equilibrium. Recent endogenous growth theory proves that the economic growth is determined by the accumulation of capital across different firms, by the product variety, or by the investment on research and development (Aghion and Howitt, 1998 ; Jones, 1995).

Complementing to this literature, the current paper clarifies the real estates as one engine of economic growth. The real estates can stimulate the growth by providing one additional assets for investors and by raising the demand for the construction and related material sectors. Moreover, in the context of Vietnam economy, our finding records that the real estates tend to be counter-cyclical to the real business cycle. Thus, in some case, the real estates can even make the recession to be more severe.

The paper is constructed as following. The first section on Introduction provides an overview of the paper. Then, the second section on framework analyzes the theory and associated data. The third section on Evidence provides the results on the relationship between real estates and economic growth. Then, the fourth section on Conclusion closes the paper with summary and policy discussion.

2. FRAMEWORK

2.1. Theory

The real estates has three main functions, including the store of wealth, the housing for people and one economic sector which contributes significantly to the domestic gross domestic product (GDP).

First, the real estates serve well as the store of wealth for the investors. In particular, the households have an diversified investment portfolio which usually includes the risk-less assets and risky assets (Merton, 1969). When the rate of return on these two classes of assets can compensate in each state of nature, the average rate of return on the portfolio is stable. Then, the investment portfolio can help the investors to smooth their consumption over time. According to the store of wealth function, the real estates can be considered as one type of safe assets which provide stable rate of return over time (Caballero and Farhi, 2018). Especially in the emerging and developing economies, the price of real estates tend to increase over time, then, generating a higher rate of return over time. Within this function of real estates, the investors can accumulate the real estates to store their wealth, then, smoothing their consumption over time.

Second, the real estates provide the housing service for the people. This function is fundamental feature of real estates: people buy house to satisfy their demand for housing service. In comparison with the rent of a house, the buying of a house saves a fraction of income for the households, thus, raising the aggregate savings in an economy. Moreover, the housing service also ensures the quality of life, then, supporting the effectiveness of work and other aspects of life. According to this function of real estates, people have demand for real estates to pursue a high-quality life.

Third, the real estates is also one final-good sector which raises the demand for other intermediate-good sectors, such as the construction sector and other industries. For instance, when the demand for the real estates increases, the demand for construction sector also goes up, and the demand for steel also improves.

Thus, when the real estates sector improves, the construction sector and other related sectors are also stimulated. According to this function, the real estates contribute significantly on the expansion of production capacity over time.

In brief, with these three main functions, including the safe assets, the housing service and the final good, the real estates can contribute significantly to the economic growth rate of an economy over time.

In order to translate these three main functions of real estates into the engine of economic growth, we would employ three main indicators. First, the change of real estates price over time informs us the dynamic of supply-demand relationship in the economy. This indicator is corresponding to the first function of real estates as the store of wealth for investors. Second, the compassion of real estates price and household income over time. This indicator is corresponding to the second function of real estates as the housing service for households. And third, the joint dynamic of real estates price and economic growth over business cycle tells us about the relationship between real estates and economic growth. This indicator is corresponding to the third function of real estates as one engine of economic growth.

2.2. Data Description

The data is a time-series sample of Vietnam economy over the 2019-2022 time period. The sample follows quarterly basic with 13 observations from third quarter of 2019 to third quarter of 2022. The time-series sample is convenient to investigate the dynamic pattern of the contribution by the real estates on the economic growth rate over time.

The data sample is explored from various sources. First, it is from the quarterly reports released by the Vietnam Ministry of Construction. This report analyzes the main tendency of both quantity and price of real estates in Vietnam. Second, the data is also from the quarterly economic-social reports by the Vietnam General Statistics Office. This report informs the economic-social achievement of Vietnam economy such as the economic growth, inflation rate and other important indicators. On this report, we can also have data on the foreign capital inflows on the real estates, which are also one engine of economic growth for the domestic economy.

3. EVIDENCE

First, the price of real estates tends to increase over time, due to the shortage of real estates when the supply is lower than the demand. On one hand, the supply of real estates is low, especially on the central region of big city such as Ha Noi and Ho Chi Minh city, two leading cities in the Vietnam economy. Moreover, the supply of real estates is allocated on the upper-range market while the lower-range market is very rare, only with social housing program by the government.

On other hand, the demand for real estates is supported by the huge population with nearly 100 millions people, triggered by the immigration into the big cities in seeking high-income jobs. That demand for housing is also motivated by the cultural norms of Vietnamese households, and eastern countries, by which the process of one house is the first condition for a stable life.

Until now, the supply of real estates does not match well with the demand for real estates. There exists the shortage of supply, i.e, the supply is less than the demand for the real estates. Thus, the price of real estates tends to increase over time. We can define this feature as the structural shortage of real estates supply. Moreover, there also exists the assymetric supply-demand relationship in the real estates market.

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While the upper-range market has a surplus of supply since the supply is far more than the demand, the lower-range market has a high shortage of demand since the supply is much less than the demand for real estates. We can define this feature as the frictional shortage of real estates supply.

As consequences, the structural and frictional shortage of supply causes the increase of price in the real estates market. According to the quarterly reports by the Vietnam Ministry of Construction (2022), the real estates in the Hanoi city raises by 10% on average over the 2019-2022 period. Especially, the real estates price even increase by nearly 20% during the Covid-19 pandemic in 2020-2022.

Second, the gap between the real estates price and income of household tends to widen over time. In 2011, one working adult needs about 30 years of working to have enough income to buy one house in the central districts of Hanoi city. Until now, the required working years go up to about 50 years. The enlargement of the gap between real estates price and household income, in turn, is a signal that the development of real estates is not consistent with the expansion of production capacity of Vietnam economy over time.

In particular, the supply of real estates is still lower than its demand, causing the increase of price over time. But the production capacity can only expand with a lower growth rate than the real estates price, resulting on a quite low growth rate of households income over time. This mismatch between the real estates price and households income would become more severe when the population also increases with a high rate, which raises the demand for real estates but reduces the income per person over time. According to the Vietnam General Statistics Office (2022), the average population growth rate of Vietnam is about 1.1% over the 2005-2021 period. By this growth rate, Vietnam is expected to have a population of 100 million people in 2025.

Another potential cause for the gap between the real estate price and household income is the inflows of foreign capital, especially the foreign direct investment. According to the quarterly reports by the Vietnam General Statistics Office (2022), the real estates accounts for 20% on average of total foreign direct capital inflows into the Vietnam economy since 2011. The foreign capital inflows in the Vietnam real estates are usually from the economies in the South Asia region such as the Republic of Korea, Japan, Singapore and Taiwan.

Also according the Vietnam General Statistics Office (2022), the foreign capital inflows into the Vietnam real estates reaches around 3 billions USD per year. This huge foreign investment, in turn, tends to fall into the upper-range real estates market with a much higher price than the market average. For instance, in 2019, when the average market price is 30 million VND per meter in Hanoi city, the Booyoung building, constructed by one firms from Republic of Korea has the initial price at 40 million VND per meter.

Third, the relationship between the real estates and real economy tends to be decoupled over time. The price of real estates increases even when the real economy suffers the risk of recession. In details, during the Covid-19 pandemic since 2020, the economic growth rate reduces sustaintially from 7.02% in 2019 to 2.6% in 2020 and 2.5% in 2021. According to the report by Ministry of Construction, during this period, the real estates price raiss by more than 10% per year on average. The price even reaches its recorded peak over nearly 10 years. In particular, the price of real estates increases by 20% during the year of 2021, when the Covid-19 pandemic happens in Vietnam economy. The price of villa and other ground-based real estate even grows with about 30%, a higher growth rate than the common real estates.

Therefore, the price of real estates tends to move counter-cyclical to the economic performance. Usually, one macroeconomic variable can a pro-cyclical or counter-cyclical with the economic cycle.

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For the counter-cyclical movement, the real estates price can be harmful for the economy as a whole since it even pushes down the economy in recession period while stimulates the economy in the expansion period. For instance, recent reports believes that the real estates market has built up the price bubble over the 2020 – 2021 period, and this bubble can explore in incoming years. If this case happens, the Vietnam economy can fall into an in-dept recession when the economic growth rate is still on the recovery path to its pre-pandemic state but the assets market falls into crisis.

One motivation for the holding of real estates is the role of real estates as a kind of safe assets in the perception of households. In particular, the real estates are considered as one financial asset by which the households can store wealth and smooth consumption over time. Thus, when the risk of recession undermines the accumulation of real estates, leading to the decoupling the real estates market to the real economy sector. Recent evidence, such as Yang and Chen (2022) proves that the real estates are considered as one type of safe assets in the China economy since many years.

4. CONCLUSION

The paper analyzes the dependence pattern of economic growth on real estates in the Vietnam economy. The data is a time-series sample of Vietnam economy over the 2019-2022 time period. And the research objective is to examine the fluctuation of real estates price as well as their supply over time.

The theoretical investigation shows that the real estates plays a crucial role on economic growth by three main functions: (i) providing a financial asset to the domestic investors to accumulate over time; (ii) housing service; and (iii) stimulating the construction sector; (ii). The evidence in the Vietnam economy records that the real estate serves well both these three thereotical functions over the period of 2019-2022. Especially, the real estates market tends to be counter-cyclical to the real business cycle, and also have assymetric adjustment over lower and upper market segments.

The empirical results suggest that the real estates can be a prioritized objective of public policy so that they can make a significant contribution on the stability of domestic macroeconomic environment. In particular, the policy can improve the information system on the real estates, thus, preventing the riskiness of asset bubble in the real estates market.

REFERENCE

Aghion, Philippe, and Peter Howitt. "(1992). A Model of Growth Through Creative Destruction." *Econometrica* 60.2 (1992): 3235.

Caballero, Ricardo, and Emmanuel Farhi. "The safety trap." *The Review of Economic Studies* 85.1 (2018): 223-274.

Merton, Robert C. "Lifetime portfolio selection under uncertainty: The continuous-time case." *The Review of Economics and Statistics* (1969): 247-257.

Jones, Charles I. "Time series tests of endogenous growth models." *The Quarterly Journal of Economics* 110.2 (1995): 495-525.

Vietnam Ministry of Construction (2023). Quarterly reports on real estates. Availaible at <https://batdongsan.xaydung.gov.vn/TinTuc.aspx?vID=29>.

Vietnam Misnistry of Construction (2022). Contribution of real estates into economic growth in Vietnam economy. Available online at <https://vneconomy.vn/bat-dong-san-dong-vai-tro-quan-trong-trong-nen-kinh-te-quoc-dan.htm>.

III. INTERNATIONAL LIBERTY INTERDISCIPLINARY STUDIES
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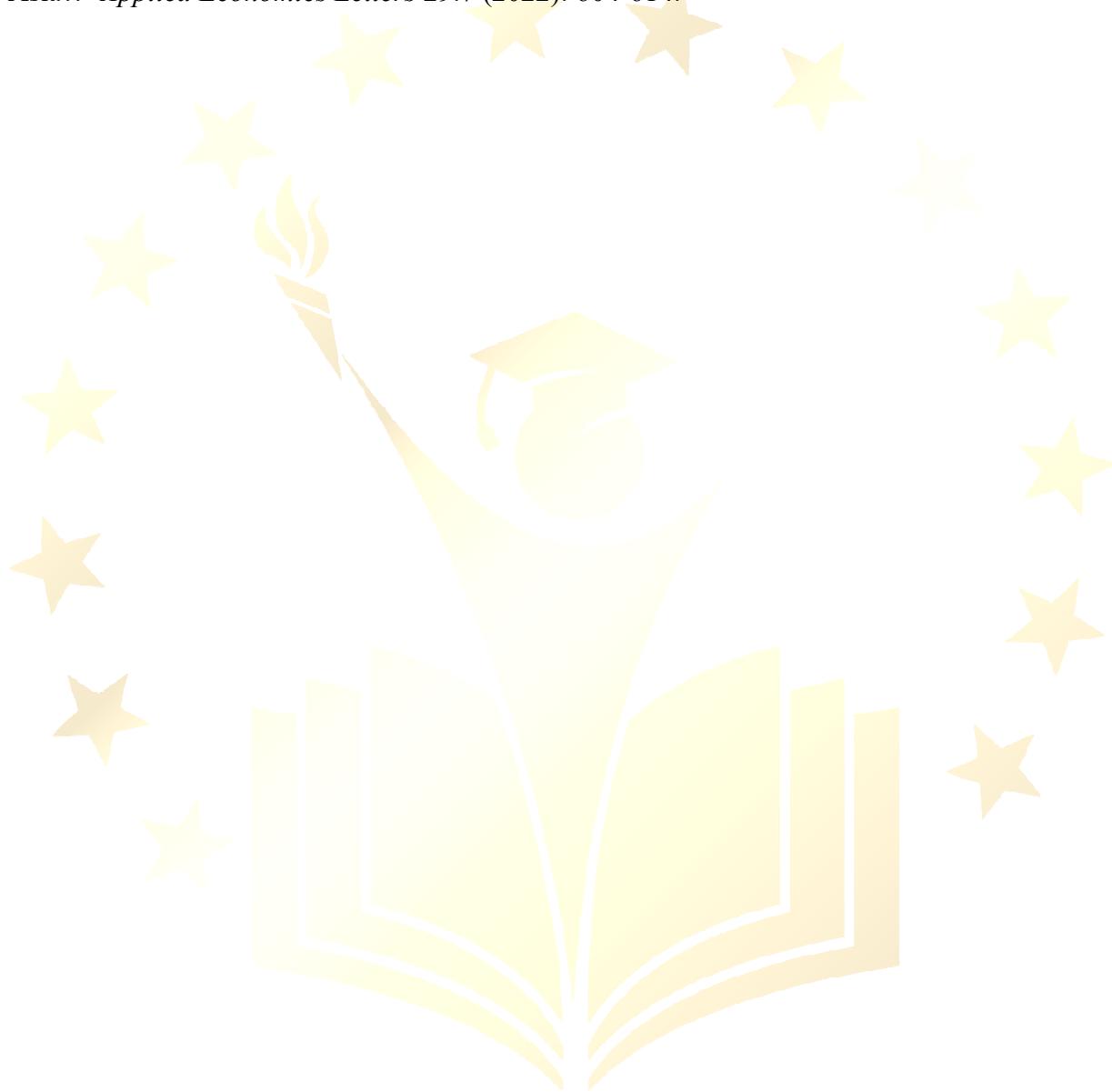
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Vietnam General Statistics Office (2022). Online database. Available at www.gso.gov.vn.

Yang, Yiyun, and Leyi Chen. "Is real estate considered a safe asset in East Asia?." *Applied Economics Letters* 29.7 (2022): 604-614.



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JOB POSTING ANALYSIS TO DISCOVER THE OCCUPATIONAL PROFILES OF DIGITAL TRANSFORMATION MANAGERS

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ABSTRACT

In today's economies, where international competition is gaining momentum, it is an important fact that the need for qualified personnel is increasing day by day. As a matter of fact, while new professions are emerging with Industry 4.0, this process causes an increase in human capital investments of enterprises. Digital transformation management, which will take part in the process of "managing" the digital transformation process of businesses, is an example of these new professions. This research aimed to discover the current competency/competence demands and job descriptions of the personnel who will work in the field of digital transformation management in the Turkish, German and UK labor market through job postings analysis. In line with the objectives of the research, active postings on career sites such as Kariyer.net, isbul.com, indeed.com, jobware.de and yourfirm.de between 15 June 2022 and 30 October 2022 were analyzed. Keywords such as digital transformation specialist, digital transformation officer, and digital transformation manager, were used in this analysis process. The postings mentioned in the research were analyzed with MaxQDA 2022 Pro, to reveal the education profile, job descriptions, professional competence demands and personality characteristics/features sought by employers in their personnel. As a result of the study, in which more than 200 job postings were analyzed by text mining, it was understood that the job descriptions of digital transformation managers in Turkey, Germany and England were largely similar, while personal and professional competencies differed greatly for all three countries. Accordingly, in line with the requested professional competencies, knowledge of digitalization tools and processes in the UK, project management, change management and digital leadership knowledge have come to the fore. The results showed that in Germany, knowledge of agile-scrum methodologies and digital leadership came to the fore. In Turkey, on the other hand, it has been seen that the prominent feature is limited to having knowledge about project management processes.

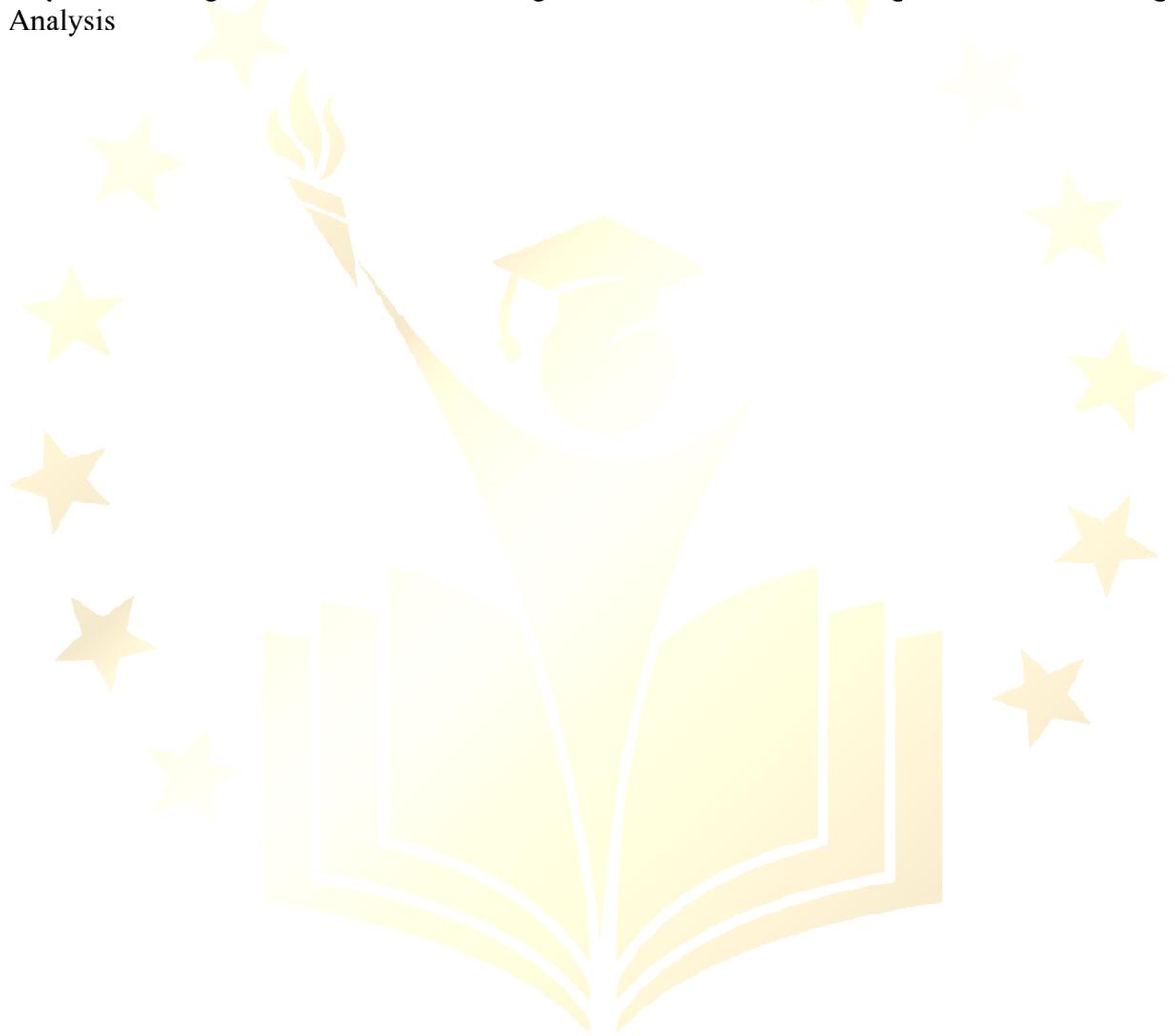
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Analyzing the company's digitalization needs and managing corporate relations came to the fore as a common result for all three countries when the job descriptions expected from the personnel with the aforementioned qualifications were examined. On the other hand, while managing the company's digitalization and technology-based projects, came to the fore, in the business areas in the UK; following the data-based business of the company, managing research and trend tracking, and managing customer relations came to the fore in Germany.
Keywords: Digital Transformation, Digital Transformation Management, Job Posting Analysis



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MONETARY POLICY AND PRICE STABILITY IN MOROCCO: A STOCHASTIC STUDY

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Summary

In an economic environment, economic agents have the necessary information to form their consumption, production and/or investment decisions. However, as soon as an abnormal increase in the general price level appears, their behaviour becomes irrational, due to a high level of uncertainty. This is why price stability becomes a major concern of all central banks through monetary policy.

Monetary policy refers to all actions taken by the monetary authorities and the central bank to modify monetary and financial conditions (De Mourgues, 1988). The final objective of monetary stability is attributed to monetary policy, namely: price stability, i.e. the reduction of inflation, as well as the preservation of purchasing power in order to promote growth and full employment.

Price stability is therefore generally recognised as one of the essential contributions of monetary policy to macroeconomic stability and its major concern. This approach, which is largely consensual, is one of the dominant paradigms of recent economic thinking.

The flow of work during the 1970s led to the emergence of two types of monetary policy whose principle is based on nominal anchoring to intermediate variables such as the exchange rate and monetary aggregates. These are the exchange rate targeting and monetary aggregate targeting policies.

In this respect, BAM's strategy has long since begun to revolve around a quantified definition of price stability, which gives money a leading role through the establishment of growth standards for the money supply.

Regardless of the nature of intermediate targets, the pursuit of a quantified price stability objective is difficult to implement because of the lagged and imperfect control of inflation, especially in developing countries.

Our study aims to provide some answers to the following question: *What is the impact of monetary policy on price stability in Morocco?*

Keywords: monetary policy, money supply, inflation, price stability, gross domestic product

BANKING RISK MANAGEMENT AND ITS IMPACT ON LIQUIDITY

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ABSTRACT

The government support of the banking and financial services sector has always been an important issue of the immediate response to crises. The severe recent global crisis in 2008 revealed a number of problems of banking system in Kazakhstan, primarily in the risk management system of commercial banks. The main aim of this study is to investigate the importance of bank risk management and its impact on liquidity. The bank liquidity can be influenced by changing the maturity structure of assets. In practice, it is obvious from the formation and management of the investment portfolio by means of the step effect. However, these are only theories and approaches, to which a bank may be directed in its activity at the discretion of its management and depending on the changing market situations. In summary, this study reflects that first of all commercial banks face the problem of determining the mechanism of quantitative assessment and the practical application of liquidity management methods.

Keywords: bank risk management, liquidity management, stabilization of the financial market.

1.INTRODUCTION

The current state of Kazakhstan's economy is notable for a large number of factors that are not sufficiently favorable for the banking sector. A range of factors has a decisive influence on bank stability, among which the primary one is liquidity: growth of long-term investments, increase in the share of overdue debt, outflow of funds from accounts, etc. All these factors are directly or indirectly reflected in the change in the bank's payment flows and, as a consequence, affect the value of its liquidity position.

The concept of "liquidity of a commercial bank" means the bank's ability to ensure timely and full implementation of its debt and financial obligations to all counterparties, which is based on the permanent maintenance of objectively necessary ratio between its three components: the bank's own capital, borrowed and allocated funds.

In banking theory and practice, liquidity is understood as a "reserve" or a "flow". Liquidity as a "reserve" includes determining the level of a commercial bank's ability to meet its obligations to clients at a certain specific moment by changing the assets' composition in favor of their highly liquid lines due to unused reserves available in this area.

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Liquidity as a "flow" is analyzed in terms of dynamics. This involves an assessment of the commercial bank's ability to change the existing unfavorable liquidity level over a certain period or to prevent the deterioration of the achieved objectively necessary liquidity level through the effective management of the relevant assets and liabilities, attracting additional borrowed funds, increasing the financial stability of the bank by increasing revenues.

Therefore, liquidity is one of the key concepts in banking activities, it forms the basis of the reliability and stability characteristics of banking institutions. Not being related to the main direct goals of banking activity, such as making a profit, investment organization, liquidity management is one of the internal indicators of management efficiency in banking activity. Maintaining the appropriate level of bank liquidity allows the bank to remain solvent at all times, thereby creating indispensable conditions for achieving the main objectives of banking activities and sustainable development of the national economy. [1]

The concept of bank liquidity is very closely associated with the idea of market liquidity and, above all, the financial one, where the bank operates. Therefore, the more capacious, stable, diverse, and competitive the market is, the more the bank's liquidity concept expands. In the coming years, Kazakhstan's banks are predicted to face high risks associated with a reduction in capitalization given the stagnation in the economy.

2. OVERVIEW OF BANK RISK MANAGEMENT IN KAZAKHSTAN

The banking sector of Kazakhstan has 21 banks with a State share in the banking sector's capital of less than 5%. In the structure of banking assets of the republic, loans take 50.9%; securities portfolio – 20.7%; cash, refined precious metals and correspondent accounts – 10.5%. [2] And credit risk is still the main cause of banks' difficulties, and more than 80% of the contents of banks' balance sheets are devoted, as a rule, to this aspect of risk management. In reality, the bank is primarily faced with the problem of determining the mechanism of quantitative assessment and practical application of liquidity management methods.

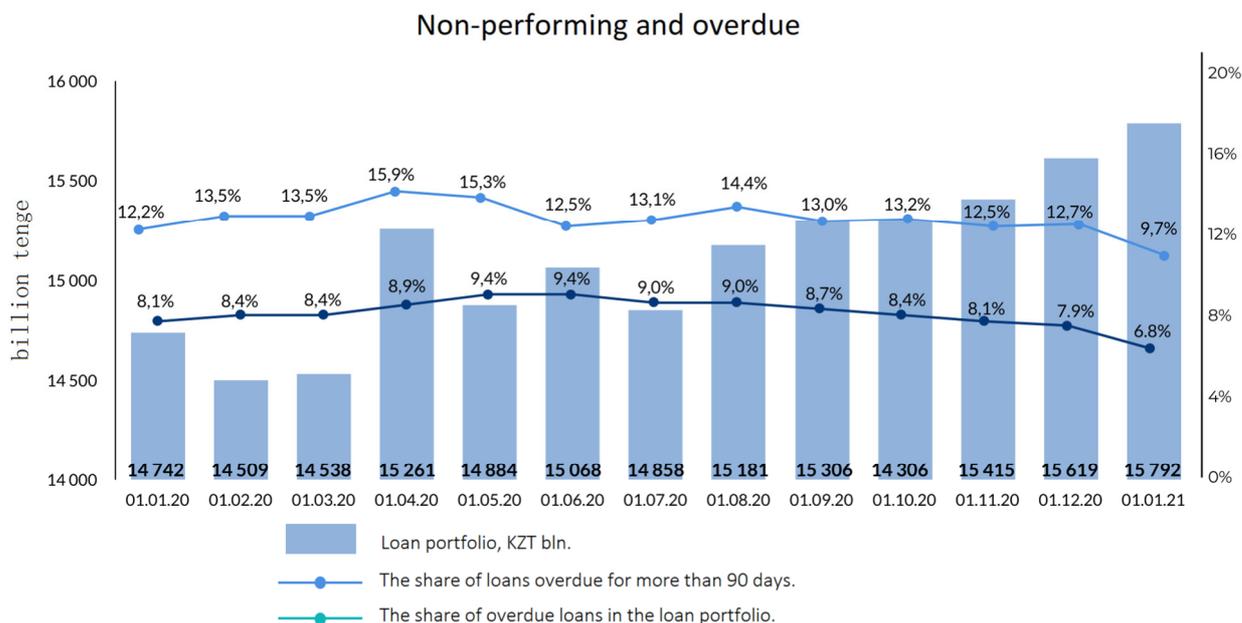
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According to the regulatory reporting of STBs.

Figure 1. Distribution of non-performing and overdue loans by second-tier banks

Note: [3]

In the portfolio of loans to individuals the level of NPL 90+ made 5.4%, in the portfolio of loans to small and medium businesses - 11.9%, in the portfolio of loans to legal entities - 5%. Significant loan deferrals were granted during the lockdown period. Lending to legal entities decreased by 1.5% in 2020, while lending to small businesses, on the contrary, increased by 19.3%. This was facilitated by the state programs for the development of small and medium-sized businesses. In this regard, the real quality of the loan portfolio may change by the end of the year. As a country – exporter of oil and other mineral resources receiving revenue in U.S. currency, the country has a high degree of dollarization of the economy, which brings additional risks and can lead to destabilization of the financial stability of banks. The dollarization level was 35.4% at the end of July 2022. [3]

Historically, the high practice of concentrating banking resources on certain sectors and borrowers has increased credit risks in the banking sector. The decrease in external demand and commodity prices had a negative impact on the economy. Together with GDP reduction and sharp devaluation of the national currency – tenge, it led to a worsening of borrowers' solvency. The dynamics of the banking sector indicate that conventional retail deposits are becoming less and less interesting for the population. As a result, competition within the banking segment is increasing, which makes it more important to implement innovative technologies and services in order to attract new clients and ensure financial stability.

Due to the high degree of dollarization of the economy, there are additional risks to the financial stability of banks. The rate of nominal credit growth in Kazakhstan will ultimately depend on the degree of the tenge depreciation and the rate of inflation; the money stock will increase in 2022 (forecast) by 3.1% compared to 2021. [4] The following measures have been taken to control inflation: increase of the National Bank rate from 10.25% to 16.75% [5] during 2022; increases in interest rates on deposits in tenge; increase in interest rates on loans.

But this is not enough, it is also necessary to provide soft loans to finance infrastructure projects to prevent emergencies at thermal power plants (TPPs) and water utilities in order not to sharply increase the cost of their services, which can lead to an increase in inflationary processes.

Due to a significant decrease in the income of the population, new retail loans are expected to replace loans with maturity, resulting in the retail loan portfolio will still remain stable in absolute terms. According to the authors, the near zero growth, the decline in real GDP (4.3% growth in 2021 against the expected 3% growth in 2022) [6], and the sharp depreciation of the tenge together with the weak payment culture and low incomes in the country will unavoidably lead to deterioration in the solvency of borrowers, among other things. The historically high concentration on certain sectors and borrowers in international comparison is another factor contributing to increased credit risk in Kazakhstan's banking sector.

The most significant deterioration in asset quality indicators and the resulting creation of additional reserves is likely to be observed in banks whose lending rates have been in double digits in recent years, as their loans begin to become due under unfavorable operating conditions.

3. BANKING LIQUIDITY MANAGEMENT IN KAZAKHSTAN

Liquidity management mechanism cannot exclude risks completely, as new internal and external influencing factors must be constantly analyzed on a permanent basis. That is why the forecast of future cash flows of the bank is built with a certain probability, and with the increase of time horizon, the reliability of decision results decreases. For example, it is necessary to calculate the potential reconsideration of the discount rate in the external borrowing markets.

In the absence of strategic changes in the bank management, as well as significant changes in external factors, extrapolation is possible - the transfer of the existing initial structure of assets, liabilities, return on investments, and the cost of resources to future periods. First of all, it concerns such macroeconomic factors as changes in the refinancing rate of the Central Bank, inflation, exchange rates of major currencies in relation to the previous year, and no dumping on credit rates - attracting the client base by reducing the interest rate in the long term.

Stabilization of the financial market today is a move away from the direct support of banks and support of borrowers – the population, small and medium businesses (SMBs). The support measures are defined as: no penalties and fines on overdue payments of the principal debt and (or) interest on the bank loans and (or) microcredit contracts to individuals and legal entities, whose financial condition became worse as a result of the emergency (consequences of COVID). Thus, more than 1,8 million citizens have received a respite for payments of 245,6 billion tenge, and 11,7 thousand SMB subjects – for the amount of 147,8 billion tenge [7]. However, for the banks, this means losses from uncollected bank interest.

Indirect support of commercial banks by the Government is expressed in operational measures for the participation of banks in the lending and financing of economic sectors, when resources allocated by the Government are accumulated in bank accounts, thus increasing their liquidity. For example, preferential financing of operating assets under the program of the National Bank is envisaged in the manufacturing industry.

A bank can be financially liquid if its assets are transferable or can be sold to other creditors or investors. Consequently, bank liquidity can be influenced by changing the maturity structure of assets. In practice, this is represented in the formation and management of the investment portfolio by means of the step effect.

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But these are only theories and approaches, to which the bank may be oriented in its activity at the discretion of its management and depending on the developing market situation. In reality, the bank, first of all, faces the problem of determining the mechanism of quantitative assessment and the practical application of liquidity management methods.

Maximum liquidity can be achieved by maximizing balances in cash and correspondent accounts in relation to other assets. But exactly in this case, the bank's profit is minimal. Profit maximization does not require storing funds, but using them to make loans and investments. Since this requires keeping cash on hand and balances on correspondent accounts to a minimum, profit maximization threatens the continuity of the bank's fulfillment of its obligations to clients.

CONCLUSION

The essence of banking liquidity management is therefore a flexible combination of opposing requirements of liquidity and profitability. The target function of liquidity management by a commercial bank is to maximize profit with mandatory compliance with economic standards established and determined by the bank itself.

Approaches based on the indexes dynamics prove to be more effective in practice than approaches that imply static data under study and provide only probabilistic estimates of changes in the bank's indexes in the future without a breakdown by time intervals. In assets management, the bank should focus its attention on the increase of profitability of operations as a whole and on the return on individual operations, in particular. In liabilities management, the bank should use the analysis method of liabilities placement according to their terms, which allows the bank to manage its liabilities, forecast and change their structure depending on the level of liquidity ratios, implement a reasonable policy in the field of accumulation of resources, influence the solvency, monitor the equity/raised capital ratio and analyze the deposit base of the bank.

REFERENCES

[1] Effective Application of COSO in the Three Lines of Defense Model Prepared by The Institute of Internal Auditors® Authors: J. Anderson, IA, CPA, CRMA, CMA, Internal Audit Manager, Consultant IIA's Audit Executive Center® Gina Eubanks, CIA, CISA, CRMA, CCSA, Vice President. [Online]. Available: https://iia-ru.ru/upload/documents/professional_practice/position_papers/

[2] National Bank of Kazakhstan PRESS RELEASE #2 On the situation in the financial market, January 29, 2020, Almaty

[3] Sarsenova M. Banks of Kazakhstan continue to increase liquidity reserves. [Online]. Available: <https://kapital.kz/experts/93127/banki-kazakhstana-prodolzhayut-narashchivat-zapasy-likvidnosti.html>

[4] [Online]. Available: <https://nationalbank.kz/ru/news/press-relizy/14550>

[5] Kazakhstan: Concluding Statement of the IMF Mission on the Results of Consultation 2022 on Article IV, October 10, 2022.

[6] Base Rate Decision Schedule 2015-2022 [Online]. Available: <https://nationalbank.kz/ru/news/grafik-prinyatiya-resheniy-po-bazovoy-stavke/rubrics/1698>

[7] Kazakhstan's GDP will grow by 3% in 2022 - S&P. [Online]. Available: <https://kapital.kz/economic/109555/v-2022-godu-vvp-kazakhstana-vyrastet-na-3-s-p.html>

[8] President's Package of Measures: more than 1.8 million citizens received delays on debt payments[Online]. Available: <https://news.mail.ru/politics/41813311/?frommail=1>

BANKER'S VIGILANCE DUTY and PROTECTION of MOROCCAN CUSTOMERS' PERSONAL DATA

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Abstract

Property inequality between the credit consumer and the credit institution puts the banker in a privileged position which certainly requires him to be careful and vigilant in order to detect the apparent irregularities in the transactions that he is asked to carry out. At the same time, this position allows him to collect very important confidential information that frequently falls within the sphere of consumer privacy. Through each economic transaction the user of a credit card reveals to a third party who does not ask for its opinion, personality, plans and future expenses in view of its overall social situation.

After the Banking Law of 14 February 2006, which consolidated the initial guidelines of the Law of 6 July 1993, Law no. 103.12 on credit institutions and similar entities was adopted to further strengthen the decision-making and control powers of Bank Al-Maghrib (Central Bank) as well as prudential measures and risk prevention rules. This increase in the decision-making and control powers of Bank Al-Maghrib is justified by the increasing risks and the need to prevent them as well as monitor and control other actors in the sector. Among these prudential regulations, one obligation for bankers is particular relevance to us; it is the vigilance duty, which applies to any transaction whose economic cause or legitimacy is not obvious.

Keywords: CREDIT INSTITUTIONS; BANK AL-MAGHRIB; VIGILANCE DUTY, CONSUMER, PERSONAL DATA; PRIVATE LIFE, DIGITAL;

Introduction

After the Banking Law of 14 February 2006, which consolidated the initial guidelines of the Law of 6 July 1993, Law no. 103.12 on credit institutions and similar entities has been designed to further increase the decision-making and control powers of Bank Al-Maghrib, as well as to put prudential measures and risk prevention rules. This increase in the decision-making and control powers of Bank Al-Maghrib is justified by the increase in risks and the need to prevent them and to monitor and control other actors in the sector. Among these prudential rules, an obligation for bankers is interesting for us; it concerns the duty of vigilance which concerns any transaction whose economic cause or lawfulness is not apparent.

The obligations of the banker are numerous and diverse and they are from legal origin or jurisprudence creations. Obligations and duties such as bank secrecy or the duty to be vigilant, and also principles specific to banking law such as the principle of non-interference.

However, the autonomy of banking law in relation to the general theory of contracts often complicates any attempt to distinguish between obligations and principles born primarily of banking practice. There is typically a difference between a prudential duty of vigilance¹, which requires from the banker to make sure that his responsibility is avoided, and a duty of vigilance obligation, which requires him to make sure that the transactions he is requested to handle don't display any anomalies. A duty that can lead the banker to carry out additional investigations to choose the behavior adapted to the situation (Boucard, 2002). The case-law has enabled clarification of the duty of vigilance on the basis of the apparent anomaly criterion. In Morocco, we can also discover a duty of vigilance with legal origins in the banking law and the circular number 36 issued by Bank Al-Maghrib on December 24th, 2003. Some authors, like Mr. Vézian, claim that this responsibility of vigilance comes from a banking practice established in the interest of the banker who defends himself against dishonest consumers, in the benefit of his own customers, and ultimately in the benefit of the general public. We are talking about a duty to ensure the "security of banking instruments" (Boucard, 2002).

The banker's privileged position certainly requires him to be cautious and vigilant (I) in order to detect the apparent anomalies in the transactions which he is asked to carry out and to make every effort to avoid the occurrence of injury, but at the same time it allows him to collect very important confidential information that often falls within the sphere of the privacy of individual customers (II).

1. A privileged and vigilant banker.

The opening of a bank account is above all an opportunity for the interests of banks and their clients to intersect and for the duty to provide information and the right to inform to be a guarantee in good faith in this important transaction with complex effects. The banker is then required to exercise the duty of vigilance in order to collect all pertinent data regarding the client's capacity, identity, activity, and assets. Each customer's information, including for natural persons, such as name, number of official identification document, actual address, occupation, etc., is established in an account opening form².

According to Article 1 of Bank Al-Maghrib Circular No. 36 of December 24th, 2003: "credit institutions must put in place the necessary procedures to enable them to:

- identify and have in-depth knowledge of their clients;
- monitoring and surveillance of customer transactions, particularly those with a high degree of risk;
- Maintain and update documentation related to clients and the transactions they perform.

Additionally, they must also instruct and train their staff in the techniques of detecting and preventing unusual or suspicious operations"³.

A bank account is initially identified by a RIB, which is a bank details. This is a string of numbers that serves as national bank account identifier. This is a series of numbers constituting a national bank account identifier. This identifier enables bank customers to communicate their banking domiciliation to debtors or creditors, as well as to meet the automatic processing requirements arising from the development of interbank exchanges.

¹ Also known as the duty of supervision and the duty of prudence.

² For legal persons or entities: name, legal form, activity, address of registered office, tax identifier number etc.

³ The client will be given a printout to fill out and a sample signature card with information on the client's identification and signature templates that must serve as the foundation for the banker's control. The bank will issue a checkbook, a bank card, etc. at the client's request and in accordance with the services provided.

Thanks to the computer and digital tools, the bank details facilitate all the routine operations performed by customers and their establishments. There is also the Bank Account Statement, which allows for a chronological record of all client transactions⁴. These statements⁵ must include the following information: the period for which they are prepared; the corresponding initial and final balances; and a description of each transaction that includes the document references used for its execution (check number, etc.).

This information allows credit institutions to monitor all transactions that represent a risk. Bank Al-Maghrib imposed vigilance in the fight against suspicious and unusual operations and sources⁶. Circular no. 36 of Bank Al-Maghrib requires them to determine client risk profiles⁷ and classify them according to categories related to them. This involves taking into account and recording the following data: the customer's country of origin; the origin of the funds; the nature of the activity performed; the nature of the transactions performed; the account history.

This duty of vigilance, which is obviously important, combined with each banker's primary goal, namely profit, reveals a precise profile of the "good customer," who must ultimately be honest and creditworthy⁸, and which is part of the banks' risk and profit prevention policy. A realistic observation that seems to contradict this expressed desire for banking and democratization of access to basic financial services to the disadvantaged.

2. A transparent and exposed client.

Bankers and other professionals are expected to share a duty to inform with their clients, businesses, and individuals. The real disparity between these two contracting parties justifies this pre-contractual obligation of information, which falls primarily on the professionals and stems from the fact that the professional frequently has information that the client does not, and especially because the client's ignorance is frequently legitimate (Sinay-Cytermann, 1996). However, these obligations of information and advice are difficult to harmonize with the rules of banking law, appearing to be a nuisance (Boucard, 2002). Professionals have put in place stringent procedures that allow them to be fully informed about the client's financial situation, solvency, and seriousness. Clients are frequently asked to provide an extremely detailed record and to complete a survey that goes beyond personal data and privacy.

⁴It is a table with two sections:

- The debit part, where all cashier withdrawals, check payments, debit notices, transfers, payments for bank services, and credits are recorded.
- The credit part: where all transactions pertaining to banking services and any bank credits are recorded. This includes all payments made by or on behalf of the customer, such as cash payments, transfer receipts, etc.

⁵ Article 2 of Circular B.A.M No. 4/G/ 98 of 5 March 1998 specifies precisely the information that the statement must contain for each transaction, namely the description, the amount, the obligor or creditor direction of the amount, the execution date, the value date, the interest rate actually applied in the case of a credit transaction or an interest-bearing deposit transaction, the method of calculating interest, the exchange rate applied in the case of a foreign currency transaction, the nature of each fee charged, the nature and amount of each charge and tax levied.

⁶ According to Article 15 of Bank Al-Maghrib Circular No. 36 of December 23, 2003 on due diligence, unusual or suspicious transactions are those that:

- "-do not appear to have any economic justification or apparent lawful purpose;
- relate to amounts that are out of proportion to those normally paid by the customer;
- occur under unusual conditions of complexity"

⁷ The identification elements of each client are kept for 10 years.

⁸ Who has the possibility to pay his debts and to respect his financial commitments.

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Certainly, bankers and credit professionals may argue that the reason for collecting, storing, and processing this information is nothing more than strict adherence to a policy imposed by the country's monetary authorities of assessing the risks of default and litigation that each candidate would present when accessing the product, as well as a duty to be vigilant. In fact, this information enables professionals to identify the best possible guarantee and thus engage the customer in a risk-management policy.

To identify the concept of "privacy" and thus which information should be subject to special protection, it is necessary to first understand the criteria advanced by the researchers⁹. The first criterion takes into account the nature of the data, to discriminate against the most sensitive information (example: political and religious opinions)¹⁰. The second criterion is concerned with the information's purpose, whether legitimate or not and therefore can't infringe on a person's privacy as the information is used for a suspicious purpose. Finally, the third criterion considers the technological nature of information processing during the data storage, exploitation, and processing phases. Thus, in terms of security, it requires the development of various technical processes that necessitate the assistance of computer scientists:

- Arrangements allowing access to information only after identity verification;
- Information jamming devices;
- Programmed verification of the validity of user operations;
- Automatic printing by the computer of a business log displaying the identity of the information requester, etc.

⁹Several texts refer to the notion of the right to respect for privacy:

- According to Article 12 of the 1948 Universal Declaration of Human Rights: "No one shall be subject to arbitrary interference in his or her private life, family, home or correspondence, nor to any interference with his or her honour or reputation".

- According to Article 8 of the European Convention on Human Rights of 4 November 1950: "every person has the right to respect for his private and family life, his domicile and correspondence..."

¹⁰ Professor BING of the University of Oslo has identified 400 pieces of information that need to be protected, including identity, family relationships, health, lifestyle etc.,

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These criteria are extremely valuable today, when technical advancements in data storage¹¹, processing, and communication have the potential to strip the right to customer privacy protection from its content.

Article 160 of Law 103.12 authorizes Bank Al-Maghrib on its own initiative or at the request of professional associations to set up and manage a credit risk centralization service whose purpose is to make available to credit institutions and similar entities, financial information useful for managing their risks to companies and individuals. This service centralizes the provision of credit information and rating services. Service data may only be retained for five years from the date of repayment of the credit. The president of Bank Al-Maghrib then determines by circular, after consulting the Committee of Credit Institutions, the terms under which these services will be provided and the conditions of access to the information they hold. Bankers and credit experts keep records of information about every customer in files. Files contain information about the client's assets and lifestyle, which poses a serious threat to their privacy. Indeed, it is easy from data, relating to the client's wealth, to deduce other information that goes beyond the pure financial object. Their actualization, accumulation, and potential for instantaneous transmission create control over the subject, who is also susceptible to error and abusive uses. We must not forget also the case of a few credit forms, such as the payment card, through which we can discover the usual behaviors of an individual by the pace of his purchases.

As a result, as Marc HENRY points out, the example is “the purchase of fuel using a credit or debit card: the statement of the various purchases, their location, their time, and their amount are repeated month after month on a bank account statement, creating a monthly record of much of our cross-country travel” (Henry, 1989).

The goal of Morocco's legal arsenal on the protection of personal data is to impose strict rules on computer scientists and anyone else who has access to automated data.

¹¹Some definitions are required:

-“**Processing**” means all the computer operations implemented at each stage of the development and operation of the files.

-“**Automated**”: any file (processing) that is not exclusively manual is automated. The term “automated” has been used rather than “computerized” to broaden the scope of the targeted treatments and easily incorporate any future technology.

-“**Nominative information**”: is nominative any information in which the name of a person is contained or any element that makes it possible to identify him exclusively and surely (telephone number, e-mail, etc.)

-“**Sensitive data**”: within the meaning of the law “Liberty and digital” they are:

- personal data relating to health or sexual life;
- information relating to an identity check;
- judgments or judgments condemning the infringement.
- the exercise by a borrower of its right of withdrawal;
- professional information.

Sensitive data are defined by the United Nations guidelines adopted in 1990 as data likely to give rise to unlawful or arbitrary discrimination, including information on racial or ethnic origin, colour, sex life, philosophical or other political opinions, such as membership in an association or union.

-“**An information bank**” means a centre where information relating to one or more fields is accumulated from various sources, either individual or aggregated, without determining a priori all the uses which will be made of it. This is in order to make them available to a certain number of users without a suitable form, as soon as possible.

- “**Automated Data Processing System (ADPS)**” is: “any assembly consisting of one or more processing units, memory units, software, data units, output input units, and links that contribute to a particular result, that assembly being protected by security devices”. (Linant De Bellefonds & Hollande, 1998).

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1) The Constitution of the Kingdom of Morocco.

- “Everyone has the right to privacy”, Article 24 of Moroccan Constitution.

- According to Article 27 of Moroccan Constitution “... The right to information may be limited only by law, in order to ensure the protection of all matters relating to national defense, the internal and external security of the State, as well as the privacy of individuals, to prevent the infringement of the rights and freedoms set forth in this Constitution...”

2) Law No. 09-08 concerning the protection of natural persons with regard to the processing of personal data¹².

This law created, among other things, a National Commission for the Control of the Protection of Personal Data (NCCPPD). It also aims to harmonize Moroccan law with the European Union legislation on the processing of personal data, integrating the same European and French principles, namely:

- Processing of personal data that, depending on the purpose, must have a defined purpose and a finite implementation period;

- Only information necessary for achieving the specified goal must be handled;

- Depending on how sensitive they are, the processing must be the subject of a declaration or an authorization request;

- Secure processing is required;

- The parties involved must be informed and have a mention in how their data is used;

- To ensure adherence to the law, a National Commission for the Control of the Protection of Personal Data (CNDP) is established.

3) Decree 2-09-165 of May 21st 2009 adopted for the application of Law No. 09-08 on the protection of natural persons with regard to the processing of personal data.

4) Law No. 53-05 on the electronic exchange of legal data, promulgated by Dahir No. 1-07-129 on November 30th, 2007.

This law establishes the guidelines that must be followed when exchanging legal data electronically, determining whether documents created on paper and electronically are equivalent, and using electronic signatures. It also sets up the rules that must be followed by electronic certification service providers and the recipients of the issued electronic certificates, as well as the legal framework that will apply to transactions made by these parties.

J. P. LEMASSON’s conclusion is fighting. After all, when faced with bankers, even our cultural and artistic tastes through bookstores or theatres frequented paid by a bank card, suddenly become transparent, because through each economic transaction the user of a credit card reveals to a third party who does not ask for its opinion, personality, plans and future expenses while also taking into account its overall social situation (Lemasson, 1988).

References

[1]. BOUCARD François, *Les obligations d’information et de conseil du banquier Presses Universitaires d’Aix Marseille*, 2002.

[2]. FENOLL-TROUSSEAU Marie Pierre and Gérard HAAS, *Internet et protection des données personnelles*, Litec, Paris, 2000.

[3]. HENRY Marc, « Droit au crédit, libertés, un équilibre délicat » in *Le crédit au consommateur. Colloque organisé le 6 mai 1988 par les jeunes barreaux de Mons et Nivelles*. Story scientia. Bruxelles, 1989.

[4]. LEMASSON J. P., « Les cartes de paiement : la privatisation de la vie privée », T.I.S.1988.Vol 1. n°1.

¹² Promulgated by Decree No. 2-09-165 of 21 May 2009.

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[5]. LINANT DE BELLEFONDS Xavier and Alain HOLLANDE, *Pratique du droit de l'informatique*, 4th édition, Delmas, Paris, 1998.

[6]. SINAY-CYTERMANN Anne, « Les relations entre professionnels et consommateurs en droit français » in *La protection de la partie faible dans les rapports contractuels. Comparaisons Franco-belges*, LGDJ, Paris, 1996.

[7]. VITALIS André, *Informatique, pouvoir et libertés*. Economica. Paris, 1981.



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EMPLOYEE EMPOWERMENT AND SERVICE QUALITY DELIVERY: THE MEDIATING EFFECT OF ORGANIZATIONAL CITIZENSHIP BEHAVIOUR AMONG NURSING STAFF

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Abstract

The current study examines how employee empowerment (personal value and impact) influences the delivery of services quality (SQD). The study focused in particular on the mediating effects of organizational citizenship behaviour (OCB) on the link between (EE), personal value, and impact on (SQD). A total of 368 survey questionnaire were distributed to the nursing employees working in the public hospitals in Nigeria. SEM-PLS was employed to carry out a statistical analysis. The findings of the study reveal that EE (personal value and impact), and (OCB) significantly affect SQD. The findings also indicate that (OCB) mediates the link between SQD and personal value, impact, and SQD. These findings' implications for practice and future study are examined along with how the accepted hypotheses are supported. The results of this study shed light on the influence of employee personal value and its effect on SQD. Public hospitals should therefore concentrate on recognising, comprehending, and implementing employee empowerment to improve employee nurses' capacity to achieve higher SQD.

Keywords: Impact, Personal Value, Organizational Citizenship Behaviour, Service Quality Delivery

1. Introduction

Workers believe themselves as having control over the organization and view this as an enriching aspect of their work. Employees feel empowered to make judgments while carrying out duties and accountable for any unsafe actions related to the assignments. It has been shown that employees are more committed to the organization as a whole when they are free to make any decision on their own initiative with the organization's support (Alsharari, Al-Rwaily & Alsharari, 2017; Sepahvand, *et al.*, 2017). Employees have the chance to participate and feel psychological ownership for their acts and the results of their activities, which helps them feel a sense of belonging. These emotions develop interest and engagement in workers. (Nascimento, Porto & Kwantes, 2018; Ariza-Montes, *et al.*, 2017).

Human resource management (HRM) has functioned as a unit of employees in the form of HR or workers as part of a company's assets to better understand the life of an organization, whether it is a commercial sector or a public sector (Fajar & Soeling, 2017). The nature of organizational citizenship is crucial to the development of an organization. OCB can have an impact on an organization's success since it encourages teamwork and boosts group productivity. Employees who assist one another do not need to request assistance from the employer, this liberates the leader up to focus on other important tasks (Tayal, *et al.*, 2022; Bhatti, Ju & Akram, 2019; Alkahtani, 2015). In today's extremely competitive world, businesses are emphasizing areas that can provide them a competitive edge, and OCB is one such area. Growing employee productivity and organizational performance is thought to be largely dependent on the practice of organizational citizenship (OCB) (Rahman & Chowdhuri, 2018; Bizri, 2018; Chelagat, *et al.*, 2015). OCB has grown in especially in the present era of globalization, particularly with the rise of several worldwide firms. Every management company needs its employees to exhibit high OCBs.

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These actions are advantageous to the organization as a whole. The qualities of citizenship in a person are welcome in such a setting at any institution. The success of the organization as a whole is promoted by OCB, not just for one given group (Fasanmi, 2018).

The performance of a business organization depends on the provision of high-quality service, which also depends on the dedication of the organization's employees. Service quality (SQ) plays a significant role in the service sector (Ratnayaka, Kumara & Silva, 2020; Desfitrina, Zufadhli & Widarti, 2019; Osman, Mohamad & Mohamad, 2015). Organizations often distinguish out from rivals due to the quality of their products and services (Lee & Kang 2019; Hermawan, Basalamah & Plyriad, 2017; Pahi, Abdhamid & Moin, 2017; Yeo, Thai & Roh, 2015). In today's corporate world, where firms must be faster and offer higher-quality service, having a proactive team is essential (Alsharari, Al-Rwaily & Alsharari, 2017; Al-Ababneh, 2016). Surveys conducted throughout the world have revealed differing levels of client satisfaction with the provision of health care in industrialized and developing nations. The survey respondents' satisfaction levels varied from 22% to 95% (Zarei, *et al.*, 2018). Numerous studies have outlined various factors that affect the quality of hospital services, including lengthy wait times, clinic overcrowding, unfriendly staff, and a lack of medication (Yesilada & Direktor 2017; Emelumadu & Ndulue, 2012; Sreenivas & Babu, 2012). This was part of the reason a large number of timing population (60–70%) around the globe uses private healthcare institutions to address their health needs in which many of them are developing nation. One of the causes driving more people to utilise private health facilities than public ones is a negative perception of the quality of the services provided in public hospitals (Tawana, *et al.*, 2019; Haskins, *et al.*, 2017).

Nigeria is specifically dealing with issues related to declining public health care sector service quality performance on both an internal and external level. Although providing health care services is essential, Nigerian healthcare is plagued by persistent inefficiency. Despite a considerable budget allocation to improve healthcare delivery, particularly at the point where healthcare professionals and patients interact, the sector's goals are still mostly unfulfilled (Osakede, 2019; Amole, *et al.*, 2015). It is obvious that patients who received substandard care in the public hospital will view it negatively. Its service delivery quality may be significantly impacted by this, which in turn affects its corporate image. Poor service delivery is evident when patient complaints and ineffective complaint handling have an impact on the standard of the provided services. Thus, it is crucial to comprehend the push-pull dynamics that affect the decisions of health professionals to remain or leave, as well as successful retention strategies. These elements include salary, the standard of healthcare facilities, and the workload of healthcare professionals (Douglas, Raban & Westbrook, 2017).

Despite this empirical evidence of the link between SQD and EE, the research' inability to adequately explain the concepts of personal value, employee impact, and SQD in the context of public hospitals was attributed on a shortage of prior literature. The investigation of OCB's mediating role in the link between SQD, employee impact, and personal value has received little attention. It is possible to hypothesize that when an employer provides its employees authority, those people will act responsibly. However, poor SQ might result from low OCB toward the organisation and low empowerment. Therefore, there is gap of knowledge on the effect of personal value and employee impact on SQD and mediating the role of OCB in developing countries, specifically Nigeria, the public sector and in other open settings.

Moreover, the role of OCB has been identified as an important factor that can enhance organisational success, such as quality service delivery (Ratnayaka, *et al.*, 2020; Christensen & Whiting, 2018; Stephen, *et al.*, 2015).

The mixed results, inconsistency, or even the absence of a relationship between the exogenous and endogenous components lead to the emergence of the mediating variable. One can infer that the mediating variable is employed to enhance, weaken, or even establish a relationship. Inducing factors are those whose variation affects the strength or direction of the association between an exogenous and an endogenous variable. In this study, the OCB construct was employed as a mediating factor to determine whether or not it strengthens the positive effects of employee personal value, employee impact, and influence on SQD. In fact, investigating the OCB construct as a mediator could maximise researchers' theoretical comprehension and offer them empirical evidence on how OCB might be a potential mediator. Consequently, this study intends to examine the effect of EE on SQD and mediating the role of OCB on the relationship between personal value, employee impact and SQD in the Nigerian public hospitals.

2. Literature Review, Theoretical Framework and Hypotheses Development

2.1 Personal value and SQD

Values explain several levels and play a major role in leading organisations (Anjum, Karim & Bibi, 2014; Bourne & Jenkins, 2013). Personal values are described as broad, trans-situational, meaningful goals that serve as a human's compass in life. The actions and behaviours of individuals are impacted by these characteristics of values. Values are first and foremost preferences for what is thought to be significant and good; they stand for the objectives that an individual consider desirable. Furthermore, values act as a potent catalyst for action. Individuals choose to act in a way that advances their fundamental values and achieves the goals that motivate them. Second, personal values are mental representations of primary motivating factors (Sagiv & Roccas, 2017; Nascimento, Porto & Kwantes, 2018). Therefore, it is applicable over time and in different situations. A person who places a strong emphasis on interests and career goals is likely to use these values as a guide when selecting a profession, preparing for this choice (such as investing time and effort in training), and finally acting at work (such as working overtime and applying for promotions when possible). Numerous studies have examined into how national values affect individuals and organizations (Nascimento, *et al.*, 2018; Ariza-Montes, *et al.*, 2017; Arieli, Sagiv & Cohen-Shalem, 2016; Anjum, Karim & Bibi, 2014; Boer & Fischer, 2013; Sagiv *et al.*, 2011). Based on this argument, the following hypothesis is proposed:

H₁: *Personal value is significantly related with SQD*

2.2 Impact and SQD

According to Krishna (2017), impact was defined as whether or not employees felt they could change their organisation for the better. In other words, impact refers to the extent to which personnel have the ability to affect organizational strategy, administrative decisions, and operational outcomes. Impact is defined by Spreitzer (1995) as the belief that a single employee may have an impact on the system in which they are entrenched. According to Farzaneh *et al.* (2014), "impact" describes the degree to which behaviour is perceived to matter in terms of achieving the task's goal and producing the desired outcomes in a person's task environment. Impact cognition differs from competency cognition, which is the belief that one could accomplish if offered the opportunity (Yeo *et al.*, 2015; Zeglat, Aljaber & Alrawabdeh, 2014; Elizabeth & Zakkariya, 2013). Findings from Degago (2014) demonstrated a positive and significant relationship between employee SQ and the impact of empowerment. EE has a substantial impact on employee satisfaction and SQ (Ukil, 2017).

A further study by Gazzoli, Hancer, and Park (2016) showed that empowerment significantly affected how customers perceived SQ. According to Ölçer's (2015) findings, employee impact had a favourable, significant impact on JS. The following hypothesis is therefore formulated:

H₂: *employee Impact is significantly related with SQD*

2.3 Organizational Citizenship Behaviour and SQD

OCB is defined by Organ (2012) as voluntary behaviour, individual initiatives, and decisions that are not directly related to the organization's formal reward structure but that, taken together, can increase organisational effectiveness. OCBs are a collection of alternative workplace behaviours that go above and beyond the minimal standards of one's position (Jahangir, Akbar & Haq, 2014). According to Bolino et al. (2012), OCB is defined as employee behaviour that goes above and beyond what is required by the formal reward system, without anticipating benefits or recognition, and facilitates organisational operation. Helping others, agreeing to do extra work, and abiding by workplace policies are just a few examples of the behaviours that make up OCB (Agustiningsih, Thoyib & Noermijati, 2016; Pickford & Joy, 2016).

For predicting future customer behaviour and its effects on a company's financial results, service quality has shown to be one of the most useful concepts (Karatepe, Yavas & Babakus, 2005). Many studies argued that providing high-quality service is one of the key tactics for a company's survival. It is hardly surprising that many scholars have devoted themselves to understanding the underlying characteristics and antecedents of service quality given its significance (Yeo, et al., 2015; Karatepe, Yavas & Babakus, 2005; Yoon & Suh, 2003; Parasuraman et al., 1991). There are numerous research that examine the association between OCB and SQ globally (Ratnayaka, et al., 2020; Desfitrina, et al., 2019; Jain & Rizvi, 2018; Christensen, & Whiting, 2018; Husin, Chelladurai & Musa, 2012; Yoon, & Suh, 2003). There have been similar studies in Africa and examined the relationship between SQ and OCB (Nazar, 2016; Waheed, Abbas & Malik, 2018; Boroh, Bahron & Nasser, 2018). Nursing staff members' interactions with patients are equally significant from a relationship perspective. The behaviour of employees during service interactions and their relationships with SQD are the main issues of this study. Employees in the service encounter are performers rather than workers, and the client's perception of the service quality is greatly influenced by the employee's behavioural performance. In light of the aforementioned justifications, the following hypothesis is suggested:

H₃: *OCB is significantly related with SQD*

2.4 Mediation of OCB with Employee Empowerment and SQD

Service is by its fundamental nature is performance, therefore unlike the quality of tangible items, SQ is greatly influenced by the interactions that contact staff members have with clients, their co-workers, and their organization. This suggests that, in addition to the activities specific to a certain position, extra-role activities like OCBs may have a significant influence in determining the level of service quality (Christensen, & Whiting, 2018; Cho & Johanson, 2008). Additionally, the quality of the service could be improved by the contact employee's voluntary ideas as a boundary spanner. In order to ensure that their organizations function well and provide excellent customer service, service providers should pay closer attention to the discretionary and voluntary actions of their contact staff (Ratnayaka et al., 2020; Christensen & Whiting, 2018).

In accordance with a number of studies, employees' confidence in their capacity to reason and take appropriate action will be impacted by their perception of their leadership as finally giving them the authority to assess and decide how to handle certain situations. As a result, an employee will be happy since their supervisors trust them to produce improved service quality (Ababneh *et al.*, 2017; Bello, Bello & Ifegbu, 2017; Buttigieg & Dey Gauci, 2016). The findings show that service quality indirectly affects how EE and customer satisfaction are related. Consequently, employees will be more positive, committed, and confident in their ability to complete their tasks, as well as more passionate about serving customers. Furthermore, they will be able to react to client needs more promptly and will be given encouragement to solve problems in challenging situations. The following study hypothesis was developed in light of the aforementioned earlier empirical research:

H₄. (OCB) mediates the relationship between personal value and SQD.

H₅. (OCB) mediates the relationship between employee impact and SQD.

2.5 Theoretical Framework

The Resource Based View Theory (RBV) contends that organizations have a remarkable collection of resources, and that their ability to acquire and use them effectively opens up new opportunities for them to deliver greater value (Barney, 1991). The RBV viewpoint focuses on internal resources where employees' contributions are to deliver attractive service delivery that will support the organization accomplish its main goals (Hitt, Xu & Carnes, 2016). Employees can influence the effectiveness of an organization's service delivery by its impact on their co-workers and organizational structures that give employees the power to direct how their tasks are carried out. Through enhancing their human capital, this strategy will have an impact on employees' attitudes (Cabello-Medina, et al., 2011). RBV also emphasizes on the notion of a superior value proposition to employees. The theory clarifies the framework by focusing on people specifically, nurses as a source of advantage (and as the organization's primary drivers of SQD). RBV is specifically utilized in this framework to explain the link between OCB, SQD, employee impact, and employee personal value. This suggests that in order for healthcare service to be effective and efficient, hospitals must take advantage of their workforce by providing employees the psychological empowerment they need to reach their full potential. However, Figure 1 below shows how the study's conceptual framework was depicted.

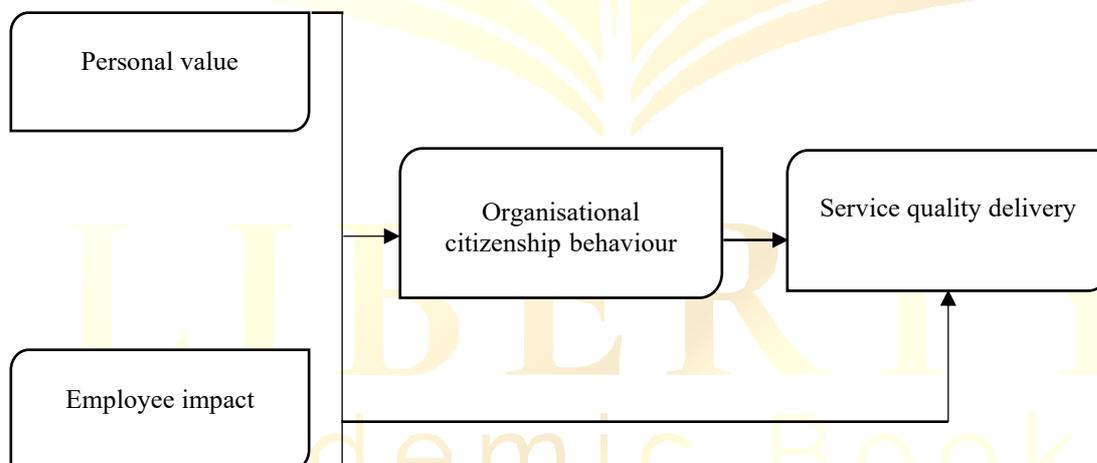


Figure 1: Conceptual Model

3. Method

3.1 Sample and Data Collection

The positivist research paradigm was used in concert with quantitative research techniques to meet the purposes of the present study (Hair *et al.*, 2017; Sekeran & Bougie, 2013). The researchers therefore distributed a self-administrated questionnaire. The questionnaire's items are closed-ended questions that classify behavioural differences according to their relevance on a five-point scale. Additionally, the proposed model as shown in Fig. 1 is investigated utilising structural equation modeling as part of the current study. A descriptive correlational survey was used for this research. The population of the study is made up of 8,263 nurses who were obtained from the planning and statistics Department of the Ministry of Health in the north-western States as of June 30, 2022. In this study, the researcher distributed or apportioned the study sample to reflect every stratum of the study population without any bias, giving each respondent in the population an equal chance of being selected.

A total of 368 nursing personnel were selected from the overall research population in accordance with the sample size requirements established by Krejcie and Morgan (1970). A total of 310 of the 368 questionnaires that were administered to the study respondents completed and returned were utilised as part of the data collection process. Additionally, the present study used the (PLS-SEM) through Smart-PLS version 4.0.8.7 to test the proposed hypotheses of the study in addition to the SPSS version 27.0 to analyze the respondents' profiles and preliminary analysis.

3.2 Measures

This research was developed to analyse nursing employees' perceptions of the offered SQD on its own and to take into account the association with personal value, employee impact and OCB variable. In accordance with the structured model proposal, EE (personal value and employee impact) is measured using a combination of Spreitzer (1995) and Kankanhalli, Tan and Wei (2005) questions with five items each. The items reflect to the extent to which employees believe that leaders have entrusted them the power to evaluate and make decisions as well as their perspective of aiding other employees through information sharing. Eight items adapted from Williams and Anderson (1991) are utilised in the present study to measure OCB. The extent to which an employee voluntarily participates in activities that enhance the success of the organisation is described as OCB. In order to measure SQD, eight items from Ekinci (2001) were adapted. These criteria were used to gauge how well nursing personnel could assist clients, their ability to meet demands, and how well they could make use of the physical resources at their disposal.

3.3 Common Method Variance

Data in this study is subject to CMV as all the measurement in this study was self-reported. To ascertain whether common method bias is a problem, the Zero-constrained test and Harmon's single factor procedure were both applied. The fact that Harmon's single factor only contributed to 12.3% of the total variance shows that common technique bias is not a problem. Overall, Harmon's single factor explained less than 45% of the variance. Furthermore, comparisons between the zero-constrained and unconstrained common factor models were made. The fact that the chi-square difference was found to be insignificant provides more proof that there is no issue with CMV in this research.

4. Results and Discussion

Figures 2 and 3 illustrate how the study model was tested using SmartPLS 4.0. The current study used bootstrapping of 5000 samples and 310 cases to determine the t-values, the standard error of the estimate, and the significance of the relationship. According to Henseler, et al. (2015), PLS predicts moderator effects more accurately through estimating for the inaccuracy that weakens correlations and improves the theory's validity.

4.2 Assessment of Measurement Model

The convergent validity test assesses the degree to which different items measuring the same concept agree with one another. The research subsequently identified the discriminating validity (DV), which is defined by low correlations between the measurement of interest and the measurements of other variables and suggests that the measure does not represent other factors. Evaluating DV was achieved by comparing the squared correlations between the constructs and the extracted variance (Henseler, et al., 2015; Hair, et al., 2014). In Figure 2 and Table 1 the inter-item consistency of the measurement items was evaluated using the Cronbach's alpha coefficient.

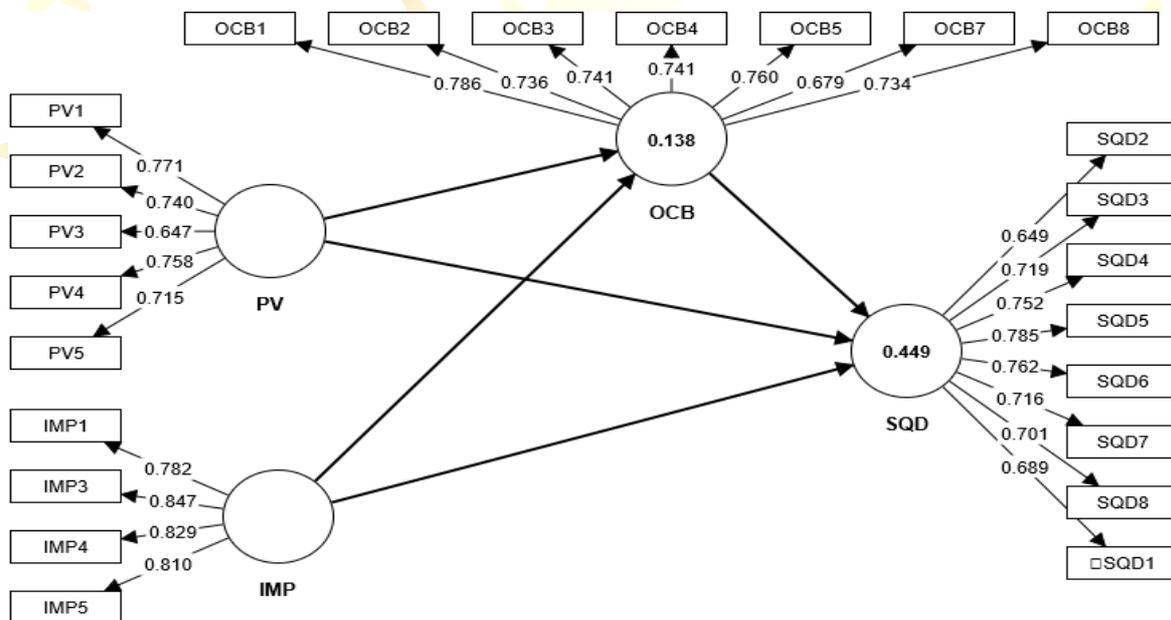


Figure 2: Measurement model

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Table 2: Items Loadings, Composite Reliability and Average Variance Extracted

Constructs and Items	loadings	Cronbach's Alpha	CR	AVE
PV1	0.771	0.776	0.849	0.529
PV2	0.740			
PV3	0.647			
PV4	0.758			
PV5	0.713			
IMP1	0.782	0.838	0.890	0.668
IMP2	Deleted			
IMP3	0.847			
IMP4	0.829			
IMP5	0.810			
OCB1	0.786	0.863	0.894	0.548
OCB2	0.736			
OCB3	0.741			
OCB4	0.741			
OCB5	0.760			
OCB6	Deleted			
OCB7	0.679			
OCB8	0.734			
SQD1	0.689	0.870	0.897	0.522
SQD2	0.649			
SQD3	0.719			
SQD4	0.752			
SQD5	0.785			
SQD6	0.762			
SQD7	0.716			
SQD8	0.701			

Note: PV=personal value; IMP = employee impact; OCB =Organisation Citizenship Behaviour; SQD= Service Quality Delivery

Table 3: Fornell-Larcker criterion

	IMP	OCB	PV	SQD
IMP	0.817			
OCB	-0.006	0.740		
PV	-0.033	0.372	0.728	
SQD	-0.163	0.516	0.565	0.723

4.3 Goodness of fit

A diagnostic approach was used to evaluate the model's goodness of fit (GOF) (Hair, et al., 2014). GOF demonstrate the efficiency of the model structures by describing how often the suggested structured model fits a set of observations. Small (0.02), medium (0.25), and large (0.36) are the parameters for assessing the outcomes of the GOF analysis (Hair *et al.*, 2014). The GOF value of 0.25 in the current study validates the proposed model of the relationship between the research's constructs, showing that the model performs reasonably well.

Additionally, as shown in Figure 2, the outcomes of testing the measurement model reveal that personal value (PV) and employee impact (IMP) account for 44.9% ($R^2 = 0.449$) of the variance of (SQD). 13.8% ($R^2 = 0.138$) of the variance of OCB is explained by PV and IMP.

4.4 Assessment of Structural Model

The research hypothesis served as the foundation for evaluating the relationship between the PV, IMP, OCB, and SQD constructs. The model's t-values were estimated using a bootstrapping method.

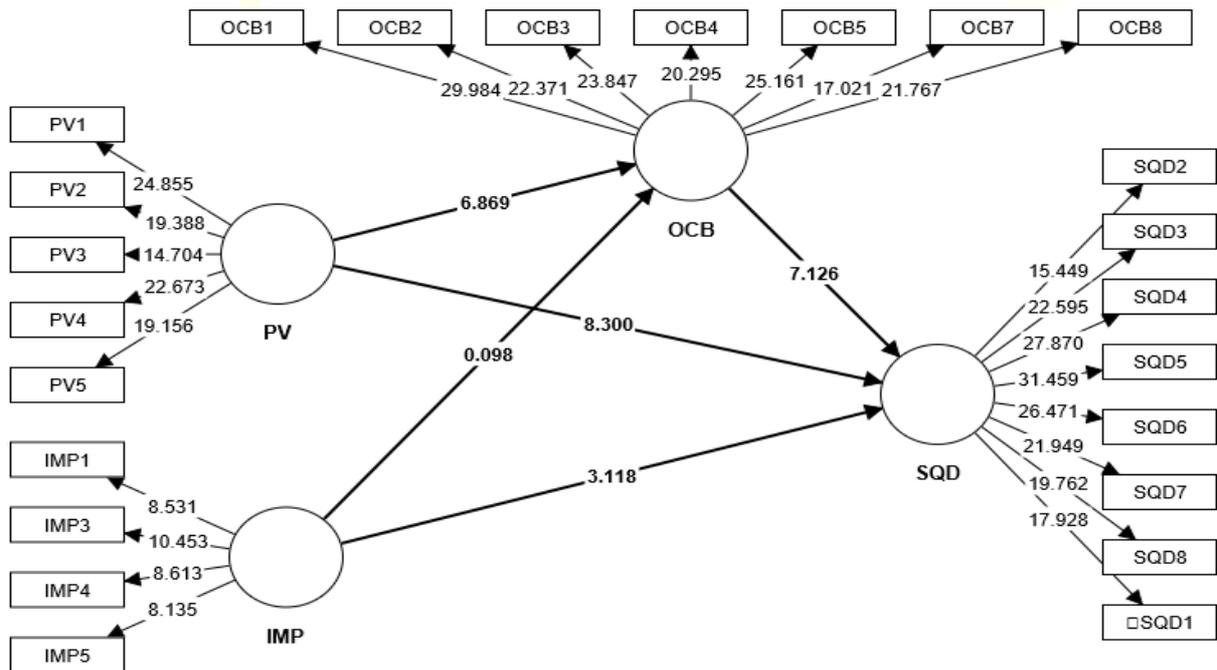


Figure 3: Structural paths

Table 3: Results of Direct and Indirect Structural Model

Relationship	Paths	Beta coefficient	Standard error	t-statistics	p-values	Decision
Direct	PV → SQD	0.427	0.051	8.300	0.000	Supported
	IMP → SQD	0.147	0.047	3.118	0.002	Supported
	OCB → SQD	0.356	0.050	7.126	0.000	Supported
	PV → OCB	0.372	0.054	6.869	0.000	Supported
	IMP → OCB	0.016	0.061	2.098	0.040	Supported
Indirect	PV → OCB → SQD	0.133	0.028	4.779	0.000	Supported
	IMP → OCB → SQD	0.012	0.022	2.096	0.042	Supported

Note: $p < **p < .01$; $***p < .001$. PV=personal value; IMP = employee impact; OCB =Organisation Citizenship Behaviour; SQD= Service Quality Delivery

The models direct influences on the constructs also demonstrate that PV, IMP, and SQD have a significant positive relation ($\beta = 0.427$, $t = 8.30$, $p < 0.000$) and ($\beta = 0.147$, $t = 3.11$, $p < 0.002$) (H 1 & 2). Thus hypothesis 1 and 2 are supported. Similarly, OCB had found to be significantly related with SQD ($\beta = 0.356$, $t = 7.12$, $p < 0.000$) as shown in Table 3. Thus hypothesis 3 is supported. However, this indicates that the three developed direct hypotheses were supported.

Additionally, the mediating effect with variance accounted for (VAF) was examined. Using OCB as mediating factor, a statistical relationship between PV and SQD was established, as shown in Figure 3 and Table 3 ($\beta = 0.133$, $t = 4.77$, $p < 0.000$). With a VAF value of 25%, which is higher than 20%, it was discovered that OCB partially mediates the link between PV and SQD, thus supporting H4. Table 3 further demonstrated that OCB significantly mediates the link between IMP and SQD ($\beta=0.012$, $t=2.09$, $p < 0.042$) (H5), with calculated VAF of 29%, indicating that OCB has a partial mediating effect on the link between IMP and SQD.

Additionally, as suggested by Tabachnik and Fidell (2007), the VIF values specifically range from 1.00 to 1.05, which all fall below 10. However, PLS provides another VIF in structural model to further validate and prevent results from being misleading (Hair *et al.*, 2017). Depending on the amount of linkages involved, the VIF in the structural model compares exogenous and endogenous constructs. The results of the present study demonstrate that VIF is not a problem using all the applicable thresholds of 3.3, 5 and 10.

4.5 Discussion

The findings of the current study suggested that H1 and H2 supported that personal value and employee impact have a significant effect on (SQD) and on (OCB). The findings are in line with previous empirical studies (Hemmati *et al.*, 2018; Al-Ababneh *et al.*, 2017; Lin *et al.*, 2017; Ariza-Montes, *et al.*, 2017; Sorthaix & Lönnqvist, 2014; Degago, 2014; Fernandez & Moldogaziev, 2012;). The most likely explanation for this outcome is that if employees feel empowered and leaders offer them the freedom to evaluate and decide how to handle unpleasant situations, this will reflect on the employees' self-assurance in their own capacity for thought and action. However, this will impact positively on the level of their SQD as they experience high confidence and trust, leading them to exert additional effort to provide greater service quality. Additionally, it is likely that the degree of SQD is positively increased by friendly communication, information exchange, and collaboration among employees in organisations, which boosts each individual employee's personal value. Furthermore, the findings support the link between OCB and SQD (H3). The findings are also consistent with previous studies of Ratnayaka *et al.*, (2020), Husin, *et al.*, (2012), Yoon and Suh, 2003) and Bienstock, *et al.* (2003). Another explanation may be due of other unique characteristics of the workplace, such as employee willingness to contribute to the success of the organisation, which could have a significant effect on SQD when the assigned task is being carried out. Given that (OCB) has a significant effect on personal value, employee impact, and SQD, this research findings confirm the mediating effect of (OCB) (4 & 5). The widely established hypothesis, which is founded on the presumption that employees' behavior may have significant effect on employee's effectiveness.

5. Conclusion and Implication

The personal values and employee impact was discovered to have an important role in contributing to the SQD among nursing staff in the public hospital. This shows that these factors associated with specific behaviours and decisions. The findings clearly demonstrated that, above and beyond well-established variables like personality traits and satisfaction, individual employee values and impact have an effect on OCB and SQD. The study also discovered that an individual's likelihood of engaging in acts of citizenship may be positively or negatively influenced by how well their values align with those of their colleagues. The findings demonstrate that the OCBs of nursing staff have a considerable impact on SQD.

According to this finding, OCBs have an effects that go beyond just improving organizational effectiveness economically. Furthermore, this study established that OCB partially mediates the link between the employee personal value, impact and SQD.

This demonstrates that nursing employees can still perform well and of a high calibre under the supervision of less supportive or participative management. The results of the current study do indeed show that when nurses believe that their employers trust them and offer them the authority to make decisions about the job, their efforts might improve. Additionally, when staff feel more at ease at work, they will be more willing to provide excellent service. Furthermore, individuals who have favourable attitudes about interactions with co-workers, access to necessary tools for the task, and teamwork tend to be more satisfied at work, which has a significant impact on nursing workforces' attempts to deliver higher-quality service. In general, the current investigation establishes the link between the constructs and shows how implementing an empowering attitude and upholding a positive work environment in service organizations can increase (OCB) and therefore strengthen service quality efforts among nursing personnel.

There are various theoretical implications of the current study. Through integrating SQD with employee personal values and employee impact and taking into account the mediating influence of (OCB) in the study framework, which has not been completely studied in prior studies, the current study adds to the body of literature in the health sector. Prior research has focused on managerial practices, the work environment, and a number of behavioural and attitude components, but none of these variables have been examined in the context of the nursing employee SQD literature. The study's first theoretical contribution is that it filled a gap where most prior research had only explored at the relationship between the workplace and various behavioural characteristics. By examining nursing employees' perceptions in the setting of Nigerian hospitals, the current study bridges this gap through demonstrating that personal value and impact have a significant influence on employee efforts related to SQD. Furthermore, considering the context of Nigerian public hospitals, this study is one of a select few that empirically explored OCB with SQD.

5.1 Limitations and Suggestion for Further Study

There are issues with the existing research. The study had a sample size restriction. The sample for this study is confined to Nigerian public hospital nurses. The fact that SQD served as the study dependent variable is another limitation. Despite the fact that SQ is a crucial study construct, there are extremely important dependent variables dimension that can be employed. However, other forms of employee empowerment may be included as well as demographic elements including race, work experience, and educational background as a moderating variable in other studies. The research has some limitations, which presents several potential for further research. The findings, however, establish the groundwork for further study that should consider different industries and explore how much a diversity of EE may be implemented through OCB to affect organizational operations and improve performance and service delivery. Finally, the study is based on the subjective judgment of the nursing employee on the measures of service delivery and OCB of the Nigerian public hospitals. A more objective measurement of the factors might be used in future studies. Second, as data were only gathered from Nigerian public hospitals, the findings may not be generalisable to other industries. Therefore, further study may replicate and broaden this study to include other industries in Nigeria.

References

- Agustiniingsih, H.N., Thoyib, A., Djumilah H., Noermijati, N. (2017). The Effect of Remuneration, Job Satisfaction and OCB on the Employee Performance. *Science Journal of Business and Management*, 4(6), 212-222.
- Al-Ababneh, M.M. (2016). Employees' Perspectives of Service Quality in Hotels, *Research in Hospitality Management*, 6(2), 189-194.
- Alkahtani, A. (2015). Organizational Citizenship Behaviour (OCB) and Rewards. *International Business Research*, 8 (4), 210-222.
- Alsharari, Y.S., Al-Rwaily, F.M. & Alsharari, A. (2017). The Moderating Effect of Commitment to Service Quality on the Relationship between Communications, Customer Relationship Management and Organizational Performance: Evidence from the Kingdom Saudi Arabian Hospitals. *International Journal of Academic Research in Business and Social Sciences*, 7(10), 366-381
- Amole, B. B., Oyatoye, E. O. & Kuye, S. I. (2016). Determinants of Patient's Satisfaction on Service Quality Dimensions in the Nigeria Teaching Hospitals. *Zeszyty Naukowe. Organizacja i Zarządzanie/Politechnika Śląska*.
- Andersson, O., Huysentruyt, M., Miettinen, T., & Stephan, U. (2016). Person organization fit and incentives: A causal test. *Management Science*, 63(1), 73-96. doi: 10.1287/mnsc.2015.2331
- Anjum, M. A., Karim, J., & Bibi, Z. (2014). Relationship of values and conflict management styles. *IBA Business Review*, 9(1), 92-103.
- Arieli, S., Grant, A. M., & Sagiv, L. (2014). Convincing yourself to care about others: An intervention for enhancing benevolence values. *Journal of Personality*, 82(1), 15-24. doi: 10.1111/jopy.12029
- Arieli, S., Sagiv, L., & Cohen-Shalem, E. (2016). Values in business schools: The role of self-selection and socialization. *Academy of Management Learning & Education*, 15(3), 493-507. doi: 10.5465/amle.2014.0064
- Ariza-Montes, A., Arjona-Fuentes, J. M., Han, H., & Law, R. (2017). Employee responsibility and basic human values in the hospitality sector. *International Journal of Hospitality Management*, 62, 78-87.
- Arsenijević, O., Bulatović, L., & Bulatović, G. (2012). The connection between value system and innovativity of media students in Serbia, Croatia and Bosnia Herzegovina. *Praktični Menadžment*, 3(1), 7-15.
- Bardi, A., Buchanan, K. E., Goodwin, R., Slabu, L., & Robinson, M. (2014). Value stability and change during self-chosen life transitions: Self-selection versus socialization effects. *Journal of Personality and Social Psychology*, 106(1), 131-147. doi: 10.1037/a0034818
- Bello Y.O., Bello, M. B. & Ifegbu L.I. (2017). Mediating Effect of Service Quality on the Relationship between Employees Empowerment and Customer Satisfaction in Hotel Industry. *Journal of Business and Management*, 19(7), 77-87.
- Bhatti, M.H., Ju, Y., Akram, U., Bhatti, M.H., Akram, Z. & Bilal, M. (2019). Impact of Participative Leadership on Organizational Citizenship Behaviour: Mediating Role of Trust and Moderating Role of Continuance Commitment: Evidence from the Pakistan Hotel Industry. *Sustainability Journal*, 11(2), 1-21.
- Bienstock, C.C., De Moranville, C.W., & Smith, R.K. (2003). Organizational citizenship behavior and service quality. *Journal of Service Marketing*, 17 (4), 357-378.

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Bizri, R. (2018). Diversity Management and OCB: The Connection Evidence from the Lebanese Banking Sector. *Equality, Diversity and Inclusion: An International Journal*, 37(3), 233-253.

Boer, D., & Fischer, R. (2013). How and when do personal values guide our attitudes and sociality? Explaining cross-cultural variability in attitude–value linkages. *Psychological Bulletin*, 139(5), 1113-1147. doi: 10.1037/a0031347

Bolino M. C., Turnley, W. H. Bloodgood J. M. (2012). Citizenship Behaviour and the Creation of Social Capital in Organizations. *The Academy of Management Review* 27 (4), 505-522.

Boroh, R.P., Bahron, A. & Nasser, S.S. (2018). Exploring and Measuring The Level of Psychological Empowerment (PE) and Organizational Citizenship Behaviour (OCB) Among Government Employees- How They Relate Each Other? *International Journal of Research in Management & Business Studies*, 5(1), 12-17.

Cabello-Medina, C., López-Cabrales, Á. & Valle-Cabrera, R. (2011). Leveraging the Innovative Performance of Human Capital through HRM and Social Capital in Spanish Firms. *The International Journal of Human Resource Management*, 22(04), 807-828.

Chelagat, L., Chepkwony, P. K., & Kemboi, A. (2015). *Effect of Organizational Citizenship Behaviour on Employee Performance in Banking Sector, Nairobi County, Kenya.*

Cho, S., & Johanson, M. (2008). Organizational citizenship behaviour and employee performance: Moderating effect of work status in restaurant employees. *Journal of Hospitality and Tourism Research*, 32(3), 307-326.

Christensen, R.K. & Whiting, S.W. (2018). Evaluating In-role and Extra-Role behaviours across sectors. *Public Personal Management, Sage Journals*, 47(3), 314-334.

Degago, E. (2014). A Study on Impact of Psychological Empowerment on Employee Performance in Small and Medium Scale Enterprise Sectors. *European Journal of Business and Management*, 6(2), 61-71.

Desfitrina, D., Zulfadhli, Z. & Widarti, W. (2019). Good Service Strategies Affect Competitive Advantage. *International Review of Management and Marketing*, 9(6), 135-144

Douglas, H.E., Raban, M.Z., Walter, S.R. & Westbrook, J.I. (2017). Improving our Understanding of Multi-tasking in Healthcare: Drawing Together the Cognitive Psychology and Healthcare literature. *Applied ergonomics*, 59(5), 45-55

Ekinci, Y. (2001). The Validation of Generic Service Quality Dimension: An Alternative approach. *Journal of Retailing and Consumer Service*, 8(6), 311-323

Elizabeth, G. & Zakkariya, K. A. (2013). *A Study on the Effect of Psychological Empowerment on job Satisfaction and Job Related Stress among the Bank Employees.* Doctoral Dissertation, Cochin University of Science and Technology.

Emelumadu O. F. & Ndulue, C. N. (2012). Patient characteristics and perception of quality of care in a teaching hospital in Anambra State Nigeria. *Nigerian Journal of Medicine*, 21(1), 4-9

Fajar, A.P. & Soeling, P.D. (2017). The Effect of HRM Practices on Employee Organizational Citizenship Behaviour in ICT Companies. *Advances in Social Science, Education and Humanities Research*, 167(4), 282-294.

Farzaneh, J., Dehghanpour Farashah, A. & Kazemi, M. (2014). The Impact of Person-Job Fit and Person-Organization Fit on OCB: The Mediating and Moderating Effects of Organizational Commitment and Psychological Empowerment. *Personnel Review*, 43(5), 672-691.

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Fasanmi S. S. (2018). Effects of Commitment, Justice and Empowerment on Organisational Citizenship Behaviour and Turnover Intent among Nigeria Bankers. *Ife Psychologies*, 26(1) 16-44.

Fornell, C. & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and Statistics. *Journal of Marketing Research*, 18(3), 382-88.

Gazzoli, G., Hancer, M. & Park, Y. (2016). The Role and Effect of Job Satisfaction and Empowerment on Customers' Perception of Service Quality: A Study in the Restaurant Industry. *Journal of Hospitality & Tourism Research*, 34(1), 56-77

Hair, Hult, G. T. M., Ringle, C. M. & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling PLS-SEM*. Sage: Thousand Oaks.

Hair, Hult, G. T. M., Ringle, C. M., Sarstedt, M. & Thiele, K. O. (2017). Mirror, mirror on the wall: A Comparative Evaluation Of Composite-Based Structural Equation Modeling methods. *Journal of the Academy of Marketing Science*, 45(5): 616-32.

Haskins, J.L., Phakathi, S.A., Grant, M., & Horwood, C.M. (2017). Factor influencing the recruitment and retention of professional nurses, doctors and allied health professionals in rural hospitals in KwaZulu Natal. *Health SA Gesondheid*, 22, 174–183.

Hemmati, A., Talebi, B., Yari Haj Atalou, J. & Hassani, M. (2018). Structural modeling of career and organizational consequences of psychological empowerment among faculty members of Islamic Azad University in West Azerbaijan Province, Iran. *Journal of Occupational Health and Epidemiology*, 7(2), 119-129.

Henseler, J., Ringle, C. M. & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *Journal of the Academy of Marketing Science*, 43(1), 115-35.

Hitt, M. A., Carnes, C. M., & Xu, K. (2016). A current view of resource based theory in operations management: A response to Bromiley and Rau. *Journal of Operations Management*, 41(10), 107-109.

Husin, S., Chelladurai, P., & Musa, G. (2012). HRM practices, Organizational citizenship behaviour, and perceived service quality in Golf Courses. *Journal of Sport Management*, 26, 143-158.

Jahangir N., Akbar M. M & Haq M. (2014). Organizational Citizenship Behaviour: Its Nature and Antecedents. *BRAC University Journal* 1 (2), 75-85.

Jain, N. R., & Rizvi, I. A. (2018). Impact of Corporate Citizenship on Organizational Citizenship Behaviour of Managers: A Study from Selected Indian Banks. *Global Business Review*, 20(6), 333-342.

Kankanhalli, A., Tan, B. C. & Wei, K. K. (2005). Contributing knowledge to electronic knowledge repositories: An empirical investigation. *MIS quarterly*, 113-143.

Karatepe, O., Yavas, U., & Babakus, E. (2005). Measuring service quality of banks: scale development and validation. *Journal of Retailing and Consumer Services*, 12(5), 373-383.

Nascimento, T. T. D., Porto, J. B., & Kwantes, C. T. (2018). Transformational leadership and follower proactivity in a volunteer workforce. *Nonprofit Management and Leadership*, 28(4), 565-576. doi: 10.1002/nml.21308

Nazar, O.A.A., (2016). *Impact of Human Resource Management Practices on Organizational Citizenship Behavior: An Empirical Investigation from Banking Sector of Sudan*: New York: Harper and Row.

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Ölçer, F. (2015). Mediating effect of Job Satisfaction in the Relationship between Psychological Empowerment and Job Performance. *Theoretical and Applied Economics*, 3(6), 111-136.

Organ, D. W. (2012). Organizational citizenship behaviour: It's Construct clean-up time. *Human Performance*, 10(2), 85-98.

Osakede, U. A. (2019). The Demand for Primary Health Care Service in Nigeria: New Evidence from Facility Determinants. *Asian Journal of Humanities and Social Studies*, 7(1), 1-13.

Osman, Z., Mohamad, L. & Mohamad, R.K. (2015). An Empirical Study of Direct Relationship of Service Quality, Customer Satisfaction and Bank Image on Customer Loyalty in Malaysian Commercial Banking Industry. *American Journal of Economics*, 5(2), 168-176.

Pahi, M.H., Abdhamid, K. & Moin, N. (2017). Review Paper on the Commitment to Service Quality and Relationship with other Constructs. *International Journal of Academic Research in Business and Social Sciences*, 7(11), 765-775.

Parasuraman, A., Zeithaml, V.A. & Berry, L.L. (1991). Refinement and Reassessment of the SERVQUAL Scale. *Journal of Retailing*, 67(4), 420-450.

Pickford, H. C., & Joy, G. (2016). *Organisational Citizenship Behaviours: Definitions and Dimensions* SSRN Scholarly Paper No. ID 2893021). Rochester, NY: Social Science Research Network.

Rahman, M. H. A., & Chowdhury, A. S. (2018). Effect of Employee Compensation on Organizational citizenship behaviour (OCB): A Study on Private Commercial Banks in Bangladesh. *International Journal of Economics, Commerce and Management*, 6(5), 848-863.

Ratnayaka, R. M., Kumara, P. S., & Silva, M. W. S. W. (2020). Impact of Organizational Citizenship Behaviour on Perceived Service Quality in Hotel Industry. *Journal of the University of Ruhuna*, 7(1), 25-42.

Sagiv, L., Roccas, S., Ciecuch, J., & Schwartz, S. H. (2017). Personal values in human life. *Nature Human Behaviour*, 1(9), 630-639.

Sanderson, R., & McQuilkin, J. (2017). Many kinds of kindness: The relationship between values and pro-social behaviour. In S. Roccas & L. Sagiv, (Eds.), *Values and behaviour: Taking a cross-cultural perspective* (pp. 75-96). Springer, Cham.

Sekaran, U. & Bougie, R. (2013). *Research Methods for Business: A Skill Building Approach* (6th ed.). Chichester, West Sussex: John Wiley & Sons Ltd

Sepahvand, F., Atashzadeh-Shoorideh, F., Parvizy, S. & Tafreshi, M.Z. (2017). The Relationship between Some Demographic Characteristics and Organizational Commitment of Nurses Working In the Social Security Hospital of Khorramabad. *Electronic physician Journal*, 9(6), 4503-4509.

Sortheix, F. M., & Lönnqvist, J. E. (2014). Personal value priorities and life satisfaction in Europe: The moderating role of socioeconomic development. *Journal of Cross Cultural Psychology*, 45, 282-299.

Spreitzer, G. M. (1995), Psychological Empowerment in the Workplace: Dimensions, Measurement, and Validation. *Academy of Management Journal*, 38 (5), 1442-1465.

Sreenivas, T. & Babu, N.S. (2012). A Study on Patient Satisfaction in Hospitals (A Study on three Urban Hospitals in Guntur Districtandhra Pradesh) *International Journal. Management Research & Business Strategy*, 1(1), 14-23.

Tawana, B., Barkhuizen, N.E., & Du Plessis, Y. (2019). A comparative analysis of the antecedents and consequences of employee satisfaction for urban and rural healthcare workers in KwaZulu-Natal province, South Africa. *SA Journal of Human Resource Management/SA Tydskrif vir Menslikehulpbronbestuur*, 17(1), 1-9

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Tayal, R., Tripathi, M., Singh, N. & Bamel, U. (2022). Antecedents and consequences of organisational citizenship behaviour: a mediated-moderation examination in an emerging economy, *International Journal of Emerging Markets*, ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/IJOEM-09-2021-1383>

Ukil, M.I. (2016). The Impact of Employees' empowerment on Employee Satisfaction and Service Quality: Empirical Evidence from Financial Enterprises in Bangladesh. *Business: Theory and Practice*, 17(2), 178–189.

Waheed, A. Abbas, Q & Malik, O. F. (2018). Perceptions of Performance Appraisal Quality' and Employee Innovative Behaviour: Do Psychological Empowerment and 'Perceptions of HRM System Strength' Matter? *Behavioural Science Journal*, 8(1), 1-20.

Waheed, A., Abbas, Q., & Malik, O. F. (2018). 'Perceptions of Performance Appraisal quality'and Employee Innovative Behaviour: Do Psychological Empowerment and 'Perceptions of HRM System Strength Matter? *Behavioural Sciences*, 8(12), 114-125.

Williams, L. J., & Anderson, S. E. (1991). Job Satisfaction and Organizational Commitment as Predictors of Organizational Citizenship and in-role Behaviours. *Journal of Management*, 17(3), 601-617.

World Health Organization. (2019). *WHO global report on traditional and complementary medicine 2019*. World Health Organization.

Yeo, G.T., Thai, V.V & Roh, (2015). An Analysis of Port Service Quality and Customer Satisfaction: The Case of Korean Container Ports. *The Asian Journal of Shipping and Logistics*, 31(4), 437-447.

Yesilada F, & Direktor I. (2017). Health care service quality: A comparison of public and private hospitals. *African journal of Business management*, 4(6), 962-971

Yoon, M. H., & Suh, J. (2003). Organizational citizenship behaviours and service quality as external effectiveness of contact employees. *Journal of Business Research*, 56(8), 597–611.

Zeglat, D., Aljaber, M. & Alrawabdeh, W. (2014). Understanding the Impact of Employees Empowerment on Customers Satisfaction. *Journal of Business Studies Quarterly*, 6(1), 1-13.

Zeglat, D., Aljaber, M. & Alrawabdeh, W. (2014). Understanding the Impact of Employees Empowerment on Customers Satisfaction. *Journal of Business Studies Quarterly*, 6(1), 1-13.

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ENDURING LEGACIES OF PARTITION

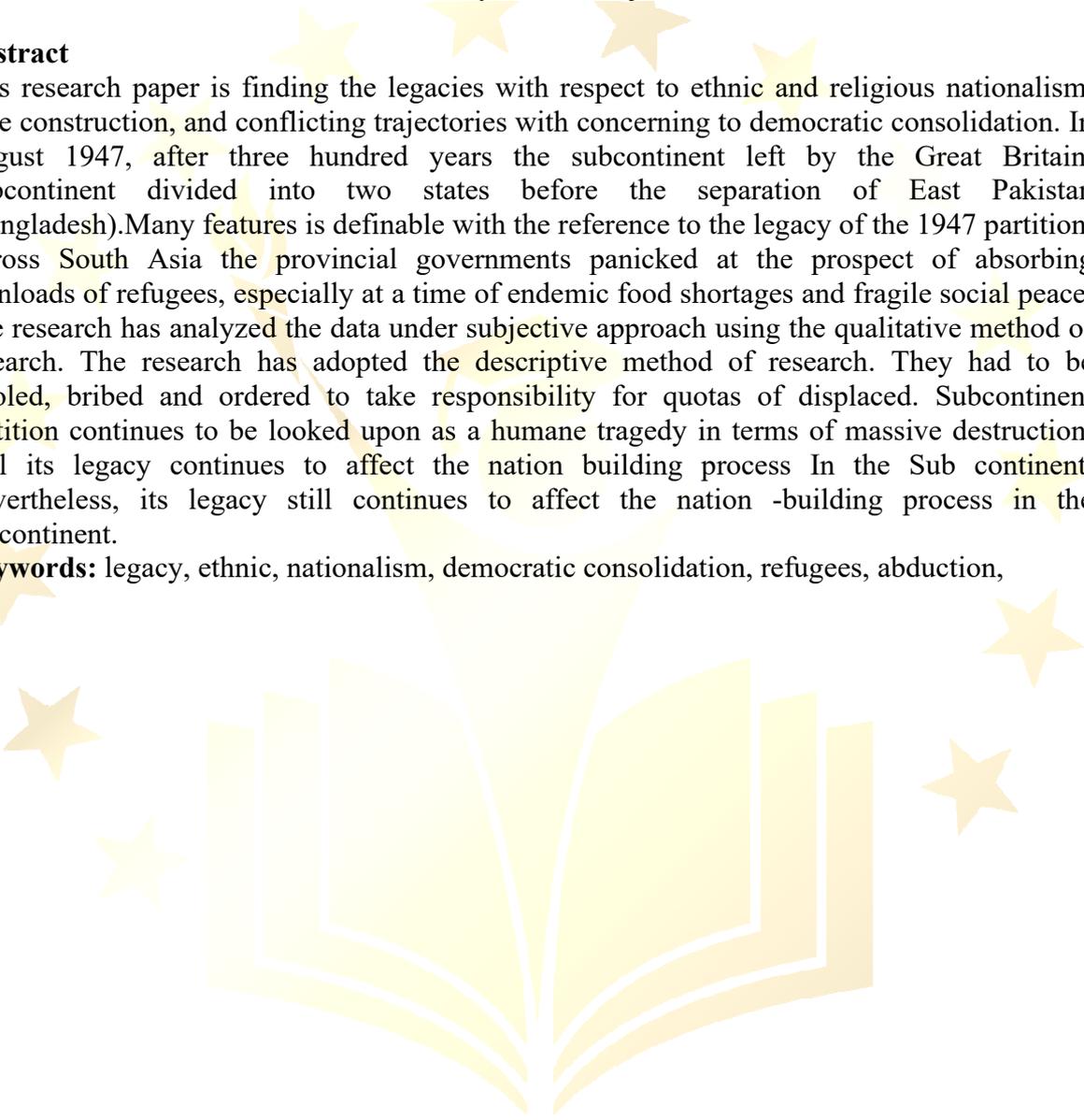
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Abstract

This research paper is finding the legacies with respect to ethnic and religious nationalism, state construction, and conflicting trajectories with concerning to democratic consolidation. In August 1947, after three hundred years the subcontinent left by the Great Britain. Subcontinent divided into two states before the separation of East Pakistan (Bangladesh). Many features is definable with the reference to the legacy of the 1947 partition. Across South Asia the provincial governments panicked at the prospect of absorbing trainloads of refugees, especially at a time of endemic food shortages and fragile social peace. The research has analyzed the data under subjective approach using the qualitative method of research. The research has adopted the descriptive method of research. They had to be cajoled, bribed and ordered to take responsibility for quotas of displaced. Subcontinent partition continues to be looked upon as a humane tragedy in terms of massive destruction. Still its legacy continues to affect the nation building process In the Sub continent. Nevertheless, its legacy still continues to affect the nation -building process in the subcontinent.

Keywords: legacy, ethnic, nationalism, democratic consolidation, refugees, abduction,



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MODEL OF CONSTRUCTION OF TECHNOLOGICAL CAPABILITIES FOR DIGITAL PLATFORM-BASED SOCIAL TECH STARTUPS

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Abstract

Technological social enterprises are economic entities with a dual purpose: social impact and financial sustainability. These organizations are different because technology plays an important role in increasing innovation performance and social impact. The development of digital platforms by social tech startups is an area of opportunity due to its ease in reducing transaction costs and improving performance. However, in the absence of the right technological capabilities, sustainable performance cannot be generated. The creation of technological social enterprises depends on organizational capacities, organizational identity, technological benefits, financing mechanisms, the influence of the context, and the conditions of institutional entrepreneurship. There is a large gap in technological social entrepreneurship in Latin America, so efforts must be redoubled to create digital platform-based social tech startups. In the context of Latin America, it is necessary to identify the factors that participate in the construction of technological capacities that allow social enterprises to create value proposals that use technology to achieve their objectives. The literature on this topic is still in its infancy and studies are lacking in the region, so this research is important to promote the startup ecosystem. This study focuses on research for a conceptual model to build technological capabilities in digital platform-based social tech startups. It is approached from the qualitative research paradigm, through a systematic review of the literature to determine the factors that influence the development of these capabilities in social tech startups. The results allow the elaboration of a conceptual model for future research for developing digital and technological capacities for social tech startups in Latin America.

Keywords: Technological Capabilities, Digital Platforms

UNIVERSITY AS A PLACE OF CONSTRUCTION OF THE IDENTITY: OBSTACLES, BEST PRACTICES AND TECHNOLOGIES FOR INCLUSION

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Abstract

The paper critically investigates Italian university policies of inclusion of students with disabilities. Starting from a review of the literature on the role of universities as places of inclusion and confrontation with diversity ([2], [24]), the proposal analyzes the inclusion strategies of the three main Roman Universities: La Sapienza, Tor Vergata, and RomaTre. Through a mixed methods approach, the contribution analyzes secondary data provided by the universities and interviews administered to the operators of the dedicated services, addressing monitoring barriers, facilitation mechanisms, transition processes from high school, and the approach to non-manifest forms of disability.

The preliminary analysis of data shows that inclusion policies are inadequate or struggle to engage students. Students with disabilities do not make up 4% of the total; furthermore, the higher the level of university education, the lower their presence. The interviews confirm that digital technologies play a central role in terms of deterritorializing university activities [42], but they are still a long way from being personalized according to potential users [41].

We second the current literature in arguing that inclusion policies in Italian universities require a greater commitment of institutions with the building of an inclusive community that allows for the active participation of all students. We therefore argue for universities to promote a culture of disability, offering safe spaces and opening up to a confrontation based on the recognition and enhancement of individual diversity [6], without falling into mere welfarism [31].

Keywords: barriers, service evaluation, students with disabilities, technology, university inclusion.

Introduction

The Universal Declaration of Human Rights [27] states: "Education shall be directed towards the full development of the human personality and the strengthening of respect for human rights and fundamental freedoms" (Art. 26). In this regard, the Convention on the Rights of Persons with Disabilities [28] enshrines the obligation to ensure equal access and treatment to university education and vocational training for people with disabilities.

Since the beginning of the 21st century, Italian universities present themselves as increasingly plural places. In fact, universities have to deal with issues related to gender, ethnic, religious, linguistic and cultural diversity [2], as well as how to include students with disabilities or Specific Learning Disorders (SLDs) [26]. These, in particular, have become in the last decade a significant part of the Italian student population [5]. Thanks to law no.17/1999 [16] on the guarantee of "specific technical and didactic aids [...] as well as the support of specialised tutoring services", the active participation of university students with disabilities or SLDs could be achieved de iure and de facto. However, the organisational autonomy of each university in this matter - 'within the limits of its own budget' - appears to be an aspect that is not free of criticalities in actually providing for the provisions of the law and is therefore worthy of investigation.

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This project proposal therefore intends to assess, from a comparative perspective between the three main universities in Rome, how university policies on services and teaching for students with disabilities or SLDs favour the development of relational practices based on the principles of inclusive education [22]. In this perspective, the realisation of the shift from the concept of accessibility to that of inclusion in the university environment [6] cannot be separated from the study of interpersonal relationships among peers and with faculty members, further clarifying what the empirical evidence in the literature on the topic has found. In fact, university inclusion of students with disabilities is strongly correlated with the presence of meaningful relationships with peers and faculty members, as well as the affective-emotional component, which is an essential part of the teaching and learning process [23]. It is possible to provide a description of the concept of social inclusion by referring to the New Dictionary of Social Service [4]: in noting the complexity inherent in the concept, the dictionary refers to its exact opposite, suggesting that for a more in-depth study of the subject, reference should be made to terms such as marginality and social exclusion. The latter is made to correspond to the lack of access to basic resources, therefore, it is possible to say that social inclusion is represented by the production of new policy mechanisms aimed at reducing or eliminating conditions of marginality.

Research on university inclusion of students with disabilities has focused on specific issues in different national contexts. In an examination of university policies in European countries, Riddell [34] shows that states with a strong welfare regime and a less selective education system are actually more successful in university inclusion of students with disabilities.

As pointed out by Oliver and Barnes [26], disability studies in academia began to develop in the 1970s coinciding with the growth of social claims by movements and associations of people with disabilities. This aspect, in particular, has been emphasised by Powell and Pfahl's [32] study, according to which intellectual discourses and the role of activists facilitate the development in a multidisciplinary and global perspective of disability studies, refining critical dialogue and social and political construction on the concepts of disability and 'abnormality'. In the following decades, the scholarly discussion on the increasing university participation of 'non-traditional groups' - among which it is possible to include students with disabilities - has progressively expanded [36], giving rise to a strand of research investigating the experiences of these students in the university context [24].

Disability in classical sociological discourse

According to Madera [3]: "The encounter with disability is somehow always an encounter with the unknown, with the stranger in our minds". According to the structural-functionalist approach of Parsons [30], the disabled person, like the sick person, should recognise his or her condition and strive to re-establish a situation of normality. The theoretical framework of the sick role becomes problematic from the moment when, in the presence of chronic disability, the person is unable, despite recognising his or her condition, to re-establish a condition of equilibrium. In this sense, the subjective dimension is thus drastically reduced to a problem of conformity to role expectations. In fact, the subject seeks to conform his action to models that are deemed desirable by members of society, therefore, "there is no action except as an effort to conform to norms" [29].

The functionalist approach has the limitation of over-socialising the condition of the disabled person, emphasising the social representation associated with the condition of disability in a negative way. For functionalists, the social identity of the disabled person is nothing more than a construction in which bio-physiological elements are classified on the basis of cultural factual parameters.

In contrast to the structural-functionalist approach, interactionists, mainly with Erving Goffman's theory [14], define the disabled person not as one who simply does not conform to his or her role, but as one who carries a social stigma arising from an established stereotype in the community to which he or she belongs. This latter aspect can also be found in Becker's [1] 'labelling theory', which understands disability as a condition that becomes oppressive for those who experience it personally and, therefore, if on the one hand the person with a disability is 'labelled', on the other hand it is themselves who perceive their condition as deviating from the norm. Social interactionism therefore leaves a fundamental space for the subject in question that Parsons [30], with his previous theory, did not recognise, but which nevertheless leads the disabled person to a condition of break with the society of reference. In any case, it is possible to make a methodological criticism of the interactionist theoretical framework because it does not take into account the influence of the social structure on the actions of persons with disabilities, since it focuses essentially on the micro-social world. In any case, it is useful to bear in mind Schütz's analysis [37], which shows on the one hand how meanings are continually renegotiated by social actors, and on the other hand how these same meanings are affected by established stereotypes in society.

Methodology

Strictly speaking, we specify that the research design is based on the mixed methods approach [20], articulated in four main phases: background research, in which the aim is to verify the existence of a database per Athenaeum, contextually carrying out a mapping of services through focused interviews [21] with the dedicated office employees; design of a semi-structured web survey administered to students with disabilities and SLDs; monivariate, bivariate and multivariate analysis of data by regression models [10]; focus groups [8] for policy suggestions in a voluntary way. The study aims to assess the status of the dedicated services in the individual universities investigated, providing evidence on the concept of inclusion and related aspects, collecting the voices of the personnel involved and the opinions of the students to whom the service is addressed, with the final aim of producing an improvement proposal.

The preliminary analysis of data shows that inclusion policies are inadequate or struggle to engage students. Students with disabilities do not make up 4% of the total; furthermore, the higher the level of university education, the lower their presence.

These preliminary considerations help us to open a reflection on the concept of inclusive education and its implementation in Italy and the best practices that can be adopted to realise it.

Discussion

The concept of "inclusive education" consists of "an educational philosophy and practice that tend to improve the learning and active participation of all students in a common educational context" [22]. In this sense, inclusion must aim at a profound improvement in the quality of life for the individual and the community [18]. These are processes that together imply work in the direction of a profound transformation of educational agencies, culture and society itself. Indeed, the university community, through dialogue between students with disabilities and administrators, can facilitate and improve conditions for its members [32].

In his review of contemporary literature on university inclusion of students with disabilities, Morña [22] identifies three distinct and specific strands of investigation.

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The first is concerned with the experiences of students with disabilities and the barriers and facilitating mechanisms; the second focuses on the processes of educational transition from high school to university; and the third is ultimately concerned with the concerns related to the unravelling of non-manifest forms of disability.

With regard to barrier studies, the negative attitudes of university members are indicated as the main obstacle to the integration of the student into the university community; specifically, the perception of a prejudicial relationship on the part of the teaching staff is found, from the learners' testimonies [25]. From students' experiences, difficulties also emerge regarding the accessibility of facilities and services, as well as their relationship with technological resources ([7], [38]). In contrast, there are few studies on facilitators supporting students with disabilities: facilitators include family, friendship networks, as well as learning support tools ([35], [39]).

A further area of research has turned its attention to the transition process from secondary school to university. Scholars consider this transition to be a very critical one, capable of influencing students' future choices about dropping out or progressing to university. A key aspect concerns relationships and the quality of social support, as these can significantly affect the experience of students with disabilities in the university environment [19]. A factor of success in transition processes also relates to the disabled student's ability to manage their individual abilities and technical skills [13].

The last strand of investigation identified by Moriña [22] concerns the choice of whether or not to disclose one's disability, in cases where it is not immediately apparent. In another study, the same author [24] notes how students with non-manifest disabilities perceive that academic staff and peers question the veracity of their disability as invisible. The choice to show up can be emotionally taxing and only occurs in the presence of meaningful relationships, or where it is required in order to access financial benefits [33]. Overall, the perception of one's 'hidden' disability is linked to the concept of 'normality' and may lead the student not to reveal their identity in order to avoid unequal treatment [35].

Accessibility and its barriers: technology as a facilitator

The university, being one of the main spaces of social life, can contribute to breaking down the material and immaterial barriers that exclude the disabled person. These, in fact, by limiting the disabled person's right to participate in activities, contribute to feeding discriminatory conditions. In this regard, Marisa de Picker's [9] considerations on the difficulties of access to scientific conferences can be extended to multiple aspects of daily life that the student with disabilities faces. The lack of accessibility to venues and the persistence of discrimination and stigma, however, are not the only impediment for a person with disabilities. Technology, in fact, if conceived as a facilitator but designed only on the basis of the characteristics of able-bodied users, can also be an obstacle factor. In this sense, as Tsatsou [41] found, the inclusion of people with disabilities can be facilitated by the use of digital technologies. The author, in particular, emphasises how these help to alleviate stigma in several ways:

- helping them in performing daily tasks and assisting them in overcoming difficulties related to their condition;
- allowing them to connect with those who have the same type of disability, which increases their sense of belonging and improves their social integration
- facilitating processes of self-identification and confidence in communicating with others mediated by technology.

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This view is also shared and found in Valentini [42], who emphasises how the use of digital technologies is a prerequisite for the development of concrete solutions, since these "break down boundaries and create a new deterritorialised space that can be accessed by a broader range of users than that represented by traditional students" [42]. In fact, the author continues, deterritorialisation "creates the prerequisites for carrying out actions and accessing services related to university teaching and training from different places: from home, from the workplace, from other centres that do not coincide with the university's premises, such as decentralised centres" [42]. In conclusion, it would be appropriate to rethink technology on the basis of the concept of Universal Design, i.e. "an approach to the design of technologies that pays more attention to the concept of universal usability: buildings and tools should be conceived, designed and constructed in order to be usable by everyone" [12].

In this sense, it is necessary to consider the university community as an environment of interaction in which the identity of the disabled person is constructed and to investigate how prejudice and discrimination against students with disabilities represent an obstacle to their full inclusion. At the same time, it is hypothesised that university policies on services aimed at the integration of people with disabilities or SLDs - understood therefore as positive actions to reduce inter-group discrimination and foster a comfortable environment - may produce ambivalent effects. In fact, these may contain "in germ the cues for a reversal of perspective, which from the anti-discriminatory strategy and the egalitarian ideal risk opening the door to the most extreme differentialism" [31].

Quality of services and education: principles and good practices

Following the concepts expressed in the previous paragraph, special attention should be paid to the evaluation of the quality of the services [40] offered in the various universities in Rome. Considering the provision of services for students with disabilities is necessarily to take into consideration the subject as a whole, where "the very vision of disability, illness or health, is oriented towards a systemic view, considering the process of disability or illness a dynamic process" [12]. The quality criteria to be considered when designing services include: participation (active involvement of the user in defining the intervention objectives); personalisation (adaptation to the needs of the user); accessibility (full use of the service offered, with particular regard to reaching the physical location where the service is located). These criteria form the basis of the so-called 'service quality tree' model [11], which was developed to implement public service improvement. From this perspective, in fact, it is the awareness of the existence of a service that determines the demand-need and it is the offer that drives the demand in the sense of a specific need. For this reason, "unexpressed demands or demands not channelled towards the service, which therefore do not find a response in the service offer, act as frustrated needs (independently of the awareness of the subject)" [12]. The construction of service quality, therefore, is achieved through specific interventions on both organisation and behaviour, involving both staff and students with disabilities in the upgrading project. The dynamics of the interventions must therefore rebalance the demand and supply of services, that is, promote an integrated service to the person considered in his or her individuality. In Italy, following the framework law for the implementation of the integrated system of interventions and social services [17], the institution of the individualised project for differently-abled persons marks a turning point in terms of the recognition of the subject's needs and requirements, which become a starting point for redesigning the service. Therefore, the personnel involved in the provision of the service should have adequate skills and aptitudes in the planning and management of personal services.

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Currently, in fact, this selection is linked to objective criteria (such as rankings and qualifications) that do not provide any guarantee of their specific competence. In particular, the provisions of the law have not directly affected teaching support services for students with disabilities, unlike many European countries (United Kingdom, Benelux, Germany, Spain) and the United States, where specific services are provided by specialised personnel, working in teams within coordinated structures that offer adequate support in terms of resources and tools [15]. It can be argued that, to date, this process has not been fully realised, as sustained by Powell and Pfahl [32], due to cognitive and cultural beliefs about 'normal' abilities and selection processes that prevent academic institutions and disciplines from opening up to the knowledge, experiences and perspectives of students, staff and faculty with disabilities.

As argued by Chiang [6], universities play a key function in both implementing services and recognising a culture of disability by emphasising the following aspects:

- providing safe and welcoming spaces for students with disabilities and their peers;
- emphasising the positive aspects of disability related to human diversity;
- educating the university community on non-discrimination;
- connecting the university and the local community through shared programmes.

The planning of interventions to support university inclusion must necessarily take into account the complexity of the context of intervention in order to avoid providing fragmentary responses to the beneficiaries of the services. To make this happen, it is appropriate to adopt an interdisciplinary perspective, which is embodied in a "design capable of reconstructing around the need what has generated it and the best way to deal with it, not so much and not only in view of its satisfaction, but in the perspective of a real increase in the subject's human development that is coherent, harmonious and integral" [12]. Universities must, therefore, draw up policies, develop support programmes and provide services to prepare students for a future perspective that sees them as active members of society.

Conclusions

No real conclusions will be presented here, since the research project is still in progress, however, considering the innovativeness of the theme investigated, especially in the Italian scientific scenario, it is possible to affirm that the realisation of the research project will bring significant improvements both on a theoretical and pragmatic level. Focusing on the inclusion of persons with disabilities and SLDs has a double objective: on the one hand, to produce a concrete proposal for the improvement of the services offered by the universities in Rome, involving the students themselves, intended as privileged observers of the services they use and of the relational dynamics in which they are immersed; on the other hand, to understand the role played by the various types of disabilities and SLDs with respect to variables such as gender, educational background and social origin.

In this perspective, the final aim of this research project is to act as a useful tool for the design of guidelines for the development of policies and services for the university inclusion of people with disabilities and SLDs.

REFERENCES

- [1]. H. S. Becker, *Società e valori*, Ivrea: Edizioni di Comunità, 1963
- [2]. D. Bolt and C. Penketh, *Disability, Avoidance and the Academy: Challenging Resistance*, Londra: Routledge Taylor & Francis Group, 2016.
- [3]. V. Buzzufi, *Psicologia dell'integrazione sociale*, Milano: Franco Angeli, 2006.
- [4]. A. Campanini, *Nuovo dizionario di servizio sociale*, Roma: Carocci editore, 2013.

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E-MAIL: editor@libertyacademicbooks.com

- [5]. Censis, “51° Rapporto sulla situazione sociale del paese”, Milano: Franco Angeli, Tech. Rep. 2017.
- [6]. E. S. Chiang, “Disability cultural centers: How colleges can move beyond access to inclusion”, *Disability & Society*, vol. 35(7), 2019.
- [7]. L. B. Claiborne, S. Cornforth, A. Gibson and A. Smith, “Supporting students with impairments in higher education: social inclusion or cold comfort?”, *International journal of inclusive education*, vol. 15(5), 2010.
- [8]. S. Corrao, *Il focus group*, Milano: Franco Angeli, 2000.
- [9]. M. De Picker, *Rethinking inclusion and disability activism at academic conferences: strategies proposed by a PhD student with a physical disability*, Londra: Routledge Taylor & Francis Group, 2020.
- [10]. G. Di Franco, *Tecniche e modelli di analisi multivariata*, Milano: Franco Angeli, 2011.
- [11]. Department of the Civil Service, *Cento progetti al servizio dei cittadini. Come migliorare gli uffici pubblici*, Roma, 1995.
- [12]. P. M. Fiocco and M. Martinati, *Qualità sociale dei servizi sociali*, Milano: Franco Angeli, 2002.
- [13]. D. F. Garrison-Wade, “Listening to Their Voices: Factors that Inhibit or Enhance Postsecondary Outcomes for Students' with Disabilities”, *International Journal of Special Education*, vol. 27(2), pp. 113-125, 2012.
- [14]. E. Goffman, *Stigma: notes on the management of a spoiled identity*, USA: Prentice Hall, 1963.
- [15]. K. Kovács, “Empowerment of Students with Disabilities in University Setting”, S. Halder and V. Argyropoulos (Eds), *Inclusion, equity and access for individuals with disabilities*, Singapore: Palgrave Macmillan, 2019.
- [16]. L. n.17/1999 *Integrazione e modifica della legge-quadro 5 febbraio 1992, n. 104, per l'assistenza, l'integrazione sociale e i diritti delle persone handicappate* (G. U. n. 26 del 2 febbraio 1999).
- [17]. L. n.328/2000 *Legge quadro per la realizzazione del sistema integrato di interventi e servizi sociali* (G.U. 265 del 13/11/2000).
- [18]. I. Loiodice, *Sapere pedagogico. Formare al futuro tra crisi e progetto*, Bari: Progedit, 2013
- [19]. A. Lombardi, C. Murray, J. Kowitt, “Social support and academic success for college students with disabilities: Do relationship types matter?”, *Journal of Vocational Rehabilitation*, vol. 44(1), pp. 1-13, 2016.
- [20]. S. Mauceri, “L'avvento dell'era dei mixed methods. Nuovo paradigma o deadline di un dibattito?”, *Sociologia e Ricerca Sociale*, vol. 113, 2017.
- [21]. R. K. Merton and P. L. Kendall, “The Focused Interview”, *American Journal of Sociology*, vol. 51, pp. 541-557, 1946.
- [22]. A. Moriña, “Inclusive education in higher education: challenges and opportunities”, *European Journal of Special Needs Education*, vol. 32(1), pp. 3-17, 2017.
- [23]. A. Moriña, “The keys to learning for university students with disabilities: Motivation, emotion and faculty-student relationships”, *PloS One*, vol. 14(5), 2019.
- [24]. A. Moriña, M. D. Cortes-Vega and V. R. Molina, “Educación inclusiva en la enseñanza superior soñando al profesorado ideal”, *Revista latinoamericana de educación inclusiva*, vol. 9(2), pp. 161-175, 2015.

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[25]. A. Moriña, G. R. Lopez and V. R. Molina, "Students with disabilities in higher education: a biographical-narrative approach to the role of lecturers", *Higher Education Research & Development*, vol. 34(1), pp. 147-159, 2015.

[26]. M. Oliver and C. Barnes, "Disability studies, disabled people and the struggle for inclusion", *British Journal of Sociology of Education*, vol. 31(5), pp. 547-560, 2010.

[27]. UN, Universal Declaration of Human Rights, 1948

[28]. UN, Convention on the Rights of Persons with Disabilities, 2006.

[29]. T. Parsons, *La struttura dell'azione sociale*, Bologna: Il Mulino, 1962.

[30]. T. Parsons, *The Social System*, 2nd ed. Londra: Routledge Taylor & Francis Group, 1991.

[31]. S. Piccone Stella, *Esperienze multiculturali*, Roma: Carocci editore, 2003

[32]. J. J. W. Powell and L. Pfahl, "Disability Studies in the Universal Design University", Gertz S.K., Huang B., Cyr L. (Eds), *Diversity and Inclusion in Higher Education and Societal Contexts*, Berlino: Springer International Publishing, 2018.

[33]. S. Prowse, "Institutional construction of disabled students", *Journal of Higher Education Policy and Management*, vol. 31(1), pp. 89-96, 2009.

[34]. S. Riddell, *The inclusion of disabled students in higher education in Europe: Progress and challenges*, University of Edimburgh, 2016.

[35]. S. Riddell, T. Tinklin and A. Wilson, *Disabled students in higher education*, University of Edimburgh. Centre for Educational Sociology, 2004.

[36]. S. Riddell and E. Weedon, "Disabled students in higher education: Discourses of disability and the negotiation of identity", *International Journal of Educational Research*, vol. 63, pp. 38-46, 2014.

[37]. A. Schütz, *La fenomenologia del mondo sociale*, Bologna: Il Mulino. 1979.

[38]. J. Seale, J. Georgeson, C. Mamas and J. Swain, "Not the right kind of 'digital capital'? An examination of the complex relationship between disabled students, their technologies and higher education institutions", *Computers & Education*, vol. 82, pp. 118-128, 2015.

[39]. M. E. Skinner, "College Students with Learning Disabilities Speak Out: What It Takes to Be Successful in Postsecondary Education", *Journal of Postsecondary Education and Disability*, vol. 17(2), pp. 91-104, 2004.

[40]. N. Stame, *Valutazione pluralista*, Milano: Franco Angeli, 2016.

[41]. P. Tsatsou, "Is digital inclusion fighting disability stigma? Opportunities, barriers, and recommendations", *Disability & Society*, 2020.

[42]. E. Valentini, *Università nella rete-mondo. Modelli teorici e casi di e-learning nelle università straniere*, Milano: Franco Angeli, 2008.

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IMPORTANCE OF INTERNSHIP PROGRAM FOR PROFESSIONAL DEVELOPMENT AMONG STUDENTS AT COLLEGE LEVEL IN PAKISTAN

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ABSTRACT

This research study emphasized on the significance of internship as a vital element of productive learning vis-à-vis the perception of students regarding as a tool for professional development in the real-work scenario with practical skills. The main objective of this study is to highlight the importance of internship for students to develop connections between learning into practice i.e. course work and work place as well as to create career prospects and employment opportunities for students. The study also aims to obtain in depth understanding of how internship is supported by various stakeholders. The method that was used in this study was descriptive method. The population of study was consisted of students and teachers of public colleges in Karachi. Those 80 students and 20 teachers from 10 colleges were selected as sample for the data collection by using questionnaire. The data collected by the respondents were studied and analyzed through SPSS; it was found through the results that there is a strong association between academic success and internship program regarding future professional expansion among students and it helps them to hone in on further choices within the concern field. On the other hand due to the lack of internship opportunities they confront various challenges and barriers while progressing towards career path. In the light of results, recommendations were also presented regarding initiation of internship program as an essential part of academic program as well as to overcome the gaps within internship program to acquired maximum benefits and professional skills among students for productive life.

Keywords: Internship, Professional, Students, College

INTRODUCTION

Education is a constant need of human beings. It is through education that the character of human beings is created and fulfilled, and it is through education that the difference between human beings and animals becomes noticeable and it reaches the hidden secrets of the universe and recognizes its real creator.

Islam has placed great emphasis on education and training. Its importance can be gauged from the fact that the first revelation that was revealed in Qur'an was also related to knowledge. The development of man and the prosperity of society are not the result of nature, but the result of man's constant efforts and they are achieved to the extent that man demonstrates his abilities through education. Education is not something that can be acquired merely as a skill or to be used only for mental development but encompasses all aspects of human life. Guarantee of the welfare of the society.

The main purpose of education is to give social coherence to the individual by developing his mental, emotional, moral, and physical development.

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At the same time, the purpose of education is to bring harmony in the society by developing the moral, emotional, mental, and physical development of the individual and collectively for the progress of the country. In this regard, along with education, vocational training institutes are also engaged, and various programs are organized during the educational process and students are provided opportunities to participate according to their interest and tendency. Among these programs internship program is very effective for students' future success.

Therefore, internships are conducted at different levels of education, especially at the college level, so that the students can effectively apply the knowledge and information acquired in their practical life. An internship is a program/training that is required at school, college and university level but it becomes an essential need for students' academic and professional progress at college as it is an initial step towards their practical life.

At this stage, if the internship training is provided to the students according to their aptitude and interests, they will have the opportunity to learn and enhance their professional skills and abilities with ease in choosing a profession. This will help them to choose the subject according to their abilities in time and will save the student from getting lost. In addition, if a student wants to go into a field, he will be assessed in time how much skill and expertise he has in that field.

The prosperity and improvement of human society depends on the fact that most of the society is affluent and capable of living in society through being well matched with society. And it's feasible when people are socially skilled. Because the major aim of education is to create cognizance in the character and construct new necessities and adjustments to build the persona and the position of the character to enable the fantastic compatibility in the society. Not only those students are able to get like-minded with society, but they can additionally pay full attention to social development. Therefore, educational institutions have a large accountability to pay full interest not solely to the physical, mental, emotional, but also social improvement of the individual by way of making use of curricular & co-curricular activities as well as to ensure the holistic development of college students via an application for teachers, students, curriculum and co-curricular activities, guidance, and counseling. Apart from all this, another aspect viewed as fundamental and obligatory in the current educational process is referred to as "internship training".

At college level education is very important because at this level students have an awareness and opportunities to choose his interesting field. For the fulfillment of college and students' requirements, an internship program is useful for both. As most of the students step into their practical life so here internship support a lot to them to be aware of what career will be appropriate for them according to their ability and tendency so that they can make new developments/advances in the concern profession as well as the innovation and exchange in the profession by taking the route of development in it. All these things require robust guidance, and that preparation is nicely provided via the internship program.

An internship is important due to the fact it can provide them with new abilities and opportunities that you would not receive. Internships give awareness about how to study and engage with experts in an administrative center setting, and enhance imperative tender skills like time management, organization, adaptability, problem-solving and team work. Students figure out the career they want and attain professional experience while studying. That's the reason behind why internships are necessary when figuring out a career. As an example, if one comprehends himself as an elementary school teacher, but after finishing a two-week internship, he realizes that you enjoy caring for your college students more than attempting to instruct them on a lesson plan.

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This helps you determine that you choose to pursue pediatric nursing. Its first-hand coaching and if interns make a mistake at their internship, they can learn how to address it, but extra importantly, move forward from it.

There is additionally a magnificent need for an internship program at this stage that prepares the college students for the occupation while they are analyzing and does no longer want any training for the job at the end of education. At the same time, schooling is the supply to introduce internships regarding essentials of the profession. Students have a range of technical and professional abilities. Internship training affords possibilities to practice these abilities and capabilities to society. Each student demonstrates his or her ability. Guidance is given to make use of this potential and supplied through the internship program.

Besides, due to the rapid changes and innovation in every society, professionals are also modified in accordance with individual and society requirements. Therefore changes in these professions need to be introduced to the new era with information about new professions, exclusive techniques used in the professions. Giving them extra statistics about the students' occupation is also necessary to avail possibilities for advancement in new professions. In this regard, the need for internships has emerged as apparent. As it helps students in selecting the profession in accordance with their aptitude and interest. Students must be delivered to their objective and pick out the career they choose to pursue so that high quality effects can be achieved.

This is a program through which college students will not solely understand about the profession however also when they go for training, they will recognize about the occupation, its nature, requirement they will understand to associated profession. They will be properly conscious of development opportunities. That is, in which career he can get many opportunities for development, whether he can go beforehand in this occupation or not. Beside it the certificates issued at the end of the internship training ensures employment for college students' help to develop contacts with professionals. On the other side, professionals encourage those students who have a certificate of internship training. Here the need for internships is extra emerging.

Internship program for students offered a unique platform that provides them knowledge, experiences and guidance about the most up to date information about various professions. It promotes the development of the students and also gives a chance to do more improvement and enhancement in their professional skills. It supports the building of a shared vision of successful working as students become more engaged, motivated and active to achieve equality outcomes in their careers. Due to the importance of internship programs, it is necessary that it should be conducted at college level as it gives a hand on experience for students who want to update their knowledge in professions and fulfill the new trends of today's professional demand.

AIMS OF THE STUDY

This research aimed to,

- To highlight the importance of internship programs for professional development among students at college level.
- To assess the extent to which internships help students to benefit from their technical abilities and skills during their studies.
- To expand the interval of training to the potential extent to remove poverty and unemployment within society.

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- To what extent internship training opportunity is provided equally among students.
- To justify the importance of internship in furthering students' education and career regarding individuality among them.
- To emphasize the importance of internships for the promotion of economic and social cohesion at the national level.
- To determine what elements students and organization need to bring to achieve a successful internship program.

INTERNSHIPS PROGRAMS IN DIFFERENT COUNTRIES:

The majority of nations run internship programs for their students or young people. These nations export their citizens' professional expertise. These programs are run differently in different nations. We'll briefly touch on a few nations.

ENGLAND	The chances of success are practically boundless in England because the country is home to only extremely powerful and well-known businesses. Some very well-known and significant businesses have mandated internships. Additionally, from the start, students receive training through internship programs to hone their professional abilities in the fields of architecture, art, design, fashion, mime, business, and banking.
ARGENTINA	In this area, there are also huge cities in addition to forests, mountains, and waterfalls. In business, mining, communications, and other fields, there are numerous opportunities. At various educational levels, internship programs and related initiatives are run to train students in these disciplines
CHINA	The number of talented people in the world's most populous country has not decreased. On the list of large cities are Beijing, Shanghai, Guangzhou, and others. The world has been introduced to numerous innovative technologies by China. The economy of this nation appears to be expanding at the highest rate in the globe. In China, pupils receive physical and occupational training along with schooling from the very beginning, and rural areas contribute significantly to a stronger economy.
AUSTRALIA	In Australia, we experience the excitement and wonder of other cultures. The internship program is offered in every profession, including business, law, tourism, and lucrative industries like conservation
CHILE	If you go to Chile and want to push the boundaries and experience culture in a way that deviates from the standard. Opportunities for internships are available here in any field, so far as that is concerned
NEW ZEALAND	In fact, this nation's neighbor is significantly different culturally. Here, guidance and special internship possibilities are offered. Young people are getting more and more training chances to develop their talents and careers
SPAIN	Spanish people enjoy a good standard of living. Delicious cuisine and other Spanish historical attractions can be found here. There are several chances for tourism. Students may apply for internships in a variety of industries, including business, tourism, and education, at this location
INDIA	India, a neighboring country, too offers internships in a number of fields. Consider India for voluntary work experience in a worthwhile career if you're looking for a foreign internship site. India is a nice environment for this kind of internship if the student is studying medicine. It offers chances and experiences

INTERNSHIP IN PAKISTAN:

There are initiatives ongoing in Pakistan to offer internship programs that are relevant to contemporary culture. A quality education system is definitely the foundation for a country's growth and wealth as well as the source of a people with better morals. It is also true that the educational process only contributes to success and prosperity when it secures students' futures. And only by integrating education with practical training will this be made achievable. There are many ways to receive this training, with internship training coming in first. Basically, the concept of internship is evident if we consider Pakistan in terms of various professional natures such as training is mandatory after B.ED; House Job is mandatory after M.BA etc. Degrees are not awarded without an article ship even after ACCA. There are numerous instances of this, all of which are professional in nature. With the exception of the Aga Khan Institute that offers regular internship training to its higher secondary students. Additionally, there is nothing about internships in Pakistan's educational policies; nevertheless, if we look at the following policies and opportunities in a similar way, they do have some provisions that promote vocational training such as;

First National Education Commission 1959:

1. After middle school, students should be directed from general education to professional technical one and after tenth grade, they should be admitted in polytechnic institutes.
2. Three years from the duration of courses in vocational schools. Polytechnics and technical institutes should be set up where supervisors should be trained.

Educational Policy 1970:

1. Provide vocational training for students who do not attend secondary schools.
2. The trend of general education in our country is high. The ratio of general and scientific, technical and vocational education should be increased from 20 to 40 by providing scientific, technical and vocational education facilities.

Educational Policy 1972 to 1980:

1. Secondary and higher education should also be linked to the nature and extent of economic development and should be closely linked to employment opportunities.
2. Additional seats will be provided in technical and vocational education. For technical or professional students, 3500 extra points will be set at matriculation and 1600 at intermediate level.

National Educational Policy 1992 to 2000:

1. Technical and vocational educational institutions will be established in rural areas. A National Testing Service for Admissions will be set up which will work for universities, professional institutes and higher education.
2. Increase the number of facilities of technical and professional institutions.
3. Vocational and technical training subjects will also be included in the curriculum.

National Educational Policy 1998 to 2010:

1. Students will be specially prepared for vocational training.
2. If we look at the education system from an educational and professional point of view, we do not see any significant effort at the government level regarding internships. And the work that is being done has not yielded significant results. This can be done with existing programs and activities.

- Youth Development Program by Benazir Bhutto Shaheed.
- Youth Development Program by Maryam Nawaz

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Vocational training opportunities are also being provided to the youth in the name of these programs and have also been organized to train various professions. Here are some highlights of these programs.

Youth Development Program by Benazir Bhutto Shaheed: The specific objectives of conducting this program are as follows.

1. It enhances employment related skills and abilities among the youth through public and private sector training in Sind.
2. Preparing to tackle poverty in urban areas.
3. Periodic survey of the program to meet and check national and international employment and certification requirements.
4. To train human resources in Sind to meet the needs of the public and private sector in the local and international market.
5. Unemployed youth should be provided stipends for various types of employment so that they can earn income.
6. To provide quality training and certification to the unemployed youth and “on-job training” by the public and private sector through professional and technical institutes.
7. Establishing a link between the workplace and the local and international job market through training so that individuals can explore self-employment opportunities and facilities.
8. Encouraging compliance with the Industry Apprentices Ordinance 1962 and its rules/regulations 1966.
- 9.

Youth Development Program by Maryam Nawaz: Under this scheme, students will receive around 50,000 interns. The interns of the program will receive training in public and private institutions of the country according to their education. Students of religious schools will also be included in the skill development program in consultation with HEC. Top internees will be awarded certificates. Toofar, 25,000 young people from all around the nation—including those in Gilgit-Baltistan and Azad Kashmir—have benefited from the Youth Development Program through training in about 100 trades. The youth of Pakistan are talented. In addition to helping their families, youth often aspire to advance their nation. Youth participating in the development program are awarded scholarships based on their merit. In The provinces, similar schemes were already being planned for launch. Each youth received a monthly stipend of Rs.2000 in the program's first phase, but in the second phase, they will earn Rs.2500, while those who belong in federally administered tribal areas would receive Rs.3,000.

AIOU Islamabad: In addition to these two programs, Allama Iqbal Open University also offers short-term courses and internships. However, while these programs are rather successful from a professional standpoint, they are not given equal opportunity to be used to their full potential. On the contrary, the Aga Khan is providing invaluable services in this area at the private level.

Aga Khan Internship program: The Aga Khan School offers its students with access to a variety of programs and technology for the same goal of promoting quality and skill. The Aga Khan Higher Secondary School offers a number of courses in a variety of subject areas while keeping in mind the demands of the students in both their academic and professional livelihoods.

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The Aga Khan Internship Program is a unique program in Pakistan for higher secondary students. It is the organization that offers its higher secondary students internship opportunities and training. Its goals are;

1. To review teacher feedback on the need for a mentoring program at the secondary level.
2. Explain the urgent need for a secondary educational guidance program in schools.
3. Present practical recommendations and suggestions for the inclusion of guidance in the educational system at the secondary level.

This internship helps students in the selection of career paths with acquiring professional relationships, gaining experience, and not only that, but it also helps in securing employment after graduation. Aga Khan Higher Secondary School has many contacts at companies that take in Aga Khan Interns. The internship training provided at our higher secondary school or level, according to teachers at various Aga Khan Higher Secondary Schools, helps students in identifying their careers and securing those careers. The Advisory Unit assists students in satisfying their needs and achieving their objectives, including education. All of the students at Aga Khan Higher Secondary School have the chance to take part in the internship training that is offered. Interns receive guidance so they can choose their own courses of study and careers. Students are required to continuously give feedback. For this program, there is a check-and-balance process. Annual reports are written by monetary teams. In view of which, new strategy and planning are made. The Aga Khan Higher Secondary School's internship program benefited almost 3000 students. The foundation for students' professional development is established by these internship programs. Their professional life is based on the foundation of this. Along with choosing their schooling, students also choose their profession on time. As a result, they are able to adapt to a particular profession and are proven to be sources of progress both individually and collectively. Some organizations in our nation and overseas are also supporting the Aga Khan for the internship program. Which additionally offer financial assistance after completing internships in businesses; students provide feedback and contribute fresh, innovative ideas, which is very advantageous to the company.

PM Youth Internship Program 2022: The PM Youth Internship Program 2022 in Pakistan is open for only Pakistani Applicants who want to enhance their knowledge or polish their skills. Students who have finished their Bachelors may apply for the Fully Funded PM Youth Internship Program. The Federal Government is going to provide a PM Youth Internship with starting from to at least 150,000 educated youngsters. The Internship is open to students from Pakistan only. The goal of the Youth Internship Program is to support the country's jobless youth. The PM Young Training Scheme is open to educated jobless youth from all provinces and areas, including Gilgit-Baltistan, Azad Jammu and Kashmir, FATA, and the Islamabad Capital Territory. According to the Prime Minister's Youth Education Plan, Ministry of Inter-Provincial Coordination, Interns are placed in federal ministries, industries, banks, divisions, provincial departments, corporations, and various private and public institutions for 12 months and get a stipend of 30,000 per month. Students who have completed 16 years of school, or Matric or FSC, are eligible for this internship. The Youth Internship Program does not charge a registration fee.

Prime Minister Imran Khan offers Jobs in marketing, finance, food technology, law, engineering, public administration, and business are available. One of the best aspects of this internship is that they also award a monthly stipend of 30,000 per month to the students.

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The major goal of this internship is to train Pakistan's educated young by providing them temporary jobs in both the private and public sectors. This internship gives a monthly stipend of 30,000 to the students.

Sindh School Teaching Intern Jobs 2022: Government of Sindh School education & literacy department has announced school teacher interns program in 2022 under STIP (Sindh teaching interns program). Applications are invited from males and females to teach 11 and 12th classes and Learn the Art of Teaching with excellent salary packages. Total vacancies are 1200 Male / Female in the subject of Physics= 240, English= 240, Chemistry= 240, Mathematics= 120, Pakistan Studies= 60, Zoology= 60, Urdu=60, Botany= 60, Sindhi= 60, Islamiyat= 60. Required Qualification: Master's degree second division or Equivalent qualification by HEC recognized Institutes. Age limits till 43 years for both i.e. male and females. Selection shall be done by District Selection Committee for Interns (DSCI) according to the weight age=80% on the basis of marks obtained In Master's Degree and 20% On the basis of interview. Selected candidates will get Rs.60, 000 per month stipend.

Importance of Internship Program: The importance of internship programs for professional development among students cannot be denied at any stage especially at college level. Internship programs provide practical approaches to the students regarding their career paths. As a result, it helps in making progress toward better professions with required demands of working places.

The importance of internships at the higher secondary level is also a result of the ability to select a course of study that interests the student and fulfills his/her aptitude for a future job. Due to such importance it is necessary that every educational institute should provide this opportunity to their students.

Elements: If your institution does not provide internships, you could be losing out on some astonishing talent at a low cost. According to estimates, 20 to 25 percent of newly employed workers participate in internship programs. Internship programs are a component of recruitment strategies used by businesses to meet their goals. This youthful talent is eager to get experience and is prepared to put in a lot of effort to do so. In general, interns seek out real-world experiences that will put their skills to use and provide them with challenging work. They want to put to the test everything they have learned in school.

Colleges and universities created internship programs to provide students with practical work experience as part of their degree program. Schools and businesses collaborate to place students in real-world settings where they can learn essential skills. Today's businesses use internship programs to find potential and hire new employees. As part of a succession plan, this might be a practical strategy to hire people and find talent. Organizations use interns to finish tasks that could have otherwise been difficult to complete or that have been delayed indefinitely. The internship process can evaluate a student's aptitude, skill set, and workplace socialization. A formal, management procedure, and allocated resources are necessary for an internship program to be successful in both attracting new interns and overseeing those who have already applied.

Major hypothesis:

- The importance of the internship program will be due to the promotion of technical and professional skills among students at the higher secondary level.

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Minor hypothesis:

1. It will be due to expand the interval of training to the potential extent to remove poverty and unemployment within society.
2. It will highlight the needs of internships for the promotion of economic and social cohesion at the national level.
3. It will be helpful for students to provide awareness regarding professional requirements and solutions of problems within the working place.
4. It will enable the students to develop understanding between further education and career regarding individuality among them.
5. It will facilitate the education institutes to provide better opportunities to students for successful future life as per globalized perspectives.
- 6.

RESEARCH METHODOLOGY: Descriptive method of study is used in this study. Population of study is consisted of Students and Teachers of Public Colleges of Karachi. 80 students and 20 teachers are selected at random. Data is collected through questionnaire. Descriptive technique of the study consisted of percentage and frequency analysis of demographic characteristics of the participants and central tendency measurement of their responses, whereas statistical technique comprised of scale analysis including normality and reliability tests. Reliability of the questionnaire was tested using Cronbach's alpha, and normality was evaluated employing univariate and multivariate normality of skewness and kurtosis. Each variable of the questionnaire was assessed using 5-point Likert scale, where 1 is strongly disagree, 2 is disagree, 3 is neutral, 4 is agree and 5 is strongly agree.

DATA COLLECTION: Data is collected from 10 different public sector colleges of Karachi which are as follows,

1. Sir Syed Govt. Girls College Nazimabad
2. Govt. College for Women, Block-J, North Nazimabad
3. Govt. Premier Girls College, Block-H, North Nazimabad
4. Women's Degree College Nazimabad
5. H.I. Usmania Govt. Girls College Nazimabad
6. Govt. Degree College for Women Block-L, North Nazimabad
7. Govt. College for Women Block-M, North Nazimabad
8. Abdullah Govt. College for Women Block-U, North Nazimabad
9. Govt. Degree Girls College Block-K, North Nazimabad
10. Govt. Girls Degree College Gulberg

The data was collected in May and June 2022.

FINDINGS & DISCUSSION: Percentages, Means, Standard Deviation and Z test is used to find out the results.

Table 1: Comparison of opinion of College Students and Teachers regarding the importance of Internship program

Group	N	Mean	S.D	Z -Value
Teachers	20	51.3	4.3	1.09
Students	80	49.6	3.2	

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Table 1 shows that the z value equal to 1.09 which is less than the tabular value equal to 1.96 at 0.05 level of alpha. This shows that the teachers have more positive attitude towards internship programs in college.

Table 2: Comparison of opinion of male teachers v/s female teachers regarding the importance of Internship program

Group	N	Mean	S.D	Z –Value
Male	8	39	1.32	1.51
Female	12	61	6.9	

Table 2 shows that the z value equal to 1.51 which is less than the tabular value equal to 1.96 at 0.05 level of alpha. This shows that there is insignificant difference between the opinion of male and female teachers. This means that female teachers are more concerned about the importance of internship programs.

CONCLUSION

Internship program has very strong position in college studies. Teachers and students both know the importance of internship and are very clear about attending an internship to apply the theory in practical terms. It is also clear that as compare to students teachers are more concerned about the application of internship programs.

RECOMMENDATIONS

- It is necessary to provide appropriate guidance for various types of programs, seminars, workshops in educational institutions, through internship program especially in colleges, to give advance information and skills about professions to the students. So it will be helpful to overcome unemployment in the society as well as people can be helped to lead a prosperous and better life in the society.
- It is recommended to initiate internship awareness campaign among students.
- Workshops can be given to students.
- College management should arrange internship opportunities for students.

REFERENCES

- Board, L. (2013). The BASES position stand on graduate internships. *The Sport and Exercise Scientist*, 36, 1-3.
- Chitkara, M.G. (2003). *Education and Values*, New Delhi: A.P.H. Publishing Corporation.
- Crnković-Pozaić, S. (2006). *Transition from school to work: Internships and first entry to the labour market in Croatia*. Bureau of Labour Statistics.
- Gilroy, M. (2014). *Colleges develop internships across majors and borders*. *The Education Digest*, 79(5), 30.
- Kazmi, S.S. (2007). *A Comparative Study Of Achievement Of Students of M.A.Education In Various Institutions*, Unpublished M.Phil. Thesis, Department Of Education, Multan: Bahauddin Zakariya University
- Nadeem, D. (2018). *Higher Education and Employability in Pakistan–How Aligned are They?* (Doctoral dissertation, Lahore School of Economics).

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Rose, P. (2013). Internships: Tapping into China's next generation of talent. *Asia-pacific journal of Cooperative Education*, 14(2), 89-98.

Ruhanen, L., Robinson, R., & Breakey, N. (2013). A foreign assignment: Internships and international students. *Journal of Hospitality and Tourism Management*, 20, 1-4.

Saeed, I., Waseem, M., Sikander, S., & Rizwan, M. (2014). The relationship of turnover intention with job satisfaction, job performance, leader member exchange, emotional intelligence and organizational commitment. *International Journal of Learning and Development*, 4(2), 242-256.

Siddique, A. (2004). *Study Guide: Teaching Strategies*, course code :831, Islamabad : Allama Iqbal Open University.

Van Velzen, C. P., & van der Klink, M. (2014). Developing internships in the Netherlands: new concepts, new roles, new challenges. In *Practical knowledge in teacher education Approaches to teacher internship programmes* (pp. 180-194). Routledge.

Zhang, X. (2012). Discussion on International Internship and Intercultural Competence from a Perspective of Higher Educational Internationalization - A Case Study of the Program Work and Travel USA. *Cross-Cultural Communication*, 8(5), 62-66.



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**FIGURING OUT THE ROLE OF MOTHER TONGUE INTERFERENCE IN
MASTERING ENGLISH PHRASAL VERBS AMONG FOREIGN LANGUAGE
LEARNERS FROM DIFFERENT FIRST LANGUAGE BACKGROUNDS**

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Abstract

Foreign language learners often encounter challenges in mastering English phrasal verbs. The current study attempts to determine the extent to which learners' mother tongue facilitates or hinders mastering the target forms among EFL learners from different L1 backgrounds. English belongs to the Germanic language family and shares some common features with other members of the language family, e.g., German has detachable prefix verbs, e.g., *warten auf*, in a way resembling the English phrasal verb, e.g., *wait for*. On the other hand, other language families such as Romance languages, e.g., Spanish and Semitic languages, e.g., Arabic, rely heavily on single word-verbs, e.g., *esperar* in Spanish and *yāntāzr* in Arabic. For this purpose, three experimental groups of intermediate EFL learners took part in the current study: Arabic-speaking learners of English ($n=8$), Spanish-speaking learners of English ($n=8$), German-speaking learners of English ($n=8$), and a control group of British English speakers ($n=8$). To elicit the learners' comprehension and production, the researcher developed a task, in which a total of 30 test items were included: a. phrasal verb targets ($n=10$), e.g., *hold back*, b. one of the single word-verb alternatives ($n=10$), e.g., *pause* and c. 10 fillers. The participants have to interpret the meanings of the target forms given in a list of movie titles exhibited through movie posters (i.e. comprehension), and then they were instructed to put them in appropriate contexts (i.e. production). The findings showed that German learners outperformed Spanish-speaking and Arabic-speaking learners of English in mastering English Phrasal verbs in both comprehension and production. While the performance of the German-speaking learners of English was not significantly different on both forms, Arabic-speaking and Spanish-speaking learners of English performed significantly better on one word-verbs owned to their mother tongue interference. The study concludes with some pedagogical implications.

Keywords: Arabic, English, frequency, German, one-word verbs, phrasal verbs, proficiency, Spanish

INTERNET-ASSISTED ENVIRONMENT IN TEACHING ENGLISH TO VISUALLY IMPAIRED LEARNERS

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Abstract

The benefit of the Internet usage has completely changed and globalized the views of educators, as the learning equipments offered through the network are gradually becoming more reliable for all learners, including visually impaired students. This article will consider methods for working with students with visual impairments using the internet-assisted tools.

Keywords: approaches, educational opportunities, foreign language teaching, internet-assisted environment, rational methods, visually impaired learners.

1. INTRODUCTION

Nowadays, the Internet is gaining immense popularity in foreign language teaching and more and more educators and learners are embracing it. Using the internet brings the 'real world' into the classroom and gives the students an opportunity to explore learning in a different way. The internet-assisted environment provides teachers and students regardless of its social and recreational purposes, as it also provides a field for teaching and learning the English language. Using the net gives students control over their learning, enabling them to go at their own pace and choose their paths according to their individual needs, which may also be motivating.

At the same time all teachers face the problem of using the global network in order to further improve the content of training based on the use of modern technologies. The internet offers new opportunities in learning English that were previously unknown. These include: inclusion of online materials in the content of the lesson; assistance in conducting individual searches of students on the project work; development and improvement of students' reading skills using online materials of various levels; development of students' writing skills as a result of mutual correspondence; formation of word stock with the help of modern dictionaries of a foreign language; finding data on the culture, social and economic situation of other countries through the network, learning to analyze them, etc. [1] The development of the internet has revolutionized and globalized the view of teachers, as the teaching tools offered through the network have gradually become more reliable.

The use of the internet for educational purposes is of great help to all students, including visually impaired students. Ensuring equal rights and equal opportunities for a learner with disabilities is a priority in the field of modern education. Teaching visually impaired learners English is a difficult task, but knowledge of the language expands the educational opportunities of such people, allowing them to become part of the global educational environment and feel socially adapted in society.

The situation with teaching visually impaired is complicated by the fact that the current approaches, methods and means of teaching foreign languages (interactivity, modular training) are based on visibility, graphic symbols; pedagogical didactic materials in this area are very limited. [2] Thus, it is quite obvious that it is necessary to search for new approaches to creating rational methods of teaching visually impaired learners.

2. MATERIALS AND METHODS

Currently, the issue of inclusive education is relevant and is often discussed among teachers and social workers. One particular aspect of education system is the education of people with disabilities, particularly, sensory disabilities, such as visual or hearing impairment, which decrease learning opportunities of students. Social workers and organizations of the blind and visually impaired seeks to increase the availability of teaching foreign languages and considers it as a factor in the social and professional integration of adults with serious visual impairments into the life of modern society. The educational institutions, in particular, focused their efforts on how to improve the qualifications of teachers of foreign languages working with this category of students.

People with sensory disabilities introduce new challenges to educational institutions, since they must have the resources and the know-how to integrate these various types of students. Students with sensory disabilities require special pedagogical strategies to ensure that they assimilate all of the information provided in the classroom. The problem is that many teachers lack adequate training in addressing the needs of this population or the time to transform learning materials and strategies to meet the needs of these students. As a result, the classroom environment is often not appropriate for these students and they tend to leave educational institutions with low achievements or even completely drop out from the school system [3]. Education also has the potential to affect children's health by influencing their ability to advocate for themselves, manage chronic health conditions, and navigate complex medical, insurance, and social service systems during childhood and later in life. [4]

The problems of teaching visually impaired learners can be achievable and possible with internet-assisted tools. During the research we faced with unique innovative method of teaching English to visually impaired learners by means of the talking tactile tablet developed by the United Kingdom's Royal National College for the Blind in Hereford in conjunction with a software company based in the United States. The device was originally developed for educational purposes but is adaptable for other uses. [5] Accordingly, Prof. Dr., Abdullah Coşkun considered this as a concept of using talking tactile technology T3, as a vehicle for teaching English. The talking tactile is a specially made Braille-free tactile diagram that is placed on a pressure sensitive surface. T3 is a touch sensitive device providing instant audio feedback from tactile layouts known as overlays that are diagrams with raised lines and textures explored by finger touch. It uses a combination of touch, sound and learn systems called audio-haptic pedagogy through the creation of tactile diagrams carrying layers of information that can be vocal, musical or other audio sounds. Touching the tactile diagram engages an audio file that can carry up to 10 layers of information. When the overlay is touched the pressure pad is activated and the information for that point is spoken. The device is attached to a standard computer via a USB connection and the program CD giving the operator access to a library of information on any pre-selected subject by moving around the surface area and applying touch pressure. [6]. In many countries where the Talking Tactile Tablet is used, it is valued as a teaching tool, giving opportunities to the teachers while working with visually impaired learners, as well as to the learners who require special needs.

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In my practice of working with students with visually impaired learners I use listening and speaking tasks with feedback methods.

I introduce students to the lesson objectives, the learning outcomes, then with the help of 'five-stroke method, i.e, word – pause – word – pause – translation (removal of phonetic difficulties, memorization of words and translations)' we listen, repeat many times and memorize new words of the lesson. After learning new words, we discuss the topic of the lesson; the students share their knowledge about the topic using the Q & A method. This method develops students' ability to ask and answer the questions correctly. Listening to the audio text helps the students to understand the new lesson better. Then the learners ask questions to each other according to the text. In this regard 'Think-pare-share' method is suitable to broaden their mind and further understanding of the topic. During the lessons students like singing songs that also helps them to learn and memorize the English words and word combinations. At the end of the lesson we always conclude with some methods of feedback, like 'Already knew – have learnt - want to know' table; 'three-two-one' (the 3 most liked moments, 2 moments that you want to use in your work, 1 moment that motivates you to ask a question); 'ladder of success', etc.

Some of my students are learning English by themselves with the help of Internet App 'Duolingo'. They say it helps them to enhance their knowledge and be suited to be competitive in the society. There are some other Internet Apps, such as:

- 'HelloTalk', which helps to talk to native speakers;
- 'Easyten', which helps to master by ten words daily;
- 'ListeningDrill', which helps to listen to video clips with subtitles;
- 'Learn English by listening', which helps to listen to audio course of learning English, listen to history and various kinds of stories;
- 'Listenup.Reallyenglish', which helps to listen to real interviews with native English speakers from different countries by difficulty levels;
- 'Mosalingua', which helps to listen and repeat the words, after which the App checks the students' pronunciation. [7]

Another sites and portals:

- 'Newsy' – an entertainment and information portal with many different materials for practicing listening skills. The portal is available for use by students with high level of language knowledge. However its materials can be used, for example, to search for a familiar reference words;
- 'ELLLO' – useful primarily for teachers, as it offers a number of audio and video English lessons. However, learners can also find a lot of useful materials here, for example, radio stores, etc. All materials of the site are available for online work.
- 'Macmillan for young learners' – The site is a training program offering developed audio materials for learning English by learners with an elementary level. The site is useful and interesting for both the teacher and the junior student. This is a good resource for ideas and additional audio materials;
- 'Listen wisely' – the site presents a selection of audio materials on various topics. It is useful for learners to train listening skills and vocabulary extentions;
- 'English Daily' – a dictionary that helps learners work on new words and idiomatic expressions online. As an introductory material to understand how to use words in context, a large number of authentic English language texts, such as news articles, jokes, stories are published on the site;

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- 'English with pleasure' – Variants of English grammar tests and exercises to improve vocabulary are offered for the students. There are many different tasks on the same topic, so it will be convenient for the teacher to check the completion of tasks by giving a similar test;
- 'Educational technologies (Good iPad apps for Visually Impaired Students) – The resource offers a selection of useful applications for the iOS operating system. With their help, the learners can develop knowledge and skills of English. Also on this site there are applications that a teacher can use to simplify the work of a visually impaired student in the classroom, for example, an application in which you can download the text of the assignment from a handout so that the learner does not have to ask classmates to read it;
- 'Strange News Stories' – the site is aimed at practicing reading skills at home to prepare for work in the classroom and for further practice of conversational skill with classmates, since any text involves a discussion. Video recordings are presented as an illustration of the material from YouTube;
- 'ESL Blues' is another resource for practicing grammar rules for students. In addition, the site presents tests that allow the teachers to monitor the progress of the students at different stages of learning. Performing the same test at the beginning of the topic study and at the end of the study will help to see how well the material was mastered;
- '5 minute English' – Short 5-minute lessons will allow a student with the peculiarities and development of vision not to waste time on additional study of the material at home, but, at the same time, they will fully help to prepare for the lesson, since each lesson consists of a theoretical and practical part, there audio and video materials;
- 'Dave's ESL Café' – the site was developed by Dave Sperling, a teacher of English as a second language. On this resource, Sperling publishes a lot of theoretical material with various examples, and to consolidate his knowledge, he offers to take several tests on the studied material. It seems to us that this approach is convenient, since in case of questions during the test, the student can always re-read and re-listen to the theoretical material again, get acquainted with the samples of the task successfully execute it.

3. RESULTS AND DISCUSSION

As a result of class work that was held two times a week, the group's actions were monitored, knowledge of learners has is enlarged using the Internet tools, they succeeded mainly in understanding words, understanding speech by listening, focusing on answers, the ability to ask the right questions, give the right answers, express opinions, share thoughts, discuss, perform group, pair and individual work, give feedback, summarize the results in the form of learning outcomes.

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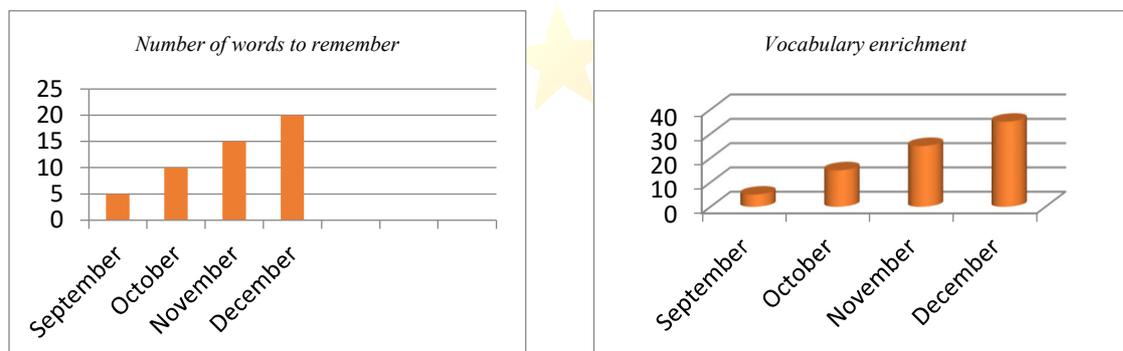
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The following picture shows the number of words the learners had to remember every week and the vocabulary enrichment, i.e., how they dealt with the task:



In order to achieve results and improve the level of knowledge in the process of teaching visually impaired students, teachers must realize the importance of using information technologies in educational activities.

Teachers play a fundamental role in the task of promoting students' well being and in creating conditions for learning. They can also contribute to students' health by guiding them in the use of resources that enhance their residual vision and preserve their visual function. Access to assistive technology provides independence to students with visual impairment by enhancing their communication, mobility, and environment control. In many cases, use of technology is the only way people with communication difficulties can connect to the external world. [9]

4. CONCLUSION

Thus, the effectiveness of teaching a foreign language to students with visual impairments can also be improved through pre-rehabilitation in the field of mobility, daily activities and social communication, which will give confidence in actions and improve their orientation in the new educational environment. [10]

We believe that the presence of an Internet environment in schools and other educational institutions can contribute to the integration of visually impaired students, facilitating the completion of school assignments and social interaction in the school environment. The use of assistive technologies allows visually impaired students to better adapt to normal learning processes and academic fields. This gives these students access to the same source of information that their peers use. With the help of a computer, a visually impaired or blind student can communicate with other schools through databases, stores, libraries, etc. They can consider new work opportunities, as well as explore the Internet, as well as its many possibilities, using special programs for students with visual impairments.

REFERENCES

- [1] U. K. Mukhamedova, *The importance of using multimedia tools in teaching a foreign language*, Bulletin KazNU. Filology series. № 3(137). 2012, p231-234
- [2] Nurmuratova D.K., *Teaching Visually Impaired Students* International Journal on Integrated Education, Volume 4, Issue 4, April 2021, p. 338-339.
- [3] Lancheros C. D., Carrillo R. A., Pavlich-M.J., *Adaptation and Disability Aspects in a Virtual Learning Environment*, Article in Dyna (Medellin, Colombia) · June 2012, p6-14

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E-MAIL: editor@libertyacademicbooks.com

[4] Laudan Aron, Pamela Loprest, *Disability and the Education System*, The Future of Children Vol. 22 / No. 1 / SPRING 2012

[5] https://en.wikipedia.org/wiki/Talking_tactile_tablet

[6] A. Coşkun, *English Language Teaching for the Visually Impaired Learners: Training Non-native English Teachers*, International J. Soc. Sci. & Education, Vol.4 Issue 1, 2013

[7] <https://oxfordhousebcn.com/en/8-of-the-best-apps-for-learning-english/>

[8] <https://www.macmillaneducationeverywhere.com/>; <https://www.english-daily.com/>; <https://www.educatorstechnology.com/2017/02/12-good-ipad-apps-for-visually-impaired.html>;

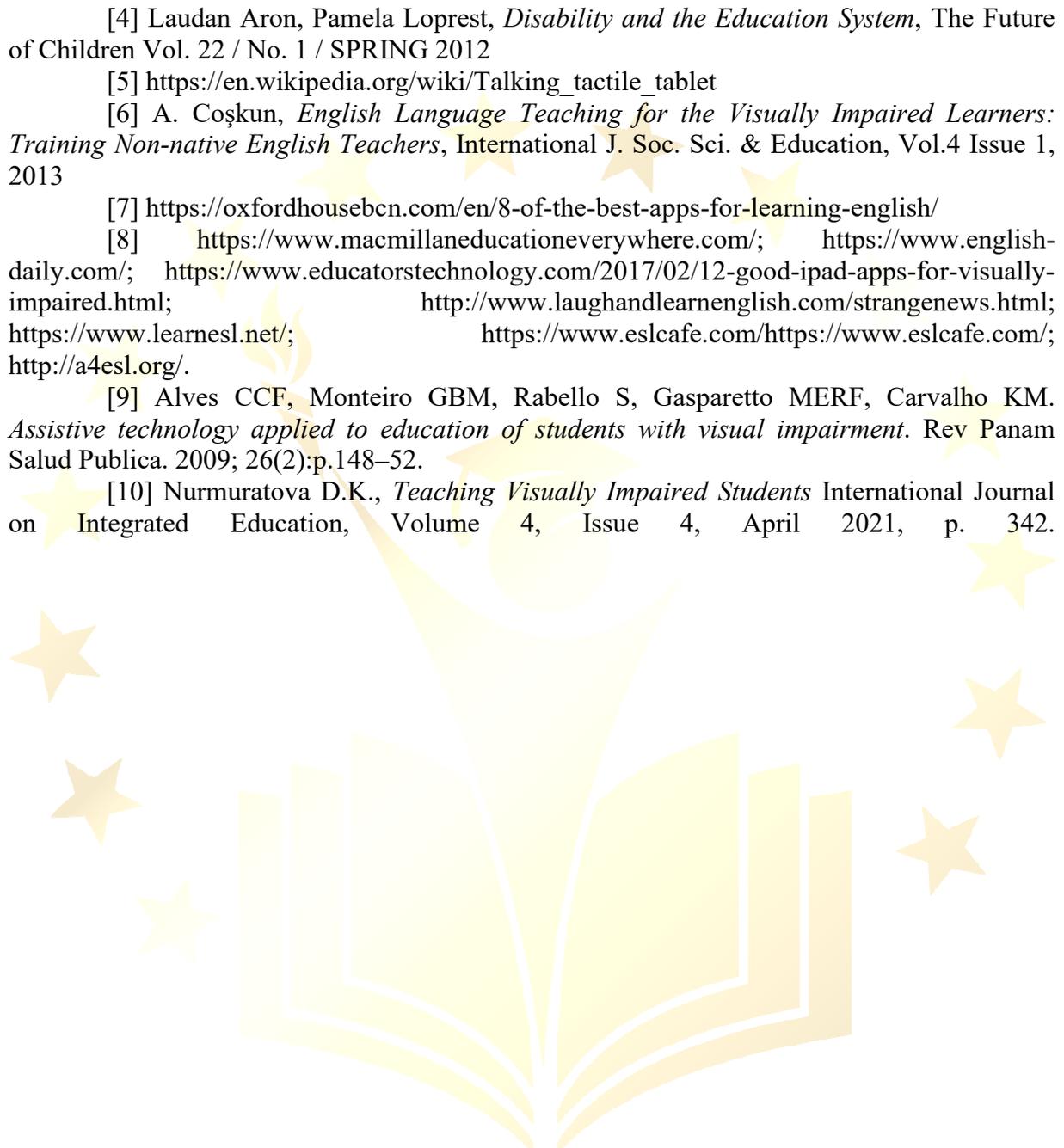
<http://www.laughandlearnenglish.com/strangenews.html>;

<https://www.learnesl.net/>; <https://www.eslcafe.com/>;

<http://a4esl.org/>.

[9] Alves CCF, Monteiro GBM, Rabello S, Gasparetto MERF, Carvalho KM. *Assistive technology applied to education of students with visual impairment*. Rev Panam Salud Publica. 2009; 26(2):p.148–52.

[10] Nurmuratova D.K., *Teaching Visually Impaired Students* International Journal on Integrated Education, Volume 4, Issue 4, April 2021, p. 342.



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**IMPACTS OF DOMESTIC VIOLENCE ON FEMALES –A STUDY IN PUNJAB
(PAKISTAN)**

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Abstract

Domestic violence is violence committed by someone in the victim's domestic circle. This includes partners and immediate family members. The term domestic violence is used when there is a close relationship between the offender and the victim. There is usually a power gap between them. The victim is dependent on the offender. Domestic violence can take the form of physical, sexual or psychological abuse. According to an estimate, approximately 70 to 90% of Pakistani women are subjected to domestic violence. Various forms of domestic violence in the country include physical, mental and emotional abuse. Some common types include honor killing, spousal abuse including marital rape, acid attacks and being burned by family members. Spousal abuse is rarely considered a crime socially unless it takes an extreme form of murder or attempted murder which could range from driving a woman to suicide or engineering an accident frequently the bursting of a kitchen stove.

The objective of this mix method research is to find the impacts of domestic violence on females of Punjab. The sample size will consist of 100 females from different districts of Punjab Pakistan. The data will be collected using survey through interviews and questionnaire. In Conclusion, the legislation regarding domestic violence at Government level and its outcomes will be described. This study aims to find out the impact of domestic violence in Pakistani society and cohere it with our social norms and values.

Keywords: Domestic violence, females, impacts, Punjab, types

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STRESSORS AND COPING MECHANISMS AMONG MOTHERS OF HEARING IMPAIRED CHILDREN IN THE SCHOOL FOR HEARING IMPAIRED, AKURE, ONDO STATE

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City University

Abstract

Background: Stress is a major health-related problem among mothers of hearing impaired persons. There is however dearth of information about the level of stress and coping mechanisms among this population especially in urban settings. This study, therefore, focused on the determination of the level of stress, type of stressors and coping mechanisms among mothers of hearing impaired.

Methods: The study was a cross-sectional survey. All 250 mothers of hearing impaired children in the school for the hearing impaired in Akure who consented to participate were recruited into the study. The instruments for data collection were: a Focus Group Discussions (FGD) guide and a standardized structured questionnaire which focused on mother's knowledge of what constitutes a hearing challenge, perceived stressors associated with the management of their children's disability and different coping styles they adopt. The mothers' stress scores measured with a four-point scale were in respect of the typology of stressors induced by the following: nature of disability, burden of child's disability; financial; family and community; and psychological factors.

Results: The participants' mean age was 45.5 ± 18.5 years. The overall mean stress score was 82.6 ± 17.5 with mean stress scores by typology been the highest (24.4 ± 6.6). ($p < 0.05$). The coping strategies employed by mothers were: verbal expression of dissatisfaction (complaint) (43.3%); acceptance (30.1%); expression of anger (17.2%); seeking for social support (5.3%) and avoiding the situation (4.1%). Mothers used a combination of all these coping styles in the course of managing their children.

Conclusion: Main stressors affecting participants were vulnerability of children to sexual abuse, onset of puberty and irrational behaviours of the children. The most widely employed coping strategy was verbal expression of dissatisfaction (complaint). It is recommended for mothers of children of hearing impaired to employ strategies such as counseling, social support, peer-education and resource-linking needed to ameliorate their stressors.

Keywords: Coping mechanism, hearing impaired children, Motherhood, stress

1. Introduction

1:1 BACKGROUND TO THE STUDY

Physical growth of children occurs rapidly early in development. Rapid growth is a signal that the organism is passing through a sensitive period that may well have both immediate and long-term implications [1].

The right of the parents to the custody, care and upbringing of their children is one of most basic rights of our civilization. The emphasis upon the importance of the home unit in which children are brought up by their natural parents is part of the great humanizations of African civilization [2].

Children with disabilities have dependency behaviours to meet their needs [3]. These dependency behaviours can be a source of stress for families, especially parents of children with disabilities [4],[5].

The parents or caregivers of children with disabilities face different set of problems and needs to adopt different coping skills that help to ameliorate, modify or manage a stressful events or crisis situations. Parents of today face many challenges, including maintaining their own health and happiness in order to be able to facilitate their children's optimal physical, emotional, and social growth. However, parents are often unable to handle the pressure of everyday life and may therefore suffer from stress, anxiety, and/or other psychological reactions. Having a child with disability often poses specific challenges for the parents [6],[2]. Parents' reactions vary in intensity and can include disappointment, guilt, grief, sorrow, helplessness, and fear about the degree of disability and the unknown future [1],[7],[8],[9],[10].

Among all family members, mothers are the most affected by a child's disability [11],[12],[13],[14],[15]. They generally assume more responsibilities for the child [16], spend most of their daily time with the child [17], and tend to take a more active role in caring for a child with disability than fathers [11],[18]. Several studies have documented stress, depression, and anxiety among mothers of children with disabilities [14],[19],[20],[21],[22],[23],[24]. Level of psychological distress have been linked to the extent of a child's disability [25],[26], such as the degree of motor impairment, speech difficulties, intellectual impairment, feeding problems, poor toilet training, limited self-care skills, and behavioural problems, as well as the presence of epilepsy [27]. Coping with chronic conditions poses a special hardship for patients [28]. This hardship affects not only the patient, but also people who are directly involved in caring for the patients. Women have many roles: spouse, mother, caregiver, friend and/or worker [16]. Mothers on whom the physical and psychological strains of caring for children with disabilities devolved are often very severely affected [22]. Mothers, in addition to their child caring role, home making duties and jobs outside the home, constantly bear the burden of looking after their affected children and feel the stress generated by the illness condition more than any other member of the family [24]. The effects of these burdens on the mother's healthstatus and well being can therefore not be over-emphasized in the face of her role in the management and care of children the hearing impaired [24].

When taking responsibility for another person's actions, changes occur in one's life over which we have little or no control and this responsibility is a major stressor [20]. While many studies researched at the stressful effects of chronic illnesses of those who suffer such disabilities, less is known about the effects on their caregivers, especially, mothers in developing countries.

At the end of this study, it is hoped that stress factors and coping mechanisms experienced by mothers of children of hearing impaired in relation to the care of their children's disabilities would have been observed and known.

2. METHODS

This study used a cross-sectional study design based on sample size of 250 mothers of children of hearing impaired out of the 285 pupils enrolled for 2021/2022 session in the School for the Hearing Impaired in Akure.

A total number of 250 mothers who consented were recruited for the study using convenience sampling method. The children aged between 6-18 years.

Focus Group Discussion (FGD) Guide was developed and pretested so that it is culturally related to the local population. Twenty (20) FGDs were conducted; four (4) in each level of education-Primary 1, 2, 3 and 4 and two (2) sessions each in Primary 5 and 6. This allowed to learn directly from the mothers which areas they perceived stressful and how they have been coping in the management of their children's disabilities.

A set of pretested, semi-structured questionnaire was administered to the mothers and it was divided into three sections; section A consisted of demographic questions, section B was on the perceived stress factors while section C was on the coping mechanisms employed in the course of managing their hearing impaired children.

The Statistical Package for the Social Sciences (SPSS) version 22.0 was used to analyze the data. Descriptive statistics were used for participants' socio demographic characteristics. Continuous variables were reported as means and standard deviations, and categorical variables as proportions (n) and frequencies (%) and the FGDs were analyzed using thematic approach where important themes generated from the discussions among mothers in various groups were noted for correlation of findings from the questionnaire.

3. RESULTS AND DISCUSSIONS

A total of 250 mothers representing 87.7% of the total number of enrolled pupils for the 2021/2022 session in the study areas were surveyed.

The participants' ages ranged between 18 years and 65 years with mean age of 45.5 ± 18.5 years. Their levels of education were; no formal education- 31.6%; Arabic-4.0%; primary-19.2%; secondary-22.4%; and tertiary-22.8%. Overall, the prevalence of stress among participants was low (42.0%); 12.8% of respondents were on borderline while 45.2% had high stress levels. The level of stress by age groups were as follow: 15-24years (1.6%); 25-34 years (18.4); 35-44years (45.2%); 45-54years (24.8%); 55-64 years (8.4%); and 65-74 years (1.6%), ($p < 0.05$). The mean stress score by levels of education were; no formal (77.3 ± 16.1); primary (83.7 ± 16.5); secondary (81.5 ± 16.0) and tertiary (87.9 ± 18.8) and their differences were significant.

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Table 3.1 shows the distribution of participants' demographic characteristics (N=250)

s/n	Demographic Characteristics	Frequency	Percentage(%)
1	Age [in years]		
	15-24	4	1.6
	25-34	46	18.4
	35-44	113	45.2
	45-54	62	24.8
	55-64	21	8.4
	65-74	4	1.6
	Total	250	100
2	Level of Education		
	No formal education	79	31.6
	Arabic	48	4.0
	Primary	10	19.2
	Secondary	56	22.4
	OND	17	6.8
	HND	22	8.8
	College of Education	8	3.2
	University	10	4.0
	Total	250	100
3.	Ethnic Group		
	Yoruba	212	84.8
	Igbo	22	8.8
	Hausa	10	4.0
	Others (Ebira, Ijaw, Efik)	6	2.4
Total	250	100	
4	Religion		
	Christianity	161	64.4
	Islam	87	34.8
	Traditional	2	0.8
Total	250	100	
5	Type of marriage		
	Monogamous	168	67.2
	Polygamous	82	32.8
Total	250	100	
6	Marital status		
	Single	28	11.2
	Married	199	79.6
	Divorced	8	3.2
	Separated	6	2.4
	Widow	9	3.6
Total	250	100	
7	Occupation		
	Business Woman/ Trader	136	54.4
	Civil Servant	76	30.4
	Artisan	29	11.6
	Housewife/Unemployed	7	2.8
	Private Firms	2	0.8
Total	250	100	

3.1 KNOWLEDGE OF STRESS AND PERCEIVED STRESS FACTORS

The overall mean stress score was 82.6 ± 17.5 . The mean stress scores by typology of stressors were: child (24.4 ± 6.6); family and community (15.1 ± 5.3), school (12.9 ± 4.1); psychological (11.2 ± 3.5); financial (11.0 ± 3.6); and the least was disability (8.6 ± 3.4).

Table 3.2: Comparison of Mean Stress Scores Among the Six Categories of Stress Factors

s/n		N	Minimum score	Maximum score	Sum	Mean	Std. Dev.	F	P-value
1.	Child factors	250	12.00	46.00	6109.00	24.44	6.63	7962.47	0.000
2.	Financial factors	250	6.00	22.00	2752.00	11.01	3.64		
3.	Disability factors	250	5.00	25.00	2159.00	8.64	3.42		
4.	Family and community factors	250	8.00	40.00	3781.00	15.12	5.30		
5.	School factors	250	8.00	32.00	3215.00	12.86	4.10		
6.	Psychological factors	250	6.00	26.00	2791.00	11.16	3.51		
	Total	250	45.00	161.00	20807.00	82.58	17.54		

3.1.1 ANALYSIS OF COPING STRATEGIES

From the quantitative data, the most widely employed coping strategy by the mothers of children of hearing impaired in the course of caring and managing their children's disability was verbal expression of dissatisfaction (complaint) (43.3%), this was followed by acceptance (30.1%), anger (17.2%), seeking for social support: from husbands, family members, and community people at large (5.32%), and the least was avoid (4.1%). Mothers used a combination of all these coping styles in the course of managing their children of hearing impairment as seen in table 3.3

Table 3.3: Coping Strategies employed by the Mothers of the Hearing impaired children

Stressors	Coping Strategies										Total
	Acceptance	%	Complain	%	Anger	%	Avoid	%	Social support	%	
Child's factors	98.3	8.3	1351	12.0	394	3.5	131	1.2	193	1.7	3000
Financial factors	358	3.2	632	5.6	146	1.3	52	0.5	62	0.6	1250
Disability factors	445	4.0	583	5.2	338	3.0	71	0.6	63	0.6	1500
Family and community factors	678	6.0	816	7.3	377	3.4	55	0.5	74	0.7	2000
School factors	501	4.5	962	8.6	356	3.2	79	0.7	102	0.9	2000
Psychological factors	470	4.2	522	4.6	326	2.9	78	0.7	104	0.9	1500
Total	3383	30.1	4866	43.3	1937	17.2	466	4.1	598	5.3	1125

“Multiple responses

4. CONCLUSION

The objectives for this study were to identify, document perceived stressors and coping mechanisms that are related to the measure of the stress levels of mothers of children of hearing impaired children in caring and managing their children disability. The resulting scores computed from mothers' response to the 45-item stress factors, stress scores were found to vary and was found that stressors concerned with child, family and community and school stressors elicited the highest mean stress scores. Psychological and financial stressors held middle ground, while stressors associated with the disability factor scored the lowest. While disability sources of stress may be better tolerated in mothers, they may give rise to higher overall levels of stress. Monogamous family setting proved less stressful than either polygamous or single mother households. Stress scores was also higher among older mothers (>35 years) and those mothers whose hearing impaired child was at least of school age. The increasing level of stress, as maternal age increases was postulated to explain the observed contrast with the assertion by some researchers that age and maturity improve mother's ability to cope effectively. Main stressors affecting participants were vulnerability children sexual abuse, onset puberty and irrational behaviors children.

The study concluded with a look at the different ways mothers approach stressful situations. This study chose major strategies-acceptance, complaint, anger, avoidance social support. The fact that a mother is unlikely to abandon her disabled child explained why most take to complaining in all the six categories of stressors. Multiple responses for each category, as well as use of different coping mechanisms for different stressors, made it impossible to isolate a unique or overall coping style for each mother. This study recommended that, future research should be done to document level of stressors and coping strategies of fathers or other family members, such as siblings and the extended family in the management of their children's disability.

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REFERENCES

- [1]. George A., Vickers M. H., Wilkes L., Barton B. *Chronic grief: experiences of working parents of children with chronic illness*. Contemp Nurse. 2006;23(2):228–242. <https://doi.org/10.5172/conu.2006.23.2.228>
- [2]. Hatton C., Akram Y., Robertson J., Shah R., Emerson E. *The disclosure process and its impact on South Asian families with a child with severe intellectual disabilities*. J Appl Res Int Dis. 2003;16(3):177–188. <https://doi.org/10.1046/j.1468-3148.2003.00167.x>
- [3]. Bariroh, S., 2018. *The Influence of Parents ' Involvement on Children with Special Needs ' Motivation and Learning Achievement*. International Education Studies, 11(4), 96-114. <https://doi.org/10.5539/ies.v11n4p96>
- [4]. Moawad, G. E. L. N. A. 2012. *Coping strategies of mothers having children with special needs*. Journal of Biology, Agriculture and Healthcare, 2(8), 77-84.

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E-MAIL: editor@libertyacademicbooks.com

[5]. Smith, A. M., & Grzywacz, J. G. 2014. *Health and well-being in Midlife Parents of Children with Special Health Needs*. Fam Syst Health, 32(3), 303-312. <https://doi.org/10.1037/fsh0000049>.Health

[6]. Rosman B.L. *Family development and the impact of a child's chronic illness*. In: Falicov CJ (ed). *Family transitions: continuity and change over the life cycle*. New York: The Guilford Press;1988:293–310

[7]. Ellis J. B., Hirsch J. K. *Reasons for living in parents of developmentally delayed children*. Res Dev Disabil. 2000;21(4): 323–327. [https://doi.org/10.1016/S0891-4222\(00\)00045-7](https://doi.org/10.1016/S0891-4222(00)00045-7)

[8]. Ho K. M., Keiley M. K.. *Dealing with denial: a systems approach for family professionals working with parents of individuals with multiple disabilities*. Fam J. 2003;11(3):239–247. <https://doi.org/10.1177/1066480703251891>

[9]. Graungaard A. H., Skov L. *Why do we need a diagnosis? A qualitative study of parents' experiences, coping and needs, when the newborn child is severely disabled*. Child Care Health Dev. 2007;33 (3):296–307. <https://doi.org/10.1111/j.1365-2214.2006.00666.x>

[10]. Huang YP, Kellett UM, St John W. *Cerebral palsy: experiences of Others after learning their child's diagnosis*. J Adv Nurs. 2010;66(6):1213–1221. <https://doi.org/10.1111/j.1365-2648.2010.05270.x>

[11]. Smith TB, Innocenti MS, Boyce GC, Smith CS. Depressive symptomatology and interaction behaviours of mothers having a child with disabilities. Psychol Rep. 1993;73(S3):1184–1186. <https://doi.org/10.2466/pr0.1993.73.3f.1184>

[12]. Glidden L. M, Jobe B. M. *The longitudinal course of depression in adoptive and birth mothers of children with intellectual disabilities*. J Policy Pract Intell Disabil. 2006;3(2):139–142. <https://doi.org/10.1111/j.1741-1130.2006.00067.x>

[13]. Bumin G., Günal A., Tükel Ş. *Anxiety, depression and quality of life in mothers of disabled children*. SDU Faculty Med J.2008;15(1):6–11

[14]. Glenn S., Cunningham C., Poole H., Reeves D., Weindling M. *Maternal parenting stress and its correlates In families with a young child with cerebral palsy*. Child Care Health Dev. 2009;35(1):71–78. <https://doi.org/10.1111/j.1365-2214.2008.00891>.

[15]. Ryu H. J. *Disposition of children with cerebral palsy and social support and parenting stress of mothers*. Dissertation submitted to Kyeon-buk University Graduate School of Health, South Korea, 2010

[16]. Hastings R. P. *Child behaviour problems and partner mental health as correlates of stress in mothers and fathers of children with autism*. J Intellect Disabil Res. 2003;47(4–5):231–237. <https://doi.org/10.1046/j.1365-2788.2003.00485.x>

[17]. Bilgin S., Gozum S. *Reducing burnout in mothers with an intellectually disabled child: an education programme*. J Adv Nurs. 2009;65(12):2552–2561. <https://doi.org/10.1111/j.1365-2648.2009.05163.x>

[18]. Olsson M. B., Hwang C. P. *Depression in mothers and fathers of children with intellectual disability*. J Intellect Disabil Res. 2001;45(6):535–543. <https://doi.org/10.1046/j.1365-2788.2001.00372.x>

[19]. Britner P. A., Morog M. C., Pianta R. C., Marvin R. S. *Stress and coping: a comparison of self-report measures of functioning in families of young children with cerebral palsy or no medical diagnosis*. J Child Fam Stud. 2003;12(3):335–348. <https://doi.org/10.1023/A:1023943928358>

[20]. Hamzat T. K., Mordi E. L. *Impact of caring for children with cerebral palsy on the general health of their caregivers in an African community*. Int J Rehabil Res. 2007;30(3):191–194. <https://doi.org/10.1097/MRR.0b013e3281e5af46>

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[21]. Davis E., Shelly A., Waters E et al. *The impact of caring for a child with cerebral palsy: quality of life for mothers and fathers*. Child Care Health Dev. 2010;36(1):63–73. <https://doi.org/10.1111/j.1365-2214.2009.00989.x>

[22]. Krstic T., Oros M. *Coping with stress and adaptation in mothers of children with cerebral palsy*. MedicinskiPregled. 2012;65(9–10):373–377. <https://doi.org/10.2298/MPNS1210373K>

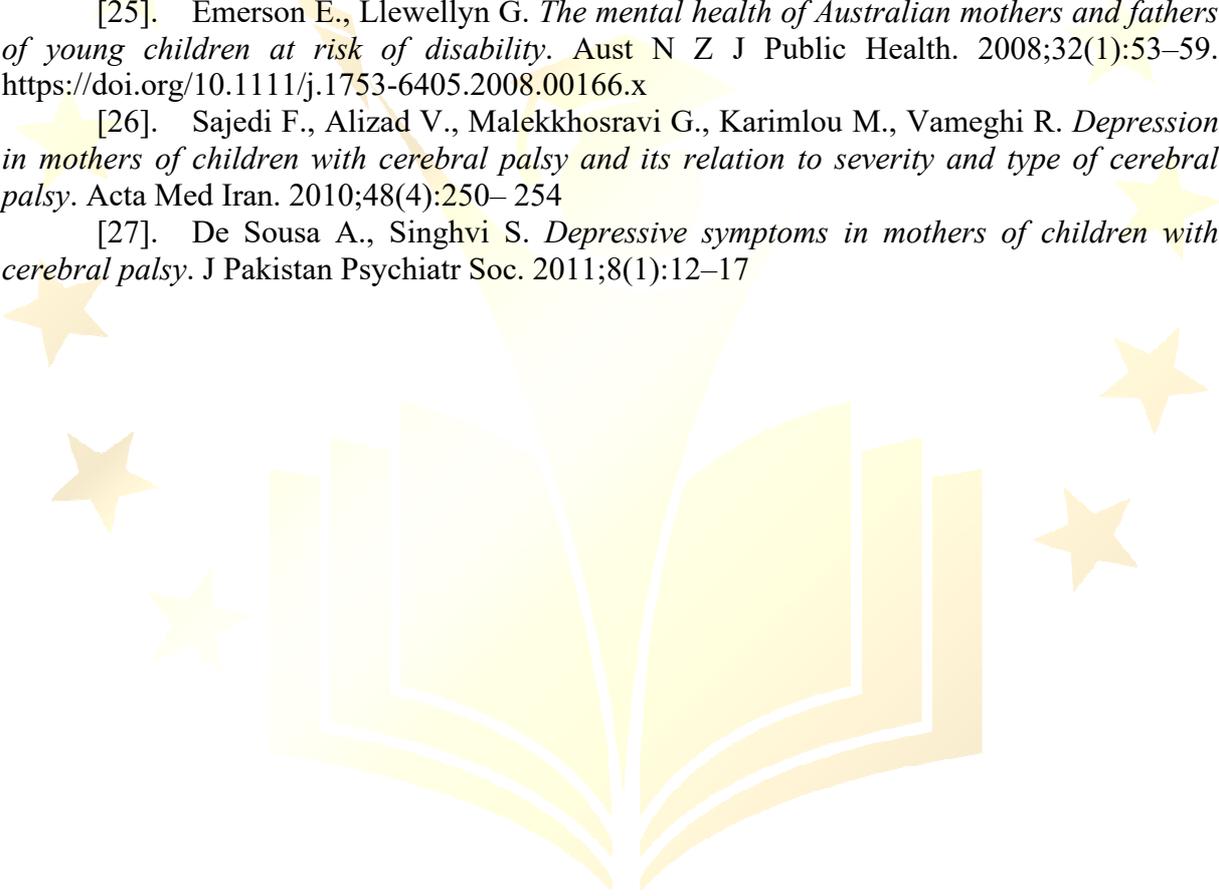
[23]. Silberg T., Brezner A., Gal G., Ahonniska-Assa J., Levav M. *The role of maternal distress in the report of behavioral and emotional problems among children with chronic disabilities*. Isr J Psychiatry Relat Sci.2016;53(2):17–23

[24]. Carlson J. M., Miller P. A. *Family burden, child disability, and the adjustment of mothers caring for children with epilepsy: role of social support and coping*. Epilepsy Behav. 2017;68:168–173. <https://doi.org/10.1016/j.yebeh.2017.01.013>

[25]. Emerson E., Llewellyn G. *The mental health of Australian mothers and fathers of young children at risk of disability*. Aust N Z J Public Health. 2008;32(1):53–59. <https://doi.org/10.1111/j.1753-6405.2008.00166.x>

[26]. Sajedi F., Alizad V., Malekkhosravi G., Karimlou M., Vameghi R. *Depression in mothers of children with cerebral palsy and its relation to severity and type of cerebral palsy*. Acta Med Iran. 2010;48(4):250–254

[27]. De Sousa A., Singhvi S. *Depressive symptoms in mothers of children with cerebral palsy*. J Pakistan Psychiatr Soc. 2011;8(1):12–17



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THE ROLE OF MULTIMODAL STUDIES FROM THE PERSPECTIVE OF AFFECTIVE MOVEMENT PEDAGOGY IN THE STUDY OF KINESTHETIC REPRESENTATION

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Abstract

This study investigates the difference between the cognitive and the affective background of body-conscious and skill-level movement execution. It seeks to answer why body awareness can be crucial in learning new movements. What is the difference between the underlying brain activity, the resulting movement, and the muscle activity associated with the movement? I would like to present this system of relationships through my own system of affective movement pedagogy, which is linked to conscious body movement and is crucial in this context in several ways.

The body-conscious workflow can also affect the way we use our imagination to recall or observe a movement that we have practiced before in the rehearsal room. In general, a movement is evoked with the dominance of visual representation. Often, we see ourselves and our surroundings from the outside or from our own perspective, as we visualise the movements in our imagination. When we use kinaesthetic representation, we recall muscle activity associated with a movement that we have memorized during body-conscious movement learning.

My suggestion is that actors and some movement researchers are also looking for natural behaviour, which is the question I as well am looking for an answer to. Researchers want the test subject to behave naturally while performing tasks with sensors on his or her body under laboratory conditions, as this is the situation when accurate results are obtained. In the theatre, directors are looking for situations in their realistic productions where the actor on stage in front of the audience behaves naturally as if no one is watching and he or she is not on the stage at all. I use affective movement pedagogy to explore the relationship between movement and emotions in an attempt to find answers to both problems.

In this paper I present some dance-related research areas where digital tools for movement data mining can be used effectively. Among these, I highlight the motion capture technique and the EMG tool, which can be used to collect data on movement and to draw conclusions that cannot be ascertained with the naked eye by the dance teacher. I then identify the areas in which I would like to carry out future research. I highlight the importance of affective movement pedagogy, which will have to be proven. Studies show that brain structure and activity associated with dance training can provide rich and diverse areas of research. By gathering and systematising research directions, a new university subject can be established: kinematics, with an associated practical curriculum. The research-related kinematics laboratory that I would like to build could be instrumental in advancing the science of dance as an artform. The results of the research may be relevant not only to the field of dance, but also theatre or public education, and may open up opportunities for international cooperation.

Keywords: affective, movement, pedagogy, training, psychophysics, psychophysiology

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The aim of this study is to present the potential innovative role of my affective movement pedagogy system¹ I examine how the technique relates to movement learning and why it might be important in both dance and theatre training, as well as automatic emotion recognition. I can prove these relationships by using measurement tools to examine and analyze the movements created with the help of affective movement pedagogy, by collecting as much data as possible about the movement. Some of the data are related to the external properties of the movement and some to its internal properties. By aggregating the data, a complex picture of the movement can be built up, which can be analyzed retrospectively to draw in-depth, objective conclusions. The key issue of the study is to examine the difference between body-conscious and skill-level movement. The study seeks to answer why body awareness can be a determinant of movement learning and to pinpoint the difference between the underlying brain activity, the resulting movement and the muscle activity associated with the movement. I would like to present this relational system through affective movement pedagogy, which is crucial in our context in several ways.

There are two ways, for example, to create the simple movement of raising the arm into a high position with the palm facing forward. One possibility is to perform the arm raising movement without any deeper thinking. This is a skill-level movement. The other possibility is that there is an inner awareness associated with performing this simple movement. In this case, while we raise the arm, we become aware of lines of force. For example, stretching from the shoulder with the fingernails, stretching from the armpit with the fingertips, stretching with the little finger from the outer edge of the ribs, etc. This leads to a different mental state, movement, and muscle activity. Muscles are activated along the lines of force and become involved in the movement. This is what we call body aware movement. In this study, I examine the properties of different movement executions from its various aspects.

The aim of affective movement pedagogy is to create natural movements, excluding the extra tension created by thoughts and will. This goal, I hypothesize, can be achieved through body-conscious work. The practices of affective movement pedagogy² are linked to body-conscious movements, as we focus our attention on proprioceptive sensations and the lines of force associated with the movements, as in hatha yoga, thus avoiding distractive thoughts. As a first step in the process of affective movement pedagogy, we focus our attention inward during yoga class, so we eliminate the space for other thoughts. Maintaining this state for a longer period will bring us closer to an emotion-free state, i.e., the neutral state. If our aim is not to work with the neutral state, but to “pre-tune” an emotional state, we start to build up the physiological properties of that emotion. The reason why body awareness is linked to the exercises is that we do not focus on the target emotion itself, but on the activation of the muscles and lines of force that are specific to that emotion. First, we reproduce the facial expression typical of the emotion in question, as we concentrate on the positioning of the facial muscles. Next, the physiological properties of the selected emotion are approached with the “spinning” exercises adapted from functional training, also using the techniques of body-conscious work. E.g., in the case of anger, blood flows to the arms, preparing the body for hitting.³ Therefore, I use repetitive movements where the sympathetic autonomic nervous system is activated, and the arm activity is emphasized.

¹ Adamovich Ferenc: *Affektív mozgáspedagógia*, In: *Theatron* 16, 2 (2022) online journal, 70.

² *Affektív mozgáspedagógia – A diih érzelmének gyakorlatai a Tesla Teátrumban tartott workshop alapján*. In: Színház és Néző. Eds.: Burkus Boglárka, Tinkó Máté. Published by the National Association of Doctoral Students, Department of Literary Studies, Budapest, 2019. 8.

³ Bányai Éva – Varga Katalin (eds.): *Affektív pszichológia*. Budapest, Medicina Könyvkiadó, 2014. 359.

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Once a high heart rate is achieved, we continue to perform tasks where there is a high level of emotion-related activity, e.g., the “bunny hop” or the “Spiderman walk”. Finally, the breathing phases are added to the movement. Having attuned to the emotion, we then observe the proprioceptive sensations in the arms in a standing position and from this we build up kernels of movement by guiding attention, from which we trigger movement arcs. Since we are not concentrating on coordinating the position of our body parts during the exercises, but rather on proprioceptive sensations, kinesthetic representation will come to the fore and movements will appear as consequences.

The body-conscious work process can also affect the process of using our imagination to recreate or observe a previously practiced movement in the rehearsal room. We usually recall movements under the dominance of visual representation. We often see ourselves and our surroundings from the outside or from our own perspective, as we visualize the movements in our imagination. In contrast, when we use kinesthetic representation, we recall the muscle activity associated with the movement, which was committed to memory during the body-conscious movement learning.

Not only can a newly learned movement rise to skill-level if practiced a lot, but so can a complex choreography. As the movement becomes rises to skill-level in the learning process, the brain uses ever less energy to perform the movement, so distraction creeps in, which can increase the risk of injury. Of course, the goal is not to make every movement body-conscious, but there may be interesting possibilities here that I would like to explore.

I would like to illustrate the difference between skill-level and body-conscious movement with an exercise I encountered at a Lecoq training in London.⁴ In one exercise we had to walk around the room and then Jos Houben⁵, who was leading the training, told us to sit down. He then asked us, “do you remember how you sat down?”. Most of us, including me, did not. We then repeated the exercise after everyone had observed exactly where their hand touched the ground and then which parts of their body followed in the process of movement. Now, by focusing our attention on our body and proprioceptive sensations, we could remember the movement sequence of sitting down accurately, and even verbalize how the movements were performed.

This example raises the question of whether the movement and position of sitting down was performed in a different way than at the skill level. The sequence of movements was probably not markedly different from the previous one, and from the outside the two may have looked similar. However, when the movement is reproduced after a body-conscious execution, it becomes more precise, because the reference points associated with the proprioceptive sensations are formed, which are then followed through the observed points and activities.

Similarly, when we practice the asanas in yoga class, we also become conscious of different lines of force. Because we are performing simple movements or statically holding out an asana, we can divert our attention to something else. Such a focus point might be, for example, in a simple arm lift, stretching from the heel with your fingertips to activate the muscles through which the line of force passes. Once this has been performed, we will then have the opportunity to become aware of a new line of force.

⁴ Adamovich Ferenc: *A természetes mozdulatok megjelenésének lehetőségei Lecoq technikájában és az affektív mozgáspedagógiában használt referenciapontok alapján*. In: XII. [Tánc és kulturális örökség](#). VII. Nemzetközi Táncudományi Konferencia a Magyar Táncművészeti Egyetemen 2019. november 15–16 [XII. Dance and Cultural Heritage. Seventh International Conference on Dance Studies at the Hungarian University of Dance Arts, 15-16 November 2019]. Ed.: Lanszki Anita, series editor: Bolvári-Takács Gábor, PhD, university professor, Hungarian University of Dance Arts, Budapest, 2019.

⁵ Jos Houben is an actor, director and headmaster of the Jacques Lecoq International Theatre School.

The aim is to achieve full body awareness, involving the muscles whose activation is necessary for the development of the asana in the movement, thus implementing the principle of optimal effort.

In the process of learning a complex choreography, we may find that we have almost no opportunity to focus our attention on lines of force or other focal points, because then there is a high chance of getting distracted from the sequence of the movements, like the footballers who had to pay attention to the point where their foot touched the ball while performing a slalom with it.

1. The process of movement learning

I will now talk about the role that body awareness can play in movement learning. As a practicing dance artist, I consider the ability to pay attention while working as one of the most important skills. It is through attention that we learn a simple movement, or a complex sequence of them, when we work by “copying” and following the instructions of the dance-master in front of us.

We can distinguish two phases in the learning process. One is the learning phase in which we learn a new movement. At this stage, a lot of attention is still needed to execute the movement, followed by the second, practice phase. As we practice, the movement gradually becomes a skill. Then ever less attentional activity is required to perform the movement, so our freed attentional capacity can give way to other factors.

The question of affective movement pedagogy is what we pay should attention to while learning or performing the movement. Working in a body-conscious way with a focus on kinesthetic representation, we will not concentrate our attention on copying the movement of the foot or arm in imitation of the dance-master, but on reproducing the muscular activities. If we want to move in a body-conscious way, we need to break down the movement into lines of force and proprioceptive focal points. Research should also be conducted into the movements that can be learned with this technique and its limitations. Needless to say, in the case of a multi-complex movement, which is dynamic, fast, and requires a lot of effort, we cannot always work with lines of force and focal points.

Another important question may be how building on the kinesthetic representation associated with body-aware movement changes the process of movement learning. In this area of research, I would like to replicate and further develop the research that examines the memory of a professional ballet dancer in terms of how many joint positions he or she can memorize compared to a layperson.⁶

2. The role of multimodal studies

The reason why we need to collect as much data as possible on the evolving movements is to allow us to analyze and do research. To obtain accurate data and a three-dimensional image of the external properties of motion, digitization technology is needed. The kinematic data of the movement describe in numbers the position of the initial body position and the data related to the movement, including the joint angles and acceleration. The motion capture technique, as one of the most widely used techniques for depth movement tracking, is the most important tool for our purpose. Another technique is based on the kinect system, which is cheaper but produces less accurate results.⁷

⁶ Ramsay, J. R., & Riddoch, M. J. (2001): Position-matching in the upper limb: professional ballet dancers perform with outstanding accuracy. *Clinical rehabilitation*, 15(3), 324-330.

⁷ Pfister, Alexandra, et al.: “Comparative abilities of Microsoft Kinect and Vicon 3D motion capture for gait analysis.” *Journal of medical engineering & technology* 38.5 (2014): 274-280.

Of course, there are increasingly many ways for researchers to digitize movement. The latest software options are now capable of creating a three-dimensional image from a standard video through multiple filters and even classifying them via LSTM.⁸

The system can be supplemented with a force plate, which is used to measure which part of the body and foot is under pressure at different stages of the movement, obtaining vector images of them.⁹ E.g., during a ballet class when practicing the *sauté*, you can use this tool to detect if the weight is not equally distributed between the two legs. In these situations, we compensate for the deficit by over-tightening the muscles. The information obtained from the three tools mentioned above can already be used to effectively differentiate ballet training in this case, thus optimizing performance and preventing injuries. Otherwise, these small mistakes, which are often invisible to the naked eye, may remain hidden from the dance-master conducting the training.

If we want to analyze the movement in more depth, it is important to obtain information on the state of the muscles, which is already linked to the study of the internal properties. In this case, we need to add a wireless electromyography device to the equipment, so that we can obtain information on the state of the muscles during movement. In one experiment, the motion capture tool was supplemented with EMG. The subjects were hospital nurses who were being tested to see what forces and muscle activity were involved in transferring a patient from a bed to a chair. The aim was to create the most efficient sequence of movements, avoiding injury and pain from incorrect posture.¹⁰

These data can be supplemented with data obtained from the study of other internal properties such as respiration, skin temperature, heart rate or brain activity. There are specific tools for measuring each of these components, most of which can be used even during the movement and provide accurate data.

Multimodal analysis provides detailed data on the different stages of the movement, allowing a wide range of analyses. All these tools are non-invasive, i.e., they do not require any intervention, and are equipped with wireless technology, so the subject can move freely. These tools are suitable for clinical studies in dance and theatre environments, in a purpose-built kinematics laboratory.¹¹

What areas would I research using multimodal studies?

- a. Movement analysis to assess the ideal range of movement and for preventive and rehabilitation purposes.
- b. Comparing the difference in formal, physiological and brain activity between skill-level and body-conscious movements, thereby defining the dimension of kinesthetic representation associated with the movement.
- c. Finding the lines of force in body-conscious movements that allow the whole body to be involved in the movement.
- d. Identifying the movement patterns associated with basic emotions as we record and analyse body-conscious movement patterns developed through affective movement pedagogy. Then we can teach an LSTM system, which then automatically classifies the movements according to a set of rules.

⁸ Carrara, Fabio, et al.: "LSTM-based real-time action detection and prediction in human motion streams." *Multimedia Tools and Applications* 78.19 (2019): 27309-27331.

⁹ Caderby, Teddy, et al. "Measuring foot progression angle during walking using force-plate data." *Applied Mechanics* 3.1 (2022): 174-181.

¹⁰ Hellmers, Sandra, et al.: "Posture and Mechanical Load Assessment During Patient Transfers." *SN Computer Science* 3.5 (2022): 1-13.

¹¹ Fig. 1.

3. Why kinematic data can be important for dance as an artform

In relation to movement analysis in the field of dance art, one important goal can be the development of ideal ranges of motion for selected movements. By storing kinematic data using several patterns, we can build a database of a movement, which can be used to define reference values associated with a range of movement. The ideal reference range in the database can be compared with the movements performed by the dancers, to obtain an accurate statistic of the advantages and disadvantages associated with the movement of the dancer under study. The aim is not to replicate an “ideal” movement, but to look at the points that determine the movement, e.g., in a jump, the position of take-off and landing, the dynamics of the movement or the position and acceleration of the body parts in relation to each other, the weight distribution. Of course, each dance artist has different talents and abilities, which the system takes into account.

In this connection, there is a relevant study on how the motion capture tool is used in sports.¹² It examines the pitching technique of a baseball player. They highlight key stages in the movement and project them onto a range of motion defined by a large sample database. This clearly reveals the position of the different parts of the body in relation to each other and their speed, e.g., the arriving foot position. The data can then be used to differentiate the athlete’s training.

From a dance art perspective, we can find basic movements in any formal language, ballet, modern or even folk dance, where we can identify advantages and disadvantages from the analysis of kinematic data. For example, while practicing the *sauté*, we can detect that the right calf or thigh is not tight enough, predisposing the dancer to lose balance. In such a case, the training should include exercises that focus on raising awareness of the thigh-tightening muscles. From the experience gained so far and from the analysis of hitherto conducted studies, I conclude that we can also attempt to identify movement types or movement qualities based on the data obtained from multimodal studies.

I would like to research three types of movement:

- a. *Movements performed with partial body awareness.* Here, we could mainly look at skill-level movements that are either intense, dynamic movements or repetitive movements that require a lot of effort but do not have a single-level dynamic arc, e.g., jumps.
- b. *Movements performed with full body awareness.* Motions which consist of more simple movements can be included in this category. I am thinking of movements which can be repeated continuously, light movements without significant changes in the dynamic arc, or movements which can be performed in a uniform manner, i.e., precisely defined by lines of force, e.g., lifting an arm, or extending a leg.
- c. *Movements performed at skill level.* I include movements performed without body awareness in this category.

4. The role of brain imaging in dance studies

Brain imaging data can be used to infer the brain activity associated with different movements. A synthesis study¹³ details current research directions covering the basic functions related to dance as an art form. It can be seen that the studies do not include an examination of body-conscious movements and kinesthetic representation.

¹² Boddy, Kyle J., et al.: “Exploring wearable sensors as an alternative to marker-based motion capture in the pitching delivery.” *PeerJ* 7 (2019): e6365.

¹³ Basso, Julia C., Medha K. Satyal, and Rachel Rugh: “Dance on the brain: enhancing intra-and inter-brain synchrony.” *Frontiers in Human Neuroscience* 14 (2021): 584312.

This is confirmed by the results of imaging techniques that researchers are using to study the brain structure and activity associated with dance training as a separate area. The brains of dancers with an average of 15.3 ± 5.2 years of training were compared with non-dancers and it was found that the cortical thickness (grey matter thickness) of the dancers' brains was greater in the upper temporal regions. Furthermore, gray matter thickness showed a positive correlation in the accuracy of dance imitation, rhythm synchronization, and melody discrimination.¹⁴ In addition, it is observed that the foot regions of the primary somatosensory and motor cortex have a larger volume of grey matter in ballet dancers.¹⁵ Overall, these results indicate that dance training leads to structural brain changes primarily in sensory and motor regions, as well as in the connections between regions. This provides faster communication and increased coordination between critical brain areas involved in dance expression.

I also consider research on the neural activities associated with or influenced by kinesthetic representation in the execution, observation and recall of movement to be a rich and decisive area of research. In one experiment, for example, scientists used EEG signals to study the clenching of a hand into a fist.¹⁶ Here, too, they observed different brain activity for kinesthetic and visual representation (motor imaging). When using kinesthetic representation, the focus of brain activity was near the sensorimotor hand area, while visual motor imagery did not show a clear spatial pattern.

Since outward and inward attention are associated with different types of brain activity, there is a possibility that the two types of movement execution may also produce different learning outcomes. Inward attention can result in the dominance of kinesthetic representation, while outward attention may lead to the dominance of visual representation.

Research questions related to brain imaging:

- a. Results from movement-related brain imaging studies and kinematic data can help us confirm or refute the hypothesis that kinesthetic representation is presumably related to body-conscious movement.
- b. What is the impact of body-aware movement on movement learning? What difference does it make if we rely not on kinesthetic properties but on the visual representation used in the observation associated with execution?

5. Steps of research related to the system of affective movement pedagogy

- a. It must be demonstrated by measurements whether the neutral state is established by controlling attention.

It should also be shown by measurements whether affective movement pedagogy can produce the physiological changes that are characteristic of adequate emotion.

- b. It should be established whether physiological activity characteristic of emotion is preserved during movement built from proprioceptive sensations.

Behind every interaction or action, there is an emotional background that influences our behavior and thus our expressions. The emotional background of action and expression do not always coincide, especially in artificially created situations, e.g., a theatrical situation, where we reproduce reality. This difference in emotional charge causes extra tension.

¹⁴ Karpati, F. J., Giacosa, C., Foster, N. E. V., Penhune, V. B., and Hyde, K. L. (2017): Dance and music share gray matter structural correlates. *Brain Res.* 1657, 62–73. doi: 10.1016/j.brainres.2016.11.029

¹⁵ Meier, J., Topka, M. S., and Hänggi, J. (2016): Differences in cortical representation and structural connectivity of hands and feet between professional handball players and ballet dancers. *Neural Plast.* 2016:6817397. doi: 10.1155/2016/6817397

¹⁶ Neuper, Christa, et al.: "Imagery of motor actions: Differential effects of kinesthetic and visual–motor mode of imagery in single-trial EEG." *Cognitive brain research* 25.3 (2005): 668-677.

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It is important to create gestures without tension, because then we can develop expressions or gestures that are different from those used in social interactions. If we can prove that an emotional state is indeed created through movement, then we can study a much wider range of movements. Affective movement pedagogy reproduces the physiological properties of emotion and builds movements by focusing on proprioceptive sensations. In other words, it does not try to analyze the movement, but seeks to pinpoint the inner state and proprioceptive sensations that are linked to the emotion. Keeping the body-conscious process, we build up movements from the “pre-tuned” emotional state, whose properties we examine.

At the same time, we can also examine the emotional background from which we derive the movement. With the help of affective movement pedagogy, we can start from a neutral state or by “tuning into” a specific emotional state. Using the kinematic data of the movement and the associated muscle tensions, we can accurately determine the differences between movements associated with various emotions. A good example is the software-based digitization system developed from videos about walking, which is an automatic emotion recognition model. It recognizes four emotions from walking with 78% accuracy: neutral, anger, sadness, and joy.¹⁷ This study also uses the LSTM. The peculiarity of this study is that the samples were recorded with a conventional camera, so the subjects were not equipped with any sensors, and therefore we cannot speak of clinical conditions of the study. Furthermore, facial expressions were not considered.

Related to this is my suggestion that both the theatre and the researchers are looking for the same natural state, the question I am looking for the answer to as well. Researchers want the test subject to behave naturally while under laboratory conditions, as this is when accurate results are obtained. Similarly, in the theatre, directors seek a situation where actors behave naturally in front of the audience as if no one is watching them in their realist productions. Using affective movement pedagogy, I try to find answers to both problems.

6. Conclusion

In this study, I have presented several dance-related research areas where digital tools for gathering data related to movement can be used effectively. Among these, I highlighted the motion capture technique and the EMG tool, which can be used to collect data on movement and draw conclusions that cannot be based on observation with the naked eye by the dancing-master. I then identified the various areas in which I would like to carry out future research. I emphasized the importance of affective movement pedagogy, which is to be proven. Studies show that brain structure and activity associated with dance training can provide a rich and diverse area of research. By gathering and systematizing research directions, a new university subject can be established: kinematics, which is accompanied by practical study material. The role of the kinematics laboratory can be decisive in promoting the development of the scientific nature of dance studies. The results achieved in these research areas may be relevant not only to the field of dance as an art form, but also to theatre or public education, and may open up opportunities for international cooperation.

¹⁷ Randhavane, Tanmay, et al.: “Identifying emotions from walking using affective and deep features.” *arXiv preprint arXiv:1906.11884* (2019).

References

Adamovich Ferenc: *A természetes mozdulatok megjelenésének lehetőségei Lecoq technikájában és az affektív mozgáspedagógiában használt referenciapontok alapján.* In: XII. Tánc és kulturális örökség. VII. Nemzetközi Tánc tudományi Konferencia a Magyar Táncművészeti Egyetemen 2019. november 15–16 [XII. Dance and Cultural Heritage. Seventh International Conference on Dance Studies at the Hungarian University of Dance Arts, 15-16 November 2019]. Ed.: Lanszki Anita, series editor: Bolvári-Takács Gábor, PhD, university professor, Hungarian University of Dance Arts, Budapest, 2019.

Adamovich Ferenc: *Affektív mozgáspedagógia*, In: *Theatron* 16, 2 (2022) online journal.

Adamovich Ferenc: *Affektív mozgáspedagógia – A düh érzelmének gyakorlatai a Tesla Teátrumban tartott workshop alapján.* In: Színház és Néző. Eds.: Burkus Boglárka, Tinkó Máté. Published by the National Association of Doctoral Students, Department of Literary Studies, Budapest, 2019.

Basso, Julia C., Medha K. Satyal, and Rachel Rugh: “Dance on the brain: enhancing intra-and inter-brain synchrony.” *Frontiers in Human Neuroscience* 14 (2021): 584312.

Bányai Éva – Varga Katalin (eds.): *Affektív pszichológia.* Budapest, Medicina Könyvkiadó, 2014. 359.

Boddy, Kyle J., et al.: “Exploring wearable sensors as an alternative to marker-based motion capture in the pitching delivery.” *PeerJ* 7 (2019): e6365.

Caderby, Teddy, et al.: “Measuring foot progression angle during walking using force-plate data.” *Applied Mechanics* 3.1 (2022): 174-181.

Carrara, Fabio, et al.: “LSTM-based real-time action detection and prediction in human motion streams.” *Multimedia Tools and Applications* 78.19 (2019): 27309-27331.

Hellmers, Sandra, et al.: “Posture and Mechanical Load Assessment During Patient Transfers.” *SN Computer Science* 3.5 (2022): 1-13.

Karpati, Falisha J., et al.: “Dance and music share gray matter structural correlates.” *Brain Research* 1657 (2017): 62-73.

Meier, Jessica, Marlene Sofie Topka, and Jürgen Hänggi: “Differences in cortical representation and structural connectivity of hands and feet between professional handball players and ballet dancers.” *Neural plasticity* 2016 (2016).

Neuper, Christa, et al.: “Imagery of motor actions: Differential effects of kinesthetic and visual–motor mode of imagery in single-trial EEG.” *Cognitive brain research* 25.3 (2005): 668-677.

Pfister, Alexandra, et al.: “Comparative abilities of Microsoft Kinect and Vicon 3D motion capture for gait analysis.” *Journal of medical engineering & technology* 38.5 (2014): 274-280.

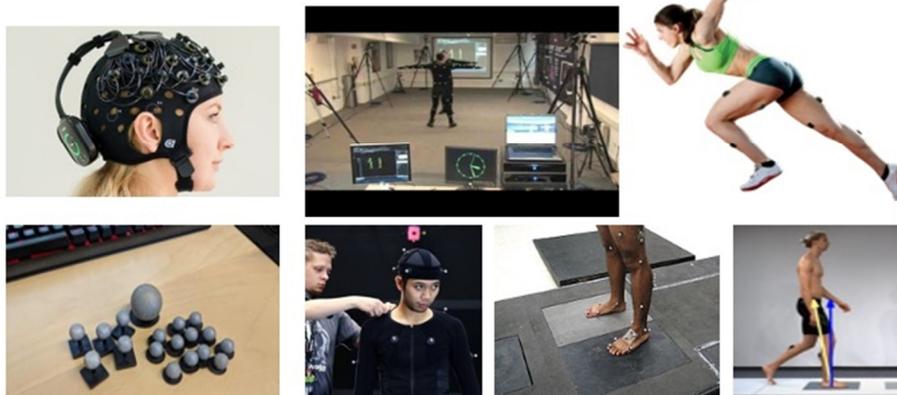
Ramsay, Jill RE, and M. Jane Riddoch: “Position-matching in the upper limb: professional ballet dancers perform with outstanding accuracy.” *Clinical rehabilitation* 15.3 (2001): 324-330.

Randhavane, Tanmay, et al.: “Identifying emotions from walking using affective and deep features.” *arXiv preprint arXiv:1906.11884* (2019).

Image attachment

Fig. 1. Instruments that can be useful in a kinematics laboratory for dance artists

Eszközök, amelyek hasznosak lehetnek egy
kinematikai laboratóriumban táncművészeknek



Top row from left to right: fNirs, kinematics lab, EMG sensors

Bottom row from left to right: motion sensors, motion sensors on clothing, motion sensors on body and forceplate device, gait analysis with forceplate device and EMG

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A MEDICAL BURDEN: GLAUCOMA, ITS PREVALENCE AND OUR AWARE COMMUNITY

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ABSTRACT

Objective: Glaucoma is now becoming one of the major causes of blindness. The major leading cause of this disease worldwide progression is the less knowledge and lacking of awareness. The main objective of this research was to observe the awareness level among Karachi population and also to evaluate the level of agony from glaucoma and what proportion is at risk of developing it to predict its prevalence at a local level.

Place and duration of study: Residents of different localities of Karachi belonging to different age groups, gender, class, and caste. The study duration was around 6 months.

Study Design: Our study is based on cross-sectional survey to determine the major aim of the research.

Material and method: The survey form consist of the questionnaire including general individual information like gender, age, and educational status, and also includes the awareness level about glaucoma along with their suggestion regarding glaucoma suffering ratio and the risk factor. Statistical method was used to analyse data.

Result: In this general survey, five hundred participants were involved and collected from the different areas of Karachi population. Awareness level and prevalence of individual with glaucoma is 55% and 10.4% respectively. Through positive family history, an education and performing an eye test, awareness was greatly influenced prior to overdo. The common source of information was seemed to be the media. Higher education was the best source of knowledge whereas the proportion of glaucoma occurrence was significantly related to increasing age.

Conclusion: Encouraging the sources to provide awareness with accurate content for the population through practical means like media seem to be best in opposing blindness from glaucoma.

Keywords: Glaucoma, awareness about Glaucoma, Glaucoma risk, and population of Karachi.

1. INTRODUCTION

Glaucoma is now becoming one of the major global health problems, dominating by different healthcare organizations worldwide like the World Health Organization (WHO) [1]. It is an eye disorder caused due to presence of several factors and may be inherited or not [2]. Mostly researchers emphasize that damage to optic nerve causing incurable blindness due to presence of specific gene [3]. The late glaucoma presentation signs when it became incurable mostly due to two main reasons:

- Ignorance on initial mild symptoms appearance.
- Poor awareness among population [4].

Glaucoma is a threatening eye disorder but if it is diagnosed earlier so that it can be treatable efficiently [5]. Some glaucoma suffering patients are usually linked with more than one symptom [7]. Secondary causes of glaucoma include lens-induced, uveitis, neo-vascular, or traumatic [8]. Acute Glaucoma symptomized as coloured halos, redness of cornea, and headache whereas usually halos (coloured) are also related with OAG [9].

Glaucoma diagnoses include detection of PEX deposits (pseudo exfoliation) material as white flakes presence in eye iris [10]. Reduction in the pressure (ocular pressure) is included in the effective treatment methods for glaucoma [11]. Glaucoma drugs include carbonic anhydrase inhibitors, beta-adrenergic antagonist (usually known as beta-blockers), and prostaglandin analogues are commonly prescribed for glaucoma treatment [12]. In addition, laser surgeries are also used for glaucoma management [13, 14].

The high prevalence of glaucoma was reported in Pakistan (regardless of specified age) is mainly because of the late diagnosis of cataract, lack in managing diseases like diabetes, and uveitis, and increased use of steroidal drugs [9, 13]. The one most useful and effective way with safety profile for management of glaucoma in Pakistan is Trabeculectomy, surgically reducing ocular pressure [15-17].

The overall reported prevalence of glaucoma in the United State, population about 40 years and older aged was 2.1% [11,15,18]. The range of population suffering from any type of glaucoma or can be effected is increasing day by day at global level, the reports from all over world have predicted this situation, we see today's figure like in China the prevalence has increased around 3.6% comparing their data with Caucasian population [16]. Many Australian studies has reported that lack of awareness is exposing us to late representation of this disease and leading us towards painless vision diminishing level. Global level of glaucoma has shown increase prevalence up to 3.54% in elderly population notably, comparing Africans and Asians both has shown significant increase in cases as the years are passing [17].

The rationale of study we consider, is that, the prevalence of glaucoma of any kind is bound to increase, one of the major reason is lack of awareness, secondly our lifestyle is also promoting its prevalence as well, increase use of smart phones, televisions, laptops and related gadgets are seriously affect our eye health. Mainly this is a painless loss of vision, so, most people are mainly don't take it in consideration and assume that increasing age is effecting it, where they have no knowledge regarding how and what factors are contributing in it.

1.1 Purpose of Study:

The aim and objective for our study is to analyse the proportion of awareness among Karachi (Pakistan) population in spite-of focused on particular age group including all ages as children, young and elderly in both genders [19, 20]. As observed through worldwide data the prevalence of this disease is increasing at concerning level, so to consider it we have designed a study to evaluate the prevalence of this disease in our local residents among Karachi. The study along with prevalence also focuses on evaluating its awareness and finding methods of how we can expand it, as we believe lack of awareness is leading towards increase in its prevalence.

2. MATERIAL & METHOD:

The proposed method represents a cross sectional survey, executed on a general public. The collected data through this survey, includes the sample of 500 individuals of population from different areas of Karachi.

2.1 STUDY DESIGN

The form based on the questionnaires that are categorized into three appendices:

2.1.1 Appendix 1:

Includes general demographics of individuals like age, gender and educational status.

2.1.2 Appendix 2:

In this section, the included questions are the percentage of awareness or not about disease, the understanding of person about glaucoma like what do you think of glaucoma, the causes, signs and symptoms and the method of treatment of this disease, whether you think it is that severe to cause either life-threatening conditions or not.

2.1.3 Appendix 3:

This section includes, analysing the risk of glaucoma in an individual whether it is present or not. This is done by successfully determining the certain lifestyle factors which shows relation in selected individuals such as: the exposure time to electromagnetic radiations through electronic devices to the eyes. The devices which are used are laptop, television, mobile phone; or the individual has been suffering from certain disease like hypertension, diabetes, and thyroid gland diseases that can lead to develop glaucoma disease. Because in hypertension, the accommodation of fluids occurs in body's different parts due to the increased blood volume.

The data which is collected at above is used to determine the awareness level of glaucoma disease in population and also the amount of population which is at risk of this disease.

2.2 INCLUSION CRITERIA

The selection of the individuals for this study was done easily as the survey design to be flexible regardless of any certain factors. The individuals of Karachi's general public were selected randomly regardless of their gender, age, race, occupation, caste, resident area and health factors.

2.3 EXCLUSION CRITERIA:

No exclusion criterion is made as this study is flexibly designed.

2.4 STATISTICAL ANALYSIS:

2.4.1 For sample sizing: The confidence interval analysis of sample size at 95% was done by including overall population of Karachi and then Z-test was performed. The sample size includes 389 individuals. The survey was conducted on 500 individuals to avoid chances of any error.

2.4.2 Analysis of Data: For data analysis we have followed descriptive statistical analytical and graphs and charts statistical software were used.

2.5 ETHICAL APPROVAL:

The conduction of this research is according to the declaration principles.

3. RESULT

As the estimation of the proportion of awareness among people regarding glaucoma disease is the main objective of our study so the collection was done to get the best information regarding glaucoma from general public. All important contents which are necessary for the knowledge about glaucoma were covered in the survey form.

As the objective of our study was to estimate the proportion of glaucoma awareness among people so we collected the best information about glaucoma from general population. Survey forms covered all content that was important for glaucoma knowledge. Total of the 500 individuals who participated in the quiz, 100 people of them were aged below 20 years whereas 288 people them were aged between 20-40 years and the rest of the 112 peoples were aged above 40 years.

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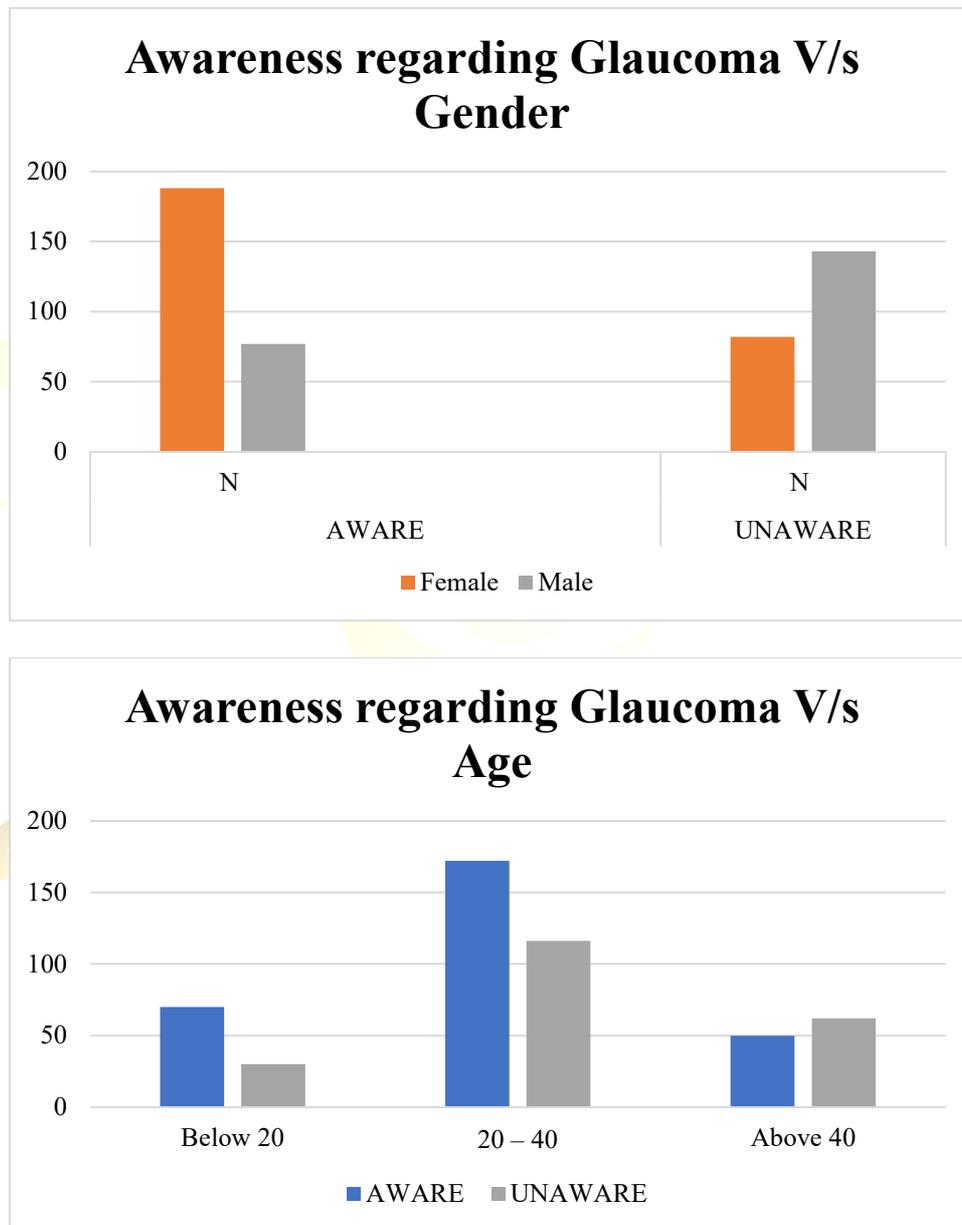
TABLE 1: Demographic characteristics of Survey participant

S. No.	Demographic Features	N	%age
1	Sex		
	Male	230	46.00
	Female	270	54.00
2	Age		
	Below 20	100	20.00
	20-40	288	57.60
	Above 40	112	22.40
3	Qualification		
	Uneducated	32	6.40
	Matriculation	56	11.20
	Intermediate	160	32.00
	Graduation	187	37.40
	Post-graduation	65	13.00
4	Glaucoma patient		
	Yes	52	10.40
	No	448	89.60
5	Have other disease (HTN, diabetes, thyroid)	110	22.00
6	In contact with high light intensity	26	5.20
7	Have positive glaucoma family history	94	18.80
	Maternal	40	42.55
	Paternal	54	57.45

Total of little over 500 people were examined from which approximately 89.60% said that they didn't suffer with glaucoma whereas 10.40 % of people showed the presence of glaucoma on examination. It is also seen that the family history of glaucoma condition was not significantly associated with its diagnosis. After examining family history of a sample size containing little over the 500 people it is shown that 18.8% knows about their family history of glaucoma, in which 42.55% people from their maternal side shows the positive result with glaucoma and whereas about 57.45% people shows a positive result of glaucoma from paternal side; hence it is greater than from the maternal side (Table 1).

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Figure 3 a & b: The Awareness of people about Glaucoma according to Gender and Age



(Figure 1) The quiz includes males and females of 140 and 110 respectively. So, the men are slightly more than the women. The results of this survey showed that 40 males out of 140 and 100 females from 110 shows the awareness regarding glaucoma or they have heard it previously. The results also showed that 49.26% have an eye problem while the remaining about 51.56% haven't even undergone through any eye test.

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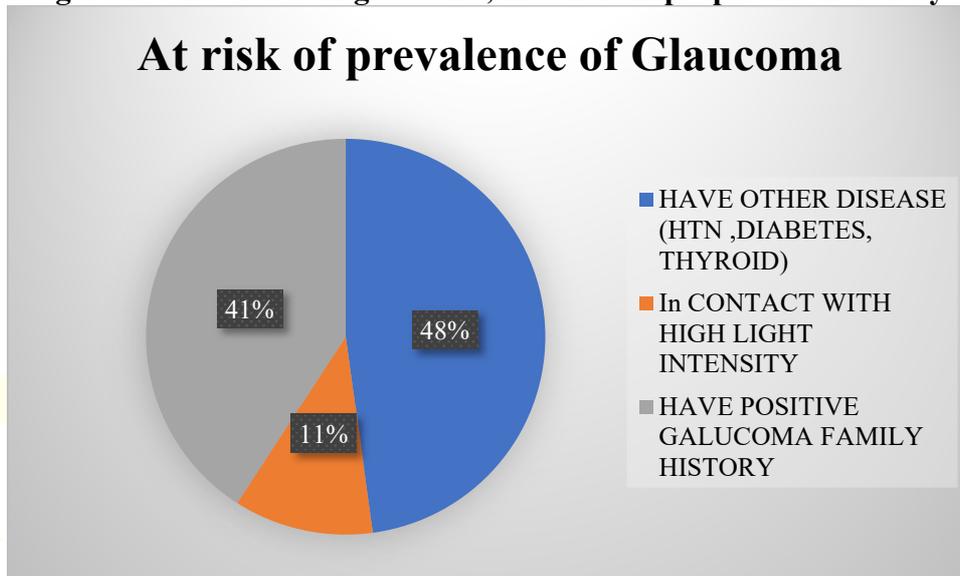
TABLE 2: Awareness of Glaucoma evaluated with respect different attributes

S. No.	Characteristics	Aware		Unaware		Total	
		N	(%)	N	(%)	N	(%)
1	Gender						
	Female	188	69.6	82	30.4	270	100
	Male	87	37.8	143	62.2	230	100
2	Age						
	Below 20	70	70.0	30	30.0	100	100
	20 – 40	172	59.7	116	40.3	288	100
	Above 40	50	44.6	62	55.4	112	100
3	Qualification						
	Uneducated	3	9.4	29	90.6	32	100
	Matriculation	23	41.1	33	58.9	56	100
	Intermediate	100	62.5	60	37.5	160	100
	Graduation	124	66.3	63	33.7	187	100
	Post-graduation	30	46.2	35	53.8	65	100
4	Eye check up						
	Yes	180	48.4	192	51.6	372	100
	No	67	52.3	61	47.7	128	100
5	Family history						
	Yes	61	59.8	41	40.2	102	100
	No	212	53.3	186	46.7	398	100

Only about 59.8% people were completely sure having a positive family history for glaucoma. The people who are doing graduation programs have shown more likely to have knowledge as 66.3% individual in that category have sound information regarding glaucoma comparative to people who are categorized as uneducated. (Table 2)

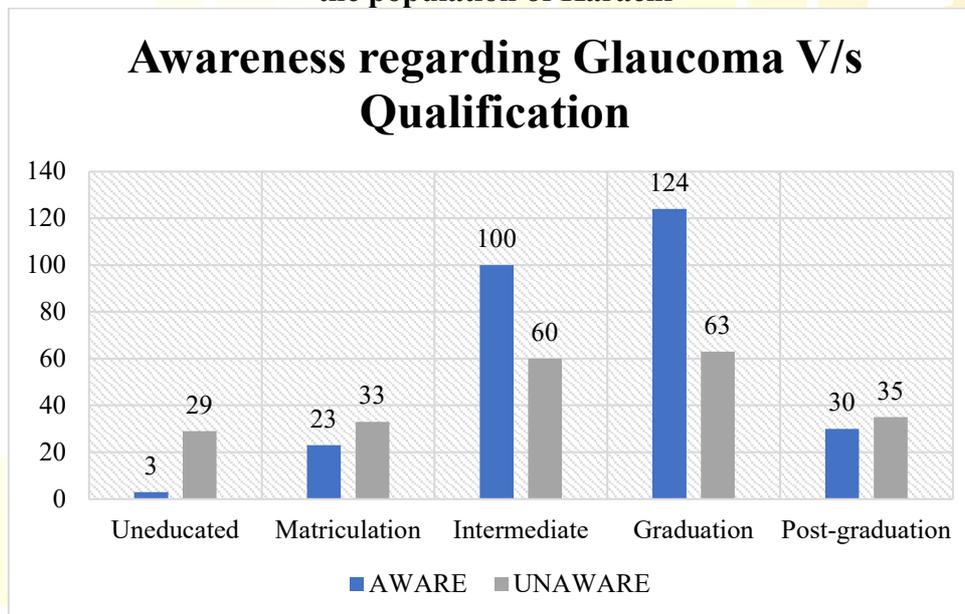
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Figure 2: Prevalence of glaucoma, in different people of our society.



The status of occupation plays an important role for the health of eye and its related problems. Several eye diseases can cause by the continuous use of the light with high intensity. In this survey form, the intensity of light has been examined by its exposure and the results which have obtained have shown that 48% works in light with high intensity therefore, few risk factors can be caused in developing eye disorder of any type. (Figure 2)

Figure 4: According to qualification level, awareness level regarding Glaucoma among the population of Karachi



Mostly peoples were unaware about glaucoma and some are completely unaware that loss of vision due to glaucoma is irreversible. Level of education and occupational status were directly associated with knowledge of glaucoma. Out of the 500 participated individuals the proportion of glaucoma in the study population was 9.6%.

The proportion significantly increased with increasing age, which also matches the global reports regarding glaucoma that the risk of glaucoma increases with age [16]. While 56% individuals are aware about the disease and 44% are unaware about it; of the total sample of population. (Figure 3a, 3b)

4. DISCUSSION

Glaucoma disease is considered as one of the major health problems that causing burden for worldwide [1]. This disease is cause due to the involvement of various or multiple factors (multifactorial) and it may also be a genetically inherited or not [2].

Considering all causing factors, the data was collected among the random general public of Karachi to estimate the sensitivity of this global issue. The individuals were selected to estimate the common individuals awareness regarding this disease, its societal prevalence, and what possible factors may aid in the dominance of this disease. The Z-test was applied to select the sample size on the Karachi's total population that is about of 20 million with confidence interval of 95% and about 389 individuals sample size is obtained, considering chance of error in mind the sample was extended to a little over of 500, which comprises of 280 and about 220 females participated.

Recently in our research we have observed that about 48 people (9.6%) out of 500 were the glaucoma patient in Karachi and due to many causes like age, development of any other disease, family history and having a work environment that can push an individual towards development of glaucoma is fairly average. Although in our society most of the individuals from educated background or having any eye disease family history are aware about glaucoma but the prevailing factor still high to a certain extent, as the global data represents as well, due to our lifestyle changes, work environment changes and other factors [17]. There are many prevailing factors behind this whole scenario, that can influence any individual to development of any eye disorder including glaucoma, the factors taken using data and reference of global perspective including factor are: 4.8% working in environment where continuous exposure by high light intensity of computers, laptops, cell phones, and different other lights, 18.8% have a positive family history background for glaucoma, people usually does not go for regular eye check-up even with home remedy treating eye infection is also very common in our society, confined to fact that most have positive family history to eye disorders that they does not care or enough educated to take a medical care in curing their problem; other risk that involves in its prevalence include Hypertension, Diabetes, Thyroid disease; the overall result is 15.06% which is a under seeing problem for the population.

If we discuss about overall Pakistan population it is shown that the prevalence of blinding was 2.7% according to National Health Survey of 2003, it has been officially reported [9], while according to our study it has been observed that approx. 9.4% patients with glaucoma either in one eye or both in Karachi which is a biggest concern, the reports has proved it. The number of glaucoma patient worldwide is 64300000 (64.3 million), which are assumed to be increasing in future and become 76000000 (76.0 million) in 2020 and 111800000 (111.8 million) in 2040 [11].

Comparing our data to different international level data, the cases overall representing glaucoma positive case in local population represents approx. 9.60%. Although the numbers are not high but when comparing it to global level, including China almost 3.6% is the prevalence factor [16] south East Asia the factor of prevalence is around 5.55%, in central Asia the factor regards is almost 5% [21]. When comparing such data among Asian our numbers seem very alarming.

In our exploration, the prevalence of glaucoma increases with age, due to work environment where light exposure is high, due any co-morbidity like diabetes, hypertension etc. this exploration matches the global reported data as well [2, 4 & 16]. Although the according to our findings, glaucoma positive cases, does not show high proportion in which both genders including males and females are involved but it's more prevailing in males as compared to females, according to our findings, while mostly people with it are in general aware about glaucoma. This data is shows very similar pattern when comparing it to global data where many countries like India, USA, China, South Korea, Australia, UK and many more has reported similar condition.

The generalize ability of the results obtained from this study may be inconclusive because of the one limitation of this study, that it was conducted on outreach population (limitation of the study). Even so, people who participated belong to various demographic and different backgrounds of education and some of the results have been contributed in this study with national survey conclusion. The significant facts have been obtained from the results which are used for planning of public health measure to control the glaucoma in terms of target population, content and medium.

5. CONCLUSION

In whole world, glaucoma is blindness causing prevailed disease when it became worse, we can decrease its prevalence among local population by educating our population about the disease and spreading awareness among them, further on by creating medium where they can have easy access regarding the treatment facilities. Additionally, educational programs must be arranged to enhance understanding of the indications for this disease by ophthalmologists and other medical staff, basic knowledge regarding this disease should be spread, this although not a life-threatening disease, but can effect quality of life, to promote this factor of a better quality of life is for all, we should take step in spreading awareness on the subject of it because lack of awareness is majorly responsible for increase in prevalence. We have to arrange for providing free treatment to the poor or needy people by establishing the health camps in their towns and provide free examination and also provide awareness about the disease of glaucoma.

Conflicts of interest

Between author or any other person there are no conflicts of interest.

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REFERENCE

1. Topouzis, F. Glaucoma–The Importance of Early Detection and Early Treatment. Glaucoma–The Importance of Early Detection and Early Treatment. 2007.
2. Schlötzer-Schrehardt, U. Genetics and genomics of pseudoexfoliation syndrome/glaucoma. Middle East African journal of ophthalmology. 2011. 18(1), 30.
3. Vogel, G. Glaucoma gene provides light at the end of the tunnel. Science, 275(5300), 1997. 621-621.
4. Gogate, P., Deshpande, R., Chelerkar, V., Deshpande, S., & Deshpande, M. Is glaucoma blindness a disease of deprivation and ignorance? A case–control study for late presentation of glaucoma in India. Indian journal of ophthalmology. 2011. 59(1), 29.

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5. Worley, A., & Grimmer-Somers, K. Risk factors for glaucoma: what do they really mean?. *Australian journal of primary health*, 2011. 17(3), 233-239.
6. Öhnell, Hanna Maria, Bengtsson, Boel, Heijl, Anders, Making a Correct Diagnosis of Glaucoma: Data From the EMGT, *Journal of Glaucoma*: October 2019 - Volume 28 - Issue 10 - p 859-864 doi: 10.1097/IJG.0000000000001342
7. Hood, Donald C., Zemborain, Zane Z, Tsamis, Emmanouil, De Moraes, Carlos Gustavo, Improving the Detection of Glaucoma and Its Progression: A Topographical Approach, *Journal of Glaucoma*: August 2020 - Volume 29 - Issue 8 - p 613-621 doi: 10.1097/IJG.0000000000001553
8. De Moraes, Carlos Gustavo, Anatomy of the Visual Pathways, *Journal of Glaucoma*: June/July 2013- Volume 22 - Issue - p S2-S7 doi: 10.1097/IJG.0b013e3182934978
9. Laios, Konstantinos, Moschos, Marilita, Androutsos, George, Glaucoma and the Origins of Its Name, *Journal of Glaucoma*: May 2016 - Volume 25 - Issue 5 - p e507-e508 doi: 10.1097/IJG.0000000000000373
10. Iqbal, S., Khan, Z., Shah, S. A., & Khan, M. Y. Types and presentation of glaucoma. *Journal of Postgraduate Medical Institute (Peshawar-Pakistan)*. 2011. 22(4).
11. Weinreb, R. N., Aung, T., & Medeiros, F. A. The pathophysiology and treatment of glaucoma: a review. *Jama*. 2014. 311(18), 1901-1911.
12. Lee, D. A., & Higginbotham, E. J. Glaucoma and its treatment: a review. *American journal of health-system pharmacy*. 2005. 62(7), 691-699.
13. Iqbal, S., Khan, Z., Shah, S. A., & Khan, M. Y. Types and presentation of glaucoma. *Journal of Postgraduate Medical Institute (Peshawar-Pakistan)*. 2011. 22(4).
14. Babar, T. F., Saeed, N., Masud, Z., & Khan, M. D. A two years audit of Glaucoma in Admitted patients at Hayatbad Medical Complex Peshawar. *Journal of Postgraduate Medical Institute (Peshawar-Pakistan)*. 2011. 18(2).
15. Tham, Y. C., Li, X., Wong, T. Y., Quigley, H. A., Aung, T., & Cheng, C. Y. Global prevalence of glaucoma and projections of glaucoma burden through 2040: a systematic review and meta-analysis. *Ophthalmology*. 2014. 121(11), 2081-2090.
16. Wang, Y. X., Xu, L., Yang, H., & Jonas, J. B. Prevalence of glaucoma in North China: the Beijing eye study. *American journal of ophthalmology*. 2010. 150(6), 917-924.
17. Kyari, F., Entekume, G., Rabi, M., Spry, P., Wormald, R., Nolan, W. & Gilbert, C. E. A Population-based survey of the prevalence and types of glaucoma in Nigeria: results from the Nigeria National Blindness and Visual Impairment Survey. *BMC ophthalmology*. 2015. 15(1), 176.
18. Kim, K. E., Kim, M. J., Park, K. H., Jeung, J. W., Kim, S. H., Kim, C. Y. & Society, O. Prevalence, awareness, and risk factors of primary open-angle glaucoma: Korea National Health and Nutrition Examination Survey 2008–2011. *Ophthalmology*. 2016. 123(3), 532-541.
19. Gupta, P., Zhao, D., Guallar, E., Ko, F., Boland, M. V., & Friedman, D. S. Prevalence of Glaucoma in the United States: The 2005–2008 National Health and Nutrition Examination Survey. *Investigative ophthalmology & visual science*. 2016. 57(6), 2905-2913.
20. Zhang X, Cotch MF, Ryskulova A, et al. Vision health disparities in the United States by race/ethnicity, education, and economic status: 2012; 154: S53–S62, e51.
21. Chan EW, Li X, Tham YC, Liao J, Wong TY, Aung T, Cheng CY. Glaucoma in Asia: regional prevalence variations and future projections. *Br J Ophthalmol*. 2016 Jan;100(1):78-85. doi: 10.1136/bjophthalmol-2014-306102. Epub 2015 Jun 25. PMID: 26112871.

**DRUG LIKENESS, ADMET AND MOLECULAR DOCKING DYNAMICS STUDIES
FOR DISCOVERY ANTI-SLEEP DISORDERS AGENTS**

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Abstract

Often, sleep disorders are severe, obstruct a patient's recovery, and degrade their quality of life. Identifying new anti-Sleep Disorders agents is therefore extremely important. To discover potential hits, molecular docking and MD simulation are used. Structure-based drug design also provides insight into how ligands behave in computational settings. In order to visualize and analyze protein-ligand complexes at the atomic level, docking tools are used. Molecular dynamics simulations demonstrate the stability of molecules within receptor cavities. 20 Compounds of Cannabis sativa L plants were screened against orexin as part of this study. For the purpose of detecting molecules with properties suitable for future drug development, we have set up an ADMET and Druglikeness study. Cannabis sativa L compounds were docked to the orexin receptor and their binding affinities were examined. Cannabis compounds screened showed higher binding affinities and energies towards targeted receptors. The MD simulation study is applied to the most stable compounds and shows that docked complexes for orexin receptors are stable. This cannabis has anti-Sleep Disorders properties that can be repurposed in the futur. Considering the results of these in-silico experiments, further investigation into their anti-sleep properties is warranted.

Keywords: Cannabis, Sleep Disorders, Drug likness, ADMET, molecular docking, molecular dynamics

PERI-IMPLANT MARGINAL BONE LOSS PROGRESSION AND A-MMP-8 CAN BE CONSIDERED AS INDICATORS OF THE SUBSEQUENT ONSET OF PERI-IMPLANTITIS. A 5-YEAR STUDY

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What is known:

It has documented that dental implant with a high degree of early marginal bone (MBL) loss are likely to achieve additional increased MBL during function. Moreover, it has been speculated that an early increased MBL might be a predictive factor for the subsequent onset peri-implant inflammatory diseases.

What this study adds:

The present study showed that, after 5 years of function, implants with increased MBL rates at 6 months after loading are likely to achieve additional high values of MBL. No statistically significant relationship between MBL progression and the onset of peri-implantitis was found, whereas high MMP-8 levels, 6 months after loading, could have the distinct ability to predict the onset peri-implantitis.

Abstract

The aim of this retrospective study was to investigate the relationship between the amount of early bone remodeling, the marginal bone loss (MBL) progression, and the peri-implant sulcular fluid concentration of active metalloproteinase-8 (a-MMP-8) and incidence of peri-implantitis during 5 years of implant function.

Materials and Methods: Clinical and radiographic documentation at implant placement (T0), at restoration delivery (TR) at 6 months (T1), at 2- (T2) and at 5-years (T5) post-loading were retrospectively collected. MBL levels/rates (MBLr) and peri-implant sulcular fluid levels/rates of a-MMP-8 were assessed at TR, T1, T2, and T5. Implants were divided into two groups: group 1 with peri-implantitis (P+) and group 2 without peri-implantitis (P-). A multi-level simple binary logistic regression, using generalized estimation equations (GEE), was used to assess the association between each independent variable and P+. Receiver Operating Characteristics (ROC) curve was used to evaluate an optimal cut-off point of T1 MBL degree and a-MMP-8 level to discriminate between P+ and P- implants.

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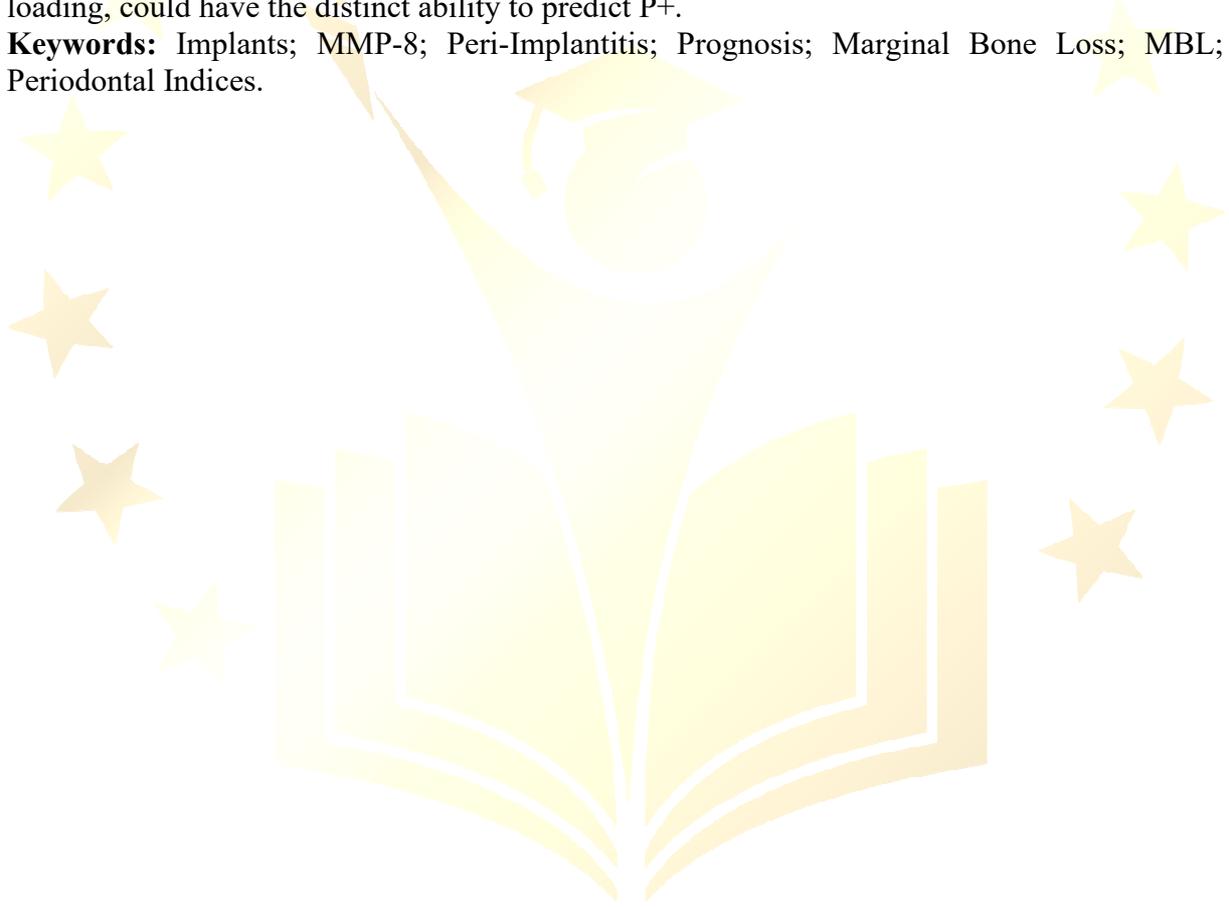
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Results: A total of 80 patients receiving 80 implants [39 implants with a laser-microtextured collar surface (LMS) and 41 implants with a machined collar surface (MS)] were included. Periapical radiographs and a software package were used to measure MBL rates. Peri-implant sulcular Implant fluid samples were analyzed by a chairside mouth rinse test, (ImplantSafe[®]), in combination with a digital reader, (ORALyzer[®]). Twenty-four implants (6 with LMS, and 18 with MS) were classified with P+. No statistically significant association was found between the amount of early bone remodeling, MBL progression, MBLr, and incidence of peri-implantitis. Implants with a-MMP-8 levels >15.3 ng/mL at T1 presented significant influence on the probability of P+.

Conclusion: The amount of early. marginal bone remodeling cannot be considered as indicators of the subsequent onset of P+, whereas high a-MMP-8 levels, 6 months after loading, could have the distinct ability to predict P+.

Keywords: Implants; MMP-8; Peri-Implantitis; Prognosis; Marginal Bone Loss; MBL; Periodontal Indices.



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TARGETING THE LXR RECEPTOR IN PANCREAS CANCER: A STUDY IN SILICO

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ABSTRACT

Pancreatic ductal adenocarcinoma (PDAC) cancer is one of the cancers with high mortality and morbidity, and it is the eighth cause of cancer-related deaths worldwide. PDAC has a poor prognosis due to its aggressive nature, late diagnosis, and lack of effective therapeutic options for advanced disease. The high mortality has led to the search for other factors that contribute to the treatment. Recent advances in cancer metabolism have revealed many potential therapeutic targets for cancer therapy. Metabolic reprogramming, a strategy used by cancer cells to adapt to rapid proliferation, is recognized as a novel feature of cancer. Extensive research has revealed that there is increased glycolysis, glutaminolysis, nucleotide and lipid synthesis in cancer cells. The nuclear receptor liver X receptor (LXR) as a cholesterol sensor is an important factor regulating cholesterol homeostasis. LXRs, namely LXR α and LXR β , are nuclear receptors that regulate the transcription of genes involved in cholesterol, glucose, lipid metabolism and inflammatory responses. LXRs have also emerged as a target for PDAC, and LXR ligands have been shown to exert antiproliferative effects in many cancers, particularly pancreatic cancer. Inhibition of LXR has been shown to inhibit cell proliferation and increase sensitivity to chemotherapy.

In this study, LXR α and LXR β inhibitory ligands, which are thought to play a prognostic role in PDAC, were investigated by molecular docking method with Schrödinger program. Polydatin, β -Sitosterol, and Baicalein showed potent inhibition of LXR-alpha and LXR-beta in this study (Figure 1). Polydatin, β -sitosterol, and baicalein molecules were used to evaluate the interaction/insertion mechanisms between the proteins LXR-alpha and LXR-beta receptors, which is important in pharmaceutical research, using the Schrödinger program. Their binding affinities and the amount of interaction they contributed were calculated using the Discovery Studio application. The ligand analysis matched to their binding affinity was conducted using the PyMOL tool. We were able to assess the stability of insertion by taking into account the active site, different kinds of interactions, and bond lengths of the target receptor.

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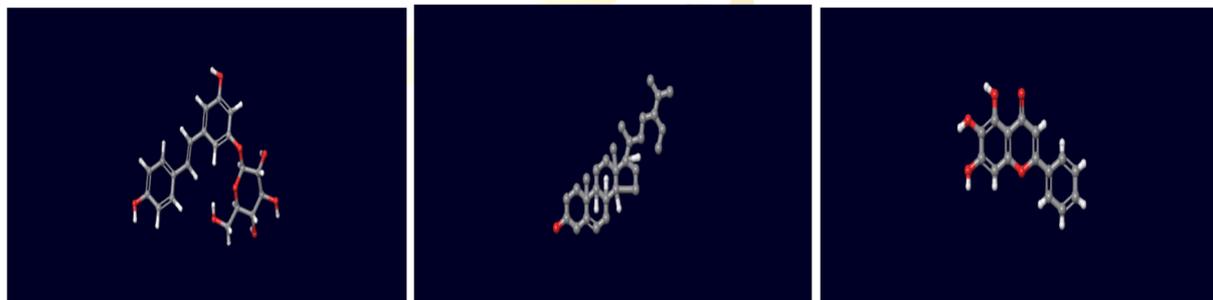
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The drug affinities and ADMET properties of the compounds polydatin, β -sitosterol, and baicalein were also investigated in order to estimate pharmacokinetic profiles.

Keywords: LXR, Polydatin, Molecular docking, Schrödinger program, ADMET.



Polydatin

β -Sitosterol

Baicalein

Figure1: 3D molecular structure of Polydatin, β -Sitosterol, and Baicalein.

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TARGETING INFLAMMATORY RESPONSE IN PROSTATE CANCER: A STUDY IN SLICO

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ABSTRACT

Prostate cancer is among the most common cancers in men worldwide, with an estimated 1,600,000 cases and 366,000 deaths annually. Androgen deprivation therapy (ADT) is a usual first-line option for men with advanced prostate cancer, but the vast majority eventually progress while taking ADT. This condition is called castration-resistant prostate cancer (CRPC). The mechanisms driving the progression from androgen-dependent (hormone-sensitive or castration-sensitive) prostate cancer to CRPC are still largely unclear, although it is thought to be central to continued androgen receptor signaling despite depletion of circulating androgens and androgen receptor blockade. Systemic inflammation is thought to play a role in the formation and progression of prostate cancer. The presence of a systemic inflammatory response has been shown to independently predict poor long-term cancer outcome in patients with prostate cancer. In this study, ligands that inhibit RXR-alpha and RXR-beta receptors as targets of inflammatory response in prostate cancer were investigated. This role of RXR-alpha and RXR-beta in prostate cancer makes it a therapeutic target. In this in silico study, ligands that would inhibit RXR-alpha and RXR-beta were investigated. In this study, we showed that Kaempferol, Formononetin and Luteolin (Figure1) inhibited RXR-alpha and RXR-beta with high efficiency. Kaempferol, Formononetin and Luteolin molecules were used in this study to analyze the interaction/insertion mechanisms between the proteins RXR-alpha and RXR-beta receptors, which is significant in pharmaceutical research with Schrödinger program. The Discovery Studio program was used to calculate their binding affinities and determine how much of an interaction they contributed to. The PyMOL program was used to perform ligand analysis corresponding to their binding affinity. Knowing the target receptor's active site, types of interactions, and bond lengths allowed us to interpret the stability of insertion. Furthermore, Kaempferol, Formononetin and Luteolin molecules drug affinities and ADMET characteristics were examined for the purpose of estimating pharmacokinetic profiles.

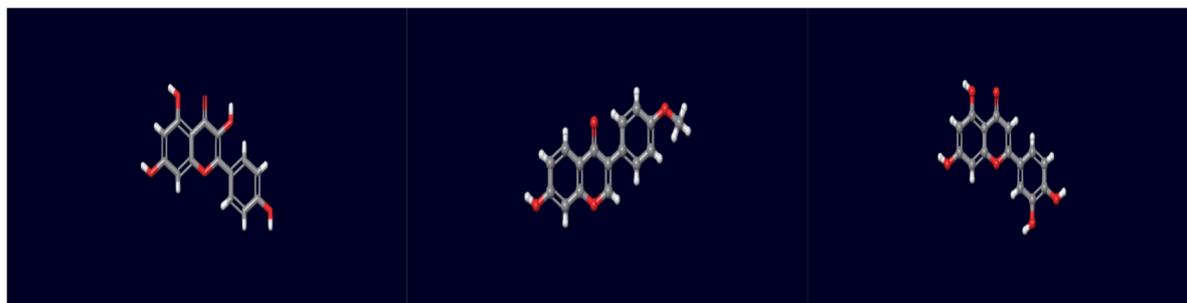
Keywords: RXR-alpha, RXR-beta, Molecular docking, Schrödinger program, ADMET.

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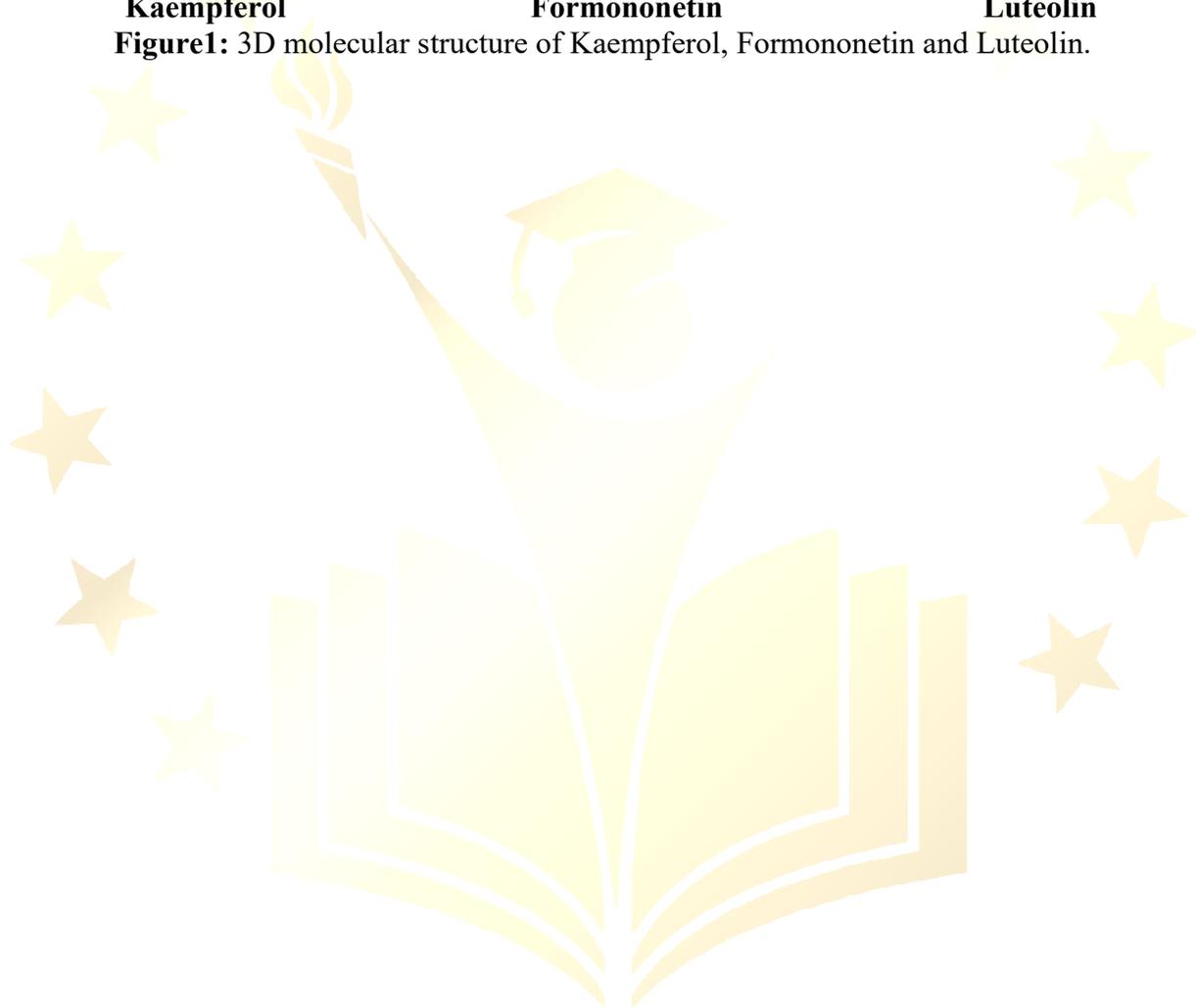


Kaempferol

Formononetin

Luteolin

Figure1: 3D molecular structure of Kaempferol, Formononetin and Luteolin.



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**ANALYSIS OF ISSUES ASSOCIATED WITH LEGALIZING INDUCED ABORTION
AMONG WOMEN OF REPRODUCTIVE AGE IN UGANDA: A SITUATIONAL
ANALYSIS AMONG DOCTORS, LAWYERS, AND UNIVERSITY MEDICAL
STUDENTS**

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Abstract

This study investigated issues associated with legalizing induced abortion among women of reproductive age in Uganda. Due to the restrictive abortion laws, women opt for clandestine abortions which are usually unsafe. The study aimed to: (a) determine the level of awareness of doctors, medical students, and lawyers on the current laws and policies on induced abortion (b) investigate the insight of doctors, medical students, and lawyers on the advantages of legalizing induced abortion and (c) evaluate the insight of doctors, medical students, and lawyers on the barriers to legalizing induced abortion. The study found that there was a significant gap in the knowledge of the laws and policies on abortion in Uganda among doctors, medical students, and lawyers (Sig=0.000, P-value < 0.05). Legalizing induced abortion was viewed to have the advantage of reducing maternal mortality by 59% of the variance while it was further viewed to reduce abortion complications by 15% of the variance. The most significant barrier to legalizing induced abortion in Uganda is religious organizations which contribute 49% of the variance and few policymakers publicly articulating being in favor of liberal abortion laws contributed 22% of the variance. The most significant barrier to the implementation of abortion laws is the laws being too complicated (41% of the variance) accompanied by a failure to inform the public, health workers, and government officials what a new law entails (24.1% of the variance). The insights of the respondents on legalizing induced abortion predicted an 80.5% of variance towards the medics' willingness to perform an induced abortion, while it predicted a 65.9% variance towards the lawyers' willingness to launch a constitutional challenge. It was concluded that there is a significant gap in the knowledge of doctors, medical students, and lawyers on the current laws and policies on induced abortion.

Keywords: Induced Abortion, legalizing Induced Abortion, Abortion Laws & Policies, Maternal Mortality.

1. INTRODUCTION

Abortion is the expulsion or extraction of an embryo or fetus weighing 500 g or less when it is not capable of independent survival [12]. The age of viability varies within the countries depending on the social and medical conditions in which the infant is born. In developing countries, such as Uganda, infants of less than 28 weeks of gestation without neonatal intensive care have a 95% probability of dying [18]. Abortion may be spontaneous or induced. Induction of abortion is the deliberate termination of pregnancy either by medical or surgical method before the viability of the fetus which may be legal/ medical termination of pregnancy or illegal [12]. Illegal abortion is also known as criminal abortion or unsafe abortion. Unsafe abortion is a procedure performed either by persons lacking the necessary skills or in an environment lacking minimal medical standards, or both. [23]

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Induced abortion is a very safe procedure when performed according to WHO guidelines, however, legal restrictions, stigma, cost, lack of resources, and poor health system accountability limit the availability, accessibility, and use of quality abortion care services [4]. About 73 million induced abortions take place worldwide each year [21]. 61% of all unintended pregnancies and 29% of all pregnancies end in induced abortion. Around 45% of all abortions are unsafe, of which 97% take place in developing countries [21]. During 2010–2014, an estimated 8.2 million induced abortions occurred each year in Africa [10]. In Uganda in 2013, an estimated 314,304 induced abortions occurred. The national abortion rate was 39 abortions per 1,000 women aged 15–49 [16]. Every year, 4.7–13.2% of maternal deaths can be attributed to unsafe abortion. In developed regions, it is estimated that 30 women die for every 100 000 unsafe abortions while in developing regions, the number rises to 220 deaths per 100 000 unsafe abortions[24].

An estimated 93% of women of reproductive age in Africa live in countries with restrictive abortion laws[10]. The proportion of unsafe abortions is significantly higher in countries with highly restrictive abortion laws than in countries with less restrictive laws [22].

The Ugandan Constitution, in Article 22, item 2 states: "No person has the right to terminate the life of an unborn child except as may be authorized by law." Hence, the constitution anticipated that there should be instances in which the termination of pregnancy should be permitted and prescribed that such instances should be laid out by the law, however, since the enactment of the Constitution in October 1995, the Parliament has not created a law to prescribe instances in which a person can be permitted to terminate a pregnancy. [7] Nevertheless, the Penal Code Act of Uganda, which commenced on 15 June 1950, provides for criminal sanctions to several aspects of abortion and, in the absence of any other law, it is the authority on instances in which abortion is or is not permitted [7]. Section 141, 142, 143, and 212 of the Penal Code Act provide for the offenses relating to abortion while Section 224 provides for a defense against prosecution for an offense relating to abortion [7]. It states in Section 141, "Attempts to procure abortion", that any person who, with intent to procure the miscarriage of a woman whether she is or is not with child, unlawfully administers to her or causes her to take any poison or other noxious thing, or uses any force of any kind, or uses any other means, commits a felony and is liable to imprisonment for fourteen years, Section 142 states that an attempt by a woman to procure an unlawful abortion is punishable by imprisonment of seven years, and Section 143 states that anyone who aids a woman (by supplying drugs or other ways) in performing an unlawful abortion can be imprisoned up to three years [19]

The Ugandan government itself acknowledges that the law on termination of pregnancy contains a life and mental and physical health exception and the importance of access to safe termination of pregnancy services and issued guidelines that specify who can obtain these services[8]. The 2006 National Policy Guidelines and Service Standards for Sexual and Reproductive Health and Rights provide for access to abortion services in cases of severe maternal illnesses threatening the health of a pregnant woman such as severe cardiac disease, renal disease, severe pre-eclampsia and eclampsia, severe fetal abnormalities which are not compatible with extra-uterine life such as molar pregnancy and anencephaly, cervical cancer, HIV-positive women requesting for termination and cases of rape, incest, and defilement [8]. The criminalization of abortion in Uganda has had the effect of restraining health workers from providing safe abortion services for fear of prosecution which in turn has led to the inability of women to access the services[7].

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As a result, women who decide to abort usually resort to untrained and usually unskilled practitioners who practice in illegal and hidden clinics and often provide unsafe abortion procedures that result in a high rate of complications and sometimes death. Unsafe abortions are estimated to cause 21% of all maternal deaths in Uganda [2].

Ensuring that females have access to abortion care that is evidence-based, which includes being safe, respectful, and non-discriminatory, is fundamental to meeting the Sustainable Development Goals (SDGs) relating to good health and well-being (SDG3) and gender equality (SDG5) [22]. Unless Sub-Saharan governments act to prevent avoidable maternal deaths from unsafe abortion, they will be hard-pressed to meet the United Nations SDG target (in Goal 3) of reducing the maternal mortality ratio to fewer than 70 maternal deaths per 100,000 live births by 2030 [3].

The issue of induced abortion in Uganda can be framed within two main discourses: one prominent discourse is religious and put forward by representatives of the Catholic movement, emphasizing the sanctity of the life of the fetus while the other discourse focuses on human rights aspects, that is to say, the right to life of the unborn child on the one hand and on the other hand women's rights to health [13].

2. MATERIALS AND METHODS

A descriptive correlational study design was used. The target population for the study was 200 among whom it selected 131 respondents including 36 doctors, 80 medical students, and 15 lawyers using the Krejcie & Morgan method of 1970. The doctors were selected purposively; the medical students were selected using a simple random sampling technique while a snowball sampling technique was used to arrive at the lawyers for the study. Data was obtained using a structured questionnaire which was administered to the respondents and retrieved once they had completed it. The data from the retrieved questionnaire was entered and analyzed using SPSS version 20. To ensure validity, a pilot study was done on some of the participants before the final version of the questionnaires to check if there was a need to change or rephrase any questions and also to probe possible bias and filled questionnaires were routinely checked to ensure completeness. To ensure reliability, Cronbach's alpha was calculated in SPSS which had values of 0.783(all 27 items were retained), 0.728(all 27 items were retained), and 0.735(2 items were deleted) for doctors, medical students, and lawyers respectively meaning that the internal consistency was acceptable. Ethical considerations were made and an approval letter to carry out the study was obtained from the King Ceasor University research and ethical committee, official permission was secured from the authority of the hospital and the advocate firm, names of study participants were not included, voluntary recruitment was done and informed consent was signed.

3. RESULTS AND DISCUSSION

3.1 Social-demographic Characteristics

The results showed that 52 (36.69%) of the participants were between 20-24 years of age, 42 (32.06%) were between 25-29 years, 13 (9.2%) were between 30-34, 13 (9.2%) were between 35-39 and 8.3% were above 50 years of age. 73 (55.73%) of the respondents were male and 58(44.27%) were female. 53 (40.46%) of them were protestants, 33 (25.19%) were Muslims, 25 (19.08%) were Catholics, 6 (4.58%) were atheists, 2(1.53%) were Hindu while 12 (9.16%) identified as others; 9 of them indicated that they were "born again Christians", 2 of them indicated that they were "seventh day Adventists" while 1 of them left the space blank.

3.2 Level of awareness of doctors, medical students, and lawyers on the current laws and policies on induced abortion among women of reproductive age in Uganda.

The Ugandan Constitution, in Article 22, item 2 states: "No person has the right to terminate the life of an unborn child except as may be authorized by law." 13.89% of doctors and 13.75% of medical students didn't know what it states but all lawyers knew. The Ugandan Constitution allows abortion if the procedure is authorized by the law but does not state the exact circumstances, leaving room for legal provisions and interpretations [11]. 72.22% of doctors, 75% of medical students, and 20% of lawyers didn't know that the instances in which the termination of pregnancy should be permitted were not laid out by the law.

According to a Guttmacher Institute report of 2018, an estimated 314,300 induced abortions took place in 2013 in Uganda [10], and therefore it is expected that medical workers perform them in clandestine environments. In this study, it was determined that there were significant gaps in the knowledge of the punishments according to the penal code act of Uganda which commenced on 15 June 1950: 70% of the doctors, 81.25% of medical students, and 20% of lawyers didn't know the punishment for an individual who with intent to procure the miscarriage, unlawfully administers to a pregnant woman or causes her to take any poison or other noxious thing or uses any force of any kind, 72.23% of the doctors, 90% of medical students and 6.67% of lawyers didn't know the punishment of a woman who attempts to procure an unlawful abortion and 66.67% of the doctors, 78.75% of medical students and 6.67% of lawyers didn't know the punishment of an individual who aids a woman in performing an unlawful abortion.

A study revealed that over 75% of all abortions in sub-Saharan Africa, Uganda inclusive, are unsafe due to restrictive abortion laws and abortion-related deaths are largely preventable if patients receive timely appropriate care such as post-abortion care (PAC) [1]. PAC is always legal, and medical personnel have an ethical duty to provide it [3] and in this study, it has been determined that 8.34% of doctors, 6.25% of medical students, and 52.34% of lawyers didn't know that providing PAC is not criminalized. With doctors and future doctors thinking that providing PAC is criminalized, they may not provide it which increases the risks of abortion-related deaths and complications. With lawyers thinking that providing PAC is criminalized, it increases the chances of medical personnel being wrongfully detained and hesitating to provide the same in the future. In a study, healthcare providers' bad attitude when caring for women in need of PAC was discussed and patronizing and judgmental behavior was said to be more common towards women with suspected induced abortion which affected the quality of care [15].

Healthcare providers who treat women for post-abortion complications are forbidden by law from interrogating their patients or reporting them to the authorities [7]. However, in this study, it has been determined that 13.34% of doctors, 28.75% of medical students, and 13.34% of lawyers didn't know that. In the case that the doctors and future doctors report their patients to authorities, they breach confidentiality which they are sworn to, and consequently decrease the trust patients have in doctors and fear of being reported prevents other women and girls from seeking medical attention they need for life-threatening abortion complications. Lawyers not knowing this can lead to doctors being wrongfully implicated for not reporting a patient who had an induced abortion.

Complementary sources of criteria, such as ministerial guidelines or codes of medical ethics, can also guide the implementation of the law [3]. The Ministry of Health through the 2006 and 2012 National Policy Guidelines and Service Standards recommended that in some instances the woman or girl should be assisted to terminate the pregnancy.

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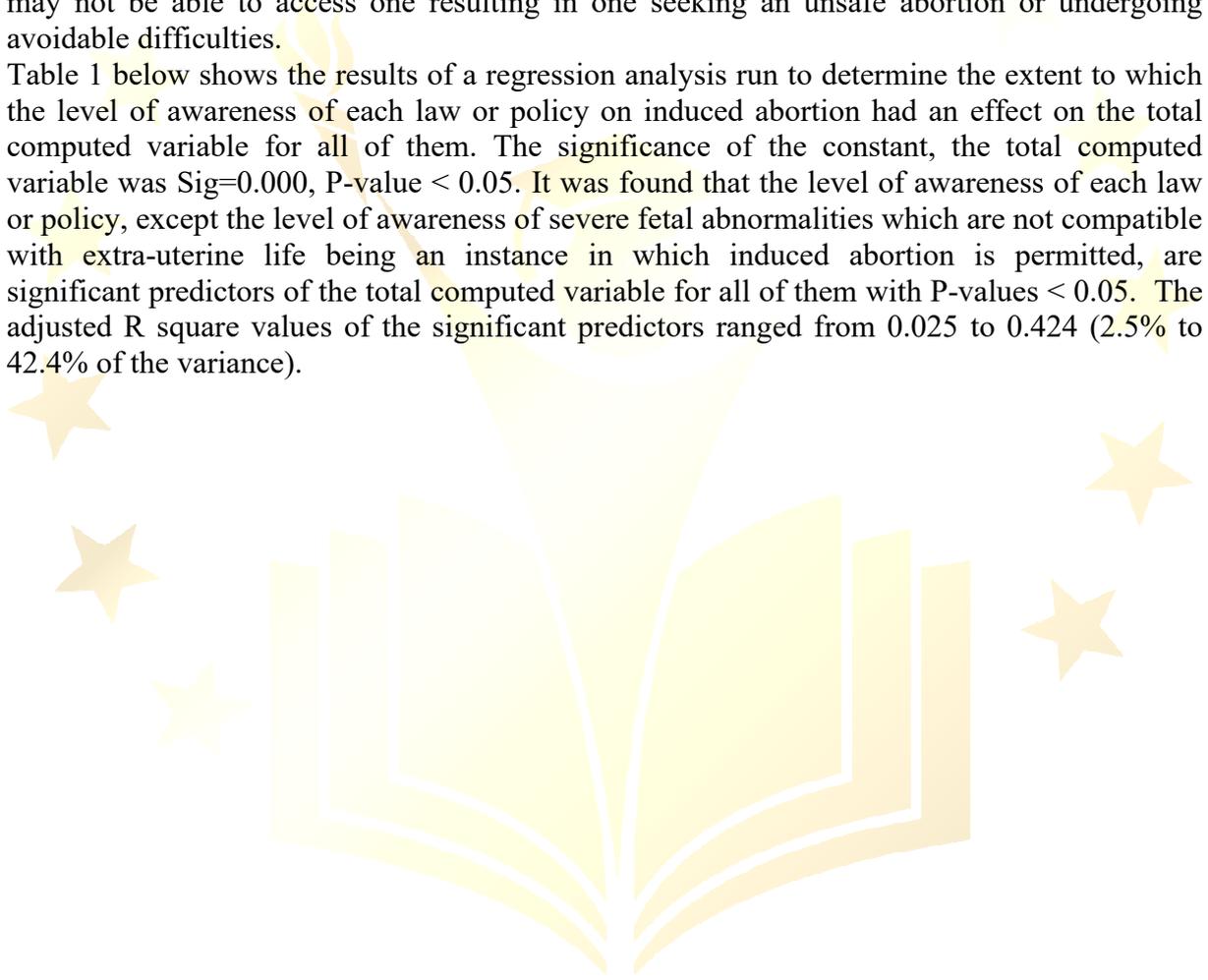
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Unfortunately, in this study it has been determined that a significant number of doctors, medical students, and lawyers aren't aware of these instances; severe maternal illness threatening the health of a pregnant woman (25.01% of doctors, 12.5% of medical students and 53.34% of lawyers), severe fetal abnormalities which are not compatible with extra-uterine life (5.56% of doctors, 10% medical students and 46.67% of lawyers), cervical cancer (55.56% of doctors, 71.25% of medical students and 60% of lawyers), HIV-positive women requesting for termination (77.78% of doctors, 90% of medical students and 53.33%) and cases of rape, incest, and defilement (50.01% of doctors, 45% of medical students and 53.33% of lawyers). Due to a lack of this information, a female who qualifies for a lawful abortion may not be able to access one resulting in one seeking an unsafe abortion or undergoing avoidable difficulties.

Table 1 below shows the results of a regression analysis run to determine the extent to which the level of awareness of each law or policy on induced abortion had an effect on the total computed variable for all of them. The significance of the constant, the total computed variable was Sig=0.000, P-value < 0.05. It was found that the level of awareness of each law or policy, except the level of awareness of severe fetal abnormalities which are not compatible with extra-uterine life being an instance in which induced abortion is permitted, are significant predictors of the total computed variable for all of them with P-values < 0.05. The adjusted R square values of the significant predictors ranged from 0.025 to 0.424 (2.5% to 42.4% of the variance).



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Table 3: Regression analysis of the level of awareness of current laws and policies on induced abortion

Law or policy	Adjusted R Square	P-value
The Ugandan Constitution, in Article 22, item 2 states: "No person has the right to terminate the life of an unborn child except as may be authorized by law."	0.30	0.027
The instances in which the termination of a pregnancy should be permitted were not laid out by the law.	0.384	0.000
According to the penal code act of Uganda which commenced on 15 June 1950, the punishment for an individual who, with intent to procure the miscarriage, unlawfully administers to a pregnant woman or causes her to take any poison or other noxious thing, or uses force of any kind is imprisonment for fourteen years	0.414	0.000
According to the penal code act of Uganda, the punishment for a woman who attempts to procure an unlawful abortion is imprisonment for seven years.	0.275	0.000
According to the penal code act of Uganda, the punishment for an individual who aids a woman (by supplying drugs or other ways) in performing an unlawful abortion is imprisonment for up to three years.	0.320	0.000
Providing post-abortion care is criminalized in Uganda.	0.086	0.000
When a doctor meets a patient with post-abortion complications, they should interrogate them and/or report them to the authorities.	0.025	0.039
Severe maternal illness threatening the health of a pregnant woman is an instance in which induced abortion is permitted.	0.042	0.011
Severe fetal abnormality which is not compatible with extra-uterine life is an instance in which induced abortion is permitted.	0.002	0.252
Cervical cancer is an instance in which induced abortion is permitted.	0.254	0.000
HIV-positive women requesting termination is an instance in which induced abortion is permitted.	0.424	0.000
Cases of rape, incest, and defilement are an instance in which induced abortion is permitted.	0.269	0.000

3.3 Insight of doctors, medical students, and lawyers on the advantages of legalizing induced abortion among women of reproductive age in Uganda

In this study, 75% of doctors, 73.75% of medical students, and 73.34% of lawyers were of the opinion that induced abortion should be legalized in Uganda.

Legalizing induced abortion would reduce maternal mortality (91.67% of doctors, 92.5% of medical students, and 60% of lawyers agreed). This was the most agreed advantage by doctors and medical students probably due to understanding of the complications and through experience. A law don in Uganda, a keynote speaker at a Public Dialogue convened to hold a discussion about Abortion and the Legal Framework that governs it in Uganda, recommended legalizing Abortion in Uganda because the laws in place are controversial, adding that this will enable access to safe legal abortion and he stated that it would help reduce on the high maternal morbidity and mortality in Uganda [14].

Legalizing induced abortion would reduce abortion complications (91.66% of doctors, 82.5% of medical students, and 86.66% of lawyers agreed). This was the most agreed upon advantage by doctors and lawyers and quite highly by medical students as well.

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These complications may include severe bleeding, abdominal and genital injury, incomplete abortion, sepsis, and other long-term complications such as pelvic inflammatory disease, ectopic pregnancy, vesicovaginal fistulae, urinary incontinence, uterovaginal prolapse, and infertility. A study estimated that each year 85,000 women or 15 of every 1,000 women aged 15–49, are treated for complications from induced abortion, and treatment of abortion complications consumes scarce medical and health resources [17].

Legalizing induced abortion would reduce the cost of the provision of PAC services (80.58% of doctors, 65% of medical students, and 40% of lawyers agreed). This was most agreed to by doctors probably because of the hands-on experience with such patients and least agreed to by lawyers probably because they are not as aware of the costs of medical services. PAC is estimated to cost nearly US\$14 million annually in Uganda [20]. Findings from two studies suggest that almost half of the health system cost of treating post-abortion complications is borne by women and their households which can impact households' economic well-being [11].

Legalizing induced abortion would lead to improved women's education, participation in the labor market, and positive contribution to GDP growth (61.11% of doctors, 43.75% of medical students, and 46.67% of lawyers agreed). Unintended pregnancy is a pregnancy that is either unwanted or mistimed [6] and it may lead to dropping out of school and early marriage consequently leading to decreased female education and employment [22].

Legalizing induced abortion would reduce the impacts of unwanted pregnancy on the child (86.11% of doctors, 86.25% of medical students, and 66.67% of lawyers agreed). Unwanted pregnancy leads to inadequate prenatal care, drug use during pregnancy, premature and low-birth-weight infants that are also less likely to breastfeed and take routine vaccinations, and increased risks of physical and mental health problems in these children.

Table 2 below shows the results of an exploratory factor analysis on the advantages of legalizing induced abortion in Uganda. Reducing maternal mortality was the most significant advantage, contributing 59.192% \approx 59% of the variance. Additionally, reducing abortion complications contributes 15.460% \approx 15%, reducing the cost of the provision of post-abortion care (PAC) services contributes 11.324% \approx 11%, improving women's education, participation in the labor market and positive contribution to GDP growth contributes 9.354% \approx 9% and reducing impacts of unwanted pregnancy to the child contributes 4.671% \approx 5% of the variance.

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Table 4: Factor analysis of advantages of legalizing induced abortion in Uganda

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Reducing maternal mortality.	2.960	59.192	59.192	2.960	59.192	59.192
Reducing abortion complications.	.773	15.460	74.651			
Reducing the cost of the provision of post-abortion care (PAC) services.	.566	11.324	85.975			
Improving women's education, participation in the labor market, and positive contribution to GDP growth.	.468	9.354	95.329			
Reducing impacts of unwanted pregnancy on the child.	.234	4.671	100.000			

3.4 Insight of doctors, medical students, and lawyers on barriers to legalizing and implementing laws on induced abortion

Religious organizations (97.23% of doctors, 97.25% of medical students, and 93.33% of lawyers agreed). This was the most agreed upon barrier by all three study groups. Religious forces which argue that abortion is akin to murder are able to set moral standards and contribute to the stigma of abortion. Eighty percent of the Ugandan population is Christian, of which almost half belong to the Catholic Church which has a strong influential control [13]. Other faiths share a similar view and Uganda is highly rooted in religion as the biggest predictor for moral values. In this study, it was also noticed that all doctors and medical students except one medical student who wouldn't be willing to perform induced abortion on a patient who asks for it stated religious reasons as did all lawyers who wouldn't be willing to launch a constitutional challenge against the anti-abortion laws in Uganda.

Few policymakers in Uganda publically articulate being in favor of more liberal abortion laws (83.33% of doctors, 72.5% of medical students and 40% of lawyers agreed). In a study it was seen that advocacy by highly placed national politicians or dignitaries helps to overcome the difficulties inherent in reforming abortion laws, for example, Mauritius reformed its law in 2012, in part due to the involvement of a Mauritian-born member of the monitoring body that is tasked with ensuring compliance with the CEDAW (Convention on the Elimination of All Forms of Discrimination against Women) Committee [3].

Few Ugandan lawyers are willing to launch a constitutional challenge against the anti-abortion laws (86.11% of doctors, 67.5% of medical students, and 40% of lawyers agreed). In this study, 80% of lawyers would be willing to launch a constitutional challenge against the anti-abortion laws. Recently, in the USA, a state constitutional challenge to Georgia's abortion law was filed with the hope of amending the abortion laws [5].

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Few women are willing to be involved in a test case (61.12% of doctors, 36.25% of medical students, and 33.33% of lawyers agreed). The best example of the success of test cases is the Roe v. Wade court case of 1973 in the USA. It is the central court decision that created the abortion law in the USA (until it was overturned in 2022) where the Supreme Court ruled that women had a constitutional right to abortion and also set up a framework in which the woman's right to abortion and the state's right to protect potential life shift. “Jane Roe” was a fictional name used to protect the identity of the plaintiff; a pregnant single woman who brought a class action challenging the constitutionality of the Texas criminal abortion laws [9].

Table 3 below shows the results of an exploratory factor analysis on the barriers to legalizing induced abortion in Uganda. Religious organizations are the most significant barrier, contributing 48.965% \approx 49% of the variance. Additionally, there are few policymakers in Uganda publically articulating to be in favor of more liberal abortion laws and this contributes 22.091% \approx 22% of the variance. The study further reveals that the few Ugandan lawyers willing to launch a constitutional challenge against the anti-abortion laws are a serious barrier which contributes 17.368% \approx 17% of the variance. Also, a few women are willing to be involved in a test case and this contributes to 11.575% \approx 12% of the variance.

Table 5: Factor analysis of barriers to legalizing induced abortion in Uganda

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Religious organizations	1.959	48.965	48.965	1.959	48.965	48.965
Few policymakers in Uganda publically articulate to be in favor of more liberal abortion laws	.884	22.091	71.057			
Few Ugandan lawyers willing to launch a constitutional challenge against the anti-abortion laws	.695	17.368	88.425			
Few women willing to be involved in a test case	.463	11.575	100.000			

The law on abortion in Uganda is too complicated for the authorities to enforce (50% of doctors, 45% of medical students, and 26.67% of lawyers agreed). The ambiguity of the abortion laws and policies often causes medical providers to be reluctant to perform an abortion for any reason, out of fear of legal consequences even though the penalties do not apply to the provision of legal abortions [11].

Failure to inform the public, healthcare providers, and government officials about what a new law entails (69.45% of doctors, 72.5% of medical students, and 46.67% of lawyers agreed). This was the most agreed barrier by medical students and lawyers.

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A study stated how the experience of Zambia shows, in the absence of public information campaigns and the new legal services being out in the open, decades may pass before this information reaches all interested parties [3] and in this study, significant knowledge gaps were seen among doctors, medical students, and lawyers which is most likely much less than the general public.

Laws that require authorization from multiple physicians (75% of doctors, 55% of medical students, and 26.67% of lawyers agreed). In Uganda, where there are shortages of physicians, such requirements are impractical, especially in rural areas and therefore it can block women's access to safe abortions. For example, the relatively liberal Zambian law requires three physicians, one of whom must be a specialist, to sign off on a non-emergency legal abortion despite the country's having fewer than 12 physicians per 10,000 inhabitants as of 2018 [3].

Unregulated conscientious objection (83.34% of doctors, 56.25% of medical students, and 46.67% of lawyers agreed). This was the most agreed-to barrier by doctors and lawyers and the second most agreed-to barrier by medical students. Overuse of conscientious objection can shrink the pool of personnel who are available to perform a legal service, in this case, induced abortion. In this study, 27.78% of doctors and 41.25% of medical students wouldn't be willing to perform induced abortion on a patient who asks for it, assuming it was legalized and all these would most likely object conscientiously. To combat this, in South Africa, the law specifies that only the person who would be performing the abortion is allowed to opt-out of doing so however public sector health units often have to hire private nurses to replace staff who illegally opt out of participating in an abortion [3].

Table 4 below shows the results of an exploratory factor analysis on the barriers to implementing abortion laws. The law on abortion in Uganda being too complicated for the authorities to enforce is the most significant barrier, contributing 40.898% \approx 41% of the variance. Additionally, there is a failure to inform the public, healthcare providers and government officials about what a new law entails and this contributes 24.137% \approx 24% of the variance. The study further reveals that laws that require authorization from multiple physicians contribute 22.097% \approx 22% of the variance and unregulated conscientious objection contributes 12.868% \approx 13% of the variance.

Table 6: Factor analysis of barriers to implementing abortion laws

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
The law on abortion in Uganda is too complicated for the authorities to enforce	1.636	40.898	40.898	1.636	40.898	40.898
Failure to inform the public, healthcare providers, and government officials about what a new law entails	.965	24.137	65.035			
Laws that require authorization from multiple physicians	.884	22.097	87.132			
Unregulated conscientious objection	.515	12.868	100.000			

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A total of 69.45% of doctors and 58.75% of medical students agreed that they would be willing to perform induced abortion on a patient who asks for it, assuming it was legalized while 2.78% of doctors were neutral while a total of 27.78% of doctors and 41.25% of medical students disagreed. All those who disagreed stated religious reasons for doing so except for an atheist who stated that he considered it morally wrong as it involved taking a life. A total of 80% of lawyers agreed that would be willing to launch a constitutional challenge against the anti-abortion laws in Uganda while a total of 20% disagreed. All those who disagreed stated religious reasons for doing so.

Table 5 below shows the results of regression analyses that were run to determine whether the insight on legalizing induced abortion had an effect on the willingness of doctors and medical students to perform an induced abortion, assuming it was legalized, and on the willingness of lawyers to launch a constitutional challenge against the anti-abortion laws in Uganda. It was found that insight on legalizing induced abortion is a significant predictor of doctors' willingness to perform one; Sig=0.000, P-value < 0.05 and an adjusted R square value of 0.364 meaning that insight on whether induced abortion should be legalized contributes to 36.4% of the variance, medical students' willingness to perform one; Sig=0.000, P-value < 0.05 and an adjusted R square value of 0.441 meaning that insight on whether induced abortion should be legalized contributes to 44.1% of the variance and lawyers' willingness to launch a constitutional challenge against the anti-abortion laws in Uganda; Sig=0.000, P-value < 0.05 and an adjusted R square value of 0.659 meaning that insight on whether induced abortion should be legalized contributes to 65.9% of the variance.

Table 7: Regression analyses run to determine whether the insight on legalizing induced abortion had an effect on the willingness of doctors, medical students and lawyers to act.

Study group	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	P-value
Doctors	0.618 ^a	0.382	0.364	0.98718	21.041	0.000 ^a
Medical students	0.669 ^a	0.448	0.441	1.02123	63.323	0.000 ^a
Lawyers	0.827 ^a	0.683	0.659	0.74729	28.066	0.000 ^a

4. CONCLUSION

In conclusion, it has been determined that there are significant gaps in the knowledge of doctors, medical students, and lawyers regarding the current laws and policies on induced abortion among women of reproductive age in Uganda (Sig=0.000, P-value < 0.05). The majority of the respondents (75% of doctors, 73.75% of medical students, and 73.34% of lawyers) were of the opinion that induced abortion should be legalized in Uganda and all the advantages of doing so were agreed to in different percentages as were all the barriers of legalizing and implementing laws on induced abortion. The majority of the medics (69.44% of doctors and 58.75% of medical students) would be willing to perform induced abortion on a patient who asks for it, assuming it was legalized and the majority of the lawyers (80%) would be willing to launch a constitutional challenge against the anti-abortion laws. From the study findings, it was recommended that Uganda's abortion law and policies should be clarified, the knowledge of Uganda's abortion law among the health professionals, the judicial system, and women of reproductive age should be improved, the abortion law and policies should be taught to medical and law students in University and they should be advocacy that unites a broad coalition of national actors from the legal, medical and rights perspectives to reform the abortion laws in Uganda.

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REFERENCES

1. Atuhairwe, S., Gemzell-Danielsson, K., Byamugisha, J., Kaharuza, F., Tumwesigye, N. M., & Hanson, C. (2021). Abortion-related near-miss morbidity and mortality in 43 health facilities with differences in readiness to provide abortion care in Uganda. *BMJ global health*, 6 (2), e003274.
2. Babigumira, J. B., Stergachis, A., Veenstra, D. L., Gardner, J. S., Ngonzi, J., Mukasa-Kivunike, P., & Garrison, L.P. (2011). Estimating the costs of induced abortion in Uganda: a model-based analysis. *BMC public health*, 11 (1), 1-9.
3. Bankole, A., Remez, L., Owolabi, O., Philbin, J., & Williams, P. (2020). From unsafe to safe abortion in Sub-Saharan Africa: Slow but steady progress. *Guttmacher institute*.
4. Bell, S. O., Shankar, M., & Moreau, C. (2021). Global Epidemiology of Induced Abortion. *Oxford Research Encyclopedia of Global Public Health*.
5. Brumback, K. (2022). State constitutional challenge to Georgia abortion law filed. Retrieved November 2022, from AP NEWS: <https://apnews.com/article/abortion-health-lawsuits-georgia-constitutions-e2223e6f105714276a96a9dfcaa94126>
6. CDC. (2021). Centers for Disease Control and Prevention. Retrieved August 2022, from Unintended pregnancy: <https://www.cdc.gov/reproductivehealth/contraception/unintendedpregnancy/index.htm#:~:text=An%20unintended%20pregnancy%20is%20a%20pregnancy%20occurred%20earlier%20than%20desired.>
7. CEHURD. (2016). Facing Uganda's law on abortion. (M. Mulumba, A. Moreau, & e. al, Eds.) Kampala: CEHURD.
8. Center for reproductive rights. (2012). 10 Key Points about Uganda's Laws and Policies on Termination of Pregnancy. Retrieved August 16th, 2022, from Center for reproductive rights: https://www.reproductiverights.org/sites/default/files/documents/crr_uganda_10keypoints_v5.pdf
9. Encyclopaedia Britannica. (2022, August). Roe v. Wade. Retrieved November 2022, from Encyclopaedia Britannica: <https://www.britannica.com/event/Roe-v-Wade>
10. Guttmacher Institute. (2018). Abortion in Africa. Retrieved August 16th, 2022, from Guttmacher Institute: https://www.guttmacher.org/sites/default/files/factsheet/ib_aww-africa.pdf
11. Hussain, R. (2013). Unintended Pregnancy and Abortion in Uganda. New York: Guttmacher Institute.
12. Konar, H. (2015). DC Dutta's textbook of obstetrics (8th ed.). New Dehli: JP Brothers Medical Publishers.
13. Larsson, S., Eliasson, M., Klingberg Allvin, M., Faxelid, E., Atuyambe, L., & Fritzell, S. (2015). The discourses on induced abortion in Ugandan daily newspapers: a discourse analysis. *Reproductive health*, 12 (1), 1-10.

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14. Makerere University School of Law. (2021). The Legal Framework Governing Abortion in Uganda. . Retrieved August 22nd, 2022, from Makerere University School of Law: <https://law.mak.ac.ug/news/legal-framework-governing-abortion-uganda-analyzing-public-health-and-human-rights-implications>.

15. Mandira, P., Gemzell-Danielsson, K., Kiggundu, C., Namugenyi, R., & Klingberg-Allvin, M. (2014). Barriers and facilitators in the provision of post-abortion care at district level in central Uganda – a qualitative study focusing on task sharing between physicians and midwives. *BMC Health Services Research* , 14 (28).

16. Prada, E., Atuyambe, L. M., Blades, N. M., Bukenya, J. N., Orach, C. G., & Bankole, A. (2016). Incidence of induced abortion in Uganda, 2013: new estimates since 2003. *PloS one* , 11 (11), e0165812.

17. Singh, S., Prada, E., Mirembe, F., & Kiggundu, C. (2005). The incidence of induced abortion in Uganda. *International family planning perspectives* , 183-191.

18. Stanojevic, M. (2021). Limits of viability: should we play God? *Psychiatra Danubina* , 33 (suppl 3), 46-56.

19. ULII. (2022). Penal Code Act (Chapter 120). Retrieved August 20, 2022, from Uganda Legal Information Institute: https://ulii.org/akn/ug/act/ord/1950/12/eng%402014-05-09#chp_XIV_sec_141.

20. Vlassoff, M., Mugisha, F., Aparna, S., Bankole, A., Singh, S., Amany, L., Kiggundu, C., & Mirembe, F. (2014). The health system cost of post-abortion care in Uganda. *Health Policy and Planning* , 29 (1), 56-66.

21. WHO. (2021). Abortion. Retrieved August 15th, 2021, from World Health Organisation: <https://www.who.int/news-room/fact-sheets/detail/abortion>

22. WHO. (2022). Abortion. Retrieved 2022, from World Health Organisation: https://www.who.int/health-topics/abortion#tab=tab_1.

23. WHO. (2000). *Integrated Management Of Pregnancy And Childbirth*. Geneva: World Health Organisation.

24. WHO. (2022). Maternal deaths. Retrieved August 2022, from World Health Organisation- The Global Health Observatory: <https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4622>

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**DETERMINATION OF DRUG-DEFAULTER-RATE AMONG TUBERCULOSIS
PATIENTS REPORTING FOR TREATMENT AT MULAGO NATIONAL
REFERRAL HOSPITAL, UGANDA**

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Abstract

The study investigated the drug defaulter rate among tuberculosis patients that reported for treatment at Mulago National Referral Hospital, Uganda. It targeted a population of 85 tuberculosis patients who were admitted at the time when the study was conducted and selected 69 participants based on the Fleiss' formula of 2003. The specific objectives of the study included (a) to evaluate the underlying factors associated with defaulting on medication among tuberculosis (T.B) patients receiving treatment (b) to determine the defaulter rate among T.B patients receiving treatment from Mulago National Referral Hospital, Uganda; and (c) to investigate the already existing interventions being implemented to minimize the defaulter rate among T.B patients. The data were collected using standardized questionnaires administered to patients with their full consent and also with the full consent of the patient's care takers. The main findings were that; defaulting on medication among tuberculosis patients was much associated with: a patient perception that adherence was not necessary, side effects of the anti-tuberculosis medication, deterioration of patient's condition while on treatment, no change in condition while on treatment and the patient being in a state of chronic illness. Additionally, patients who mixed both conventional medicines (therapeutic medicines) in combination with herbal drugs (medical pluralism) exhibited a high drug defaulter rate as compared with their counterparts and when the condition of some tuberculosis sufferers improved, the use of drugs surprisingly was stopped among some patients. The drug defaulter rate was found to be 31.8% and the mostly implemented intervention to control tuberculosis was the directly observed therapy (DOT). The study recommended that; healthcare workers ought to reinforce Directly Observed Therapy and adherence counselling to ensure adherence to treatment among patients. Health workers also ought to closely monitor the patients and intervene whenever necessary.

Keywords: Defaulter Rate, Health Outcomes, Tuberculosis Disease

1. INTRODUCTION

Mulago National Referral Hospital is the main treatment centre and has the highest number of tuberculosis patients in Uganda. Some Patients on T.B treatment in Mulago National Referral Hospital have been observed to default against the treatment regimen. Defaulting against tuberculosis medication is greatly associated with increased risk of drug resistance, tuberculosis relapse, treatment failure and death.

Previously, drug resistance arising from patients defaulting against tuberculosis medications was reported as one of the leading causes of morbidity and mortality rates among tuberculosis patients. For this reason, programs such as DOT have been put in place to fight against increasing number of patients defaulting tuberculosis medications under Mulago National Referral Hospital. However, due to coronavirus disease 2019 (COVID-19) lock down, programs to prevent patients from defaulting against tuberculosis medication were at stand still and besides this, financial support from donors has recently declined. This has resulted into an increase in drug-defaulter rate and resistance to tuberculosis drugs among patients under treatment. This study therefore was aimed at investigating the rate of defaulting on tuberculosis medications among patients reporting for treatment at Mulago National Referral Hospital.

2. METHODOLOGY

Data were obtained using questionnaires administered to patients with their full consent for those patients that were literate. For illiterate patients, questionnaires were also used and data obtained through interviews with full consent of the patient in the presence of a witness.

2.1 Sample Size

It was determined using Fleiss' formula.

$$N_{\text{Fleiss}} = \frac{[z_{\alpha/2} \sqrt{(r+1)P(1-P)} + z_{\beta} \sqrt{rP_0(1-P_0) + P_1(1-P_1)}]^2}{r(P_0 - P_1)^2} \quad (1)$$

Where,

α : is the probability of type 1 error

β : is the probability of type 2 error

P_0 : is the proportion of disease in population 1

P_1 : is the proportion of disease in population 2

r : is the ratio of population 2 to population 1

N_{Fleiss} : is the required sample size for the population 1 using Fleiss formula

$$P = \frac{P_0 + rP_1}{r+1} \quad (2)$$

α : was 0.05, β : was 0.2, P_0 was 1.0, P_1 was 2.0 and r was 1

Using Fleiss formula, 69 participants were required for the study.

2.2 Inclusion Criteria

Were participants:

- 20 years and above.
- Receiving treatment or who received treatment for at least one month.
- History of defaulting T.B treatment for at least two months.
- Either male or female.

Participants aged 20 years and above were chosen because these were more cooperative and understood the purpose of the study better than those below the age of 20.

Default is defined as a treatment interruption of two consecutive months or more after at least one month on treatment [1]. Therefore, participants with a history of defaulting treatment for at least two consecutive months and had received treatment for at least one month were selected.

Male and female participants were selected to get a variety of answers in the questionnaires.

3. STUDY RESULTS

Table 8: Total Variance Explained

Component	Extraction Sums of Squared Loadings		
	Total	% Of Variance	Cumulative %
1	18.139	43.187	43.187
2	6.731	16.026	59.213
3	5.390	12.834	72.047
4	3.745	8.917	80.964
5	2.969	7.070	88.034
6	2.441	5.812	93.846
7	1.935	4.608	98.454

Table 1 shows results of factor analysis. Factor analysis was run, and it was found that; component 1 (chronic illness) contributed 43% of the variance towards non-adherence hence 43% of the patients with chronic illness defaulted treatment, component 2 (other remedies) contributed 16% of the variance to non-adherence thus 16% of the patients who used other remedies other than what was prescribed defaulted treatment, component 3 (adherence not necessary) contributed 13% of the variance towards non-adherence hence 13% of the patients with a patient perception that adherence was not necessary defaulted treatment, component 4 (side effects) contributed 9% of the variance towards non-adherence hence 9% of the patients who experience side effects while on treatment defaulted, component 5 (condition improved) contributed 7% of the variance towards non-adherence thus 7% of the patients whose condition improved while on treatment defaulted, component 6 (condition worsened) contributed 6% of the variance towards non-adherence thus 6% of the patients whose condition worsened while on treatment defaulted and component 7 (same condition) contributed 5% of the variance towards non-adherence thus 5% of the patients whose condition remained constant while on treatment defaulted. The rest of the factors did not contribute to any percentage of the variance to non-adherence.

Table 9: Skipped Medication

		Frequency	Percent
Valid	Strongly Agree	7	10.1
	Agree	15	21.7
	Neutral	8	11.6
	Disagree	8	11.6
	Strongly Disagree	31	44.9
	Total	69	100.0

Table 2 shows the choices selected by participants who took part in the study on the statement of skipping to take T.B medication. Of the 69 (100.0%) participants that took part in the study, 31 (44.9) % strongly disagreed to have skipped taking their medication, 15 (21.7%) agreed that they skipped taking their medication, 7 (10.1%) strongly agreed that they skipped taking their medication, 8 (11.6%) disagreed to having skipped taking their medication. Only 8 (11.6%) were neutral on this.

Table 10: Directly Observed Therapy

	Frequency	Percent
Agree	8	11.6
Neutral	8	11.6
Disagree	7	10.1
Valid Strongly Disagree	30	43.5
No Idea	16	23.2
Total	69	100.0

Table 3 shows the choices selected by participants who took part in the study on the statement of whether their healthcare providers carried out Directly Observed Therapy. Out of 69 (100.0%) participants who took part in the study, 8 (11.6%) participants agreed to the statement that their healthcare providers carried out Directly Observed Therapy. 8 (11.6%) participants were neutral on the same. 7 (10.1%) participants disagreed. 30 (43.5%) participants strongly disagreed. However, only 16 (23.2%) participants had no idea.

4. DISCUSSION AND CONCLUSION

4.1. Discussion of Results

This study set out with the aim to determine the defaulter rate among T.B patients receiving treatment from Mulago National Referral Hospital, Uganda; to evaluate the underlying factors associated with defaulting on medication among T.B patients receiving treatment from Mulago National Referral Hospital, Uganda; and to investigate the already existing interventions being applied/ implemented to minimize the defaulter rate among T.B patients. It was found that the defaulter rate among T.B patients receiving treatment from Mulago National Referral Hospital, Uganda was 31.8%; a sum of the percentage of participants that agreed and strongly agreed to the statement that they skipped taking their medication. Of the 69 (100.0%) participants that took part in the study, 31 (44.9) % strongly disagreed to have skipped taking their medication, 15 (21.7%) agreed that they skipped taking their medication, 7 (10.1%) strongly agreed that they skipped taking their medication, 8 (11.6%) disagreed to having skipped taking their medication. Only 8 (11.6%) were neutral on this. This defaulter rate is higher than the defaulter rate found by Salles, et al., [1] and Okuja [2] in studies conducted in Rio de Janeiro city, Brazil and in Amai Community Hospital, Amolatar District respectively. In Rio de Janeiro city, Brazil the defaulter rate was 8% to 25% while in Amai Community Hospital, Amolatar District the defaulter rate was 17.7%. The underlying factors associated with defaulting on medication among T.B patients receiving treatment from Mulago National Referral Hospital, Uganda included the following; patient perception that adherence was not necessary, side effects of the anti-tuberculosis medication, deterioration of patient's condition while on treatment, no change in condition while on treatment and the patient being in a state of chronic illness, mixing both conventional medicines (therapeutic medicines) in combination with herbal drugs (medical pluralism) and stopping the use of drugs when condition improves. Some of these factors were similarly found in other studies. Guillén, et al., [3], it was found out that one of the factors that contributed to defaulting was the treatment's adverse effects. According to Salles, et al., [1] found out that one of the strongest predictors of defaulting from treatment in Brazil was adverse effect. According to a study conducted by Sanchez, et al., [4] factors associated with treatment default included medication side effects and perception that treatment was inefficient.

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In a study conducted in Yemen by Ammar, et al., [5] it was observed that the main reasons for defaulting to treatment were; improvement of condition during treatment, use of herbal medications, no benefit from medication, worse health conditions with treatment, side effect associated with treatment and belief that T.B could be treated without medication. Nirmalya, et al., [6] observed that commonly cited reasons for default were adverse effects of drugs. According to a study conducted by Lindtjörn & Shargie [7] it was found out that the main determinants of defaulting treatment were feeling better and drug side effects which led to drug resistance, relapse, death and prolonged infectiousness. In a study conducted by Ahmed, et al., it was found out that seeking traditional healers and side effects of drugs were causes of defaulting. Muture, et al., [8] observed that use of herbal medication and drug side effects contributed to patients defaulting their anti T.B medication. Nuwagira, et al., [9] observed that drug adverse effects contributed to patients defaulting their anti T.B medication. In a study conducted by the African Health sciences, it was further revealed that one out of ten admitted patients defaulted on T.B medication which affected the performance of the drug leading to the development of multi-drug resistant T.B strain among patients [10]. In a study conducted by Nakibirige [11] it was observed that worsening of the condition when on medication and medication side effects contributed to defaulting of anti-T. B medication by patients. In a study conducted by Okuja [2] it was observed that the risk factors and reasons for non-adherence were; feeling better after short period of treatment which in turn led to development of multi drug resistant tuberculosis (MDR-T. B). Olworho [12] found out that drug side effects contributed to defaulting of T.B medication in northern Uganda. The already existing intervention being applied/ implemented to minimize the defaulter rate among T.B patients is Directly Observed Therapy, however, not every patient gets this done.

5. CONCLUSION

From this study it was concluded that the drug-defaulter-rate among tuberculosis patients receiving treatment from Mulago National Referral Hospital, Uganda was 31.8%

It was also found that the underlying factors associated with defaulting on medication among T.B patients receiving treatment from Mulago National Referral Hospital, Uganda included the following; patient perception that adherence was not necessary, side effects of the anti-tuberculosis medication, deterioration of patient's condition while on treatment, no change in condition while on treatment and the patient being in a state of chronic illness, mixing both conventional medicines (therapeutic medicines) in combination with herbal drugs (medical pluralism) and stopping the use of drugs when condition improves.

The already existing intervention being implemented to minimize the defaulter rate among tuberculosis patients was Directly Observed Therapy.

The researcher recommended that healthcare workers ought to reinforce Directly Observed Therapy and adherence counselling to ensure adherence to treatment among patients. Health workers also ought to closely monitor the patients and intervene whenever necessary.

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References

[1] Castelnuovo, "A Review of Compliance to Anti-tuberculosis Treatment and Risk Factors for Defaulting Treatment in Sub Saharan Africa.," *African Health Sciences*, vol. 10, no. 4, pp. 320-324, December 2010.

[2] e. a. Salles, "Defaulting from anti-tuberculosis treatment in a teaching hospital in Rio de Janeiro, Brazil.," *The International Journal of Tuberculosis and Lung Disease.*, vol. 8, no. 3, p. 318–322, 2004.

[3] Okuja, "Factors Affecting Adherence to Tuberculosis Medication among Tuberculosis Patients in Amai Community Hospital, Amolatar District.," *Kampala International University, School of Health Sciences.*, 2014.

[4] e. a. Guillén, "Anti-tuberculosis treatment defaulting. An analysis of perceptions and interactions in Chiapas, Mexico.," vol. 50, pp. 251-257., 2008.

[5] e. a. Sanchez, "Reasons for defaulting from drug-resistant tuberculosis treatment in Armenia: a quantitative and qualitative study.," *The International Journal of Tuberculosis and Lung Disease.*, vol. 18, no. 2, p. 160–167, 2014.

[6] A. a. S. Ammar, "Evaluation of tuberculosis defaulters in Yemen from the perspective of health care service.," *Journal of Pharmaceutical Health Services Research.*, pp. 381-392, 2018.

[7] e. a. Nirmalya, "Risk factors associated with default among tuberculosis patients in Darjeeling district of West Bengal, India.," *Journal of Family Medicine and Primary Care.*, vol. 4, no. 3, July 2015.

[8] S. Lindtjørn, "Determinants of Treatment Adherence Among Smear-Positive Pulmonary Tuberculosis Patients in Southern Ethiopia.," *PLoS MEDICINE.*, vol. 4, no. 2, February 2007.

[9] e. a. Muture, "Factors associated with default from treatment among tuberculosis patients in nairobi province, Kenya: A case control study.," *BMC Public Health.*, 2011.

[10] e. a. Nuwagira, "Obstructive Lung Disease and Quality of Life after Cure of Multi-Drug-Resistant Tuberculosis in Uganda: a Cross-Sectional Study.," *Tropical Medicine and Health.*, 2020.

[11] e. a. Batte, "Prevalence and Factors Associated with Non-adherence to Multi-Drug Resistant Tuberculosis (MDR-TB) Treatment at Mulago National Referral Hospital, Kampala, Uganda.," *African Health Sciences.*, vol. 21, no. 1, pp. 238-47, March 2021.

[12] Nakibirige, "Factors Influencing Adherence to Tuberculosis Treatment among Pulmonary Tuberculosis Patients attending Mpigi General Hospital - Mpigi District.," 2017.

[13] Olworho, "Assessment of Factors Affecting Adherence to Tuberculosis Treatment in Northern Uganda: A Case Study of TB Patients in Kitgum Hospital.," 2019.

CORRELATION OF HTLV-I INFECTION WITH HEART DISEASES AMONG SAMPLE OF IRAQI PATIENTS

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Abstract

Objective: Studies in virology have looked into the potential link between human T-lymphotropic virus Type I (HTLV-I) infection and cardiovascular disease (CVD), but their findings had been diverse. In order to update the above potential association between HTLV-I seropositivity and its possible role to trigger cardiovascular events, the current study established to examine the interaction between these variables and some other biomarkers, including lipid profiles, D-dimer (fibrin degradation fragment protein), and CRP, which had been assessed and estimated in two different age groups. Methods: By using the method of enzyme-linked Immunosorbent assay, the CRP levels, D-dimer protein, and HTLV1 antibody titers of two study groups (65 participants) with age ranges of 26 to 61 were assessed. Results: Interestingly, the HTLV-I seropositivity was with a strong significant association with D-dimer, HDL-C, LDL-C and Triglyceride levels ($p < 0.001$) with high titer of serum HTLV-I antibodies (24.08 ± 11.03) in patients suffering from the heart issues comparing to the controls (8.57 ± 6.10). Furthermore, multiple linear regression test suggested that HTLV-I seropositivity levels were associated with variation in D-dimer and Triglyceride levels. Conclusion: It was determined that people with cardiovascular illness had greater seropositivity levels of HTLV-I, which was ultimately linked to abnormalities in lipid profiles.

Keywords: CRP, D-dimer, HTLV-I, lipids profile.

1. INTRODUCTION

The most prevalent cause of mortality for males under 65 and the second most common cause of death for women the same age is coronary artery disease (CAD), which accounts for 30% of all fatalities globally. The underlying cause of 50% of instances with coronary artery ectasia (CAE), with an incidence as high as 10% in some countries, is atherosclerosis, an inflammatory disease involving immunologic processes and metabolic risk factors. The relationship between viral infection and Coronary Artery Diseases (CAD) has been examined in numerous research, and now it is time for HTLV-I to analyze its relationship with CAD [1-3].

The delta virus known as Human T lymphotropic virus type 1 (HTLV1) is belong to the Retroviridae family [4]. It primarily affects CD4+ T cells, while CD8+ T cells can also contract the infection [4]. Single-stranded RNA oncogenic retrovirus HTLV1 has been linked to adult T-cell leukemia lymphoma. The HTLV-I retrovirus, which was discovered for the first time in 1980 in cutaneous lymphoma patients, is endemic to the Caribbean region and the South-West of Japan and can cause inflammatory illness. The infected person experiences relatively slow viral activity, and most of the disorders associated with this virus manifest in later stages of life [5].

There are four primary ways the virus is spread: from mother to child transmission, which primarily occurs through nursing, sexual transmission, which is more common in women than in males, contaminated blood products, and intravenous drug users [6].

The D-dimer, a heavy molecule of the fibrinogen derivative formed by splitting cross-linked fibrin, reflects both thrombin synthesis and fibrinolysis activation. High D-dimer levels are seen in a variety of conditions where the coagulation system is engaged, including cancer, ischemic heart disease, and acute venous thromboembolism. Due to the great sensitivity of D-dimer concentrations in detecting thrombus formation, D-dimer tests are frequently used to rule out venous thromboembolism in individuals who are suspected but do not have a high clinical probability. D-dimer is a well-established technique for the identification of a deep venous thrombosis since its presence suggests that blood clotting has begun (DVT). Patients with acute MI have higher D-dimer levels, and healthy people have also shown that D-dimer can predict future cardiovascular events [7]. In some emergency department (ED) patients presenting with chest pain. [8] have shown that normal D-dimer levels may prove helpful in excluding ischemia and the risks of serious cardiovascular events.

The most recent review study by Dr. Gessain of the French Pasteur Institute suggested that cardiovascular problems may be the primary cause of HTLV-I-related disorders. In light of the fact that HTLV-I is a cardiovascular virus and that inflammation plays a part in the development of atherosclerosis and coronary artery disease (CAD).

Finally, there is a lack of information on the probable processes and the role of chronic HTLV1 infection in CVD. In order to assess the likelihood that HTLV-I infection may result in cardiac illness, this study looked into the prevalence of the virus and any potential inflammatory effects it may have on the protein D-dimer in individuals with coronary artery involvement.

2. PARTICIPANTS

Sixty five serum samples from both sexes of participants (Male=32, Female=33), aged (26 - 61 years) were enrolled in a cross-sectional study who had a heart diseases as a cases of the recent study which were collected from Ibn al-Bitar hospital and teaching laboratories – Medical city and volunteers with normal life-style without chronic diseases, auto-immune diseases, cancers or any other inflammatory disorders and non-pregnant women as a controls, which were selected from January to the 30th February 2020. Study protocol was reviewed and approved by the local ethics committee.

3. MATERIALS AND METHODS

Following the instructions for each manufacturer, which are listed in table (1) below, all serum samples used in this investigation were submitted to an ELISA method to test the examined biomarkers. On a self-administered questionnaire, participants provided complete answers. Anthropometric measurements, including BMI, were also made. Each patient's name, gender, age, history of heart disease, and several significant laboratory tests like lipid profiles and CRP levels are all included in a questionnaire. All cases are diagnosed using the patient's medical history, which is assessed by a skilled doctor, along with additional laboratory tests.

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Table (1): Enzyme linked immunosorbent assay (ELISA) kits for detection of (HTLV-I, D-Dimer Human and CRP concentrations in patients' sera.

Biomarkers	Supplier	Sensitivity: Detection range
HumanT-lymphotropic virus (HTLV-I) Kit	MyBioSource Inc., USA	10 pg/mL: 500-8000 pg/mL
D-Dimer Human	Invitrogen., USA	0.08 pg/mL: 0.082-60 pg/mL
C-Reactive protein (CRP)	MyBioSource Inc., USA	0.23ng/mL: 0.39-25ng/mL

4. STATISTICS AND RESULTS

The IBM, SPSS statistics software 25.0 version was used to analyze the collected data of the current study. The ($p.value < 0.05$) were considered statistically significant.

- Descriptive data analysis: Frequency analysis (Table 2).
- Chi-squared test (χ^2): for Categorical variables (qualitative data) (Table 3).
- Independent t -Test: for means comparison (Table 4).
- Pearson Correlation: to examine relation between variables (Table 5).
- Multiple regression analysis: to test our study hypothesis by predicting which one of the studied biomarkers effect on HTLV-I seropositivity (Table 6).

Table (2): Baseline data and biomarkers of study population characteristics

Baseline Data \ Bio-markers	No. (%)	Mean±SD (Range)
Study Groups	Cases	33 (50.8%)
	Controls	32 (49.2%)
Age Groups (Years)	(26 – 35)	25 (38.5%)
	≥ 36	40 (61.5%)
Genders	Male	32 (49.2%)
	Female	33 (50.8%)
History with heart diseases	Yes	21 (32.3%)
	No	44 (67.7%)
BMI Scale	Normal weight	47 (72.3%)
	Overweight	18 (27.7%)
Smoking status	Smoker	30 (46.2%)
	Non-smoker	35 (53.8%)
HTLV-I (pg/mL)	Positive	33 (50.8%)
	Negative	32 (49.2%)
D-dimer Levels (pg/mL)	Low concentration	26(40.0%)
	High concentration	39(60.0%)
Total Cholesterol (mg/dL)	Optimal level	40 (61.5%)
	High level	25 (38.5%)
LDL-C (mmol/L)	Optimal level	32 (49.2%)
	High level	33 (50.8%)

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HDL-C (mmol/L)	Optimal level	40 (61.5%)	4.61±3.42 (0.7 – 12.0)
	Low level	25 (38.5%)	
Triglycerides(mg/dL)	Optimal level	49 (75.4%)	112.34±91.97 (18 – 443)
	High level	16 (24.6%)	
CRP (ng/mL)	-	-	20.13±6.50 (10.02 – 33.98)
SD = Standard Deviation, BMI= Body Mass Index, CRP = C-reactive protein, HTLV-I= Human T-lymphotropic virus type I			

Table (2) summarized the demographic characteristics of all participants, 33 (50.8%) of cases and 32 (49.2%) of controls with age interval (ranged: 26-61). In addition to, 32 (49.2%), 33 (50.8%) of them were a males and females respectively with a normal BMI as 47 (72.3%) and 30 (46.2%) of them were a smoker volunteer.

Table (3): Comparison among studied bio-markers and baseline data according to the study groups

Baseline Data Bio-markers		Study Groups (n=65) No. (%)		Total	p.value
		Cases (n=33)	Controls (n=32)		
Genders	Male	21(32.3%)	11(16.9%)	32(49.2%)	<0.05
	Female	12(18.5%)	21(32.3%)	33(50.8%)	S
Age Groups (Years)	(26 - 35)	18(27.7%)	7(10.8%)	25(38.5%)	<0.05
	≥36	15(23.1%)	25(38.5%)	40(61.5%)	S
BMI Scale	Normal weight	21(32.3%)	26(40.0%)	47(72.3%)	>0.05
	Over weight	12(18.5%)	6(9.2%)	18(27.7%)	NS
Smoking Status	Smokers	19(29.2%)	11(16.9%)	30(46.2%)	>0.05
	Non-smokers	14(21.5%)	21(32.3%)	35(53.8%)	NS
Heart diseases history	Yes	12(18.5%)	9(13.8%)	21(32.3%)	>0.05
	No	21(32.3%)	23(35.4%)	44(67.7%)	NS
HTLV-I	Positive	26(40.0%)	7(10.8%)	33(50.8%)	<0.001
	Negative	7(10.8%)	25(38.5%)	32(49.2%)	HS
D-dimer	Low Concentration	3(4.6%)	23(35.4%)	26(40.0%)	<0.001
	High Concentration	30(46.2%)	9(13.8%)	39(60.0%)	HS
Total Cholesterol levels	Optimal	15(23.1%)	25(38.5%)	40(61.5%)	<0.05
	High	18(27.7%)	7(10.8%)	25(38.5%)	S
LDL-C levels	Optimal	0 (0.0%)	32(49.2%)	32(49.2%)	<0.001
	High	33(50.8%)	0 (0.0%)	33(50.8%)	
HDL-C levels	Optimal	8(12.3%)	32(49.2%)	40(61.5%)	<0.001
	Low	25(38.5%)	0 (0.0%)	25(38.5%)	
Triglycerides levels	Optimal	17(26.2%)	32(49.2%)	49(75.4%)	<0.001
	High	16(24.6%)	0 (0.0%)	16(24.6%)	
Chi-square test was applied to study the significant differences between two studied groups according to all investigated bio-markers and baseline data.					

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According to the table (3): the study groups were divided into (heart disease patients) by 33 (50.8%) as cases of the study and 32 (49.2%) normal individuals as controls, genders distribution was 21(32.3%) males and 12(18.5%) females in cases. In addition to, most of selected individuals were in (≥ 36) with significant differences among them ($p < 0.05$). Non-significant differences ($p > 0.05$) were in patients with regular smoking activity which were distributed 19(29.2%) with normal BMI scale 21(32.3%). a significant difference in the abnormal cholesterol level as ($p > 0.05$) with high significant differences regarding to the abnormal levels of LDL-C, HDL-C and Triglycerides levels among cases ($p < 0.001$). Finally, the positive results for HTLV-I 26(40.0%) and high Concentration of D-dimer protein 30(46.2%) in cases came up with high significant differences between study groups ($p < 0.001$).

Table (4): Comparison association of the mean levels among studied biomarkers and baseline data according to the study groups

Baseline Data Bio-markers	Study Groups (n=65) Mean±SD		t. Test	p.value
	Cases (n=33)	Controls (n=32)		
Age	41.79±13.82	46.78±7.21	-1.81	>0.05
BMI	27.12±9.28	23.81±6.39	1.66	>0.05
CRP	21.40±6.45	20.06±6.14	0.85	>0.05
HTLV-I	24.08±11.03	8.57±6.10	6.98	<0.001
D-dimer	25.10±10.63	4.96±8.11	8.56	<0.001
Total Cholesterol	213.39±82.63	158.41±81.44	2.70	<0.001
LDL-C	6.97±2.45	0.83±0.12	14.15	<0.001
HDL-C	2.46±3.02	6.82±2.19	-6.63	<0.001
Triglycerides	175.36±89.83	47.34±23.32	7.80	<0.001

Independent *t*-Test was applied to test the mean comparison of bio-markers and baseline data according to study groups, data were presented as mean ± SD.

Table (4) reveals the comparison association of the mean levels between study groups, it was with the high significant difference among all demographic characteristics ($P < 0.001$) except with age, BMI and CRP were a non-significant difference ($P > 0.05$).

Table (5): Correlation of HTLV-I seropositivity with other studied variables

Variables	Pearson Correlation (r)	p.value
Age	0.01	>0.05
BMI	-0.005	>0.05
CRP	0.14	>0.05
D-dimer	0.90	<0.001
Total Cholesterol	0.09	>0.05
LDL-C	0.55	<0.001
HDL-C	-0.40	<0.001
Triglycerides	0.61	<0.001

Pearson Correlation test was applied to test the correlation of HTLV-I seropositivity with biomarkers and baseline characteristics

The correlation between HTLV-I seropositivity with studied variables exposed high significantly positive associations between them, but there was no association with age, BMI, CRP and total cholesterol as represented in table (5).

Table (6): Multiple regression analysis for variables predicting HTLV-I seropositivity with estimated coefficient (B, SE), t and *p.value*.

Variables	B	SE	t	<i>p.value</i>
Age	-1.301	3.991	-.326	>0.05
BMI	0.043	0.093	0.466	>0.05
CRP	0.006	0.113	0.052	>0.05
D-dimer	0.754	0.065	11.615	<0.001
Total Cholesterol	-0.009	.009	-1.011	>0.05
LDL-C	-0.229	0.220	-1.041	>0.05
HDL-C	-0.264	0.281	-0.941	>0.05
Triglycerides	0.020	0.010	2.067	<0.05

Multiple regression analysis was applied to test prediction of which one of the studied bio-markers effects on HTLV-I seropositivity

Regression analysis were included (bio-markers and baseline data) had been predicted that the D-dimer and Triglycerides levels were the only significant and effective variables regarding to HTLV-I seropositivity levels comparing to other studied variables as in table (6).

5. DISCUSSION

Data assessing cardiovascular risk in people with HTLV1 infection are scarce. According to our knowledge, this is the first Iraqi study to show that HTLV patients had poorer cardiovascular performance than healthy individuals. In persistent HTLV infection, lipid dysfunction may contribute to CVD [9]. The HIV and hepatitis chronic infections may be linked to increased inflammation and the incidence of CVDs, according to an increasing body of genetic and clinical evidence [9]. Additionally, it has been shown that people with HTLV1 infection have more inflammation in a variety of tissues.

Retroviruses like HIV-1, which causes increased inflammation, endothelial dysfunction, and accelerated atherosclerosis, and HTLV1, which has retroviral proteases and other related replication enzymes, may both cause CVD. The development of atherosclerotic CVD is largely dependent on lipoproteins like HDL and LDL [10]. Lipoproteins can be altered and become oxidized in conditions of systemic inflammation including atherosclerosis and persistent infections. Although several research have discussed the connection between LDL and atherosclerosis, it is still unknown how LDL affects atherogenesis.

The pathophysiology of persistent viral infections may be significantly influenced by HDL [11]. Additionally, new research reveals that HDL may have a role in the etiology of atherosclerotic cardiovascular disease (CVD) [11]. As a result, HDL rather than LDL may have a role in the etiology of atherosclerosis and persistent viral infections like HIV and HTLV. Our findings in this work add to the body of evidence supporting this theory, which still has to be verified in further models of chronic viral infections (e.g., chronic hepatitis and other chronic viral infections). In line with these findings, Shabestari et al. demonstrated that people with CVD have an approximately three times greater rate of HTLV1 sero-positivity than the general population [12]. The cause of HTLV-related CVD is yet unknown, but chronic inflammation brought on by persistent viral infections may play a role.

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As a result, other elements including lipid changes may play a role in the development of CVD in chronic HTLV infection. And it was discovered that, in comparison to healthy participants, HTLV1 infection was associated with lipid markers such as HDL, LDL, and triglyceride levels. Therefore, in chronic HTLV infection, alterations in lipid function and serum D-dimer levels may be a stronger indicator of CVD. Inadequate host immunological responses to pathogens like viruses and increased CVD risk may both be caused by changes in HDL function [13]. HDL function has repeatedly been shown to be a more accurate biomarker for predicting CVD than serum HDL in a number of cohort studies employing innovative approaches to assess HDL functionality rather than HDL level.

This study shown that HTLV-1-positive individuals frequently experience heart difficulties that are noticeably worse than those in age- and sex-matched control subjects. The fact that the HTLV-1 virus is a member of the Retroviridae family of viruses and that there is a dearth of pertinent information about HTLV-1 infection in the literature forced the researchers to compare the findings of this study to those of studies looking into the effects of HIV infection on atherosclerosis. In 1998, the first reports of severe premature atherosclerosis in people with HIV infection first appeared in the literature [14]. Uncontrolled viremia in HIV infection increases the risk of cardiovascular diseases, it is generally acknowledged [14].

The results of this study may suggest that the rate of vascular events may rise in HTLV-1-infected patients, as HIV-infected patients showed larger carotid IMTs than matched controls in a meta-analysis of thirteen cross-sectional investigations [15]. Even though there is strong temptation to start clinical trials testing whether interventions targeting HTLV-1 infection will slow the evolution of atherosclerosis, it must be emphasized that insufficient data are still lacking to conclusively prove an infection's causal role in the pathogenesis of atherosclerosis. Therefore, it is crucial to conduct additional animal and human studies that can further address the validity of the concept and support the hypothesis [15].

Additionally, in patients with stable CHD, higher baseline D-dimer levels are substantially linked to an increased risk of vascular events during a six-year period, including both arterial and venous events. D-dimer is an additional biomarker to take into account in risk stratification and clinical decisions because it continues to be a highly significant and consistent predictor of CVD and all-cause death over sixteen years. Traditional CVD and venous thromboembolic disease risk variables had no effect on this connection [15, 16]. The typical risk factors for arterial and venous disease include age, obesity, diabetes mellitus, and metabolic syndrome. Furthermore, there is proof that elevated D-dimer levels are indicative of an inflammatory state; D-dimer levels associated with hs-CRP levels but persisted as a very significant predictor even after hs-CRP levels were taken into account. D-dimer levels were linked to an increased risk of death from CVDs, cancer, and non-CVD non-cancer causes independently [16].

CONCLUSION

It was concluded HTLV-I seropositivity interfere with over secretion of D-dimer protein was related with heart diseases progression in who's reported with higher lipids profiles and CRP levels.

RECOMMENDATION

A molecular study of HTLV-I and its interference role with D-dimer protein up-regulation in heart diseases is needed for the prediction of a new disease susceptibility strategies, target therapies and preventing many chronic age-related diseases. Further studies are needed to clarify the reliability of these outcomes.

REFERENCES

- [1]. Muhsin, Jasim Mohammed. "The possible Connection of periodontal diseases (PD) with cardiovascular disease (CVD) and prostatitis in sample of Iraqi patients." *Muthanna Medical Journal* 6.1 (2019).
- [2]. Muhsin, Jasim Mohammed, and Sura O. Yousif and Ahmed Rahman Rawdhan. "Determination of the Cytomegalovirus (CMV) infection Role with the Disturbances of Immunoglobulin E (IgE) and Interleukin-33 (IL-33) Concentrations in the Pathogenesis of Asthma and Atherosclerosis in a Sample of Iraqi Patients." *J Pure Appl Microbiol* 13.2 (2019): 1003-1010.
- [3]. Muhsin, Jasim M. "Study the possible role of CMV and EBV infections to initiate high blood pressure in some groups of hypertensive Iraqi patients." *Diylala journal for Pure Science* 13 (2017): 117-129.
- [4]. Mahieux, Renaud, and Antoine Gessain. "The human HTLV-3 and HTLV-4 retroviruses: new members of the HTLV family." *Pathologie Biologie* 57.2 (2009): 161-166.
- [5]. Yaro, Abubakar. *Oncoviruses: Cellular and Molecular Virology*. AuthorHouse, 2021.
- [6]. Tanaka, Azusa, and Masao Matsuoka. "HTLV-1 alters T cells for viral persistence and transmission." *Frontiers in microbiology* 9 (2018): 461.
- [7]. Olson, John D. "D-dimer: an overview of hemostasis and fibrinolysis, assays, and clinical applications." *Advances in clinical chemistry* 69 (2015): 1-46.
- [8]. Hahne, Kathrin, Pia Lebedez, and Frank Breuckmann. "Impact of d-dimers on the differential diagnosis of acute chest pain: current aspects besides the widely known." *Clinical Medicine Insights: Cardiology* 8 (2014): CMC-S15948.
- [9]. Saylor, Deanna, et al. "HIV-associated neurocognitive disorder—pathogenesis and prospects for treatment." *Nature Reviews Neurology* 12.4 (2016): 234-248.
- [10]. Gillcrist, Marion. *HIV, cardiovascular disease, anti-retroviral resistance: the issue with protease inhibitors and a need for alternatives*. Diss. Boston University, 2020.
- [11]. Casula, Manuela, et al. "HDL in atherosclerotic cardiovascular disease: in search of a role." *Cells* 10.8 (2021): 1869.
- [12]. Nazir, Sumra, et al. "Interaction between high-density lipoproteins and inflammation: Function matters more than concentration!." *Advanced Drug Delivery Reviews* 159 (2020): 94-119.
- [13]. Samadi, Sara, et al. "Human T lymphotropic virus type 1 and risk of cardiovascular disease: High-density lipoprotein dysfunction versus serum HDL-C concentrations." *BioFactors* 45.3 (2019): 374-380.
- [14]. Abolbashari, Samaneh, et al. "The role of human T-lymphotropic virus (HTLV) in cardiovascular diseases: a review of literature." *ARYA atherosclerosis* 14.4 (2018): 183.
- [15]. Hanna, David B., et al. "HIV infection and carotid artery intima-media thickness: pooled analyses across 5 cohorts of the NHLBI HIV-CVD collaborative." *Clinical Infectious Diseases* 63.2 (2016): 249-256.
- [16]. Zhang, Xiaoyuan, et al. "Prognostic Role of High Sensitivity C-Reactive Protein in Patients with Acute Myocardial Infarction." *Frontiers in cardiovascular medicine* 8 (2021): 480.

VÜCUT VE BAĞIŞIKLIK SİSTEMİNDEKİ DEMİR EKSİKLİĞİNİN FİZYOLOJİK ÖZELLİKLERİ ETKİSİ NEDENİYLE DÜŞÜRÜCÜ SEVİYELER

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ÖZET

Kalsiyum, fosfor, potasyum, magnezyum ile birlikte demir de insan vücudunun işleyişi için önemlidir. Demir, kan yapımında ve hemoglobin oluşumunda yer alır, onsuz beyin dokuları ve iç salgı bezleri ve ayrıca tüm vücut oksijen ile beslenemez, ancak her zaman demir eksikliği vardır. Demir eksikliği vücutta oldukça yaygındır. . Sonuç olarak kan hastalıkları gelişir, güç azalır, genel ruh hali bozulur ve cilt doğal olmayan bir şekilde solgunlaşır. Ayrıca, bu element bağ dokusu üretiminde kullanılır, bağışıklık sistemi hücrelerinin sentezine ve beyin impulslarının vericilerinin üretimine katılır. Hayvan vücudu yaklaşık %0.01 demir içerir. Demir, hematopoez ve hücre içi değişim süreçlerinde vazgeçilmezdir. Demirin yaklaşık %55'i eritrositlerin hemoglobininde, %24'e kadarı kasların renk maddelerinde bulunur ve %21'e kadarı karaciğer ve dalakta rezerv olarak depolanır.

Anahtar Kelimeler: Demir Eksikliği, Fizyolojik Özellikler, Bağışıklık Sistemi

PHYSIOLOGICAL CHARACTERISTICS OF IRON DEFICIENCY IN THE BODY AND IMMUNE SYSTEM LOWERING LEVELS DUE TO ITS EFFECT

ABSTRACT

Along with calcium, phosphorus, potassium, magnesium, iron is also important for the functioning of the human body. Iron is involved in blood production and hemoglobin formation, without it the brain tissues and internal secretion glands, as well as the whole body, cannot be supplied with oxygen, but there is always a lack of iron.

Iron deficiency is quite common in the body. As a result, blood diseases develop, strength decreases, the general mood deteriorates, and the skin becomes unnaturally pale. Also, this element is used in the production of connective tissue, participates in the synthesis of cells of the immune system and in the production of transmitters of brain impulses. The animal body contains about 0.01% iron. Iron is indispensable in hematopoiesis and intracellular exchange processes. About 55% of iron is included in the hemoglobin of erythrocytes, up to 24% is included in the color substances of muscles, and up to 21% is stored for reserve in the liver and spleen.

Keywords: Iron Deficiency, Physiological Characteristics, Immune System

GİRİŞ

Demir kan hemoglobininde ve kaslarda bulunur. En çok hayvansal ürünler ile meyve ve sebzelerde bulunur. İnsan vücudundaki demirin yarısından fazlası kan hemoglobininde bulunur. Demir, manyetik alana sahip bir metaldir. Elemental anemi, insan diyetinde demir eksikliği olduğunda ortaya çıkar. Demir, bir dizi enzim olan fotosentez için gerekli maddelerin bileşimine dahil edilir. Demir eksik olduğunda klorofil oluşumu yavaşlar (Strai S.K.S., Bomford A., McArdle H.I., 2010). Kalsiyum, fosfor, potasyum, magnezyum ile birlikte demir de insan vücudunun işleyişi için önemlidir. Demir, kan yapımında ve hemoglobin oluşumunda yer alır, onsuz beyin dokuları ve iç salgı bezleri ve ayrıca tüm vücut oksijen ile beslenemez, ancak her zaman demir eksikliği vardır. Demir eksikliği vücutta oldukça yaygındır. . Sonuç olarak kan hastalıkları gelişir, güç azalır, genel ruh hali bozulur ve cilt doğal olmayan bir şekilde solgunlaşır. Ayrıca, bu element bağ dokusu üretiminde kullanılır, bağışıklık sistemi hücrelerinin sentezine ve beyin impulslarının vericilerinin üretimine katılır (Pasricha S.R., Flecknoe-Brown S.C., Allen K.J. et al., 2002). Hayvan vücudu yaklaşık %0.01 demir içerir. Demir, hematopoez ve hücre içi değişim süreçlerinde vazgeçilmezdir. Demirin yaklaşık %55'i eritrositlerin hemoglobininde, %24'e kadarı kasların renk maddelerinde bulunur ve %21'e kadarı karaciğer ve dalakta rezerv olarak depolanır (Kerimova R.C., İskenderova Z.Ş., Əzizova Ə.N., Rzayeva S.C., Ələkbərova M.Q., 2022).

Kanın rengini sağlayan, oksijeni bağlama ve iletme yeteneğinin yanı sıra demirdir. Eritrositler akciğerlerden tüm vücuda oksijen taşır ve vücuttan karbondioksiti uzaklaştırır. Oksijen güçlü bir oksidandır, ancak hemoglobin tam olarak içindeki demir nedeniyle oksijeni taşıyabilir. İnsan organizmasında demir içeren enzimler vardır. Ayrıca vücudun ihtiyacı olan demir içeren maddelerin oluştuğu ferritin adı verilen bir protein kompleksi de vardır. Üç değerlikli demir iyonları, kompleks transferrin proteini yardımıyla vücutta transfer edilir (Moreau JM, Girgis DO, Hume EB, Dajcs JJ, Austin MS., 2001). Demir, enerji salınımında, enzimatik reaksiyonlarda, bağışıklık fonksiyonlarında ve kolesterol metabolizmasında önemli rol oynar. Bir insan 70 gr ağırlığında iken vücutta 4.2-5 gr demir bulunur. Yaşlı bir kişinin günde 10-20 mg demire ihtiyacı vardır (Moreau JM, Girgis DO, Hume EB, Dajcs JJ, Austin MS., 2001).

Kanda demir eksikliği olduğunda anemi oluşur. En sık görülen anemi, eski çağlardan beri anemi olarak adlandırılan demir eksikliği anemisi'dir. Anemi, esas olarak demir içeren hemoglobin eksikliğinden kaynaklanır. Hemoglobin oksijeni vücut bölgelerine taşıyan maddedir. Yani vücut demir almazsa hemoglobin azalır ve bu da vücut bölümlerinin oksijen beslenmesinde sorunlara neden olur. Sağlıklı bir insanın vücudunda 5 gram demir olması gerekir. Yüzde 70'i kanda, geri kalanı ise kemik iliği, karaciğer ve dalakta bulunuyor. Demir, kanın kırmızı pigmenti olan hemoglobine dahildir (Серов В.Н., Шаповаленко С.А., 2008). Hemoglobinin ana işlevi vücuda oksijen sağlamak ve karbondioksiti vücuttan uzaklaştırmaktır.

Ancak hemoglobin, karbon monoksit ile yok edilemez bir bağ oluşturma yeteneğine sahiptir. Bu olduğunda, hemoglobin hücrelere oksijen taşıma ve vücuttan karbondioksiti çıkarma yeteneğini kaybeder. Karbon monoksit zehirlenmesi işte böyle başlar (Johnson-Wimbley T.D., Graham D.Y., 2011) Sağlığı etkileyen tüm hayati süreçler kırmızı kan hücrelerine bağlıdır. Kırmızı kan hücreleri mikroskobik parçacıklardır. Bu küçük hücreler, her molekülü 1 demir atomu içeren ortalama 280 milyon hemoglobin molekülü içerir. Yani toplamda 1 milyardan fazla demir atomu var. Bildiğimiz gibi kırmızı kan hücreleri kemik iliğinde yaratılır, oradan kana girerek dolaşıma girer, sonra dalak ve karaciğerde parçalanarak demirlerini o organlara verirler. Bomford A., 2002).

Demir sadece kırmızı kan hücrelerinin oluşumu için değil, aynı zamanda kas fonksiyonu ve çoğu metalloenzimin oluşumu için de gereklidir. Eritrositler akciğerlerden tüm vücuda oksijen taşır ve vücuttan karbondioksiti uzaklaştırır. Oksijen güçlü bir oksidandır, ancak hemoglobin tam olarak içindeki demir nedeniyle oksijeni taşıyabilir. İnsan organizmasında demir içeren enzimler vardır. Vücut için gerekli diğer demir içeren maddelerin oluştuğu ferritin adı verilen bir protein kompleksi de vardır (Серов В.Н., Шаповаленко С.А., 2008). Ferritin proteini, demirin bağırsaklardan emilmesinde ve vücutta depolanmasında büyük role sahiptir (Pasricha S.R., Flecknoe-Brown S.C., 2010). Demir, başta apoferritin ile birlikte karaciğer olmak üzere vücudun çeşitli dokularında bulunur. Kandaki demir miktarı arttığında karaciğerde apoferritin protein sentezi hızlanır ve bu sayede karaciğer hücreleri rezerv için demir depolama imkanına sahip olurlar. Burada sentezlenen apoferritin, bağırsak yolundan geçen üç değerlikli Fe iyonları ile birleşir; bu demirin bağırsaklardan emilmesini sağlar. Böylece karaciğerdeki apoferritin-ferritin sistemi, bir demir deposu işlevini yerine getirir ve ayrıca kandaki demir miktarının kararlı bir şekilde korunması için koşullar sağlar (Рухляда Н.Н., Гасымова Д.М., 2014).

Kansızlığın gelişimi, vücudun organlarına ve dokularına oksijen sağlayan kırmızı kan hücrelerinin bozulmasına neden olan çeşitli süreçlere dayanır (Коноводова Е.Н., Докуева Р.С.-Э., 2011). Anemi aşırı koşullardan kaynaklanmaz, yavaş gelişir, kural olarak demir eksikliğinden etkilenir. Bu element, kırmızı kan hücrelerinin bir parçası olan hemoglobin proteininin oluşumu için gereklidir ve oksijen molekülleri ona yapışır. Hemoglobin seviyesi düşerse, normal sayıdaki kırmızı kan hücreleri gaz değişimini uygun seviyede tutamaz. Demir tedavisi seçimi, yalnızca demir eksikliğine kazanılmış anemi eşlik ediyorsa uygun bir yaklaşım olarak kabul edilir. Demir depoları 2-3 ay içinde tükenir ve kazanılmış aneminin gerçek derecesi ancak bu dönemden sonra net olarak ortaya çıkar. Vücuttaki demir eksikliği ciddi bir patolojik durum olarak kabul edilir ve bu durum insanlarda birçok hastalığın ortaya çıkması için elverişli koşullar yaratır. Demir, kan bileşiminin en önemli unsurlarından biridir. Hemoglobin oluşumunda yer alan demir, kırmızı kan hücrelerinin bir bileşenidir. Hemoglobin oksijeni vücut bölgelerine taşıyan maddedir. Vücutta demir eksikliği varsa, bu daha az kırmızı kan hücresi olduğu anlamına gelir. Bu durumda kandaki hemoglobin seviyesi düşer ve dokular yeterince oksijen alamaz. Ayrıca demir bağışıklığı güçlendirir, metabolik süreçlere katılır, fiziksel ve zihinsel çalışmanın verimliliğini artırır, vücuda enerji sağlar (Strai S.K.S., Bomford A., McArdle H.I., 2002).

Bağışıklık sistemi

Bağışıklık sistemi, çeşitli enfeksiyöz ajanlara karşı vücudun spesifik olarak korunmasını sağlayan, vücudun önemli sistemlerinden biridir. Doğuştan kronik hastalıklar, enfeksiyonlar, yaşam tarzı ve beslenmede yapılan hatalar gibi değiştirilemeyen faktörler bağışıklık sisteminin zayıflamasına neden olabilir. Bağışıklık sisteminin zayıflamasının başlıca nedenlerinden biri az ve dengesiz beslenmedir.

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Karbonhidrattan zengin, proteinden fakir, fazla kilolu ve zayıf besinler başlıca etkenlerdir. A, B, C, E, D vitaminleri, selenyum, demir, çinko ve karotenler bağışıklık sisteminin karmaşık reaksiyonlarını hızlandırır. Bunlardan birinin eksikliği vücudumuzu dış etkenlere karşı hassas hale getirir. Alkol tüketimi, sigara, radyasyona maruz kalma, probiyotik eksikliği, kalitesiz uyku, iyi dinlenememe, aşırı stres yükü, sık antibiyotik kullanımı bağışıklığın zayıflamasında rol oynayan başlıca nedenlerdir (Pasricha S.R., Flecknoe-Brown S.C., Allen K.J. et al.,2010). Birçok eksiklik ve hastalık bağışıklık sistemimize zarar verebilir veya bozabilir. Vücudumuzun enfeksiyonla savaşmasını zorlaştıran ilaçlar var. Bazı sağlık sorunları, bağışıklık sistemimizin sağlıklı hücrelere saldırmasını veya bizi zararlı mikroplardan korumasını engelleyebilir. Her insanın havaya, suya, güneşe, uykuya, her türlü dengeli beslenmeye ihtiyacı vardır ve stresten uzak durmak önemlidir. Bağışıklık sisteminin en önemli ihtiyacı oksijendir. Hipoksi tüm sistemlerimiz için zararlıdır. Oksijenin önemli bir örneği ateroskleroz ile ilgilidir. Ateroskleroz aynı zamanda bir bağışıklık sistemi hastalığıdır. Damar duvarında mikropsuz iltihaplanma ile başlar. Oksijensiz bir ortam, zararlı yağların birikmesine yol açar. Mümkün olduğunca oksijence zengin ortamlarda bulunmak mikroplarla karşılaşma sıklığını azaltır ve güçlü bir bağışıklık sağlar. Bir diğer önemli faktör de iyi uykudur. Çünkü serotonin uyku sırasında salgılanır ve bu hormon T-lenfosit adı verilen özel hücre grubumuzun daha iyi çalışmasını sağlar. Sağlıklı ve güçlü bir bağışıklık sistemi için güneş ışığı ve D vitamini olmazsa olmazdır. Yani normal ve sağlıklı beslenme, oksijen, güneşli ortam ve iyi uyku - tüm bunlar bağışıklık sistemini güçlendirir (Kerimova R.C., Rzayeva S.C.,Əzizova Ə. N.,Cəfərova Q.K.,Ələkbərova M.Q.,2022).D vitamini sadece kemik sağlığı için değil, aynı zamanda güçlü bir bağışıklık sistemi için de önemlidir. Çeşitli süreçlerde bağışıklık sistemimizi harekete geçirir ve yönetiminde kilit işlevleri yerine getirir. D vitamini düzenleyici etkisi sayesinde vücudu kendi bağışıklık sisteminin hatalı saldırılarına karşı koruyarak otoimmün hastalıklar ve kronik iltihaplanma riskini azaltır. D vitamini eksikliğinden dolayı T hücrelerimiz ve diğer antikörlerimiz yeterince aktive olamamakta, kanımızda ve dokularımızda mikroplar iyi tespit edilip yok edilememektedir. D vitamini kaynağımız yıl içinde tükendiğinde, bağışıklık sistemimizi zayıflatır ve hastalanmaya ve gribe yakalanmaya daha yatkın hale geliriz (Kerimova R.C.,İskəndərova Z.Ş.,Əzizova Ə.N.,Rzayeva S.C.,Ələkbərova M.Q.,2022).

D vitamini, kendi üretebildiğimiz ve depolayabildiğimiz ender biyofaktörlerden biridir. Bu nedenle D vitamini aslında bir vitamin değil, bir hormondur. Güneş ışığı hormonu olarak da bilinir - çünkü öncüsü güneş ışığına maruz kaldığımızda cildimizde kolesterolden üretilir. Karaciğerdeki dönüşümden sonra karanlık kış ayları için yağ dokumuzda depolanabilir. Bağışıklık sistemi ihtiyaç duyduğunda, böbrekler tarafından aktive edilir ve ardından bağışıklık sisteminin normal işleyişine katılır. Ek olarak, kış aylarında güneş radyasyonu birkaç ay boyunca çok zayıftır, bu nedenle kuzey enlemlerinde UV-B radyasyonu artık Dünya'ya ulaşmaz. Yani kendi D vitamini üretimimiz sonbahar ve ilkbahar arasında hemen hemen durur (.Smith JL,m2003). Vücudun günlük demir ihtiyacı erkekler için 10 mg, kadınlar için 20 ve çocuklar için 4-18 mg'dır.Hamileler için günlük norm 30-35 mg olmalıdır.Demir eksikliği birçok vücut sürecini etkileyen tehlikeli bir faktördür. Cildin durumunu önemli ölçüde etkiler ve daha sonra oksijen değişimi ve hücre beslenmesinin ihlali olarak kendini gösterir. Vücudun böyle bir zayıflığının arka planına karşı, kişi artan yorgunluğa, anemiye, bağışıklık sisteminin zayıflamasına ve hastalıklara maruz kalır (Kerimova R.C., Rzayeva S.C.,Əzizova Ə. N.,Cəfərova Q.K.,Ələkbərova M.Q.,2022).

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Kaynaklar

1. Kərimova R.C., Rzayeva S.C., Əzizova Ə. N., Cəfərova Q.K., Ələkbərova M.Q. Vücutlarımızın, beyin ve kalbimizin etkinliklerinde nitroksit-oksit yaşam düzenleyici rolü. PROCEEDINGS BOOK-VOL 2, MIDDLE EAST INTERNATIONAL CONFERENCE ON CONTEMPORARY SCIENTIFIC STUDIES-VII. March 3-4, 2022 Beirut Arab University, Lebanon, səh 447-452

2. Kərimova R.C., İskəndərova Z.Ş., Əzizova Ə.N., Rzayeva S.C., Ələkbərova M.Q. İnsan həyatı üçün önəmli olan azot, yaşam üçün temel maddələrdən biridir. 6th INTERNATIONAL NEW YORK CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES, PROCEEDINGS BOOK, Manhattan, New York City. April 3-5, 2022, səh 452-457

3. Spits H, Cupedo T. Innate lymphoid cells: emerging insights in development, lineage relationships, and function. 2012. səh. 647–75.

4. Moreau JM, Girgis DO, Hume EB, Dajcs JJ, Austin MS, O'Callaghan RJ. Phospholipase A(2) in rabbit tears: a host defense against Staphylococcus aureus. 2001. səh. 2347–54.

5. Smith JL. The role of gastric acid in preventing foodborne disease and how bacteria overcome acid conditions. 2003. səh. 1292–1303.

6. Серов В.Н., Шаповаленко С.А. Диагностика и лечение железодефицитных состояний у женщин в различные периоды жизни // Атмосфера. Кардиология. 2008; 2: 17-20.

7. Strai S.K.S., Bomford A., McArdle H.I. Iron transport across cell membranes: molecular understanding of duodenal and placental iron uptake // Best Practise & Research Clin Haem. 2002; 15: 2: 243-259.

8. Рухляда Н.Н., Гасымова Д.М. Предоперационная подготовка больных с анемией перед миомэктомией и операцией по поводу аденомиоза. Акуш. и гинек., 2014, 9: 85-9.

9. Коноводова Е.Н., Докуева Р.С-Э., Якунина Н.А. Железодефицитные состояния в акушерско-гинекологической практике. РМЖ. 2011; 20: 1228-1231.

10 Pasricha S.R., Flecknoe-Brown S.C., Allen K.J. et al. Diagnosis and management of iron deficiency anaemia: a clinical update. Med. J. Aust. 2010; 193 (9): 525-32.

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ÖZET

Demirin biyolojik sistemlere katılımı uzun zamandır bilinmektedir. Demir insan vücuduna ağırlıklı olarak bitkisel besinler ve et ile girer. İnsan vücudundaki demir miktarı 3-4 gram olup, vücuttaki diğer tüm geçiş metallerinin toplam miktarından fazladır. Vücutun demir rezervinin %65-70'i hemoglobinde, %15'i ise karaciğer, dalak, kemik iliği ve böbreklerde yoğunlaşmıştır. Geri kalanı plazmada protein sentezi ve oksidasyon-redüksiyon reaksiyonlarında yer alır. Vücuttaki fazla demir normalde ferritin adı verilen proteinin bileşiminde yer aldığından toksik etkisi ortadan kalkar. Vücutta demir eksikliği olduğunda ferritinin içerdiği demir iyonları uzaklaştırılır ve kullanılır. Ancak demir miktarı fazla olduğunda ferritin molekülleri yapılarını kaybederek birbirleriyle birleşerek hemosiderin haline gelirler. Ferritin moleküllerinin bir elektron mikroskopunun ancak 100.000 ve daha yüksek büyütmelerinde tespit edilebildiği kesin olarak belirlenmiştir.

Anahtar Kelimeler: Demir Durumu, Fizyolojik, Histolojik Özellikler, Endokrin Sistem

PHYSIOLOGICAL, HISTOLOGICAL CHARACTERISTICS OF IRON DEFICIENCY AND ITS CHANGES ON THE ENDOCRINE SYSTEM

ABSTRACT

The participation of iron in biological systems has been known for a long time. Iron enters the human body mainly with vegetable foods and meat. The amount of iron in the human body is 3-4 grams, which is more than the total amount of all other transition metals in the body. 65-70% of the body's iron reserve is contained in hemoglobin, 15% is concentrated in the liver, spleen, bone marrow and kidneys. The rest is involved in protein synthesis and oxidation-reduction reactions in plasma.

Since the excess of iron in the body is normally included in the composition of the protein called ferritin, its toxic effect is eliminated. When there is a lack of iron in the body, the iron ions contained in ferritin are removed and used. However, when the amount of iron is high, ferritin molecules lose their structure and combine with each other and become hemosiderin. It has been precisely determined that ferritin molecules can only be detected at 100,000 and higher magnifications of an electron microscope.

Keywords: Iron Status, Physiological, Histological Characteristics, Endocrine System

GİRİŞ

Demirin biyolojik sistemlere katılımı uzun zamandır bilinmektedir. Demir insan vücuduna ağırlıklı olarak bitkisel besinler ve et ile girer. İnsan vücudundaki demir miktarı 3-4 gram olup, vücuttaki diğer tüm geçiş metallerinin toplam miktarından fazladır. Vücudun demir rezervinin %65-70'i hemoglobinde, %15'i ise karaciğer, dalak, kemik iliği ve böbreklerde yoğunlaşmıştır. Geri kalanı plazmada protein sentezi ve oksidasyon-redüksiyon reaksiyonlarında yer alır. Vücuttaki fazla demir normalde ferritin adı verilen proteinin bileşiminde yer aldığından toksik etkisi ortadan kalkar. Vücutta demir eksikliği olduğunda ferritinin içerdiği demir iyonları uzaklaştırılır ve kullanılır. Ancak demir miktarı fazla olduğunda ferritin molekülleri yapılarını kaybederek birbirleriyle birleşerek hemosiderin haline gelirler. Ferritin moleküllerinin bir elektron mikroskobunun ancak 100.000 ve daha yüksek büyütmelerinde tespit edilebildiği kesin olarak belirlenmiştir (Krishnaswamy G, Ajitawi O, Chi DS. ,2006). Vücutta normal kırmızı kan hücrelerinin üretimi için demir gereklidir. Demir, hemoglobinin en önemli elementidir.

Hemoglobin vücutta oksijen taşıyan kırmızı kan hücrelerinde bulunan bir protein bileşimidir. Vücutta demir eksikliği anemiye, mikrositlere ve kırmızı kan hücrelerinin hipokromatik olmasına neden olur. Vücutta fazla demir girmesi sonucu organlarda ve organlarda demir bileşiklerinin birikmesi dokularda meydana gelebilir, bunun sonucunda karaciğer, kalp ve pankreasa zarar verebilir. Normalde demir vücutta besinler yoluyla girer. Daha sonra karaciğer tarafından üretilen transferrin vasıtasıyla vücutta taşınır. Taşınan demirin %70'i kırmızı kan hücrelerinde hemoglobin ile birleştirilir. Geri kalanının çoğu ferritin veya hemosiderin olarak depolanır. Miyoglobin ve bazı enzimler gibi diğer proteinlerin üretimi için az bir miktar kullanılır. Akut veya kronik kan kaybı, hamilelik ve yetersiz demir alımı sırasında kanda demir eksikliği bulunabilir. Demir takviyesi alımı aşırı olmamalıdır. Özellikle çocuklarda aşırı demir takviyesi kullanımı demir zehirlenmesine neden olur (Guermontprez P, Valladeau J, Zitvogel L, Théry C, Amigorena S, 2002).

Demir metabolizmasının ihlali farklı derecelerde meydana gelir. En hafif vaka, vücutta yeterli fonksiyonel demir olmasına rağmen, ek demir rezervlerinin olmamasıdır. Bu aşamada serum demir düzeyi normal olmasına rağmen ferritin düzeyi azalacaktır. Demir eksikliği arttıkça tüm demir depoları tükenir ve vücut demir taşınmasını hızlandırmak için daha fazla transferrin üretmeye başlar. Transferrin ve demir bağlama özelliği artar, serum demiri azalır. Bu aşama ilerledikçe, daha az kırmızı kan hücresi üretilir. Demir eksikliği anemisinde kırmızı kan hücrelerinin sayısı azalır ve birçok hücre normalden daha solgun ve küçük görünür. Bir seferde çok fazla demir alındığında demir zehirlenmesi meydana gelir. Nadir görülen bir durum olmasına rağmen, ebeveynleri demir takviyesi kullanan çocuklarda daha sık görülür. Demir zehirlenmesi bazı durumlarda ölümcül olabilir (Rua R, McGavern DB. , 2015).

İnsan vücudunda birçok madde sentezlenir ancak demir vücut tarafından üretilmediği için besinlerle alınması gerekir. Bu makro besinin kaynağı hayvansal ve bitkisel besinlerdir. Yetişkin bir insan vücudunda yaklaşık 3,5 gram demir bulunur. Sadece saf formda değil, kombinasyonlarda da bulunur.

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Makro besinlerin çoğu hemoglobin ve eritrositler tarafından temsil edilir - bunlar hücrelere oksijen taşıyan bileşiklerdir. Makro besinlerin bir kısmı kaslarda, karaciğerde ve dalakta bulunan protein bileşikleri şeklinde depolanır (Серов В.Н., Шаповаленко С.А., Флакс Г.А., 2008). İşlevsel demir bileşiklerinin parçalanmasından sonra açığa çıkan elementin çoğu yeniden kullanılır. Demiri hematopoietik organlara iletmek için, makro besinlerle bileşikler oluşturan taşıma proteinleri kullanılır. Bu bileşiklere serum demiri denir.

İnsan vücudundaki toplam demir miktarı cinsiyete, kiloya ve yaşa bağlı olarak iki ila yedi gram arasında değişir. Bu madde saf haliyle vücutta bulunmaz, çok zehirlidir, bu nedenle demir kana girdiğinde çoğu proteinlerle birleşir. Demirin geri kalanı anında hemosiderin veya ferritine dönüştürülür, dokularda rezerv olarak depolanır ve vücutta demir eksikliği olduğunda oradan atılır. Vücudun kendisi demir üretmez, yiyeceklerden gelir, demir Bağırsaklarda emilir. Daha sonra demir kanın sıvı kısmı olan plazmada bulunur (Johnson-Wimbley T.D., Graham D.Y., 2011). Mikro elementin yaklaşık yüzde sekseni, eritrositlerin bir bileşeni olan hemoglobinin bir parçasıdır. Burada demir, oksijen ve karbondioksiti hemoglobine bağlamaktan sorumludur. Demir akciğerlerdeki oksijeni bağlar. Daha sonra eritrositlerin içerdiği hemoglobinde hücrelere gider, oksijeni onlara aktarır ve karbondioksiti kendisine bağlar. Bundan sonra eritrosit, demir atomlarının karbondioksitten kolayca ayrıldığı akciğerlere gönderilir. İlginçtir ki demir, ancak hemoglobin içinde bulunduğu gazları bağlama ve ayırma yeteneği kazanır. Demirin yaklaşık yüzde onu, miyokard ve iskelet kaslarında bulunan miyoglobinde bulunur. Miyoglobin oksijeni bağlar ve depolar. Vücut oksijen açlığı yaşamaya başlarsa, bu gaz miyoglobinden çıkarılır, kaslara gider ve diğer reaksiyonlara katılır. Bu nedenle, herhangi bir nedenle kasın herhangi bir yerine giden kan akışı bozulursa, kas bir süre daha oksijen almaya devam eder (Johnson-Wimbley T.D., Graham D.Y., 2011).

Ayrıca demir, diğer maddelerin bir parçasıdır ve onlarla birlikte hematopoez, DNA, bağ dokusu üretimine katılır. Lipid metabolizmasına, oksidatif reaksiyonlara katılır, karaciğer tarafından zehirlerin detoksifikasyonunu düzenler, enerji metabolizmasını düzenler (Rua R, McGavern DB., 2015). Birçok metabolik süreçte yer alan hormonların sentezi için tiroid bezinin demire ihtiyacı vardır. Hamilelikte demirin rolü önemlidir, bebeğin vücut dokularını oluşturmak için kullanılır. Vücuttaki demir eksikliğinin sinir sisteminin çalışmasını olumsuz etkilediği uzun zamandır bilinmektedir, çünkü bu element beyin hücreleri arasındaki sinyallerin iletilmesinde görev alır. Demir vücudun hastalıklara karşı direncini artırır, yorgunluğu giderir. Bu nedenle, demir eksikliği ile kişi genellikle zayıf hisseder (Kerimova R.C., Rzayeva S.C., Əzizova Ə.N., İskəndərova Z.Ş., Bayramov A.A., Təhməzov E.F., 2022).

Kadın vücudundaki demir miktarı erkeklere göre daha azdır. Üreme çağındaki kadınlarda demir konsantrasyonu adet dönemine bağlıdır. Dönemin ikinci yarısında bu elementin göstergeleri en yüksek değerlere ulaşır, adet sonrası seviye büyük ölçüde düşer, bu da adet sırasında kan kaybıyla ilişkilidir. Hamilelik sırasında vücuttaki demir miktarı aynı seviyede olmalıdır. Aynı zamanda vücudun demir ihtiyacı artar ve bu nedenle hamilelik döneminde besinlerle yeterli miktarda demir sağlamak gerekir. Bunun nedeni, bu eser elemente sadece annenin vücudu tarafından değil, bebeğin de gelişiminin belirli bir aşamasında ihtiyaç duymasındadır, çok hızlı bir şekilde büyük miktarlarda almaya başlar, bu nedenle hamilelik sırasında özel bir diyet izlenmelidir. ve aynı zamanda özel vitamin ve mineral müstahzarlarının kullanılması tercih edilmelidir. Bu sayede hamilelik sırasında vücuda gerekli tüm maddeler sağlanır. Doğumdan sonra hamilelikte olduğu gibi acil demir ihtiyacı ortadan kalkar (Alminen SJ, Gueimonde M, Isolauri E., 2005).

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Kandaki demir konsantrasyonu birçok nedene bağlıdır. Demir vücudu farklı şekillerde terk eder - dışkı, idrar ve hatta tırnaklarda ve saçta. Bu nedenle vücutta demir yoksa birçok organın çalışmasında bozukluklar olur. ve sistemler. Bu nedenle eser elementlerin eksikliği aşağıdaki belirtilerle anlaşılır: artan yorgunluk, halsizlik hissi, yorgunluk, artan kalp hızı, nefes darlığı, sinirlilik, baş dönmesi, migren, vb (Kerimova R. C., Məşədiyeva S.Ə., Bayramov A.A., Yusifova M. Y., 2020). Çoğu durumda, demir metabolizması bozuklukları yetersiz beslenmeden kaynaklanır. Örneğin, vejeteryanlarda, süt ürünleri diyeti uygulayan kişilerde ve ayrıca yağlı yiyecekleri sevenlerde eksiklik not edilir. Ayrıca açlık grevi sırasında vücutta daha az demir bulunur. Diyeti düzelttikten, vitamin ve mineral preparatları aldıktan sonra konsantrasyonu normale döner Vücuttaki az miktarda demir, vücudun bu elemente olan ihtiyacındaki artıştan kaynaklanıyor olabilir. Bu öncelikle iki yaşın altındaki çocuklar, ergenler, hamilelik ve emzirme dönemindeki kadınlar için geçerlidir. Bazen demir eksikliği stresli durumlara ve sinir sisteminin bozulmasına neden olabilir (Kerimova R.C., Rzayeva S.C., Əzizova Ə.N., İskəndərova Z.Ş., Bayramov A.A., Təhməzov E.F., 2022). Demir eksikliği çeşitli hastalıklara neden olabilir: Bağırsaktaki eser elementlerin normal emilimini engelleyen gastrointestinal sistem hastalıklarının neden olduğu anemi. Gastrit, enterit, enterokolit, mide ve bağırsaklardaki çeşitli tümörler, ince bağırsağın veya midenin bir kısmının çıkarılması ameliyatı İltihabın varlığı, pürülan-septik ve diğer enfeksiyonlar, osteomyelit, miyokard enfarktüsü, demir içeren pigment hemosiderin miktarında artış . Kronik böbrek yetmezliği veya bu organın diğer hastalıklarına bağlı olarak böbreklerde eritropoietin hormonunun sentezinde sorun olması (Kerimova R. C., Məşədiyeva S.Ə., Bayramov A.A., Yusifova M. Y., 2020).

Kadınlar arasında demir metabolizması, sürekli değişen hormonal arka planın etkisi altında devam eder, bu nedenle kadınlarda kandaki serum demir oranı biraz hafife alınır ve esas olarak menstrüasyon nedeniyle yaklaşık 10.7-21.5 $\mu\text{mol} / \text{l}$ 'dir. Plazma Fe içeriği de hamilelik sırasında önemli ölçüde azalabilir. Bu nedenle hamilelik sırasında bu gösterge 10.0 $\mu\text{mol} / \text{l}$ 'den düşük olmamalıdır (Krishnaswamy G, Ajitawi O, Chi DS. ,2006).

Erkeklerde, hücrelerdeki ferritinin azalmasına genellikle alkollü içeceklerin ve ikame maddelerinin kötüye kullanılmasının arka planında ortaya çıkan karaciğer hastalıkları neden olur. Erkeklerde normal serum demir seviyesi 14.0 ile 30.4 $\mu\text{mol} / \text{l}$ arasındadır.

Çocukların kanındaki Fe içeriği yaşa, kiloya ve boya göre değişir. Yalnızca anne sütü ile beslenen bir yaşın altındaki çocuklarda hemoglobinde hafif bir azalma olur. Bu gerçek endişe verici değildir çünkü heme demir adı verilen madde bebeklerin vücudunda sınırlıdır. Bir yaşına kadar olan çocuklarda serum Fe normu 7-18 $\mu\text{mol} / \text{l}$ 'dir ve daha büyük çocuklarda bu rakam 9-21 $\mu\text{mol} / \text{l}$ 'ye ulaşabilir (Alminen SJ, Gueimonde M, Isolauri E. ,2005).

Bu elementin asıl görevi oksijenin taşınması ve depolanmasıdır. Eritrositlerin oluştuğu hemoglobinin temelidir. Bu element, solunum sırasında oksijen moleküllerini bağlamaya izin verir, bu da vücudun herhangi bir yerine aktarılmasına izin verir. Yardımı ile doymuş kırmızı kan hücreleri vücutta dolaşarak kasları, organları ve dokuları besler. Aynı zamanda vücuda zararlı olan karbondioksiti de uzaklaştırır. Oksijeni korumak için demire de ihtiyaç vardır. Buna dayanarak kas çalışması sırasında oksijenin birikmesinden ve dağılımından sorumlu olan miyogloblin çalışır. Demir metabolizmada önemli rol oynar. Bu işlemlerde kullanılan enzimler, çalışmalarını demire dayandırır. DNA sentezinde kullanılır ve bu nedenle hücre bölünmesi ve büyümesi için gereklidir. Bu element olmadan protein metabolizması imkansızdır - vücutta önemli bir süreçtir (Guermont P, Valladeau J, Zitvogel L, Théry C, Amigorena S, 2002).

Buna dayanarak vücuttaki birçok metabolik süreci düzenleyen hormonların sentezi üretilir. Ayrıca bu element bağ dokusu üretiminde kullanılır, bağışıklık sistemi hücrelerinin sentezine ve beyin uyarılarının iletilmelerinin üretimine katılır. Demir, insan vücudu için önemli bir elementtir, çünkü birçok süreçte yer alır. Oksijenin, birçok hormonun ve hücre sentezinin, metabolizmanın ve diğer görevlerin taşınması ve depolanması için temel oluşturur. Demir eksikliği, birçok vücut sürecini etkileyen tehlikeli bir faktördür. Cildin durumunu önemli ölçüde etkiler ve daha sonra oksijen değişimi ve hücre beslenmesinin ihlali olarak kendini gösterir. Vücudun böyle bir zayıflığının arka planına karşı, kişi artan yorgunluğa, anemiye, bağışıklık sisteminin zayıflamasına ve hastalıklara maruz kalır (Reid G, Jass J, Sebulsy MT, McCormick JK, 2003).

Demir vücutta esas olarak gıda yoluyla girer. En yüksek içeriğe sahip yiyecek et, yani sığır eti olarak kabul edilir. Bu element açısından zengin diğer besinler karaciğer, balık, karabuğday, fasulye, yumurtadır. Taze bitkilerde ve diğer bitki gıdalarında bulunan C vitamini, demirin optimal emilimini destekler. Kural olarak, yiyeceklerle birlikte gelen miktarın % 10-15'i asimile edilir. Emilim duodenumda gerçekleşir. Bu nedenle, genellikle düşük serum demiri, bağırsak yolunun çeşitli patolojilerinin sonucudur. Konsantrasyonu ayrıca dalakta, bağırsaklarda, kemik iliğinde depolanan demir miktarına ve vücuttaki hemoglobinin sentezine ve parçalanmasına da bağlıdır. Fizyolojik demir kaybı dışkı, idrar, ter, tırnak ve saç yoluyla gerçekleşir.

Kaynaklar

1. Kərimova R. C., Məşədiyeva S. Ə., Bayramov A. A., Yusifova M. Y. Dəmir çatışmazlığı, insan orqanizmində onun rolu. // TƏBİƏT VƏ ELM, Beynəlxalq elmi jurnal "TƏBİƏT ELMLƏRİNİN ƏSASLARI" mövzusunda 1 RESPUBLIKA ELMI KONFRANSIN MATERIALLARI 24 iyun 2020 –ci il, s. 11-12

2. Kərimova R. C., Rzayeva S. C., Əzizova Ə. N., İskəndərova Z. Ş., Bayramov A. A., Təhməzov E. F. The effect of biological factors and chemicals on the human body. // CONFERENCE PROCEEDINGS BOOK 5TH INTERNATIONAL AFRICAN CONFERENCE ON CURRENT STUDIES. Febua 2-5, 2022 Cairo, Egyp, səh 282-288

3. Alminen SJ, Gueimonde M, Isolauri E. Probiotics that modify disease risk. The Journal of Nutrition. 2005. səh. 1294-98.

4. Reid G, Jass J, Sebulsy MT, McCormick JK. Potential Uses of Probiotics in Clinical Practice. 2003. səh. 658-672.

5. Rua R, McGavern DB. Elucidation of monocyte/macrophage dynamics and function by intravital imaging. 2015. səh. 319–32.

6. Guernonprez P, Valladeau J, Zitvogel L, Théry C, Amigorena S. Antigen presentation and T cell stimulation by dendritic cells. 2002. səh. 621–67.

7. Krishnaswamy G, Ajitawi O, Chi DS. The human mast cell: an overview / İnsan mast hüceyrəsi: ümumi. 2006. səh. 13-34. ISBN 1-59259-967-2.

8. Kariyawasam HH, Robinson DS. The eosinophil: the cell and its weapons, the cytokines, its locations / Eozinofil: hüceyrə və onun silahları, sitokinlər, yerləri. 2006. səh. 117–27.

9. Серов В.Н., Шаповаленко С.А., Флакс Г.А. Диагностика и лечение железодефицитных состояний у женщин в различные периоды жизни. Атмосфера. Кардиология. 2008; 2: 17-20.

10. Johnson-Wimbley T.D., Graham D.Y., Diagnosis and management of iron deficiency anemia in the 21st century. Therap. Adv. Gastroenterol. 2011; 4 (3): 177-84.

PERSPECTIVES FOR CONTROLLING BIOFILM-FORMING BACTERIA IN DIABETIC FOOT SYNDROME

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Abstract

The results of local antibacterial and systemic antibiotic therapy in 84 patients with infected (especially biofilm-forming bacteria) diabetic foot syndrome are summarized. Complications and non-traumatic amputations can be prevented by joint application of local treatment (opening of pus, postural drainage, effective sanitation, tamponade of pus cavities with aqueous antiseptics) and systemic selective antibiotic therapy carried out in the shortest possible time.

Keywords: Diabetic Foot Syndrome, local antiseptic treatment, systemic antibiotic therapy, bacterias, forming biofilm

Introduction

The selection of a rational antibacterial treatment in the case of infected Diabetic foot syndrome (DFS) is important for the prevention of non-traumatic amputations and other dreaded complications. It is known that along with diabetic neuropathy and angiopathy, the virulent flora causing intoxication weakens the local tissue immunity, leads to the inactivation of the factors that make up the body's natural resistance (immunoglobulins, leukocyte shaft, phagocytic complex, complement system, lysozyme). Therefore, the fight against infectious complications during DFS does not give the desired result in a number of cases (4,6,7).

Aim

The main goal of the study is to determine an effective and optimal antibacterial treatment scheme by determining the multiresistant spectrum and sensitivity to antibiotics of bacteria capable of forming a biofilm and showing persistence in the body during infected DFS.

Material

During the last 5 years, the results of examination and treatment of 84 patients with ulcerated and infected DFS against the background of type II diabetes were summarized. Samples were taken from patients for culture and sensitivity to antibiotics during evacuation of pus. The spectrum of resistance and sensitivity of bacteria capable of forming biofilm (especially *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Citrobacter* sp., *Klebsiella oxytoca*, *Proteus* sp.) was studied. BBL Sensi-Disc discs were used to determine antibacterial sensitivity, and in addition, their agar isolates were tested in biocoating flora with resistance to vancomycin and methicillin (1,7).

Results

Screening for antibiotics and antiseptics was carried out as a regular procedure, taking into account the fact that the bacteria involved in the infection of wounds during DFS and forming a biocover layer are either monovariant or in the form of a microbial association and are resistant to antibacterial treatment.

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High sensitivity of bacteria with the ability to form a biofilm to linezolid, vancomycin and imipenem (in various combinations) was determined in the studied DAS patients during the treatment process. High sensitivity to vancomycin, tabromycin and meropenem was determined in Gram-positive strains.

In all cases, as the initial stage of the antibacterial treatment complex, an important measure is the opening of purulent cavities and pockets, necroectomy, postural drainage of pus, and effective sanitation. During sanitation, in addition to working with various broad-spectrum antimicrobial effective antiseptics (dioxide, decasan, pyrrolidine iodine derivatives - betadine, silver preparations), pus deposits were washed under spurt of sterile physiological solution of NaCl and filled with gauze swabs soaked with antimicrobial agents.

Taking into account the possibility of rapid reproduction of microbes in the hyperglycemic tissue environment, we consider it more appropriate to carry out healing and wound dressing 2-3 times a day in the first days. In the exudative period, the application of procedures that prevent postural drainage - antimicrobial creams, ointments and gels to the wound is not considered appropriate. Because these medicinal forms prevent the drainage and ventilation of the wound and prevent the elimination of microbes as much as possible.

The presence of a complex anatomical structure of the foot, the presence of pus, sometimes represented by several types of microbial flora, in various pockets (tendon beds and between them, synovial sacs in the osteomyelitic zone, as well as abscess cavities that cannot be adequately drained) require rational systemic antibiotic therapy along with debridement and local antibacterial treatment. is necessary (2,3,5).

Therefore, we consider local antimicrobial and systemic antibiotic therapy an important and indispensable component in the treatment of all infected diabetic feet.

Experience shows that the prolongation of the healing process of wounds against the background of long-term antibiotic therapy is explained by their secondary contamination with methicillin-resistant *Staphylococcus aureus* and, in the case of gangrene, with obligate anaerobes. Therefore, it is very important to instruct DAS patients with open wounds receiving outpatient treatment on appropriate preventive measures.

The frequent presence of *Pseudomonas aeruginosa* among antibiotic-resistant flora during DAS should not be overlooked.

The study of wound exudate in one of every 5-6 patients in the conducted examinations shows that the infectious process is represented by mixed flora (2 or more, including aerobic-anaerobic). During the fight against mixed flora, attention was paid to the application of more sensitive antibiotics in combination and the selection of the optimal scheme that serves to maintain their therapeutic concentration in the blood. All the flora represented in the pus samples taken from different pockets of the foot were ensured to be the target of antibiotics.

Optimal choice of antibacterial treatment during the first 5 days leads to reduction of purulent process and localization of infiltration, reduction of septic condition and intoxication and, accordingly, significant improvement of the clinical condition of patients. Shortening the exudative phase of wounds, early reparation is important in preventing further complications and especially amputations.

The monitoring and evaluation of the treatment process is based on the composition of the peripheral blood (in particular, leukoformula, CRP), visual, anatomical and functional indicators of the foot, the determination of the septic index and the dynamics of clinical symptoms.

Conclusion

Thus, the results of our research show that the approach to infectious complications in DAS patients should be individualized. However, the main principles of antibacterial treatment are, on the one hand, local treatment, maximum emptying of pus reservoirs in a short period of time, postural drainage, effective sanitation, antiseptic gauze-tamponade, and on the other hand, systemic selective and rational antibiotic therapy.

Reference(s)

1. Bowler PG, Duerden BI, Armstrong DG. Wound microbiology and associated approaches to wound management. *Clin Microbiol Rev* 2001; 14: 244–69.
2. Centers for Disease Control and Prevention, US Department of Health and Human Services . National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2003. Atlanta, GA: US Centers for Disease Control and Epidemiology; 2003.
3. Durham JR, McCoy DM, Sawchuk AP, Meyer JP, Schwarcz TH, Eldrup-Jorgensen J *et al*. Open transmetatarsal amputation in the treatment of severe foot infections. *Am J Surg* 1989;158: 127–30.
4. FASSIL W. GEMECHU, MD, MetroHealth Medical Center, Cleveland, Ohio FNU SEEMANT, MD, State University of New York at Buffalo, Buffalo, New York CATHERINE A. CURLEY, MD, MetroHealth Medical Center, Cleveland, Ohio. Diabetic Foot Infections
5. Reiber GE, Vileikyte L, Boyko EJ, et al. Causal pathways for incident lower-extremity ulcers in patients with diabetes from two settings. *Diabetes Care*. 1999;22(1):157-162.
6. Reiber GE, Boyko EJ, Smith DG. Lower extremity foot ulcers and amputations in diabetics. In: *Diabetes in America*, 2nd edn. Rockville, MD: National Institute of Diabetes and Digestive and Kidney Disease, National Institutes of Health, 1995: 409–28.
7. Wheat LJ, Allen SD, Henry M, Kernek CB, Siders JA, Kuebler T *et al*. Diabetic foot infections: bacteriologic analysis. *Arch Intern Med* 1986;246: 1935–40.

THE RIGHT RESEARCH METHODS DICTATED BY HISTORICAL EXPERIENCE

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Abstract

As early as the 7 th century, the Almighty Sent down to humanity the Sacred Revelation, which is a guiding star for many serious scientists who make their discoveries based on the knowledge provided by the Creator: so, in the Qur'an, Allah Has already Reported that immortality is impossible. In addition, Anticipating modern achievements in science, He Pointed to the exoskeleton of the ant, which is rich in silicon (Si), used in glass production: so that the ant does not crush like the rest insects, but breaks like glass. Quran's unquestionably undeniable data and an impeccable methodology helps scientists to avoid wasting time and money. As for modern medicine and the methodology of its teaching in the post-Soviet space, it is terrible in that experiments are performed on live animals without anesthesia. The fact is that the universities of this territory lack the subject of "bioethics", which is so necessary to prevent damage to living beings, both people and animals. And these students, and then doctors lack compassion, as happened with Ryazan University graduate Zori Balayan. Ripping off the skin from living children, he watched them die bleeding, and even without a twinge of conscience, because subsequently he published a book titled " In the name of Jesus" in Beirut. The same can be said about the forced organ harvesting from prisoners in Chinese prisons, especially from Uyghurs. This suggests that although the subject "bioethics" is taught in China, there is an urgent need for independent control over the implementation of the code and the doctor's oath "Noli nocere!". Due to the violation of the methodology of teaching medical subjects in the above regions, ugly deviations from the norm of behavior occur in society on the part of those whose vocation is to protect people's health. Nevertheless, these doctors are not ashamed to commit a crime that is inappropriate not only for a doctor, but even for an ordinary citizen, so it's high time for scientists around the world to unite in the fight against never before seen atrocities committed by people in white coats. For this reason, we touch on points especially important to pay attention to in the medical personnel training, as well as information sources should be trusted when choosing the scientific research direction - in general and in particular.

Keywords: bioethics; The Holy Quran; immortality; methodology

EPIDEMIOLOGICAL PROFILE OF INFECTION COVID-19 IN CHILDREN POPULATION IN BAKU CITY

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ABSTRACT

The fact that the Covid-19 infection, which became a pandemic in 2020 with its spread throughout the world, is widespread in the children's population and causes serious complications is no longer in doubt (N. Chekhlabi et al., 2020; E. Samara et al., 2020; N. Krajcar et al., 2020; O. Irfan and others, 2020; E. Mekskina, 2020; V. Nikiforov and others, 2020). According to numerous literature data (J. Ludvigsson, L. Liguoro, 2020) in the first year of the pandemic, Covid-19 among children was characterized by a mild course and very few lethal outcomes.

However, in the second year of the pandemic, the picture has changed a bit. From this point of view, the analysis of the epidemiological profile of the disease with Covid-19 in the pediatric population may be important.

Material and methods. A retrospective analytical epidemiological analysis of the incidence of Covid-19 among the child population was conducted in Baku from March 2020 to August 2021, age groups and seasonal dependence were investigated as an epidemiological profile. The absolute number of cases of Covid-19 among children was obtained from www.koronavirus.info.az.

Qualitative indicators were expressed as the mean value and its standard error, and discrete indicators were expressed as extensive (in %) and intensive (in %, per 100,000 people) indicators of morbidity.

Differences obtained at $p < 0.05$ were considered statistically significant.

Results. During the epidemiological analysis period (March 2020 - August 2021), the cumulative number of cases of Covid-19 among children in Baku was 23338 (absolute number). In 2020, during the 10 months of the pandemic, there were 4,876 children, and 2 epidemic waves, clearly visible in the intra-year dynamics of disease intensity indicators, were observed in July and December (in July - 122.9 ± 4.5 children per 100,000 children and in December 335.3 ± 11.9 children per 100,000 people).

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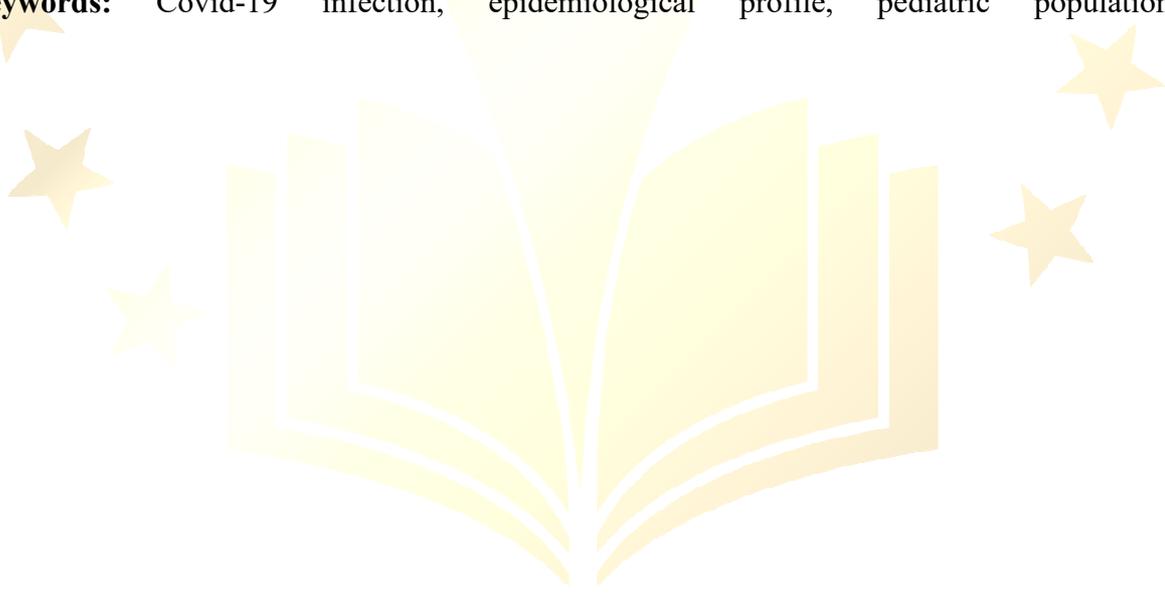
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During the 10 months of 2020, children aged 0-9 made up 5% of those infected with Covid-19, and children aged 10-18 made up 6%. The seasonal profile of the incidence of Covid-19 in the pediatric population showed a high incidence rate in the autumn season - 725.8 ± 11.2 per 100,000 people. During the 8 months of 2021 (January-August), when monitoring the monthly dynamics of Covid-19 infection in the children's population in Baku, high morbidity rates were recorded in the 0-9 age group in April (1722 people) and August (2401 people). In the 10-18 age group, the maximum level of morbidity was determined in April (3444 people) and August (4803 people), and the lowest number of morbidity in 8 months occurred in June (61 people in the 0-9 age group and 121 people in the 10-18 age group) being).

Of course, annual data analysis is needed to explain the observation of high morbidity rates with Covid-19 among children in the spring and summer seasons.

But visually, a 2-wave trend is observed. Comparing the results of the analytical epidemiological analysis with the literature data, it was found that the profile of the epidemic process during the Covid-19 infection among children is similar to the picture observed in other countries. Thus, in the Moscow region of the Russian Federation, the staged and wavelike course of the infection of Covid-19 among children, the two-wave nature of the disease in Croatia, and the fact that children are more infected in family homes. According to Swiss researchers, 8% of children under 16 years of age are infected, and according to French and Australian researchers, children are not the main transmitters of Covid-19. Children aged 10-19 make up 7% of those infected with Covid-19 in Pakistan.

Keywords: Covid-19 infection, epidemiological profile, pediatric population



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THE EFFECT OF THE METAVERSE ON THE HEALTH SECTOR

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ABSTRACT

Today, due to the metaverse gaining popularity and diversification of its use and purpose, in terms of states, institutions, individuals, etc., its usage potential is increasing. All kinds of innovations that can positively affect the health sector are important innovations that should not be ignored. Considering that the metaverse is an innovation and development that tends to be effective in many sectors, in order to benefit from the opportunities, it offers and can offer for the health sector, it is important to understand its potential impact, development, advantages and disadvantages. In this study, it is aimed to investigate the effect of the metaverse in the health sector in the light of studies in the international literature by researching the Web of Science, Scopus, Pubmed, Google Scholar indexes. As a result of the examination carried out for this purpose, it has been determined that the studies in the literature are mostly reviews, letters to the editor and similar studies, and there are few empirical and experimental studies yet. In addition, the metaverse of the studies in the literature is mental, psychological, cardiovascular, eye, tooth, mouth, etc. potential impact on health, medical therapy, rehabilitation, psychotherapy, telepresence, smart health, experience-based health, etc. It has been understood to have many potential effects, such as its potential effect on supporting health issues, its potential effect on disease prevention, its potential effect on providing outpatient care, its potential effect on effective collaboration and knowledge sharing, its potential for advanced visualization for medical databases, its potential effect on improving health education of physicians and patients. In addition studies in the literature shows that there are a lot of potential impacts of the metaverse on psychological, cardiovascular, eye, dental, oral health etc. as well as on medical therapy, rehabilitation, psychotherapy, telepresence, smart health, experience-based health and similar issues, and on prevention of diseases, and on providing outpatient treatment, and on effective collaboration and knowledge sharing, advanced visualization, and on medical databases, and on improving health education of physicians and patients.

Keywords: Metaverse, Health, 3D, Virtual World

1. INTRODUCTION

The technology sector, like most other sectors, includes constant changes and developments. From past to present, many technological innovations have been developed that can significantly affect people's lives. The metaverse contains many potentials that will become clearer over time and that can affect people's lives. With the technological developments obtained in recent years, the metaverse has become more applicable (Chakraborty, 2022).

The metaverse includes the real world depicted in the virtual world (Zhang et al., 2023, p. 299). The metaverse enables interaction in a realistic and separate world simulated outside the physical world, in the medium, by making use of "virtual and augmented reality" technologies through created "avatars" and "holograms" (Dwivedi et al., 2022, p. 2).

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Technologies that support the metaverse include AI, interactivity (e.g., virtual reality (VR), augmented reality technology (AR), extended reality (XR), mixed reality technology, blockchain, game (e.g., 3D modeling, real-time rendering), network (e.g., 5G, 6G, cloud computing) and internet of things (C. W. Lee, 2022, p. 2; Wei, 2022, pp. 330-331). Sectors such as education, marketing, health and tourism are among the sectors that fall under the influence of the metaverse (Akour et al., 2022, p. 12; Dwivedi et al., 2022, p. 2). Figure 1 shows current the metaverse adoption and future the metaverse investment distribution.

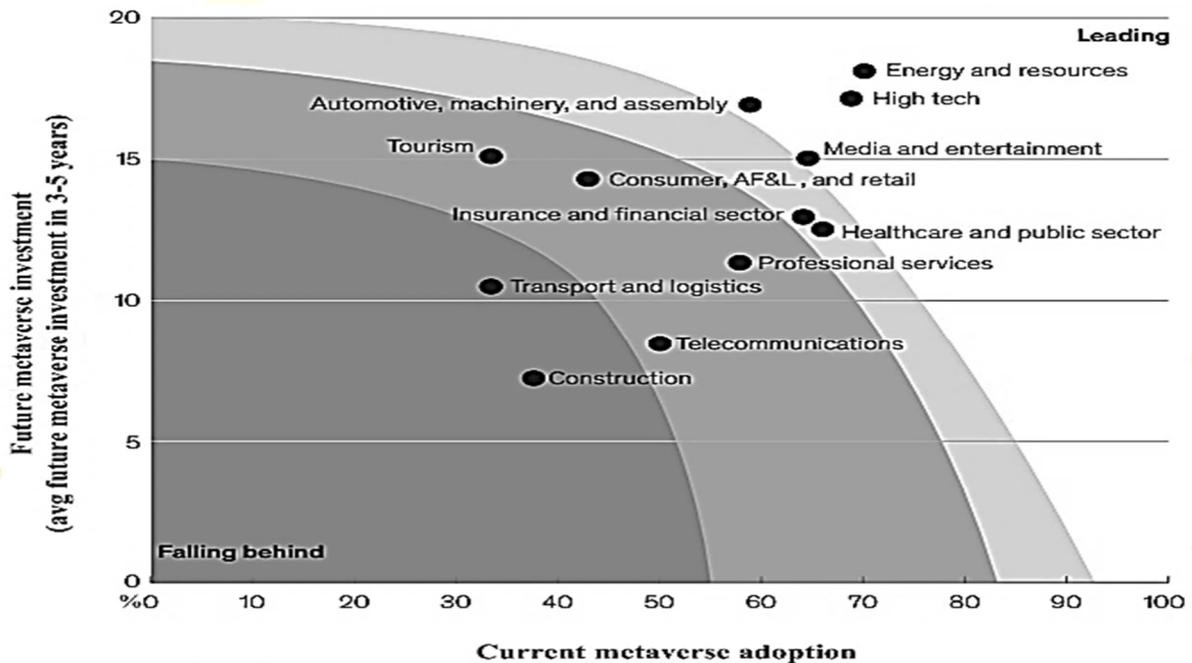


Figure 1. Current the metaverse adoption and future the metaverse investment distribution
Source: McKinsey and Company (2022, p. 21)

McKinsey and Company (2022) report is examined, it is understood that energy and resources, high tech, media and entertainment, insurance and financial sector, healthcare and public sector are among the sectors that started and adopted the metaverse initiatives and that have the potential to invest in the metaverse in the future. According to the Grand View Research (2022) market report, the global metaverse market size is estimated to be US\$38.85 billion in 2021. It is expected to expand at a compound annual growth rate (CAGR) of 39.4% from 2022 to 2030, and the metaverse's estimated revenue in 2030 is projected to reach 678.8 billion USD.

Metaverse, “was originally coined by science fiction author Neal Stephenson in his 1992 novel “Snow Crash”; in it, he describes the Metaverse as a virtual world composed of unique environments, each with a specific purpose: to entertain, socialize, educate, and more” (Pimentel et al., 2022, p. 2). Games and virtual environments such as “Fortnite”, “Second Life”, “VRChat” and “Roblox” are considered to be the predecessors of the meta-universe (Dwivedi et al., 2022, p. 2). The metaverse is a platform where a large number of users can come together in a digital virtual medium, and includes where different experiences can be obtained and simultaneous interactions can be realized. the network (Akour et al., 2022, p. 1). The metaverse includes four key technical features. These are (Madiega et al., 2022, p. 2);

- **“Realism”**: Containing realism that can make people perceive themselves as exactly in that environment,

- **“Ubiquity”**: Being able to access virtual spaces through appropriate digital devices with a virtual identity,
- **“Interoperability”**: Enabling many different systems and platforms to interact and communicate with each other,
- **“Scalability”**: By utilizing the existing network architecture, it can provide a good user experience to users who have multiple access to metaverse environment.

The metaverse has the potential to significantly improve and redesign the experience between doctor and doctor, doctor and patient and others in health (Walcott, 2022). Understanding this potential for development and change is understood to be among issues of importance to academics, healthcare professionals, governments and others. Some studies in the literature have been carried out on the effect of the metaverse in various sectors such as advertising (Kim, 2021; Taylor, 2022) and education (Hwang & Chien, 2022; López-Belmonte et al., 2022). In this study, it is aimed to examine the effect of the metaverse in the health sector in the light of studies in the international literature.

2. THE EFFECT OF METAVERSE IN THE HEALTH SECTOR

The metaverse can provide interaction between patients and doctors in a virtual environment that carries reality, does not require the use of written text records, and ensures the follow-up of personal and clinical health data (Ahmadi Marzaleh et al., 2022). With “Meta-medicine”, everyone will be able to define a “digital identity” by utilizing the technology of digital twins. “Digital avatars” can be created according to the characteristics of patients' personal health information, reports and etc. Doctors and patients will be able to interact with these created avatars on this virtual platform without any restrictions (Sun et al., 2022, p. 54). Figure 2 shows the possible change of doctor-patient relationship with the metaverse.

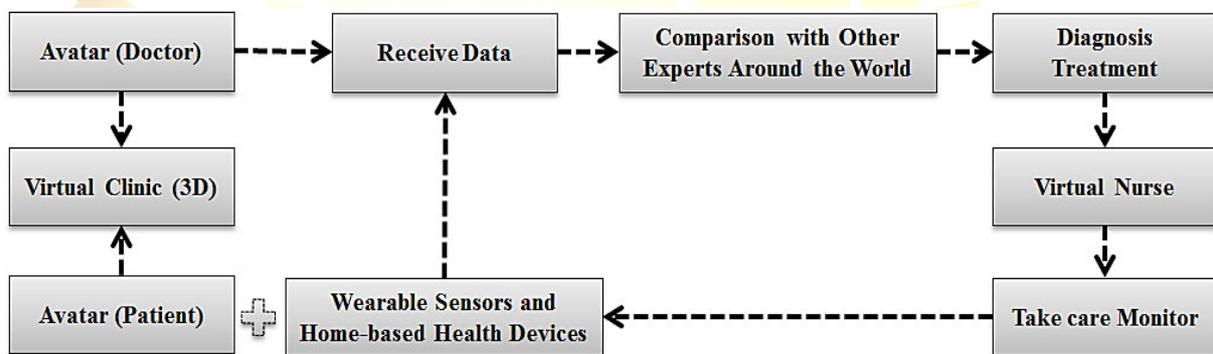


Figure 2. Possible change of doctor-patient relationship with the metaverse

Source: Petrigna and Musumeci (2022, p. 7)

Web of Science, Scopus, Pubmed and Google Scholar indexes were researched and the effect of the metaverse on the health sector was examined within the scope of studies in the international literature. In some studies in the literature, a general analysis has been made and it has been concluded that the metaverse has new opportunities and effects that are likely to provide for health services (Ahmadi Marzaleh et al., 2022; Bansal et al., 2022; Bhugaonkar et al., 2022; Curtis & Brolan, 2022; C. W. Lee, 2022; R.-A. Lee, 2022; Mejia & Rawat, 2022; Wang et al., 2022; Wiederhold & Riva, 2022).

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These possible opportunities and effects of the metaverse for health services include improving the quality of healthcare services, increasing patient satisfaction, preventing diseases, improving cost-effectiveness and accessibility, developing new educational tools and forms by using the metaverse infrastructure to improve medical education and communication skills of medical students and clinicians, obtaining outpatient treatment opportunities by using body sensor networks, providing realistic interaction between patients, doctors, objects, and reducing the need for physical documents and paper (Ahmadi Marzaleh et al., 2022; Bhugaonkar et al., 2022; Mejia & Rawat, 2022; Wang et al., 2022).

In some studies, examinations were made specifically for health areas. Among these studies are effects of the metaverse on mental health (Benrimoh et al., 2022; Cerasa et al., 2022; Huang et al., 2022; Ifdil et al., 2022; Situmorang, 2022a, 2022b; Usmani et al., 2022; Zhou et al., 2022), possible effects of the metaverse on cardiovascular health (Mesko, 2022; Skalidis et al., 2022), possible effects of the metaverse on eye health (Tan et al., 2022), possible effects of the metaverse on oral and dental health (Albujeer & Khoshnevisan, 2022; Sailer, 2022).

The potential opportunities and effects of the metaverse for mental health include providing opportunities such as "avatar therapy", "virtual reality assisted therapy", "teletherapy" (Benrimoh et al., 2022), more effective prevention of Alzheimer's, cognitive decline (Zhou et al., 2022), more effective diagnosis and treatment etc. (Usmani et al., 2022). The potential opportunities of the metaverse for cardiovascular health include being able to explain the functioning of the cardiovascular system in three dimensions in education, conducting case discussions among doctors, bringing doctors and patients together with a digital avatar, and sharing digital medical data with the doctor more effectively etc. (Mesko, 2022). The potential opportunities that the metaverse may provide for eye health impacts include "the ability to create avatars for realistic consultations", "to provide personalized care", "to enable potential clinical applications in therapeutics, diagnostics and education" etc. (Tan et al., 2022). Among the possible opportunities and effects of the metaverse for oral and dental health are the ability to monitor oral health from home, the convenience of software to make appointments, and the pre-testing of treatment targets in the virtual world (Sailer, 2022).

In some studies, more specific investigations were made. Among the possible effects of the metaverse mentioned in these studies on the health sector are that with the transition from information-based communication to experience-based health communication, users will now be able to actively experience (Plechata et al., 2022) and interact with the consequences of their behavior, and that with "rapid tele-psychotherapy" for mental health services, with "rapid tele-psychotherapy" for mental health services, single session music therapy can be done (Situmorang, 2022a), with the use of schema therapy in the metaverse, which is used in the treatment of personality disorders, patients' schema modes can be reshaped, resulting in adaptive and more inclusive interaction with the real world (Yin et al., 2022), and users will be able to support effective collaboration and knowledge sharing in virtual teams (Yu et al., 2012), they will be able to develop telesurgery opportunities in health 5.0 (the metaverse supported) (Bhattacharya et al., 2022), they will be able to offer some opportunities such as "experience-based, effective education, interactive learning" for nursing (Damar & Turhan Damar, 2021), they will have some possibilities to provide 3D interaction for bioinformatics and work in various bioinformatics visualization scenarios (Taylor & Soneji, 2022), cognition experience can be increased and psychoemotional and social abilities can be developed with immersive social environments (Calabrò et al., 2022), and patient counseling can be improved (Anwer et al., 2022).

In some other studies, it has been concluded that the use of the metaverse in education may have effects (Huh, 2022; Hwang & Chien, 2022; Iwanaga et al., 2022; Kye et al., 2021; López-Belmonte et al., 2022; Park & Park, 2022). The potential opportunities that the metaverse may provide for education include opportunities for personalization in education, virtual interaction, instant translation of educational materials into different languages, providing students who do not have the opportunity to attend classes in a physical environment, the opportunity to attend classes in a virtual environment, providing education opportunities that cannot be experienced in a physical environment, etc. (Hwang & Chien, 2022; López-Belmonte et al., 2022).

In addition, some studies such as examining the development of the metaverse literature in the fields of medicine, nursing, public health, midwifery, and dentistry (Damar, 2022), and bibliometric examination of the research trends of emerging technologies in the health the metaverse are included in the literature (Chen & Zhang, 2022).

In some quantitative and experimental studies, which are found to be few in number for now, in the literature; Huang et al. (2022) found that metaverse-based virtual reality sports experiences had a significant positive effect on mental health in their study on Chinese athletes. In the research by Iwanaga et al. (2022) they conducted on 282 participants, consisting of anatomy educators, at the annual meeting of the American Association of Clinical Anatomists 2022, there were 64 people whose questionnaires were answered. Of these 64 people, only 43 were aware of the term metaverse. They concluded that only 6 of the 43 participants (9.4%) used the metaverse to teach anatomy. Shah, Hameed, et al. (2022), in their pilot study with 10 participants aged 64 to 82, concluded that the use of the metaverse-based games supports the participation of the elderly in physical exercise. Shah, Karlsen, et al. (2022) conducted a study with 14 other participants between the ages of 60 and 88, in the metaverse-based exercise game, the participants were divided into 2 individual and collaborative groups. They concluded that collaborating participants achieved higher intrinsic motivation than individual participants in terms of effort, pleasure, physical effort, and usefulness. In the study by Zhang et al. (2023), it has been understood that attribute-based encryption plays an important role in ensuring the security and efficient sharing of data in metaverse health services, with the simulated experiment they carried out.

3. CONCLUSION

In this study, the effect of the metaverse on the health sector was examined in the light of studies in the international literature by researching in Web of Science, Scopus, Pubmed and Google Scholar indexes. In the studies, the potential of the created metaverse virtual environments to support patient education and medical education, mental, psychological, etc. It is understood that it may have many potential effects such as the potential to support the solution of problems, medical therapy, rehabilitation, psychotherapy, the potential to provide telepresence, and the possibility of providing advanced visualization for medical databases (Mozumder et al., 2022, p. 260; Sun et al., 2022, p. 55). Thinking that some of them can integrate into the health sector with their full potential also makes us think that the metaverse has important opportunities for the health sector.

In the metaverse environments, differences are important on concerns about data security and privacy, high costs due to new technology and difficulties in convincing users to use these services, the possible need to provide technical support for the installation and use of the technology, disputes between healthcare providers in their willingness to acquire the metaverse technology, health care quality between countries with and without metaverse technology (Ahmadi Marzaleh et al., 2022; Grand View Research, 2022, p. 792; Mesko, 2022, p. 2649). Studies should be carried out on the aspects of the metaverse that are considered to be disadvantageous, and if solutions are provided, these disadvantages should be minimized in the future, and even an advantageous situation can be achieved. Regarding the mentioned cost problem, it can be predicted that a decrease in the prices of the metaverse equipment may be seen in favor of the segments (health education students, patients, etc.) who may have difficulty in purchasing this technology due to the increase in the production and supply of metaverse technology used in health. In addition, if the governments decide to use the metaverse extensively in the health sector, it is thought that the necessary technological infrastructure and support activities can be provided free of charge to the elderly and individuals with insufficient purchasing power, within the framework of the social state agreement for the cost problem. In the event that sensitive patient information is disclosed due to a security vulnerability, an irreparable loss of trust may occur for the metaverse in healthcare. For this reason, it is important to take the necessary precautions at the highest level and to protect the sensitive personal health information of the patients before there is a situation such as the disclosure of patient information regarding the cyber security risks that are stated as a disadvantage.

The experience offered by “Meta-medical” can be further enhanced with technologies such as “human sensors (ReSkin)”, “organ chips”, “organa-noids”, “holographic lenses (HoloLens 2)” (Sun et al., 2022, p. 56). With the continuation of technological developments, it can be understood that the potential of the metaverse to affect the health sector can be further increased in the future.

In the future, the effects of the metaverse, which is mentioned in this study in the light of the studies in the literature, on the health sector can be investigated empirically. Research can also be conducted on how to optimally benefit from the potential advantages of the metaverse in the health sector and how to minimize its disadvantages.

REFERENCES

Ahmadi Marzaleh, M., Peyravi, M., & Shaygani, F. (2022). A revolution in health: Opportunities and challenges of the Metaverse. *Excli j*, 21, 791-792. <https://doi.org/10.17179/excli2022-5017>

Akour, I. A., Al-Marroof, R. S., Alfaisal, R., & Salloum, S. A. (2022). A conceptual framework for determining metaverse adoption in higher institutions of gulf area: An empirical study using hybrid SEM-ANN approach. *Computers and Education: Artificial Intelligence*, 3, 100052. <https://doi.org/10.1016/j.caeai.2022.100052>

Albujeer, A., & Khoshnevisan, M. (2022). Metaverse and oral health promotion. *British Dental Journal*, 232(9), 587-587. <https://doi.org/10.1038/s41415-022-4255-1>

Anwer, A., Jamil, Y., & Bilal, M. (2022). Provision of surgical pre-operative patient counseling services through the Metaverse technology. *Int J Surg*, 104, 106792. <https://doi.org/10.1016/j.ijso.2022.106792>

Bansal, G., Rajgopal, K., Chamola, V., Xiong, Z., & Niyato, D. (2022). Healthcare in Metaverse: A Survey on Current Metaverse Applications in Healthcare. *IEEE Access*, 10, 119914-119946. <https://doi.org/10.1109/ACCESS.2022.3219845>

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Benrimoh, D., Chheda, F. D., & Margolese, H. C. (2022). The Best Predictor of the Future-the Metaverse, Mental Health, and Lessons Learned From Current Technologies. *JMIR Ment Health*, 9(10), e40410. <https://doi.org/10.2196/40410>

Bhattacharya, P., Obaidat, M. S., Savaliya, D., Sanghavi, S., Tanwar, S., & Sadaun, B. (2022). Metaverse assisted Telesurgery in Healthcare 5.0: An interplay of Blockchain and Explainable AI. 2022 International Conference on Computer, Information and Telecommunication Systems (CITS), Piraeus, Greece, 13-15 July 2022. <https://doi.org/10.1109/CITS55221.2022.9832978>.

Bhugaonkar, K., Bhugaonkar, R., & Masne, N. (2022). The Trend of Metaverse and Augmented & Virtual Reality Extending to the Healthcare System. *Cureus Journal of Medical Science*, 14(9), 7. <https://doi.org/10.7759/cureus.29071>

Calabrò, R. S., Cerasa, A., Ciancarelli, I., Pignolo, L., Tonin, P., Iosa, M., & Morone, G. (2022). The Arrival of the Metaverse in Neurorehabilitation: Fact, Fake or Vision? *Biomedicines*, 10(10). <https://doi.org/10.3390/biomedicines10102602>

Cerasa, A., Gaggioli, A., Marino, F., Riva, G., & Pioggia, G. (2022). The promise of the metaverse in mental health: the new era of MEDverse. *Heliyon*, 8(11), e11762. <https://doi.org/10.1016/j.heliyon.2022.e11762>

Chakraborty, K. (2022). *The Metaverse: Possibilities and Perils*. Retrieved 09.12.2022 from <https://www.techopedia.com/the-metaverse-possibilities-and-perils/2/34689>

Chen, D., & Zhang, R. (2022). Exploring Research Trends of Emerging Technologies in Health Metaverse: A Bibliometric Analysis. *SSRN*. <https://doi.org/10.2139/ssrn.3998068>

Curtis, C., & Brolan, C. E. (2022). Health care in the metaverse. *Med J Aust*. <https://doi.org/10.5694/mja2.51793>

Damar, M. (2022). What the Literature on Medicine, Nursing, Public Health, Midwifery, and Dentistry Reveals: An Overview of the Rapidly Approaching Metaverse. *Journal of Metaverse*, 2(2), 62-70.

Damar, M., & Turhan Damar, H. (2021). Artırılmış Gerçeklik, Sanal Gerçeklik ve Metaverse: Hemşirelik Disiplini İçin Önemi ve Geleceği. In Y. Varışoğlu & P. I. Vural (Eds.), *Sağlık & Bilim: Hemşirelik-3*. İstanbul: Efe Akademi Yayınevi.

Dwivedi, Y. K., Hughes, L., Baabdullah, A. M., Ribeiro-Navarrete, S., Giannakis, M., Al-Debei, M. M., Dennehy, D., Metri, B., Buhalis, D., Cheung, C. M. K., Conboy, K., Doyle, R., Dubey, R., Dutot, V., Felix, R., Goyal, D. P., Gustafsson, A., Hinsch, C., Jebabli, I., . . . Wamba, S. F. (2022). Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 66, 102542. <https://doi.org/10.1016/j.ijinfomgt.2022.102542>

Grand View Research. (2022). *Metaverse Market Size, Share & Trends Analysis Report By Product, By Platform, By Technology (Blockchain, Virtual Reality (VR) & Augmented Reality (AR), Mixed Reality (MR)), By Offering, By Application, By End Use, By Region, And Segment Forecasts, 2022 - 2030*. Retrieved 03.12.2022 from <https://www.grandviewresearch.com/industry-analysis/metaverse-market-report>

Huang, Z. S., Choi, D. H., Lai, B. S., Lu, Z. C., & Tian, H. J. (2022). Metaverse-based virtual reality experience and endurance performance in sports economy: Mediating role of mental health and performance anxiety. *Frontiers in Public Health*, 10, 17, Article 991489. <https://doi.org/10.3389/fpubh.2022.991489>

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Huh, S. (2022). Application of computer-based testing in the Korean Medical Licensing Examination, the emergence of the metaverse in medical education, journal metrics and statistics, and appreciation to reviewers and volunteers. *J Educ Eval Health Prof*, 19, 2. <https://doi.org/10.3352/jeehp.2022.19.2>

Hwang, G.-J., & Chien, S.-Y. (2022). Definition, roles, and potential research issues of the metaverse in education: An artificial intelligence perspective. *Computers and Education: Artificial Intelligence*, 3, 100082. <https://doi.org/10.1016/j.caeai.2022.100082>

Ifdil, I., Situmorang, D. D. B., Firman, F., Zola, N., Rangka, I. B., & Fadli, R. P. (2022). Virtual reality in Metaverse for future mental health-helping profession: an alternative solution to the mental health challenges of the COVID-19 pandemic. *Journal of Public Health*. <https://doi.org/10.1093/pubmed/fdac049>

Iwanaga, J., Muo, E. C., Tabira, Y., Watanabe, K., Tubbs, S. J., D'Antoni, A. V., Rajaram-Gilkes, M., Loukas, M., Khalil, M. K., & Tubbs, R. S. (2022). Who really needs a Metaverse in anatomy education? A review with preliminary survey results. *Clinical Anatomy*, 1-6. <https://doi.org/10.1002/ca.23949>

Kim, J. (2021). Advertising in the Metaverse: Research Agenda. *Journal of Interactive Advertising*, 21(3), 141-144. <https://doi.org/10.1080/15252019.2021.2001273>

Kye, B., Han, N., Kim, E., Park, Y., & Jo, S. (2021). Educational applications of metaverse: possibilities and limitations. *J Educ Eval Health Prof*, 18, 32. <https://doi.org/10.3352/jeehp.2021.18.32>

Lee, C. W. (2022). Application of Metaverse Service to Healthcare Industry: A Strategic Perspective. *International Journal of Environmental Research and Public Health*, 19(20), 13038.

Lee, R.-A. (2022). Is It Possible to Apply the Metaverse to Health Care System? *The Ewha Medical Journal*, 45(1), 1-2. <https://doi.org/10.12771/emj.2022.45.1.1>

López-Belmonte, J., Pozo-Sánchez, S., Lampropoulos, G., & Moreno-Guerrero, A.-J. (2022). Design and validation of a questionnaire for the evaluation of educational experiences in the metaverse in Spanish students (METAEDU). *Heliyon*, 8(11), e11364. <https://doi.org/10.1016/j.heliyon.2022.e11364>

Madiega, T. A., Car, P., Niestadt, M., & Pol, L. V. d. (2022). Metaverse: Opportunities, risks and policy implications. *EPRS | European Parliamentary Research Service*, 1-12. [https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733557/EPRS_BRI\(2022\)733557_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733557/EPRS_BRI(2022)733557_EN.pdf)

McKinsey and Company. (2022). Value creation in the metaverse: The real business of the virtual world. *McKinsey & Company*. https://www.mckinsey.com/~media/mckinsey/business_functions/marketing_and_sales/our_insights/value_creation_in_the_metaverse/Value-creation-in-the-metaverse.pdf

Mejia, J. M. R., & Rawat, D. B. (2022). Recent Advances in a Medical Domain Metaverse: Status, Challenges, and Perspective. Thirteenth International Conference on Ubiquitous and Future Networks (ICUFN), Barcelona, Spain, 05-08 July 2022. <https://doi.org/10.1109/ICUFN55119.2022.9829645>.

Mesko, B. (2022). The promise of the metaverse in cardiovascular health. *European Heart Journal*, 43(28), 2647-2649. <https://doi.org/10.1093/eurheartj/ehac231>

Mozumder, M. A. I., Sheeraz, M. M., Athar, A., Aich, S., & Kim, H. C. (2022). Overview: Technology Roadmap of the Future Trend of Metaverse based on IoT, Blockchain, AI Technique, and Medical Domain Metaverse Activity. 2022 24th International Conference on Advanced Communication Technology (ICACT), Pyeongchang, Korea (South), 13-16 February 2022. <https://doi.org/10.23919/ICACT53585.2022.9728808>.

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Park, C. S.-Y., & Park, N. J.-Y. (2022). Adapting to cutocracy: A survival strategy for prospective health professions educators in the era of the metaverse. *Journal of Professional Nursing*, 41, A1-A4. <https://doi.org/10.1016/j.profnurs.2022.06.004>

Petrigna, L., & Musumeci, G. (2022). The Metaverse: A New Challenge for the Healthcare System: A Scoping Review. *Journal of Functional Morphology and Kinesiology*, 7(3), 63. <https://www.mdpi.com/2411-5142/7/3/63>

Pimentel, D., Fauville, G., Frazier, K., McGivney, E., Rosas, S., & Woolsey, E. (2022). Learning in the Metaverse: A Guide for Practitioners. *Meridian Treehouse*, 1-21. <https://scholar.harvard.edu/files/mcgivney/files/introductionlearningmetaverse-april2022-meridiantreehouse.pdf>

Plechata, A., Makransky, G., & Böhm, R. (2022). Can extended reality in the metaverse revolutionise health communication? *npj Digital Medicine*, 5(1), 132. <https://doi.org/10.1038/s41746-022-00682-x>

Sailer, I. (2022). Are Big Data, Artificial Intelligence, Augmented Reality, Robotics, Teledentistry, and Metaverse Just Buzz Terms, or Do They Indicate a Paradigm Shift in Prosthodontics? [Editorial]. *International Journal of Prosthodontics*, 35(2), 137-138. <https://doi.org/10.11607/ijp.2022.2.e>

Shah, S. H. H., Hameed, I. A., Karlsen, A. S. T., & Solberg, M. (2022). Towards a Social VR-based Exergame for Elderly Users: An Exploratory Study of Acceptance, Experiences and Design Principles. In J. Y. C. Chen & G. Fragomeni (Eds.), *Virtual, Augmented and Mixed Reality: Design and Development* (pp. 495-504). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-031-05939-1_34

Shah, S. H. H., Karlsen, A. S. T., Solberg, M., & Hameed, I. A. (2022). A social VR-based collaborative exergame for rehabilitation: codesign, development and user study. *Virtual Reality*. <https://doi.org/10.1007/s10055-022-00721-8>

Situmorang, D. D. B. (2022a). "Rapid tele-psychotherapy" with single-session music therapy in the metaverse: An alternative solution for mental health services in the future. *Palliative and Supportive Care*, 1-2. <https://doi.org/10.1017/S1478951522001420>

Situmorang, D. D. B. (2022b). Will Metaverse become a more exciting place to listen to streaming music for mental health? *J Public Health (Oxf)*. <https://doi.org/10.1093/pubmed/fdac136>

Skalidis, I., Muller, O., & Fournier, S. (2022). The Metaverse in Cardiovascular Medicine: Applications, Challenges, and the Role of Non-Fungible Tokens. *Canadian Journal of Cardiology*, 38(9), 1467-1468. <https://doi.org/10.1016/j.cjca.2022.04.006>

Sun, M., Xie, L., Liu, Y., Li, K., Jiang, B., Lu, Y., Yang, Y., Yu, H., Song, Y., Bai, C., & Yang, D. (2022). The metaverse in current digital medicine. *Clinical eHealth*, 5, 52-57. <https://doi.org/10.1016/j.ceh.2022.07.002>

Tan, T. F., Li, Y., Lim, J. S., Gunasekeran, D. V., Teo, Z. L., Ng, W. Y., & Ting, D. S. W. (2022). Metaverse and Virtual Health Care in Ophthalmology: Opportunities and Challenges. *The Asia-Pacific Journal of Ophthalmology*, 11(3), 237-246. <https://doi.org/10.1097/APO.0000000000000537>

Taylor, C. R. (2022). Research on advertising in the metaverse: a call to action. *International Journal of Advertising*, 41(3), 383-384. <https://doi.org/10.1080/02650487.2022.2058786>

Taylor, S., & Soneji, S. (2022). Bioinformatics and the Metaverse: Are We Ready? *Front Bioinform*, 2, 863676. <https://doi.org/10.3389/fbinf.2022.863676>

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Usmani, S. S., Sharath, M., & Mehendale, M. (2022). Future of mental health in the metaverse. *General Psychiatry*, 35(4), e100825. <https://doi.org/10.1136/gpsych-2022-100825>
Walcott, D. (2022). *Can The Metaverse Drive The Metamorphosis Of Healthcare?* Retrieved 08.12.2022 from <https://www.forbes.com/sites/davidwalcott/2022/10/17/can-the-metaverse-drive-the-metamorphosis-of-healthcare/?sh=3a4d2472786c>

Wang, G., Badal, A., Jia, X., Maltz, J. S., Mueller, K., Myers, K. J., Niu, C., Vannier, M., Yan, P. K., Yu, Z., & Zeng, R. P. (2022). Development of metaverse for intelligent healthcare [Article]. *Nature Machine Intelligence*, 4(11), 922-929. <https://doi.org/10.1038/s42256-022-00549-6>

Wei, D. (2022). Gemiverse: The blockchain-based professional certification and tourism platform with its own ecosystem in the metaverse. *International Journal of Geoheritage and Parks*, 10(2), 322-336. <https://doi.org/10.1016/j.ijgeop.2022.05.004>

Wiederhold, B. K., & Riva, G. (2022). Metaverse Creates New Opportunities in Healthcare. *Annual Review of Cybertherapy and Telemedicine*, 20, 3-7.

Yin, B., Wang, Y. X., Fei, C. Y., & Jiang, K. (2022). Metaverse as a possible tool for reshaping schema modes in treating personality disorders. *Frontiers in Psychology*, 13, 8. <https://doi.org/10.3389/fpsyg.2022.1010971>

Yu, X., Owens, D., & Khazanchi, D. (2012). Building Socioemotional Environments in Metaverses for Virtual Teams in Healthcare: A Conceptual Exploration. In J. He, X. Liu, E. A. Krupinski, & G. Xu (Eds.), *Health Information Science* (pp. 4-12). Springer Berlin Heidelberg.

Zhang, T., Shen, J., Lai, C.-F., Ji, S., & Ren, Y. (2023). Multi-server assisted data sharing supporting secure deduplication for metaverse healthcare systems. *Future Generation Computer Systems*, 140, 299-310. <https://doi.org/10.1016/j.future.2022.10.031>

Zhou, H., Gao, J.-Y., & Chen, Y. (2022). The paradigm and future value of the metaverse for the intervention of cognitive decline. *Frontiers in Public Health*, 10, 1016680. <https://doi.org/10.3389/fpubh.2022.1016680>

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SİMENTAL IRKI SIĞIRLARDA FETAL DÖNEMİN MORFOLOJİK OLARAK İNCELENMESİ

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ÖZET

Ruminantlar, implantasyon ve plasentasyon süreçlerinde yoğun bir hücresel proliferasyon gösteren ve orta düzeyde invaziv bir plasentaya sahiptir. Embriyonik ve fetal ölümler et ve süt sığırcılığı işletmelerinde hem ekonomik hem de biyolojik verimliliği olumsuz etkileyen kritik problemlerdir. Döl verimi, sığırcılık işletmelerinde hem ekonomik hem de biyolojik verimliliği etkileyen en önemli faktördür. Başarılı bir sığır yetiştiriciliği, yetiştirmede kullanılan erkek ve dişilerin döl verimlerinin yüksek olması ile mümkündür. Döl verimine etki eden birçok faktörün etkili olduğu tespit edilmiştir. Bunlardan biri de fetal anomalilerdir. Bu sebeple fetal gelişim evreleri anatomik açıdan önem arz etmektedir. Simental ırkı hayvanlar yüksek oranda hem et hem de süt verimine sahip olduklarından ötürü bölgemizde en çok tercih edilen sığır türlerinden biri olmaktadır. Bu amaçla Simental ırkı sığırlarda fetal gelişimi 3 trimester'a ayırarak morfolojik olarak inceledik. Çalışmamızda Diyarbakır ili mezbahanelerinden elde edilen 12 tane fetus kullanıldı. Bu fetuslar 1., 2. ve 3. Trimester olarak gruplandırıldı ve her grupta 4 tane fetus herhangi bir disseksiyon işlemi yapılmadan incelendi. Yapılan incelemeler sonucunda fetuslarda herhangi bir anomali tespit edilmedi.

Anahtar Kelime: Simental, Sığır, Fetus, Fetal Geişim, Anatomi

MORPHOLOGICAL INVESTIGATION OF THE FETAL PERIOD IN SIMMENTAL CATTLE

ABSTRACT

Cattle have a moderately invasive placenta with intense cell proliferation during implantation and placentation. Embryonic and fetal deaths are critical problems in meat and milk cattle that await both economic and adverse effects of childbirth. Progeny accumulation is the most important factor in cattle breeding investment, both economically and at birth. A successful cattle breeding is possible with high fertility of males and females used in breeding. It has been determined that many factors affecting the progeny nests are effective. One of them is fetal anomalies. The fetal developmental stages of these lives are important in the anatomical load. Simmental breed animals are one of the most preferred cattle breeds in our region, as they have both meat and milk owners at a high rate. For this purpose, we divided the fetal development into 3 trimesters in Simmental cattle and examined them morphologically. In our study, the situation of 12 fetuses obtained from the slaughterhouses of Diyarbakır province. These fetuses were grouped as 1st, 2nd and 3rd trimesters, and any dissection procedure of 4 fetuses in the group was examined. As a result of the examinations, no anomaly was detected in the fetuses.

Keywords: Simmental, Cattle, Fetus, Fetal Development, Anatomy

IŞIK MİKROSKOBİK BOYALARLA DOKULAR; ANATOMİDEN HİSTOLOJİYE

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ÖZET

İncelenecek biyolojik materyalin yapısal öğelerini, canlılık özelliğini taşıdığı evreye en yakın olacak şekilde koruyup sabitleştirmek ve materyalin temel yapı taşlarını anlamak asıl amaçtır. Biyolojik materyali canlı olarak incelemenin mümkün olmadığı durumlarda materyali korumayı sağlamak; herhangi bir kimyasal ajan ya da karışım ile tespit (fiksasyon) ederek veya yapıyı düşük derecede ve kısa sürede dondurarak yapmak mümkündür.

Histolojide alınan doku örnekleri uygun fiksasyon ve takip işlemlerinin ardından parafine veya plastik gömme ortamlarına gömülerek blok haline getirilir. Parafin bloklardan alınan kesitler (3-5 µm) ışık mikroskobu ile incelenirken, elektron mikroskopik ön incelemede kullanılan plastik yarı ince kesitler (0,2-2 µm) ışık mikroskobu ile, ince kesitler (80 nm) ise transmisyon elektron mikroskobu (TEM) ile incelenir. Böylece anatomik olarak macro boyutlarda incelenebilen dokuları bu şekilde micro boyutlarda incelemek mümkün olmaktadır. Bu çalışmada bu metodları detaylı bir şekilde incelemeyi amaçladık.

Anahtar kelime: Anatomi, Histoloji, Işık Mikroskobu

EXAMINATION OF TEXTURES WITH LIGHT MICROSCOPIC DYES; ANATOMY TO HISTOLOGY

ABSTRACT

The main aim is to protect and fix the structural elements of the biological material to be examined in a way that is closest to the stage in which it carries the vitality feature and to understand the basic building blocks of the material. To protect the biological material in cases where it is not possible to examine the biological material live; It is possible to fix the structure with any chemical agent or mixture or by freezing the structure at a low temperature and in a short time.

Tissue samples taken in histology are blocked by embedding in paraffin or plastic embedding media after appropriate fixation and follow-up procedures. Sections taken from paraffin blocks (3-5 µm) were examined with a light microscope, while plastic semi-thin sections (0.2-2 µm) used in electron microscopic preliminary examination were examined with a light microscope, and thin sections (80 nm) were examined with a transmission electron microscope (TEM). is examined. Thus, it is possible to examine the tissues that can be examined anatomically in macro dimensions in micro dimensions. In this study, we aimed to examine these methods in detail.

Keywords: Anatomy, Histology, Light Microscope

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**MANIFESTATION OF A DYSTOPIAN GOVERNMENT SYSTEM IN ALDOUS
LEONARD HUXLEY'S *BRAVE NEW WORLD***

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Abstract

The paper focuses on the dystopian vision of government as depicted in Aldous Leonard Huxley's *Brave New World* which was written in 1931 and published in 1932. This extraordinary work is considered a dystopian novel. Huxley wrote nearly 50 books which include fictional and non-fictional works. Generally, dystopia exists in the abuse of power, manipulation, exploitation, and injustice in man's attempt to attain an ideal society. This paper deals with how dystopian literature represents the imperfections of those seemingly utopian societies in Huxley's *Brave New World*. Largely set in a futuristic World State, populated by genetically modified inhabitants and an intelligence-based social hierarchy. It shows how people fall victim to the dystopian government policy and its games, exposing peoples' lives to danger and even death. In brief, it shows the slow decay of life and self as reflected in dystopian literature which portrays a frightening vision of a revolutionary world, generally controlled by knowledge and a dictatorial ruling government that uses any possible means to utilize iron-handed power over its people. Huxley's *Brave New World* predicts enormous scientific progressions in reproductive technology, psychological manipulation, classical conditioning, and sleep learning that are joined to make a dystopian society.

Keywords: Dystopia, Dystopian Literature, Huxley, Brave New World, Sleep Learning, American Literature

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LINGUISTIC FEATURES IN JAMES JOYCE'S *A PAINFUL CASE*

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Abstract

Style has been a field of study since ancient times. The style of an author is provided by effective matching between his/her thoughts and selection of linguistic items. Stylistic analyses involve both the study of style and the study of how effects and meanings are produced by a literary text. Stylistics, therefore, relates linguistic facts (linguistic descriptions) to meaning (interpretation) to show evidence for an interpretation of a text. Stylisticians try to discover both what a text signifies and how it comes to signify what it does. This study analyses James Joyce's *A Painful Case* in the aspect of stylistic features. The short story is about a platonic affair between a married woman and an isolated man, the breaking off of the affair, and its aftermath. The analysis of the short story begins with a general interpretation. Its significant stylistic features are pointed out in terms of lexis, grammar, figures of speech, cohesion and context. The short story's title foreshows the cause of the inner conflict of the main character and deals with the theme of isolation. The story starts with a detailed description of Mr Duffy's plain home in a neighbourhood he selected for being distant from Dublin because he hates his city and wants to live as far away from it as he can. The opening paragraph of the short story consists only of declarative sentences. Joyce uses simple past tense in order to confirm compatibility with the figural narrative situation he used. In terms of the syllable-length of words, the selected passage contains mostly two-syllable words. Lexical repetitions direct one's attention to the negative feeling such as loneliness. The passage bases upon implicit connections of meaning which are strengthened by repeat of words from the same semantic field. The use of free indirect speech and a detailed description about the room reveals the main character's state of soul. The domain is indoor surroundings, and the tenor is formal. The 3rd person narrator takes the reader beyond the usual aspects of life through epiphany. Mr Duffy feels remorse about Mrs Sinico's death and realizes that his pursuit of control and order has caused only to his loneliness. Emotional paralysis of Mr Duffy compels him into a lifelong loneliness. Mr Duffy has unwittingly been lonely in the past, is presently lonely, and will be forever lonely. This study shows how the formal stylistic features are used as the basis for inferring the short story's meaning and effect.

Keywords: Style, stylistic, linguistic features, James Joyce

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THE POLITICS OF FICTIONAL LITERATURE: A CROSS-DISCIPLINARY APPROACH

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Abstract

Language could be said to condition, limit and predetermine our understanding of the universe. It does not record but rather constructs all reality. Characteristically it could be considered as the required mean when it comes to intellectual inquiry issues such as politics and literature. Politics can be defined as an interactive social activity through which individuals, according to the cluster of their perceptions and sensory data, set structure, purpose and ideals in their lives and shape this common world. On the other hand, the purpose of good literature is essentially the enhancement of life and the propagation of humane values not in a programmatic and propagandistic way. It speaks to what is constant in human nature by transcending the limitations of time and space.

Fictional writers, but not only, use words as tools for communicating meaning that results from the relation of signs to signs within a literary work. By doing this they automatically commit to the framing of the common world. Furthermore, the meanings within a literary work are never fixed and reliable but always shifting and ambiguous and it is characteristic of language to generate infinite webs of meaning. Theoretically, meaning is jointly constructed by reader and writer and in their pursuit for meaning they both must resort to domains outside literature in the form of a quasi-political commitment in order to ground their arguments and understanding of a literary work on some linguistic specificity.

What T.S.Eliot taught us about artistic expression is that the best way of expressing an emotion in art is to find some vehicle for it in gesture, action, or concrete symbolism, rather than approaching it directly or descriptively. With these principles in mind necessary for an understanding of the various approaches to fictional literature I will take account of the short story by Ernest Hemingway “Hills like White Elephants” written in 1927 and published in 1929. In my perspective I find that the understanding of this short story encompasses various disciplines such as semiotics, anthropological structuralism, Lacanian (and perhaps Freudian) psychoanalysis, history, politics of gender and even the art of visualization in drawing. The approach seems by far a cross-disciplinary one with reference to viewing one discipline (literature in our case) from the perspective of (an)other/s. A very much “ideas-led” rather than “text-led” track in the interpretation of this piece of short story, it tends to tackle big general issues concerned with fictional literature at large.

Keywords: politics, fictional literature, semiotics, perspective, gender, psychoanalysis, anthropology

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CROSSING OVER THE DEMYSTIFICATION OF THE MIRAGE OF CULTURE IN L.P. HARTLEY'S THE GO-BETWEEN

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Abstract

It is a known fact there is a generalisation of the concept of culture in the world of oral and written literature from the standpoint of the definition it is awarded. Such a blunder subtly causes disintegration in a world that is athirst of righteousness which is regrettably traded with a deadly formalism in the name of culture. I stand in the defence the truth that the cultures of the day have sprung from the world's past historic heritage. Taking into consideration the novel under study, the interval of the study situates between the 19th Victorian era's grand ethical themes and contemporary notions of culture. As Hartley has done in his novel, if nothing is done to instil into the consciences of the younger generation of men and women that culture which has at its very roots pure and unfeigned love as a foundation, a great devastating status quo will be maintained and will irremediably ruin the world.

Keywords: Demystification, Mirage, Culture, Mirage of culture, Demystification of the mirage.

Résumé

C'est un fait connu qu'il y a une généralisation du concept de la culture dans le monde de la littérature orale et écrite du point de vue de la définition qui lui est décerné. Une telle erreur magistrale cause subtilement la désintégration dans un monde assoiffé de la justice qui malheureusement est échangé avec un formalisme mort au nom de la culture. Je me tiens en défense de la vérité selon laquelle les cultures du jour proviennent de l'héritage historique du monde du passé. En prenant en compte le roman soumis à étude, l'intervalle de l'étude se situe entre les grands thèmes éthiques et les notions contemporaines de la culture. Comme Hartley l'a fait dans son roman, si rien n'est fait pour inculquer cette culture qui a à ses racines même l'amour pur et sincère comme fondation dans les consciences de la jeune génération d'hommes et de femmes, un statut quo dévastateur sera maintenu et contribuera irrémédiablement à la ruine du monde.

Mots-clés: Démystification, Mirage, Culture, Mirage de culture, Démystification du mirage.

INTRODUCTION

This paper takes stand on the grand narratives of philosophical literature such as right and wrong, the deadly nightshade is a picture of evil: [poisonous and beautiful; Marian] ... to explore the many facets of cultural bias that hamper happiness in a world in which humans are desperately panting and thirsting after righteousness. This is possible through a close analysis of the different roles some key characters play and how it has direct relevance or can have with real life. After all fiction is in a sense a reflection of reality itself.

This research work is divided into three main sections. The first is about the introduction to the study. The second section is a critical outlook on Hartley's posit of culture and the last indicates some perspectives on a redefinition of the concept of culture.

1- Introduction to the study

Literature has globally bequeathed a heritage of culture to both modern and traditional people. The staple of such a declaration renders overtones of codes and principles peculiar to specific human societies. It provides to a given group of humans' behaviouristic rule and norms, shapes their understanding of the world and their mentality as a whole, governs what they believe in individually as well as collectively, constitutes a groundwork for laws and customs in the community. Culture encompasses all those ideals and represents a massive iceberg of meaning to different groups of people with a tight union with their past life, experiences, and new resolves for prosperity and/or fulfilment. These can gradually freeze in the presence of blind determination, inconsistent adaptation to the realities of the present world coupled with spiritual irreligion.

In this paper, what I seek to do is showcase the love of culture in both the modern and traditional worlds and carve limitations from them to demystify what they falsely advertise as a by-product of satisfaction, meaning...fulfilment, long lasting advantageous asset, wellbeing in the world. This study centres on religious culture as this constitutes a great point of controversy capable of overturning the course of events in the whole world if nothing concrete is done to hamstring its expansion. The different kinds of meaning people give to different kinds of worship in various parts of the world rules their standing over against their counterparts and determines the quality of their relationships.

An emphasis is laid on the intractability of the deeply rooted Afro-American regrettable history of transatlantic trade which has left a huge scar on the consciences of many a man in both camps. However, there is a clear stipulation in this paper that meditation on past harm done roots or can root unconquerable desires of revenge that can by all accounts contribute to humans' annihilation themselves. Conversely, it can greatly help in brooding over the quality of past choices and their consequences as well in the person's life. Here, Leo's case is a great exemplification of this very reality. The fruits and leaves of which are the scenes of complaints of racism, intolerance, and the many difficulties that form the contours of the relationship between Africans and Americans.

In the novel under study, such like patterns of culture are visible in Leo Colston's writing of magic spells for instance in his diary to protect himself against the bullying of his school mates. Hartley indirectly resorts to this African way of solving certain problems to bridge a gap between Afro-American culture. After all, history proves that the transatlantic slave trade has given way to certain cultural melange between the two ethnies. The term Afro-American itself signifying an American whose ancestors were born in Africa clearly proves that very melange¹.

There is also the culture of lying which is evident in Marian's lie to her mother in the first five chapters of the novel. She continues to hold tight to her lying starting from chapter 9 to 11.

The materialistic culture that has characterized the 18th and 19th century England in springing forth the famous stratification of classes that is pervasive in men's society nowadays and which constitutes a driving force in many a people's daily lives is a remarkable example that is part of the current discussion.

¹ [This is culture considered in terms of lineage].

Hartley portrays this on purpose through Marian's been pressured by her mother to marry Lord Trimingham. She wanted the family to go up the scale of aristocracy.²

1-1 Problem statement:

The problem that the present research work poses has direct and irrefutable link with the very year in which most events Hartley describes are set in. The Victorian era was one in which social class was a great issue to reckon with. As such, Marian sees herself in the face of a perplexed situation of choice of life partner. She has to choose between Ted Burgess, a peasant and Lord Trimingham, an aristocrat in the great Brandham Hall. And given that marriage was an opportunity for husbands to take care of their brides in the time, coupled with the care people took in the choice to avoid having to earn a living for life just after marriage led Mrs Maudsley to pressure Marian into making a choice just because she has to and not because she really wanted that freely. This aspect of Hartley's great narrative, along with other instances [the lie culture by Marian herself]; described in the novel clearly set the pace for the demystification of what most people designate by the name of the culture of the day that they tightly cling to, but which is not necessarily the right alternative in going through and living life. To this effect, a suggestion of the revision of a person's immanent vision of life and how it correlates with the preservation of his/her soul in his/her daily experiences of life- as in Leo's case- is an imminent must.

1-2 Purpose of the study:

The purpose of the present endeavour lies in the need to reassert the urgency of a thorough reconsideration of the manifestations of evil, a direct result of human nature and original sin through some key scenes Hartley subjects to consideration and analysis in his work. The recurrence of the themes in most scholarly works takes ground in the very fact that they constitute the centre of any sort of problem any person on planet earth will mention as inherently oppressive to his/her personal life. There is no need to fear threats of judgement against this aspect of things because the author's narrative itself is flooded with central biblical concepts such as *rapture*;³ *the Jacob's ladder*;⁴ *a miserable sinner*;⁵ *resurrection*;⁶ *Transfiguring*;⁷ *True impulse of contrition*;⁸ *sin*;⁹ *The hosts of Midian*...¹⁰ Through the present undertaking, I am seeking to put stress on the conviction of sin in whatever shape or form it takes, which is represented here in manipulation and lies and the glorification of opulence characteristic of the 19th century England to the detriment of sound reason and contentment exemplified in the life of Jesus Himself while He was on planet earth according to biblical narratives, the Apostle Paul, the disciples, and great divines in the history of the world. This is the culture that need to be countered. It only serves the satisfaction of self and blinds a person to the realities of his need of salvation from sin and self.

² [This is culture considered in terms of values and conceptions of life inherent to a particular group or society of humans. It often threatens the infringer with rebukes and punishments].

³ Hartely, L.P, *The Go-Between*, The New York Review of Book, p.16

⁴ Hartely, L.P, *The Go-Between*, The New York Review of Book, p.97

⁵ Hartely, L.P, *The Go-Between*, The New York Review of Book, p.49

⁶ Hartely, L.P, *The Go-Between*, The New York Review of Book, p.22

⁷ Hartely, L.P, *The Go-Between*, The New York Review of Book, p.52

⁸ Hartely, L.P, *The Go-Between*, The New York Review of Book, p.159

⁹ Hartely, L.P, *The Go-Between*, The New York Review of Book, p.161

¹⁰ Hartely, L.P, *The Go-Between*, The New York Review of Book, p.86

1-3 Limitation of the study:

The purpose of the study openly displays the vastness of the theme under discussion. Much time and material, human as well as financial means are needed to cover all the derivatives of the concept of culture. What is more, the culture of pure unfeigned love as the central theme in this work presupposes dedicated and long hours of study which it is practically difficult but possible to achieve. The fields to cover are too large. For the present time, I solely focus on trying to follow Hartley's mode of narration on the concept throughout the novel with an average touch of intertextuality in vital parts of the development. This is far from being the exploit of an inclusive consideration of all the contours of culture. However, it rather serves as a sensitizing weapon to direct the attention of the reading audience towards the demystification of the mirage of trivial representations and practices of culture in the whole world. It also invites to a change of culture in the habit of the use, representation and understanding of the word culture, pointing to the culture of love as the ultimate culture that can liberate the whole world from its bondage.

1-4 Literature Review:

The novel under study discloses complexities and intricacies that a single reading cannot provide a deep, profound and objective angle of vision to. However, a number of alerted and well brained scholars have tried to bring out the deep messages that Hartley has sought to convey with a special relation to the context in which the novel was published.

Ella Berthoud and Susan Elderkin identify for instance the focal ailment in the novel as *being a hopeless romantic*. There's even a funny sentence that they propound as they invite folks enamoured with romanticism to read the novel, which simply is that such folks should read it to inoculate against heartbreak ahead. Leo's sense of a *wasted life*... as they have put it in the review, indirectly reminds of the dangers of romanticism that many a postmodern writers and advocates have warned the world of literature against considering the moral decline it has brought the world into ever since its spread and the paroxysmal sway it took in the Renaissance period. One of their literary prescriptions for the modern romanticism, to quote them once again reads: '*Sacrificing yourself on the altar of love is all very well, but the wounds incurred can last a lifetime.*'¹¹

Ann Brashares, author of the *Sisterhood of the Traveling Pants, Girls in Pants*... poses the same problem of understanding especially in relation with Leo's conversation with himself as though he were two people after a reconsideration of his past experience with Brandham Hall and its people and relatives. She suggests that instead of viewing Leo as a person whose identity is cracked, he certainly is evolving in a process of continuity.¹²

The book is judged as being fundamentally a drama of social hierarchy. The New York Review of Books Paperback says that it is a masterpiece- a richly layered, spellbinding story about past and present, naïveté and knowledge, and the mysteries of the human heart.¹³ This comes as a press hold to the present discussion in the sense that what we have cultivated the habit of chanting as a culture of our own that we need to cherish and adore for our own advancement in many a domain has the potency of blinding our eyes to the dynamics of the culture of love and other centeredness.

¹¹ <https://www.independent.co.uk/arts-entertainment/books/features/go-between-lp-hartley-novel-cure-being-hopeless-romantic-a6691986.html>. Consulted 06/04/2021, 11:05a.m.

¹² <https://www.npr.org/2011/06/22/136926704/love-betrayal-humiliation-a-coming-of-age-affair?>. Consulted 05/04/2021, 09:20a.m.

¹³ <https://www.nyrb.com/products/the-go-between?variant=1094931973>. Consulted 05/04/2021, 10:05 a.m.

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Jay Parini's comment from the New York Times reads: Hartley examines [in the novel] the nuances of morality with a shimmering exactness, focusing on characters like Leo, the narrator ...caught between natural impulses and the social conventions that would thwart them.¹⁴ Such a comment comes as a confirming verdict to serve as the groundwork and the testifying materials of the relevance of the theme of this very study.

Sarah Dunant from the Daily Telegraph identifies the themes of love, pain of adolescence and the lure of the forbidden¹⁵. These words are characteristic of Leo's experiences throughout the novel. The class snobbism prevalent in the 19th century England in which the novel is set is what Hartley has certainly made one of his most important *cheval de bataille* in his work. The strict character and the tight emphasis laid on honour and dignity according to the rules of the time have failed to enter into a deal with the language of the heart, that of love pure and unfeigned. Though, this is in no way applicable to Leo himself, he can directly by himself observe it in the triangle link of love that Lord Trimmingham, Marian, and Burgess form.

Roger Ebert gets the credit of providing Joseph Losey's brief narrative on the man's adaptation of the novel into a film. He says that the novel is about class distinction and its warping effect upon the life of one small boy.¹⁶

The author of the novel's epilogue grounds all these sayings by revealing the following about the Hartley's own writings:

He wrote that the novelist's world "must, in some degree, be an extension of his own life; its fundamental problems must be his problems, its preoccupations his preoccupations—or something allied to them." He also warned that while it is "unsafe to assume that a novelist's work is autobiographical in any direct sense," it is nonetheless "plausible to assume that his work is a transcription, an anagram of his own experience, reflecting its shape and tone and tempo."¹⁷

However, he diverges in opinion with some critics' appraisal of the novel. While some of them evaluate the novel as treating preponderantly of class distinction, COLM TÓIBÍN argues that it is the difficulty that Leo meets in his struggle with his fleshly impulses¹⁸ His account is the following:

Hartley was right to cut this passage. It made too much too clear. It is, in any case, written between the lines of the book, which turns out not to be a drama about class or about England, or a lost world mourned by Hartley; instead it is a drama about Leo's deeply sensuous nature moving blindly, in a world of rich detail and beautiful sentences, toward a destruction that is impelled by his own intensity of feeling and, despite everything, his own innocence.¹⁹

The New Standard Gallery's summary of the novel mention that Hartley himself recognises that his work is pregnant with symbols, the deadly nightshade being the most obvious one. There is also the Belladonna, representing sexual symbolism.²⁰ It touches on the struggle Marian and Ted had to go through against the strictures of the social norm of the time. Deadly preceding nightshade clearly points to their very brief and only sexual experience as genuine lovers. The cricket match is a way of decrying the upper class's snobbism.

¹⁴ Ibid

¹⁵ Ibid

¹⁶ <https://www.rogerebert.com/reviews/the-go-between-1971>. Consulted 06/04/2021, 06:30 a.m

¹⁷ Hartely, L.P, *The Go-Between*, The New York Review of Book, Prologue, p.7

¹⁸ This is as has been observed in Hartley's own style of writing a reference to the biblical narrative of the struggle between flesh and spirit.

¹⁹ Hartely, L.P, *The Go-Between*, The New York Review of Book, Prologue, pp.8-9

²⁰ <https://thenewsstandardgallery.com/the-go-between-analysis/>. Consulted 05/04/2021, 08:10 a.m.

Mrs Maudsley is the very imagery of the deeply rooted need to follow in the steps of the requirements of social class of the time. Being the main instigator of Lord Trimingham and Marian's engagement, she couldn't bear another kind of union that is below the standards of the time. Hartley emphasises such a stance by putting forth how horrifically disabled she became after the shock of hearing that Marian hadn't come back with the carriage from Nannie Robson's.

The Litchart edition consecrated to the analysis of the theme of love, sex and Marriage in the novel indicates that the *Go-Between* explores the nature of romantic human relationships with the larger social world.²¹ But it is important to note the devastating effects it has had eventually. Though it is crystal clear that social conventions can't control even romantic passionate love, it is from such a standpoint undeniable that righteous, pure and holy love's power far surpasses mere restraints which are the results of the animalism that is predominant in the souls of the men and women who fail to recognise God as He is and described in the Holy Scriptures. This is at least made more explicit by Ted's own view on spooning. Modern readers will rightly acknowledge the normalcy of the naturalness of sexual intercourse and romantic relationship regardless of marital status.

Susan Wolf and Christopher Grau's *Understanding Love: Philosophy, Film and Fiction*, published in Oxford Scholarship Online in January 2014 suggests that the novel tells the interrelated stories of a forbidden love between a beautiful aristocrat and a farmhand and of an adolescent introduction to the unruliness of sexual desire... in direct confrontation with the inflexibility of the English class system... and the arrogance of its upper class.²²

Even to say "Bad luck" would have been in bad taste, as suggesting that I was not able to look after myself. It would have been like pointing out some physical defect. The law that one must consume one's own smoke was absolute, and no one subscribed to it more wholeheartedly than I. A late-comer to school, I had uncritically accepted all its standards. I was a conformist: it never occurred to me that because I suffered, there was something wrong with the system, or with the human heart.²³

This Hartley's way of presenting the problem of cultural alienation in his novel. Leo finds himself in an aristocratic world. He is innocent, falls in love, but had to conform to everything he saw and was required to do. His social class status aggravated his plight as he was even on a sinking sand trying to conceal his identity. But while he was struggling to please everybody, everybody cared little who he was and what he could become...Hartley certainly knew that the different tensions he pictured throughout his work are like channels of water that spring from only one source. It is from the heart that vices spring forth from to paraphrase the Bible. If there's a problem, it has to do with alienation from God and insubordination to His will and purpose in people's lives.

1-5 Conceptual clarification and theoretical framework:

English dictionary *conceives* of culture as a particular society at a particular time and place; the tastes in art and manners that are favoured by a social group.

Antonio Lebrón's propounds the difficulty the American anthropologists, Kroeber and Kluckhohn faced while trying to provide a right definition of culture, which led them to provide 164 different definitions for the concept.

²¹ <https://www.litcharts.com/lit/the-go-between/themes/love-sex-and-marriage>.

²² <https://oxford.universitypressscholarship.com/>. Consulted 04/04/2021, 11:10.

²³ Hartely, L.P, *The Go-Between*, The New York Review of Book, p.19

The problem of the right definition is summarized in the following words: '*Despite a century of efforts to define culture adequately, there was in the early 1990s no agreement among anthropologists regarding its nature*'. One of the definitions he proposes in the paper reads:

Culture is the unique characteristic of a social group; the values and norms shared by its members set it apart from other social groups and is influenced by conscious beliefs.²⁴

Orlando Patterson in the Department of Sociology, Harvard University, Cambridge, Massachusetts 02138, clearly sets the tone for the arbitrariness of the concept and its overlapping by-products. It is best phrased in the chronic fallacy of the blind people and the elephant.

Alexei N. Tarasova gives himself the challenge of analysing the theoretical and methodological foundations for the introduction to culture philosophy and cultural theory the "sociocultural transformation" concept.²⁵ He exposes in the development the notion of dynamics of culture and sociocultural transformation which highly relates to the concern being addressed in the present endeavour. One might well perceive through his work that the word culture, as it is used by many writer and speakers, presupposes a certain triviality that obviates from its very essence. A follow up of his line of thought suggests a goal oriented consideration of the progressive aspects of the process culture to unblock the embracing of spiritual realities of society life. However, Christian love as previously set forth constitutes the battlefield of this discussion given the spiritual context that Hartley himself makes allegiance to in his work. I seek to represent it as the ultimate culture for every reader so that in reading the book and this piece of work one might perceive the motivations behind my appellation.

According to scholars, the first highly influential definition came from Edward Taylor (1871-1), who opens his seminal anthropology text with the stipulation that culture is:

that complex whole which includes knowledge, belief, art, law, morals, custom, and any other capabilities and habits acquired by man as a member of a society.²⁶

In *Culture and Anarchy* (1869) he had defined as 'the best that has been thought and said in the world' (Arnold [1869] 1971: 6). This is from the part of Arnold a clear-cut representation of culture from an intellectual perspective. As such, all other kinds of culture become sub-cultures that enter into the realm of a kind of rivalry with the former. The spiritual dimension of culture is also pinpointed as the centre of culture itself. That nexus is the focal point to which every discussion relates in this paper.

As Arnold puts it: 'Religion says, the kingdom of God is within you; and culture, in like manner, places human perfection in an internal condition, in the growth and predominance of our humanity proper, as distinguished from our animality' (47). Arnold conceives of poetry as the major means of culture and we only fully enter the realm of it if we choose, at least temporarily, to disregard the here and now of personal ambition, political manoeuvring, and economic gain.¹²

Mathew Arnold's view well suits this paper's argumentativeness even if for reasons of concision and flawlessness in the development, emphasis has to be laid on the very kind of poetry that is to be discussed.

²⁴ Lebrón, Antonio, *What is culture*, Merit Research Journal of Education and Review Vol. 1(6), July 2013, pp.126-132.

²⁵ Tarasova, N. A, *Theoretical-methodological Bases of the "Sociocultural Transformation" Concept Explication*, INTERNATIONAL JOURNAL OF ENVIRONMENTAL & SCIENCE EDUCATION 2016, VOL.11, NO.18, 11993-12003 Abstract.

²⁶<https://www.google.com/search?q=Scholarly+articles+on+the+concept+of+culture&client=ms-opera-mini-android&channel=new>. Consulted 07/04/2021, 03:27 a.m.

It is already evidenced that the whole discussion of culture in this paper centres on the cultivation of pure and unfeigned love. Two of the most relevant theoretical assets Tarasova talks about in the evolving continuum of European culture are:

Renaissance - a sociocultural transformation from the medieval to the new European culture-system.

Postmodern - sociocultural transformation, reflecting the transition from the modern culture-system to the post-modern.²⁷

These assets provide the methodological background applicable to the theme of this study. Therefore, the modern culture system as included in the Renaissance period ideals and the postmodernists are subject to stringent rigorous analysis to sort out the different notional illegitimacies linked to the culture of love. This is made possible through a thorough consideration of the plot of the novel under study. The workings of self-love are so subtle that there's a possibility that the most repulsive heart to God be admired by society because it seeks praise, adoration and acceptance of men and so strive to do what is pleasing to them just for the sake of his making the exploit of a clean outward moral sheet.

1-6 Methodology of research

In the present study, intertextuality and social criticism have been used to appraise the concept of culture as revealed by L. P. Hartely in *The Go-Between*. Intertextual approach helps to correlate works and studies which, from a close or far view share any similitude with the concept under analysis. Social criticism helps to appraise critically and underpin the arguments raised in the frame of this research

2- Exploration of the mysteries of the mirage of culture in the novel and critical outlook

2-1 Exploration of the mysteries of the mirage of culture in the novel

A book about a boy becoming initiated into the mysteries of adult life (sex and its frequent thematic partner, betrayal), it is itself the kind of novel that introduces youngish readers into the mysteries and subtleties of fiction. Reading the novel is part of the process of learning how to read novels. But there was something appropriate, also, about the long delay in my getting round to it. I was reading *The Go-Between* at the same age as the "60-odd" narrator when he looks back at the momentous summer of 1900. As a result, my experience of the book became infected with the reading that had come between the age when I might or should have read it and the advanced age when I eventually did.

The narrator, Leo, starts looking through his old diaries in the early 1950s. They take him back to the kind of blazing summer we associate with the heatwave of 1914. From his friend Marcus, Leo learns that the local toff, Viscount Trimingham, "was wounded in the war and his face hasn't got right". A few pages later Leo gets his first glimpse of Trimingham:

On the side of his face turned to me was a sickle-shaped scar that ran from his eye to the corner of his mouth; it pulled the eye down, exposing a tract of glistening red under-lid, and the mouth up, so that you could see the gums above his teeth.

Such sights, such faces, were an all-too-common aspect of life in the aftermath of the first world war. When Harold Abrahams goes up to Cambridge in 1919, in *Chariots of Fire*, he is greeted at the station by railway staff wearing various masks and using surgical appliances to help hide and make good their injuries. The larger point is that the country itself has been maimed.

²⁷ This is suggested from... without taking into account the recent British exit out of the European Union.

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A phrase, just two words, snagged me the way that barbed wire can snag a sweater. Now, “the war” in which Trimingham has been wounded is the Boer war, which is still unfolding while the action of the novel plays out. But *that* war becomes deliberately interwoven with the one still to come, both of which, from the perspective of 1950 – five years after the end of the second world war – let alone 2022, have become part of the deep (and ever-present) past. That Hartley intended something like this is made explicit in the epilogue when the 60-odd Leo visits Marian, the lovely, free-spirited young woman from that blazing summer, now an elderly and lonely grandmother. Both of Marian’s brothers, including Leo’s friend Marcus, died in the first world war. And her son was killed in the second.

Even before then, as the narrative coaxes and nudges the reader forward, the first world war becomes, as it were, *part of a past that has yet to occur*. Various elements of a shared literary heritage contribute to this blurring of the strict sequential ordering of social or military history. Ted Burgess, the farmer with whom Marian has a love affair, seems an emanation from the sunburned world of Thomas Hardy, with the pastoral skies of Norfolk replacing Wessex, thereby taking us deeper into an already mythic past. The class-defying affair itself – upper-class young woman, soon to be the viscount’s wife, passionately involved with one of his tenant farmers – inevitably recalls that of DH Lawrence’s *Lady Chatterley*, whose husband, Clifford, has been left crippled by the first world war. (A related example of the kind of temporal elisions that determine the atmosphere of *The Go-Between*: privately printed in 1928, Lawrence’s novel did not become widely available until 1960, seven years after Hartley’s.) All of this seems deliberate and consciously done by Hartley. Here I want to mention something else, a tiny point about a book whose plot turns on tiny things – the glimpse of a letter, a small alteration in the timing of an assignation – that Hartley can’t have intended. It’s akin to Roland Barthes’s famous notion of the punctum: something that is there in the text (or photograph in Barthes’s case) but which is also something I have brought to it. Shortly after we have learned of Trimingham’s disfigured face, residents and guests from the great house of Brandham Hall go swimming. There might be an echo – or, since it’s 1900, a pre-echo – of Rupert Brooke’s line about embracing war “like “swimmers into cleanness leaping”: a silly idea, albeit one Hartley (born eight years after Brooke, in 1895) would, at some point, have had splashing around his head. But it’s another phrase, just two words, that snagged me the way that strands of barbed wire can snag a sweater as one attempts to clamber awkwardly through them. The girls of the bathing party, Leo remembers, were in shallow water where it was only waist-deep; their feet showed softly white on the shining gold gravel, as they waded about with long, uneven steps, plunging into unsuspected holes, splashing each other, shrieking and giggling and laughing.

Leaving aside Brooke’s imagery, does anyone else feel the latency or gravitational tug of the first world war in this innocent passage? If so, it derives, surely, from Philip Larkin’s *MCMXIV*, which opens with the poet contemplating a photo of “Those long uneven lines” of young men queueing up to enlist in 1914 “as if it were all / An August Bank Holiday lark”. The poem is a memorial to what has happened, remembered entirely in terms of what is to come, culminating in “The thousands of marriages, / Lasting a little while longer”.

The villagers, who regard Ted as a ladies’ man, perhaps think of him as larking about, but the affair with Marian has tragic, deadly and lasting consequences. Leo’s innocence itself becomes culpable. For half a century the story he now remembers has had to be forgotten; although on the face of it he has lived a normal life, internally he is left as damaged as Trimingham.

MCMXIV, with its famous last line, “Never such innocence again”, was completed in 1960 and published in *The Whitsun Weddings* (1964), so Hartley can’t have got this little phrase from Larkin. Did Larkin perhaps come across it in Hartley and, like the novel’s narrator, innocently retain it while forgetting he had done so? Even if he didn’t – if it’s just the kind of “frail” coincidence witnessed and recorded in the book’s title poem – the past becomes for a moment so pervasive as to encompass the whole novel, distinctly localised and *unforeign*. They do things the same there.

2-2 Critical outlook on Hartley’s posit of culture

Throughout the novel, there’s the stratification culture that has been accepted as normal in the then society. This does well to inform us with a view on the consequences it has generated that ethical teachings as found in different cultures of the world fail miserably as is obvious- but foggy unto the internal sight of men who are given to self-love- to humble souls to see their greatest need to provide solutions for evil in the world.

Evil in the form of racial segregation taking root from lack of love by the instrumentality of the breeding of a spirit of discontent, contempt and disrespect for the other person, because the faultfinder finds it excruciatingly hard to confront his/her own unwillingness to work out love in the real sense of the word by facing his/her weaknesses and uses the shortcomings of others as a cover to justify his/her own. While we are not concerned with racial segregation here, the imagery well suits the occurrences in the novel. Impatience has ruined both the life of Mrs Maudsley and Ted Burgess. This is where Hartley has to intervene. His discussion of the power of love which ends tragically remains a mystery. Maybe his impatience with Christianity’s incessant insistence on sin as he says has created inconsistency in the writing up process of his ideas.

There’s no doubt about it that Hartley is a great writer. He subjects for example the main social problem of his time in the following words, mixing even with something extra that demands attention in the context of the completion of this work:

Dimly I felt that the contrast represented something more than the conflict between Hall and village. It was that, but it was also a struggle between order and lawlessness, between obedience to tradition and defiance of it, between social stability and revolution, between one attitude to life and another. I knew which side I was on, yet the traitor within my gates was not so sure; he felt the issue differently, he backed the individual against the side, even my own side, and wouldn’t mind seeing Ted Burgess pull it off. But I couldn’t voice such thoughts to the hosts of Midian prowling round me under the shade of the pavilion veranda.²⁸ Agreed he talks of social class problem, but deems it necessary to add that- this cannot be a coincidence from Hartley himself- the contrast represented something more... and proceeds to explain in the following sentence.

Were the novel to be written a second time, Hartley’s characters would present a better scenery by heeding the following counsel from him:

Knowledge may be power, but it is not resilience, or resourcefulness, or adaptability to life, still less is it instinctive sympathy with human nature²⁹

The novel influencing contemporary writers like Ian McEwan says much on how deep and symbolic it is in addressing major core issues of life. The term adolescence demands attainment of maturity. That is the *raison d’être* of:

‘The past is a foreign country: they do things differently there.’³⁰

²⁸ Hartely, L.P, *The Go-Between*, The New York Review of Book, p.85

²⁹ Hartely, L.P, *The Go-Between*, The New York Review of Book, p.21

³⁰ Opening sentence of *The Go-Between* by L. P. Hartley.

Now that he is reflecting on his past experience, he can if he so chooses assess his own failures and develop a better perspective on life and how to live it purposefully.

Kevin Gardener perceives things differently. According to the author:

Leo- in the narrative- is far from wistful or nostalgic about his recovered past. Indeed, he is no crabbed and saturnine pensioner, peevishly railing against modernity [End Page xxi] while yearning sentimentally for a pastoral Edwardian simplicity.³¹

However, lust caused by the heat of moral passion cannot be denied in the plot of this novel. Is Hartley describing himself in the novel? Here is a great passage treating of Leo's own view and perception of sin:

"No," I thought, growing more rebellious, "life has its own laws, and it is for me to defend myself against whatever comes along, without going snivelling to God about sin, my own or other people's." How would it profit a man, if he got into a tight place, to call the people who put him there miserable sinners? Or himself a miserable sinner? I disliked the levelling aspect of this sinnerdom.³²

This is quite a bad deal with sin doomed to failure and punishment of eternal damnation. Hartley's own homosexuality tells more on his own weaknesses though he fills his narrative with biblical concepts. This does help humans for their need of help from the bonds of sin for example. Though a great book, attention has to be paid to its content and the practicability it suggests in real life. There's thus the need of a working out of love in the lives of people. Hartley has clearly failed as a Christian example. Williams Raymond discusses the problem more clearly when he suggested the following idea:

The scale of the whole process-the struggle for democracy, the development of industry, the extension of communications, and the deep social and personal changes- is indeed too large to know or even imagine. In practice, it is reduced to a series of disconnected or local changes, but while this is reasonable, in the ordinary sense, it seems to me that this scaling-down only disguises some of the deepest problems and tensions, which then appear only as scattered symptoms of restlessness and uncertainty.³³

The working out of love as is represented here has to do with picking vital resources from the word of God to be constantly renewing one's mind over and over again so as to keep one's heart from yielding to the fatal- if adhered to or consented to by the will of Man- temptations of the devil for and an independence of man vis à vis God and His person. Repentance appears here as necessary because it produces peace with God, that which the soul is most in need of to thrive and guard against the tricks of the enemy of the souls of men.

For this purpose, adopting Leo's philosophy might be a great deal helpful. The following words from him are the very touchstone of authenticity in the book:

... But at any rate it was myself I saw, not a sea-green, corruptible parody.³⁴

Could we humans just adhere to the culture of truthfulness and sincerity with ourselves regarding our lost condition and our need for a saviour, things will begin to work out and superficiality will freeze of itself to leave place to the solid rock of truth yielding forth the fruits of love, peace and joy. And so there's need that the culture of truth that recognises the sinfulness of man and the and the remedy of the cross that have to be the unit measure of people's lives.

³¹https://www.researchgate.net/publication/265813813852_Reevaluation_L_P_Hartley_The_GoBetween_Leftover_Life_To_Spoil. Consulted 17/04/2021, 10:18.

³² Hartely, L.P, *The Go-Between*, The New York Review of Book, p.49

³³ William, Raymond, *The Long Revolution*, Penguin Books, p.12

³⁴ Hartely, L.P, *The Go-Between*, The New York Review of Book, p.148

3- Perspectives on a redefinition of the concept of culture:

Extensive reading on works of literature about culture brings with a striking conscientiousness the problematic nature of the word culture. Daniel Hartley recognises that historic elements have been much instrumental in bringing about the challenges in defining such seemingly trivial words. The following sentence expounds more clearly the idea:

Historical capitalism produces a total social formation whose material constitution is such that the topographical relation of its elements- 'culture', 'nature', 'politics', 'society', and the 'state'- is constantly shifting, and continually altering the internal compositions of that which the terms denote.³⁵

The conceptual problems that are related to the word culture be them ideological or philosophical, or even materialistic in nature, have to bow to the culture of truth in love to stand unwaveringly throughout time and eternity. From an analytical point of view, the different cultures that have marked the history of the world constitute in Hartley's words the deadly nightshade that is casting malevolent spells on the world. The new culture he suggests as a remedial force to malevolence is that of confrontation of sin. That is why he repented towards the end of the story from impatience with practical Christianity. It has already been proved the author's own seasoning of his work with key biblical concepts. A close inspection of events in the novel reveals the dark side of class snobbism and the ever-rotten state of the human heart.

There's first of all Mrs Maudsley's lack of self-control that led to her insanity. Though everybody stood against such a kind of relationship, she should have wised up to the fact nothing escapes the touch of change. She has alone suffered and reaped the consequence of her frivol behaviour. Holding up tight to honour to keep tradition can generate eternally lamentable outcomes.

Secondly, the romantic euphoria of Marian and Ted's relationship is one thing that has worsened things. It has possibly blinded them to a probable consideration of patience and long-suffering to salve the moral tension that their relationship has chosen of itself to trail behind. I cannot fail to mention Leo's use of the word façade while talking Brandham Hall, and his backing the individual side referring to Ted in another part of the discussion as a sign of authenticity. What is more, given that fiction is in one way or another the reflection of reality, there's the possibility that the history has relation to Hartley himself. Therefore, chances are he might be telling us indirectly and/ or knowingly or unknowingly that entertaining romantic relationships constitutes a sinking sand to both actors involved. Ted didn't not need to shoot himself dead. Some might argue that the power of love made him do that. But if the power of love can issue a death sentence with no promise of a glorious future assured like the resurrection life assured for the elects of God, believers in Jesus Christ even after their departure from earth- Hartley nowhere puts it that Ted's suicide is heroic-, then, this is not love, but an amalgamation of ego and blind deification of mere mortal human beings. The report thus made is the trailblazer of one important reality. There's no talking of a divergence of cultures in the world. People choose to employ the term cultures for the differences in tastes, environmental settings, and level of advanced pursuit and mastery of science and letters. Ultimately though, men and women all over the world share the same culture. They are essentially made up of the same organic elements. This is maybe clear when one considers the American declaration of independence for instance: We hold these truths to be self-evident. That men are created equal and that they share the same unalienable rights. Another proof might well be discerned through the words of former American president's words during the speech that drove in the first black American in the white house:

³⁵ Hartley, Daniel, *Anthropocene, Capitalocene, and the Problem of Culture*, p.11

III. INTERNATIONAL LIBERTY INTERDISCIPLINARY STUDIES
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...Alongside our famous individualism, there's an ingredient in the American side. A belief that we are all connected as one people...-.... there's no liberal America, there's no conservative America, there's the United States of America. There's no black America or white America, or Latino America, or Asian America, there's the United States of America.³⁶ In the context of American cultural realities, these words convey the meaning that despite the differences that mark a certain nation, they are still fundamentally the same people. This applies to the whole world as well. David Buckingham informs us that: he[Hartley] distrusted the modern "collectivist age" and saw the welfare state as a symptom of moral deterioration and a devaluation of individual responsibility.³⁷

The multicultural approach and uniformity of culture does well to suggest in as clear a visible way that there exist a literary contention between the two terms. The famous philosophy of the secular world which posits that diversity-or cultural relativism- best suits the needs of the world and its inhabitants' betrays the consideration that truth might be compromised and wreak havoc upon the whole destiny of the world. Cultural givens are spiritual face masks to hide unto many a man or a group of man -adhering to the same evil course- the true most cherished offenses against God. Many a sinners find them too sweet to do away with. Secularism brings with it superficiality by the way of the emptiness of soul that characterizes its professors. There's need to question the diversity of culture. The applicable reality of the expression blinds and kills slowly but certainly in the inner man. That's why I can assert unflinchingly that there's need of firm faith in an anxious age where truth is sought to be done away with by the subtle ways of antinomianism and legalism.

These ideas are far from being a prevarication. The event described by Hartley himself condemns the social class system, romantic love, and the consequences therein attached.

One thing that needs to be addressed here is the prevarication that follows the use of the word. I am alluding to Hartley's own reference to French in his English narrative to French words and expression. This might be his way of providing an intimation of his love of the French culture. Some people cherish the definition of culture as language plus lifestyle. But even if this is true, it does nothing in reversing the course of things due the sole evil culture inherent in the hearts of men. The fact is, it just manifests itself in different ways. This is how low people have gone in addressing the concept. There are some questions that results from those analyses if we consider the ever-disintegrating aspects of culture like that discernible in Hartley's brilliant narrative: is there any possibility to ascertain that the traditional understanding of culture rightly serves the objective of the development of the world, everything considered? Had people set themselves in a meditating frame of spirit, which could instil in their heart humility of heart when they consider the awfulness and the majesty of God, wouldn't they have given up on trivial representations and adoption of culture through profound reflection on the very role those- rather- subcultures- and consequently they are contained in culture itself- are playing in their lives?

³⁶ http://www.barackobama.com/2004/07/27/keynote_address_at_the_2004_de_l.php. Last accessed December 5, 2008.

³⁷ <https://davidbuckingham.net/growing-up-modern/an-awkward-age/the-go-between/>. Consulted 03/10/2022, 08:20 p.m.

Conclusion

Throughout the present endeavour, I have dedicated my energy at trying to introduce the philosophy of the demystification of the mirage that culture and applications of culture have also proved from an outlook on the different events described in Hartley's novel to meet the realities- in terms of joy, sadness- of genuine, authentic culture. Thus, it becomes crystal clear that there is a certain conceptual instability that is attached to culture.

However, the study of culture appears doable. And although there's no impossibility in life, what has been suggested here in the different discussions wouldn't cover the expansive universe of the many contours of culture. Nonetheless, it has helped to debunk the mirage of aristocracy, romanticism, superficiality, untruth, blind determination for the cause of lies represented in the novel by Brandham Hall and truth, innocence, sincerity,... lust-by some critics- , innocence-especially Leo's- , represented by Ted Burgess and his social class appurtenance. Modern and postmodern tableaux of culture fail miserably to respond to the very need of the paramount importance of the culture of truth in people's lives. Only a right view of culture by the means of contrition of heart and dedicated worship of God certainly is the only solution to live the real life of culture.

Work Cited

- 1- Hartley, Daniel, *Anthropocene, Capitalocene, and the Problem of Culture*.
- 2- Lebrón, Antonio, *What is culture*, Merit Research Journal of Education and Review Vol. 1(6), July 2013, pp.126-132.
- 3- Tarasova, N. A, *Theoretical-methodological Bases of the "Sociocultural Transformation" Concept Explication*, INTERNATIONAL JOURNAL OF ENVIRONMENTAL & SCIENCE EDUCATION 2016, VOL.11, NO.18, 11993-12003.
- 4- William, Raymond, *The Long Revolution*, Penguin Books.
- 5-

Sitography

1. <https://www.independent.co.uk/arts-entertainment/books/features/go-between-lp-hartley-novel-cure-being-hopeless-romantic-a6691986.html>. Consulted 06/04/2021, 11:05a.m.
2. <https://www.npr.org/2011/06/22/136926704/love-betrayal-humiliation-a-coming-of-age-affair?>. Consulted 05/04/2021, 09:20a.m.
3. <https://www.nyrb.com/products/the-go-between?variant=1094931973>. Consulted 05/04/2021, 10:05 a.m.
4. <https://www.rogerebert.com/reviews/the-go-between-1971>. Consulted 06/04/2021, 06:30 a.m
5. <https://thenewsstandardgallery.com/the-go-between-analysis/>. Consulted 05/04/2021, 08:10 a.m.
6. <https://www.litcharts.com/lit/the-go-between/themes/love-sex-and-marriage>.
7. <https://oxford.universitypressscholarship.com/>. Consulted 04/04/2021, 11:10.
8. <https://www.google.com/search?q=Scholarly+articles+on+the+concept+of+culture&client=ms-opera-mini-android&channel=new> .Consulted 07/04/2021, 03:27 a.m.
9. https://www.researchgate.net/publication/265813813852_ReevaluationL_P_Hartley_The_GoBetween_Leftover_Life_To_Spoil. Consulted 17/04/2021, 10:18.
10. <https://davidbuckingham.net/growing-up-modern/an-awkward-age/the-go-between/>. Consulted 03/10/2022, 08:20 p.m.

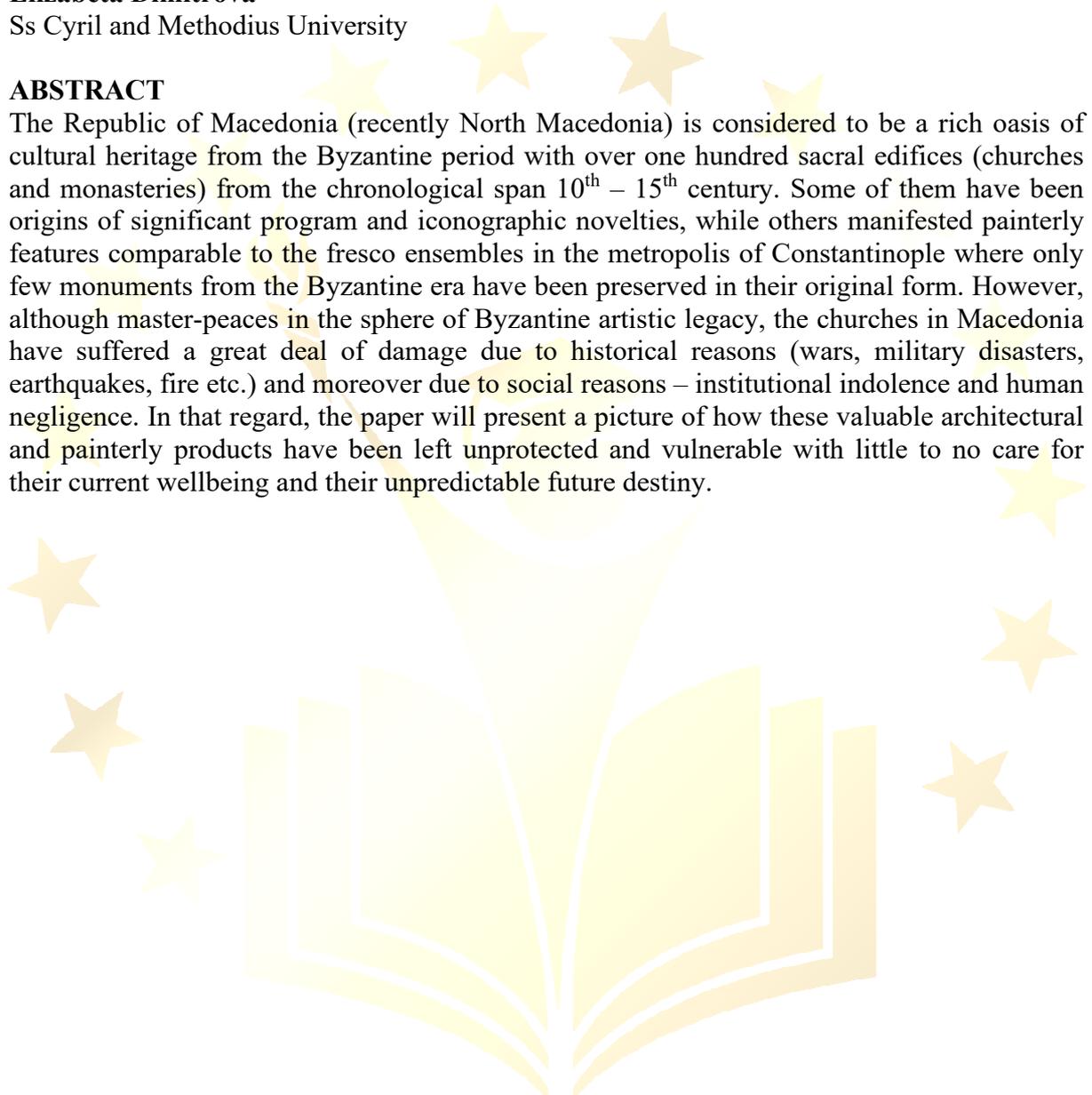
FRAGILE HERITAGE

Elizabeta Dimitrova

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ABSTRACT

The Republic of Macedonia (recently North Macedonia) is considered to be a rich oasis of cultural heritage from the Byzantine period with over one hundred sacral edifices (churches and monasteries) from the chronological span 10th – 15th century. Some of them have been origins of significant program and iconographic novelties, while others manifested painterly features comparable to the fresco ensembles in the metropolis of Constantinople where only few monuments from the Byzantine era have been preserved in their original form. However, although master-peaces in the sphere of Byzantine artistic legacy, the churches in Macedonia have suffered a great deal of damage due to historical reasons (wars, military disasters, earthquakes, fire etc.) and moreover due to social reasons – institutional indolence and human negligence. In that regard, the paper will present a picture of how these valuable architectural and painterly products have been left unprotected and vulnerable with little to no care for their current wellbeing and their unpredictable future destiny.



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**CASTE IN URBAN MILIEU: AN ANTHROPOLOGICAL STUDY IN PUNE CITY,
INDIA**

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Abstract

It is generally assumed that caste is the key parameter of identity only in villages. In contrast, in cities people from lower strata of the caste hierarchy face discrimination in new forms and strategies. In urban India, the casteism is covertly practiced, manifesting itself in matrimonial advertisements in newspapers or as hushed whispers about colleagues in office spaces, masked by a pretentious civility.

The upper-caste urban Indians insist that caste/ casteism is dead or dying, as forces of westernization, modernization, urbanization and globalization are taking away the age old social distinctions, and fostering meritocracy which rewards individual merit on a level playing ground. This paper intends to study the nature of casteism in urban spaces of Pune in Maharashtra state, India. It is a qualitative study; data were collected by interviewing respondents from Scheduled Castes (SCs) or Dalits.

The data shows that behind the fictional caste anonymity and meritocracy in urban spaces of Pune, lies the bitter reality of casteism, in the form of discrimination in labour market, educational disparities, residential segregation, direct and indirect instances of untouchability, resulting in caste manifesting its grip on all these spheres.

Pune city shows segregated residential pattern, with SCs largely relegated to a few clusters mostly in slums. These people lack access to basic amenities such as piped water and toilets, suggesting that caste determines access to basic amenities. Lack of basic amenities could be due to poverty but there is ample evidence to suggest that residential segregation itself is a cause of poverty, hampering chances of education and employment.

SC tenants face rejections in getting houses and apartments on rent because of their caste. Same is the case with the SC entrepreneurs as they also face discrimination in getting loan from banks and land or commercial spaces at prime locations in the city. And when it comes to marriage, the caste endogamy is strictly followed barring few exceptions of inter-caste marriages. The nature of casteism has changed in terms of forms and strategies and it is covertly practiced in cities.

Keywords: Urban India, casteism, matrimonial advertisements, residential segregation

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AKIŞKAN OSİLTÖR İLE MİKROKANALLI ISI DEĞİŞTİRİCİSİNDE PERFORMANS ARTIŞININ ZAMANA BAĞLI REJİMDE İNCELENMESİ

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ÖZET

Bu çalışmanın amacı, akışkan osilatörlü bir mikro kanallı ısı değiştiricisinde momentum ve ısı transferindeki iyileşmeyi araştırmaktır. Bu çalışma, farklı çarpma açıları, osilatör çıkış merkezleri arasındaki mesafe ve çeşitli Reynolds sayıları ile süpürmeli jet çarptırılmalı ısı transferi performansını içermektedir.

Teknolojinin gelişmesiyle birlikte havacılık, uzay, otomotiv vb. alanlarda kullanılan ısı değiştiricilerin performans kapasitesinin artırılması gerekli hale gelmiştir. Hava kaynaklı pin fin dizilimine sahip ısı değiştiricileri yaklaşık 100 W/cm^2 ısı transferi kapasitesine sahiptir. Isı transfer kapasitesini arttırmak ve daha az yer kaplaması amacıyla mikro kanallı ısı değiştiricilerin kullanımı yaygınlaşmaya başlamıştır. Bu çalışmada, iki adet akışkan osilatörü kullanılarak mikro kanallı bir ısı değiştiricide ısı transferi incelenmiştir. Çarptırılmalı jet ile soğutmada ısı transferi performansını arttırmak için akışkan süpürülerek çarptırılmıştır. Bu sayede Nusselt sayısı artmış ve dış akış etki alanı genişleyerek ısı transfer performansı artmıştır. Çalışmada, Wu Y. Ve ark. gerçekleştirdiği çalışma temel alınmıştır. Doğrulama çalışmaları, temel alınan çalışma üzerinde gerçekleştirilmiş ve model doğrulanmıştır. Ek olarak, akışkan osilatör giriş yüzeyinin kanal ile açısı 30° , 45° ve 60° olarak incelenmiştir. Elde edilen sonuçlar ile iki osilatör arasındaki mesafe de incelenmiştir. Çıkış delik merkezleri arasındaki mesafe $7D$, $7.5D$ ve $8D$ olacak şekilde incelenmiştir. Çalışma akışkanı olarak su kullanılmıştır. Akışkanın giriş sıcaklığı 300 K 'dir. Sıcak duvar olarak $9D \times 15D$ alana sahip çarpma yüzeyi modellenmiştir. Çarpma yüzeyine sabit bir ısı akısı $q''=10^6 \text{ W/m}^2$ olarak tanımlanmıştır. Akışkanın Reynolds sayı aralığı 3000 , 4000 , 5000 , 7000 ve 10000 olarak belirlendi. Diğer duvarlar ise adiyabatik ve hızın sıfır olduğu varsayılmıştır. Isı transfer performansının ve akışkan dinamiklerini incelemek için zamana bağlı RANS k- ω türbülans modeli kullanılmıştır.

Anahtar Kelimeler: Akışkan Osilatör, Çarptırılmalı Jet, Isı Transferi İyileştirme, Hesaplamalı Akışkanlar Dinamiği.

IN MICROCHANNEL HEAT EXCHANGER PERFORMANCE ENHANCEMENT WITH FLUIDIC OSCILLATOR INVESTIGATION BY TRANSIENT REGIME

ABSTRACT

The motivation of this study was to investigate the momentum and thermal energy transfer improvement in a microchannel heat exchanger with fluidic oscillator. This study included sweeping jet impingement heat transfer performance with a different impact angle, distance between fluidic oscillators and various Reynolds Number.

With the development of technology, it was necessary to increase the performance capacity of the heat exchanger used in areas of aviation, space, automotive, etc. Air source heat exchangers have a heat transfer performance of about 100 W/cm^2 in pin fin arrays. Microchannel heat exchangers have become widespread in order to increase the heat transfer capacity and occupy less space. In this study, heat transfer is investigated in a microchannel heat exchanger using 2 fluid oscillators. In order to enhancement the heat transfer performance in impinging jet cooling, the fluid is swept. Thus, the Nusselt Number has increased and external flow area is expanded, and augmentation the heat transfer performance. The study was based on the work of Wu Y. et al. validation studies were carried out on the study from the base study and model is validated. In addition, the angle of the fluidic oscillator with the channel was examined as 30° , 45° , and 60° . With the results obtained, the distance between the two oscillators was investigated. $7D$, $7.5D$, and $8D$ were investigated in the distance between exit hole centers. Water was used as the working fluid in the study. The inlet temperature of the fluid is 300 K . The surface with an area of $9D \times 15D$ was modeled as a hot wall as the impingement surface. A constant heat flux to the impingement surface is defined as $q' = 10^6 \text{ W/m}^2$. The Reynolds range of the fluid was determined as 3000 , 4000 , 5000 , 7000 , and 10000 . Other walls are considered adiabatic and non-slip. Time dependent RANS $k-\omega$ turbulence model is embraced to study the heat transfer performance and the fluid dynamics.

Keywords: Fluidic Oscillator, Impinging Jet, Heat Transfer Augmentation, Computational Fluid Dynamics

1. INTRODUCTION

In the current technological landscape, numerous engineering designs are constrained by heat transfer requirements that limit their performance and size. The demand for high-thermal performance systems has necessitated the exploration of methods to enhance heat transfer. Improvement of heat transfer is crucial in applications such as electronic equipment cooling and turbine blade cooling, as it allows for the necessary heat rates required for the proper functioning and longevity of these systems. This has spurred the search for various approaches to increase heat transfer rates in engineering applications and subsequently reduce the temperature of equipment and systems.

Impingement jet cooling is a highly effective method for cooling equipment and systems the operate in high-temperature environments. [1] It has ability to thin the boundary layer and increase turbulence in the fluid, thereby enhancing the heat transfer capacity.[2] The point at which the jet flow and the impinging surface meet is referred to as the stagnation point. (At this point, the local velocity is zero but the stagnation pressure is at its highest.) [3]As the flow exits the stagnation zone, it transforms into wall jets towards the periphery and decelerates in the flow direction, with the boundary later thickness gradually increasing. [4]

The fluidic oscillator is a specialized device that converts a steady jet flow, without any moving parts, into a sweeping jet based on internal instability mechanisms. [5] With this sweeping movement, the wall effect is reduced and the Nu distribution is improved. The sweeping motion is self-induced and self-sustaining.[6] Fluidic oscillators are a type of fluid device that, using pressurized fluid, generates an oscillated jet at a wide range of frequencies for the purpose of active flow control. These devices emerged primarily in the 1960s and utilize only stationary parts for fluidic logic, magnification, sensing, and control. The potential of fluid oscillators has been increasing over time as they have found more and more applications in various fields.

Fluidic oscillators, which are systems that involve the oscillation of fluids, have a wide range of applications, including energy generation, water treatment, and flow control.

Although fluidic oscillators have been utilized in a variety of fields, the internal fluid dynamics characteristics such pressure drop and oscillation frequency have not been thoroughly studied.[7]–[11] Hossain et al.[7] carried out studies to observe the effect of surface roughness on the fluid in the fluidic oscillator. It has been observed that the increase in roughness in the throat also increases the sweeping frequency at low mass flow rates. It is determined that increased roughness in the chamber and feedback channel negatively affected the performance of the fluidic oscillator. Seo et al. [8] carried out CFD analyzes on various parameters to assess the effect of geometric properties, including alterations in the feedback channel length and mixing chamber length in a fluidic oscillator with two feedback channels. It appears that there is an inverse relationship between chamber length and frequency, meaning that as chamber length increases, frequency decreases. This relationship is non-linear, meaning that the change in frequency is not directly proportional to the change in chamber length. In other words, the change in frequency may not be the same for all changes in chamber length.

Tomac and Gregory conducted a study in which they used particle image velocimetry to visualize and quantify the internal flow patterns inside a fluidic oscillator. These techniques were used to analyze the movement and behavior of fluids, and the results were determined that four main eddies were formed. Two of them were called domes, while the other two were called side eddies.

Fluidic oscillators have been utilized for flow separation control. [12]–[15] Wosidlo et al.[16] examined the use of a fluidic oscillator array to control flow separation on the airfoil and observed that the oscillation occurs at high frequency in directly proportional to the volumetric flow rate. It was determined that the spacing between the oscillator array is dependent on the ratio of jet stream and free flow velocity. With the fluidic oscillator, studies were carried out to increase the angle of transition of the wing to the stall and to increase the lift force significantly. To this end, Phillips et al.[17] studied the effects of sweeping flow on the trailing edge blade and the airfoil, specifically how it causes rapid changes in lift, drag, and pitch angles.

Studies have been carried out in the literature to provide jet thrust vectoring[18] and disrupt combustion instability. [19] There have been numerous studies that have investigated the heat transfer performance through the use of oscillating flow. [20]–[26] Camci and Herr [20] were the first to utilize a fluidic oscillator to transform the jet stream into a sweeping impinging jet in order to enhance the heat transfer performance of impinging jets. When air was used as the fluid, an increase of 20% to 70% in heat transfer performance compared to stationary jet values was observed as the impinging jet impacted a wider area due to its sweeping motion. Kim et al.[22] conducted numerical and experimental investigations into the behavior of the fluid and its heat transfer effect when two feedback oscillators were connected to the channel wall with a constant temperature. One significant finding from these studies is that the dimensionless sweep frequency (St Number) is dependent of the type of working fluid and the mass flow rate. Furthermore, it was observed that the frequency increases with an increase in the Re number, but the heat transfer in the channel does not significantly change due to the increase in the convection velocity of the vortices with increasing mass flow rate.

In this study, heat transfer in a microchannel heat exchanger was investigated using two commonly used fluidic oscillators. In an effort to increase the heat transfer performance of impinging jet cooling, an increase in heat transfer was sought by scavenging the fluid. Wu et al. [27] conducted validation studies based on their work and validated the model.

To expand the range of impact of the impinging jet, the angle of the fluidic oscillator with respect to the channel on the impact surface was examined at α_c (30° , 45° , and 60°). In addition, the distance between the centers of the two oscillators was examined, with L_g ($7D$, $7.5D$, and $8D$) being considered for the distance between the outlet hole centers. Water was chosen as the working fluid due to its superior heat removal performance compared to air.

2. METHODOLOGY

2.1 Geometry and Boundary Condition

In this study, two fluidic oscillators with angled two feedback were placed over the heat exchanger channel at an angle of α_i . The gap between the two oscillators was set to L_g . Each fluidic oscillator consists of a power nozzle, mixing chamber, two feedback channels, outlet throat, and exit hole with a trailing edge of $4D$. The fluidic oscillator has a thickness of $0.5D$ and a height of D . The nozzle entrance extends forward and parallel to the impact surface, allowing the jets to interact with the main stream, and has a minimum width of $0.7D$. The outlet of the channel is $24D$ away from the center of the strait to ensure fully developed flow and minimize the impact of the outlet boundary condition on the fluid dynamics of the oscillating jets. The inlet of the power nozzle is $2D$ wide and has a minimum width of $0.7D$ at a distance of $2.65D$ from its inlet. The mixing region inlet in the feedback channel is D wide.

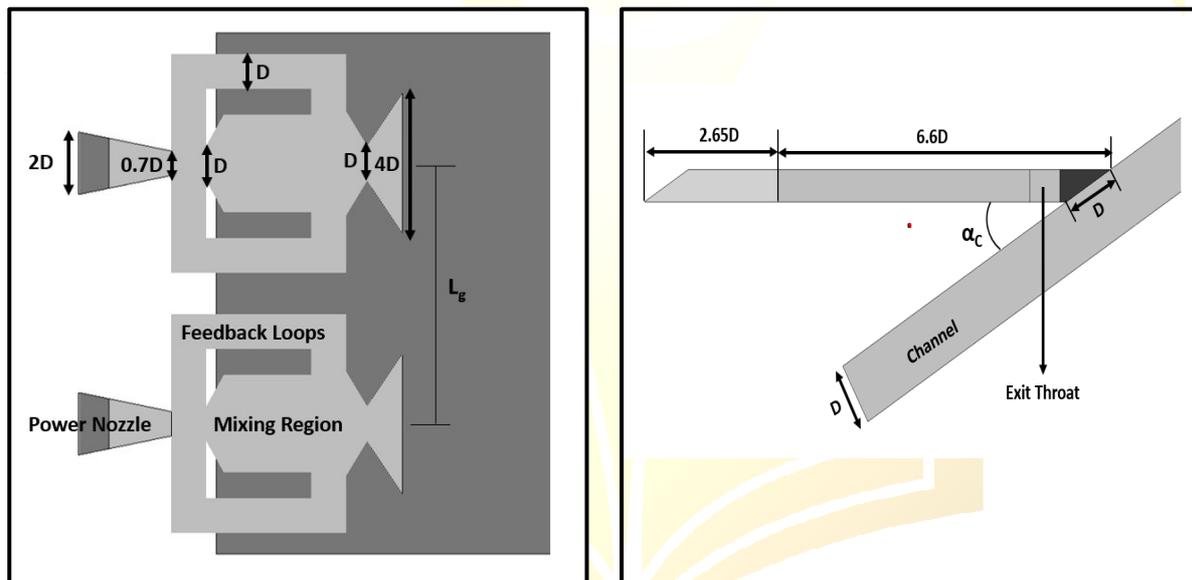


Figure 5 The Oscillator Computational Model

The fluid at the inlet is assumed to be uniform and has a temperature of 300 K. The outlet pressure, located $24D$ away, was set to 0 Pa to avoid affecting the flow area. In the study, the Re number for model validation ranged from 3000 to 5000, while parametric studies were performed using 4000, 7000, and 10000. A constant heat flux boundary condition of $q' = 10^6$ W/m² is applied to the wall that the oscillating flow impacts in the channel, while the other walls in the model are assumed to be adiabatic and non-slip. The impingement surface, which has an area of $9D \times 15D$ was modeled as a hot wall.

2.2 Mesh Validation and Governing Equation

ANSYS Fluent 21.2 was utilized for computation, with the SIMPLE model and Gauss-Green method employed for pressure-velocity coupling and pressure discretization, respectively.

The second-order upwind method was used for discretizing the parameters, with the time step determined based on the average velocity at the nozzle throat, where the average flow velocity was high. The time step was set to 10 dimensionless times. The simulation continued until the oscillation reached a steady state, using a convergence criterion of 10^{-5} for the energy equation and a criterion of 10^{-7} for the other equations. The k- ω SST model was selected for its robustness and accuracy in predicting flow behavior, particularly in the vicinity of walls and in high turbulent flow.

The computing domain employed a structured grid. Structured grids are frequently utilized in numerical simulations and analyses due to their ease of generation, visualization, and efficient solution of the governing equations. They are often used in conjunction with finite volume method to solve problems in a variety of application. The mesh model used in the analysis is shown in **Figure 6**. To capture $y^+ \sim 1$ on the walls, bias factor was applied during the meshing process, with a more frequent mesh preferred in the power nozzle and throat.

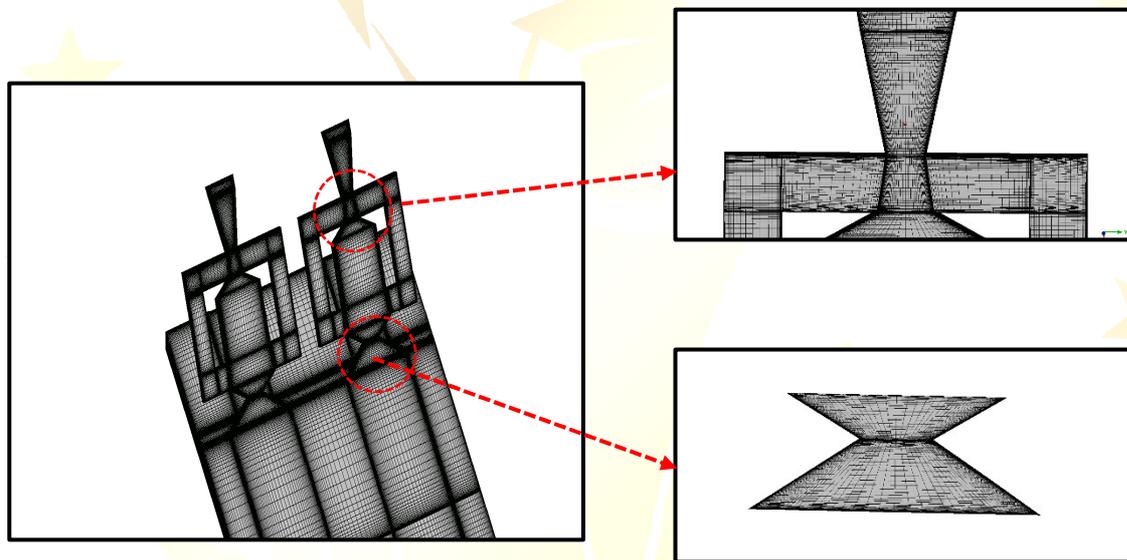


Figure 6 Mesh Structure Figure

It is important to validate a mesh before using it in any critical application, as errors or inconsistencies can cause problems such as instability, incorrect results, or even crashing. Three different types of mesh were used in the analysis, referred to as coarse, medium, and fine, with 3350874, 6849175, and 8329482 nodes respectively. A mesh independence study was conducted in which frequency data for three different mesh sizes were analyzed for a given Re number (5000). The frequency data for the three different mesh sizes were found to be 122, 126, and 127 respectively. There is a small difference (less than 2%) between the frequency value obtained in a reference study and the error rate in the results obtained using coarse and fine mesh sizes. This indicates that the results are independent of the mesh size, meaning that the choice of mesh size does not significantly impact the results. Therefore, a medium mesh with a lower number of nodes was chosen.

To understand the behavior of this system, it is necessary to consider a set of governing equations that describe its dynamics.

Continuity equation

$$\frac{\partial(\rho)}{\partial t} + \frac{\partial(\rho u_i)}{\partial x_i} = 0 \quad (1)$$

This equation states that the rate of change of mass in a fluid element is equal to the net rate of mass flow into or out of the element through its surface. One of the key governing equations for this system is the momentum equation, which describes the forces acting on an object and how they affect its motion.

Momentum equation

$$\frac{\partial(u_i)}{\partial t} + \frac{\partial(u_i u_j)}{\partial x_j} = \frac{-1}{\rho} \frac{\partial P}{\partial x_i} + \frac{\partial}{\partial x_j} \left(\nu \frac{\partial u_i}{\partial x_j} - \overline{u_i u_j} \right) \quad (2)$$

where $\overline{u_i u_j}$ represent to turbulent fluctuating.

Energy equation

$$\frac{\partial(\rho c_p T)}{\partial t} + \frac{\partial(\rho c_p u_j T)}{\partial x_j} = \frac{\partial(\lambda \frac{\partial T}{\partial x_j} - \rho c_p \overline{u_j T'})}{\partial x_j} \quad (3)$$

The k equation

$$\frac{\partial(\rho k)}{\partial t} + \frac{\partial(\rho k u_j)}{\partial x_j} = \frac{\partial(\Gamma_k \frac{\partial k}{\partial x_j})}{\partial x_j} + G_k - Y_k + S_k + G_b \quad (4)$$

The ω equation

$$\frac{\partial(\rho \omega)}{\partial t} + \frac{\partial(\rho \omega u_j)}{\partial x_j} = \frac{\partial(\Gamma_w \frac{\partial \omega}{\partial x_j})}{\partial x_j} + G_\omega - Y_\omega + S_\omega + G_{\omega b} \quad (5)$$

The variable G_k and G_ω represent the generation of turbulent kinetic energy due to the average velocity gradients, while Γ_k and Γ_w symbolize the effective diffusivity of k and ω , respectively. Y_k and Y_ω represent the dissipation due to turbulence, and S_k and S_ω are user defined source terms. The terms G_b and G_w also account for buoyancy effects on turbulence. [28]

3.RESULTS

3.1 Internal Fluid Dynamic Result

This study examined the occurrence of a quasi-constant oscillating flow pattern in each fluidic oscillator. The initial flow pattern in the oscillators was random, but as the flow passed through the oscillators, asynchronous output phases were observed. It is essential to accurately capture the acceleration of the flow and the temporal evolution of the pressure and flow fields within the array as the flow passes through the oscillators.

Figure 7 shows a oscillating flow pattern for the fluidic oscillator. The velocity contours have been partitioned into six time increments for one oscillation cycle. The internal flow dynamics of the numerical model has been compared with the reference study, and the results observed in this study are consistent with the reference study.

The **Figure 7** demonstrates that, for half of the oscillation period at a Re Number of 4000, the interaction between the incoming flows and the main jet in the inlet region causes a deflection of the jet due to the pressure difference in the two feedback channels. At $0 T_f$, the fluid is adhered to the right wall of the nozzle of the first oscillator while it is attached to the left wall of the nozzle of the second oscillator. A portion of the fluid is also directed towards the feedback channel and returns to the inlet of the oscillator. The bubble that forms in the mixing region pushes the incoming fluid until it adheres to the opposite wall. In the next time step, the bubble disappears as it enters the feedback channel and exits through the outlet. This process is then repeated on the opposite wall, resulting in self-sustaining sweeping.

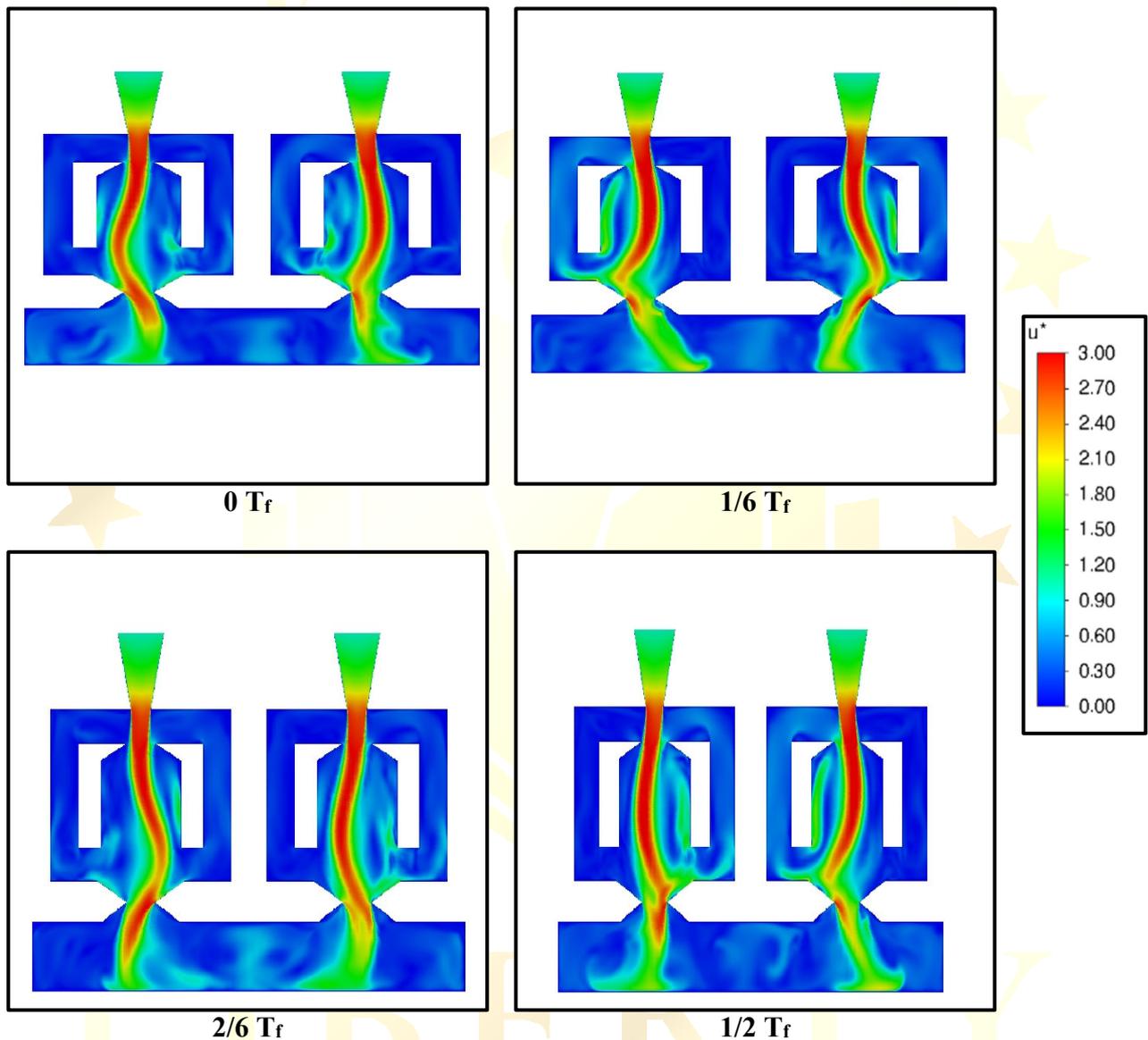


Figure 7 The Dimensionless Velocity Contour for Half of the Sweep Period with Re=4000 and Impact Angle of 30 Degree

The dimensionless pressure distribution in **Figure 8** demonstrates a similar process. When the jet stream adheres to the right side of the nozzle wall, high pressure is created in the left feedback channel, while negative pressure is observed on the right side of the mixing chamber due to the formation of a bubble.

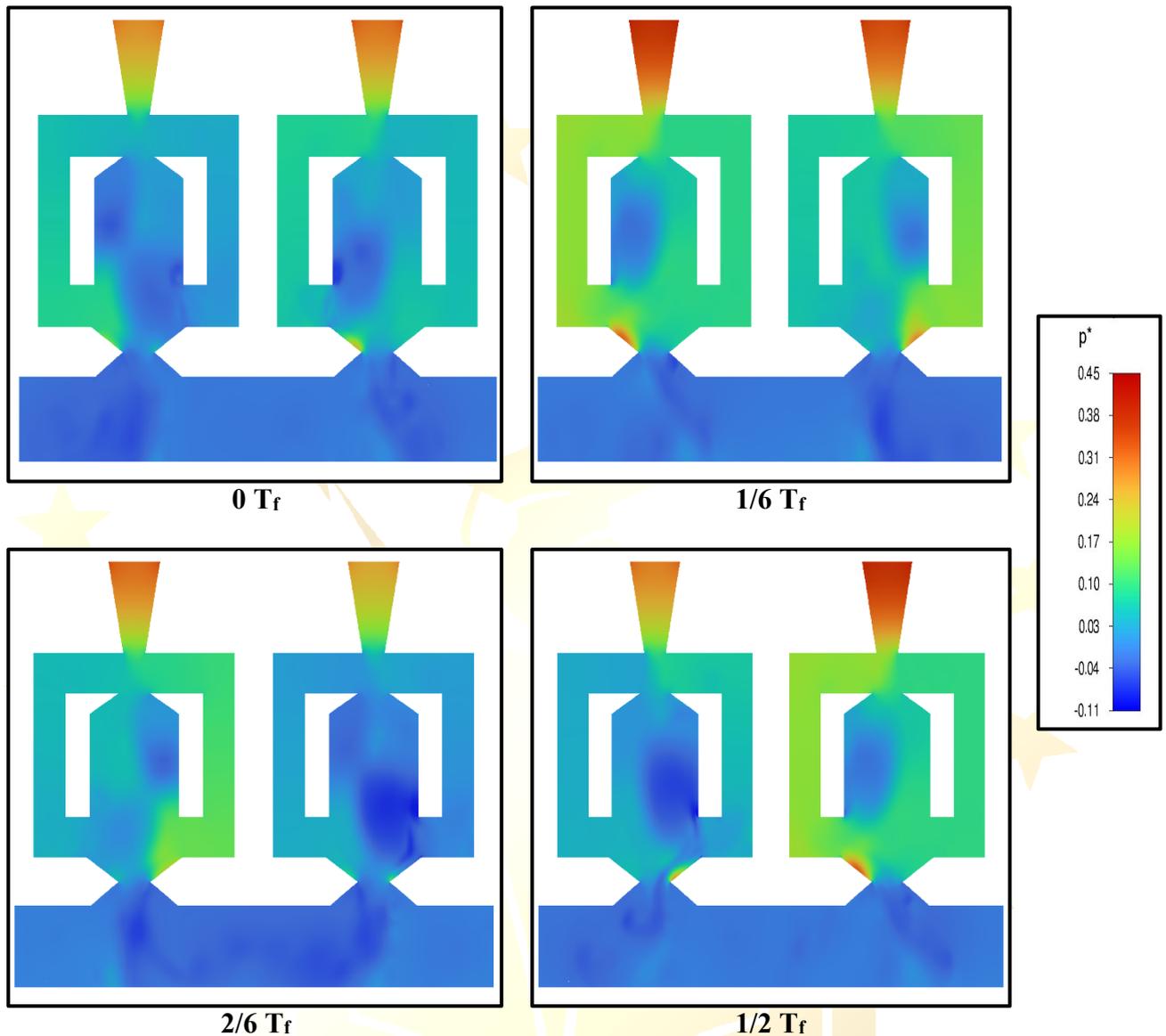


Figure 8 The Dimensionless Pressure Contour for Half of the Sweep Period With $Re=4000$ and Impact Angle of 30 Degree

In a heat exchanger, increase in the pressure difference of the coolant can increase the heat transfer. This is because the higher-pressure difference creates a stronger driving force for heat transfer and also increases the inlet flow rate, resulting in faster heat transfer. The results indicate that the pressure difference increased as expected, consistent with the reference study, when the system was evaluated at three different Re Numbers. This can be seen in **Figure 9**. The values in the reference study are presented in units, and thus comparison in this graph is also made in units.

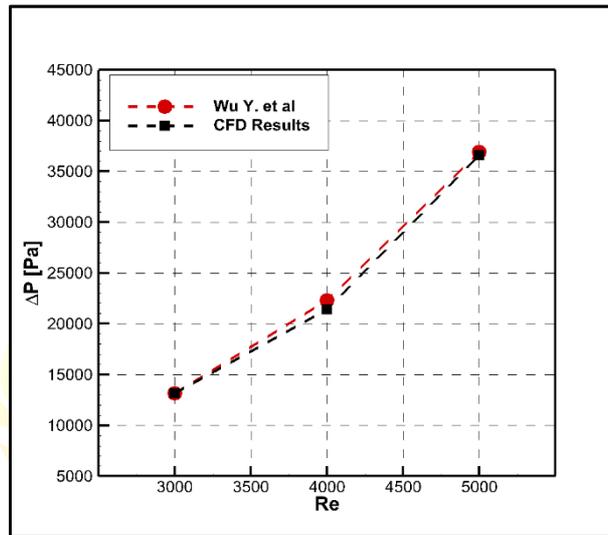


Figure 9 The Pressure Difference of the Flow at various Re Numbers from 3000 to 5000

In general, the angle of impingement of the coolant on the surface affects the pressure drop measurements. This is because a large impingement angle causes the fluid to spread over a larger area, leading to a variation in the surface roughness and, consequently, a change in the direction of traction. However, the relationship between impingement angle and pressure drop may not be linear, and the exact effect of impingement angle on pressure drop will depend on the specific measurement. This effect was investigated by increasing the impingement angle from 30 to 45 and 60 degrees. The results of the analysis showed that the pressure difference between the inlet and channel outlet increased as the angle of impact increased, but this trend remained unchanged when the Re number was varied. The relationship between the angle of impingement and pressure drop is shown in **Figure 10**. The pressure drop appears to increase linearly with the Re number, but this relationship may vary depending on the operating pressure range of the heat exchanger.

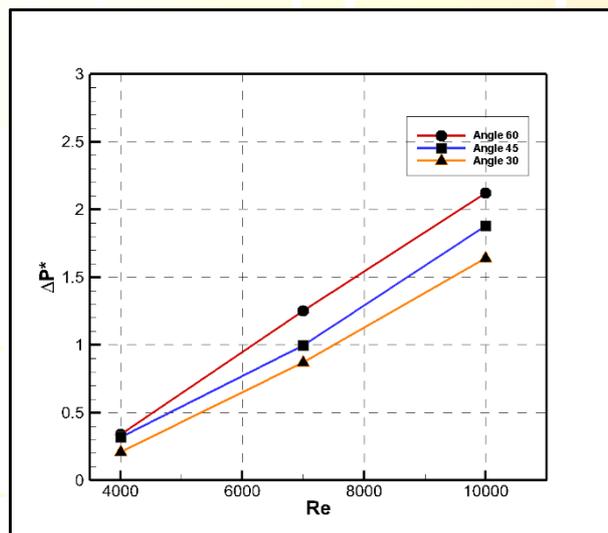


Figure 10 The Dimensionless Pressure Drop of the Flow at Different Impinging angle with respect to Various Re Numbers

The increase in pressure drop led to an increase in mass flow rate and velocity at the center of the jet stream, as depicted in **Figure 11**. As turbulence is known to increase with increasing velocity, it can be inferred that heat transfer at the impingement surface will also increase.

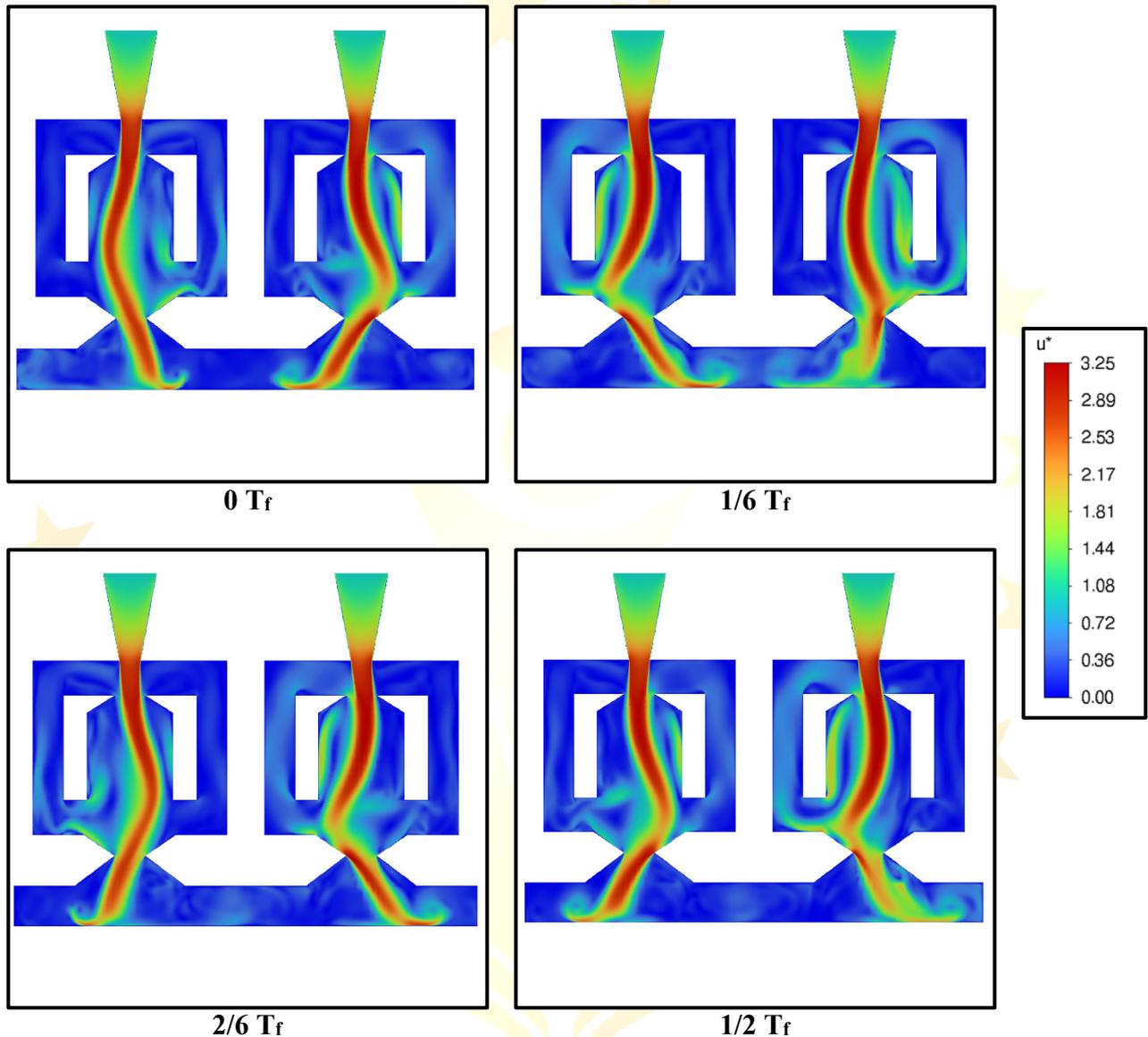


Figure 11 The Dimensionless Velocity Contour for Half of the Sweep Period with $Re=4000$ and Impact Angle of 60 Degree

3.2 Heat Transfer Result

It has been established that oscillating flow can create turbulence, which leads to significant fluctuations in the flow and a reduction in boundary layer thickness. The results of the CFD analysis were consistent with the reference study in the model validation analyses, displaying a similar characteristic.

The impingement surface, which has an area of $L \times W$ ($9D \times 15D$), was investigated in terms of the time-averaged Nu number distribution on the impingement surface for $X/L=0.25$ and $X/L=0.5$ in the reference study. As seen in **Figure 12a**, the highest Nu value was found at the stagnation points, while there was a steep decrease in the Nu value at the center of the impingement surface.

The time-averaged Nu distribution for channel lines with an X/L value of 0.5 at a Re number of 4000 and an impingement angle of 30 degrees was found to be lower than that for X/L=0.25. This is because the X/L=0.5 line was not directly impacted by the jet. While similar trends were observed in the reference study as seen as **Figure 12b**, the distribution was more homogeneous when compared to X/L=0.25. There are deviations in some values in the chart. The reason for this may be numerical errors in the calculation domain.

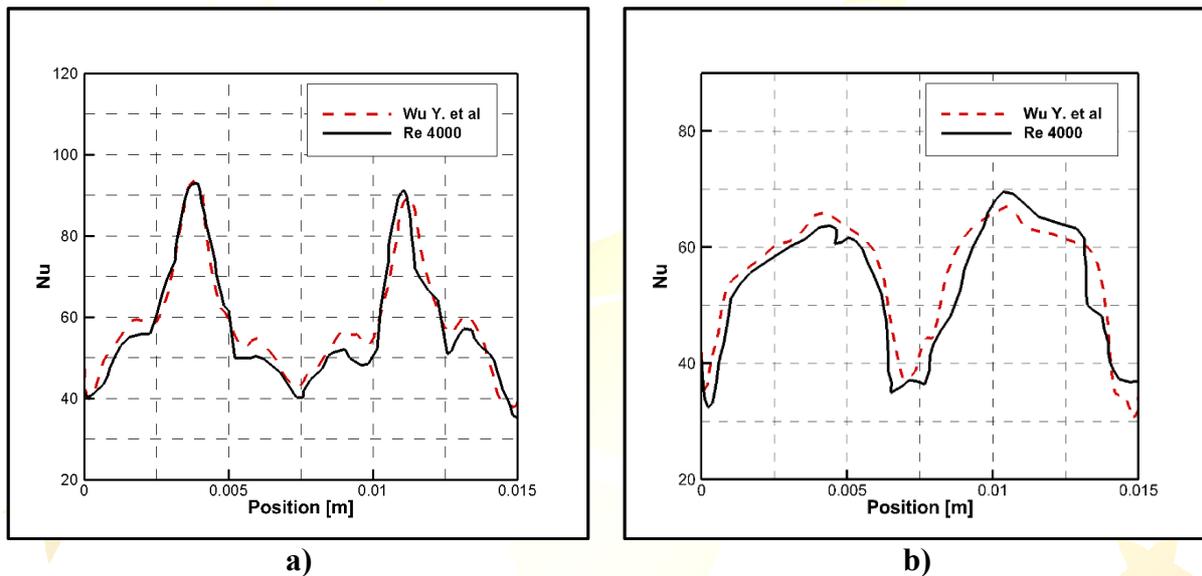


Figure 12 The Time-averaged Distribution of the Nu Number for the a) X/L=0.25 and b)X/L=0.5 Channel Lines at Re=4000 and Impact Angle of 30 Degrees

As shown in **Figure 13a**, the Nu distribution on the impingement surface is characterized by a prominent point of impact. However, as the angle of impact increases, the point of impact becomes more pronounced, and the stopping point occurs further away from X/L=0.25 where the angle of impact is 60 degrees. It was observed that the Nu distribution on the surface had significant variation, with maximum and minimum values differing significantly. As a result, the values could not be presented on a single scale. Upon closer examination of the color scale, it was determined that the model with an impact angle of 60 degrees had better heat transfer performance. The time-average Nu number graph for these three impact angles (30°, 45°, 60°) is shown in Figure 10, and it can be seen that the increase in turbulence had a positive effect on heat transfer as expected.

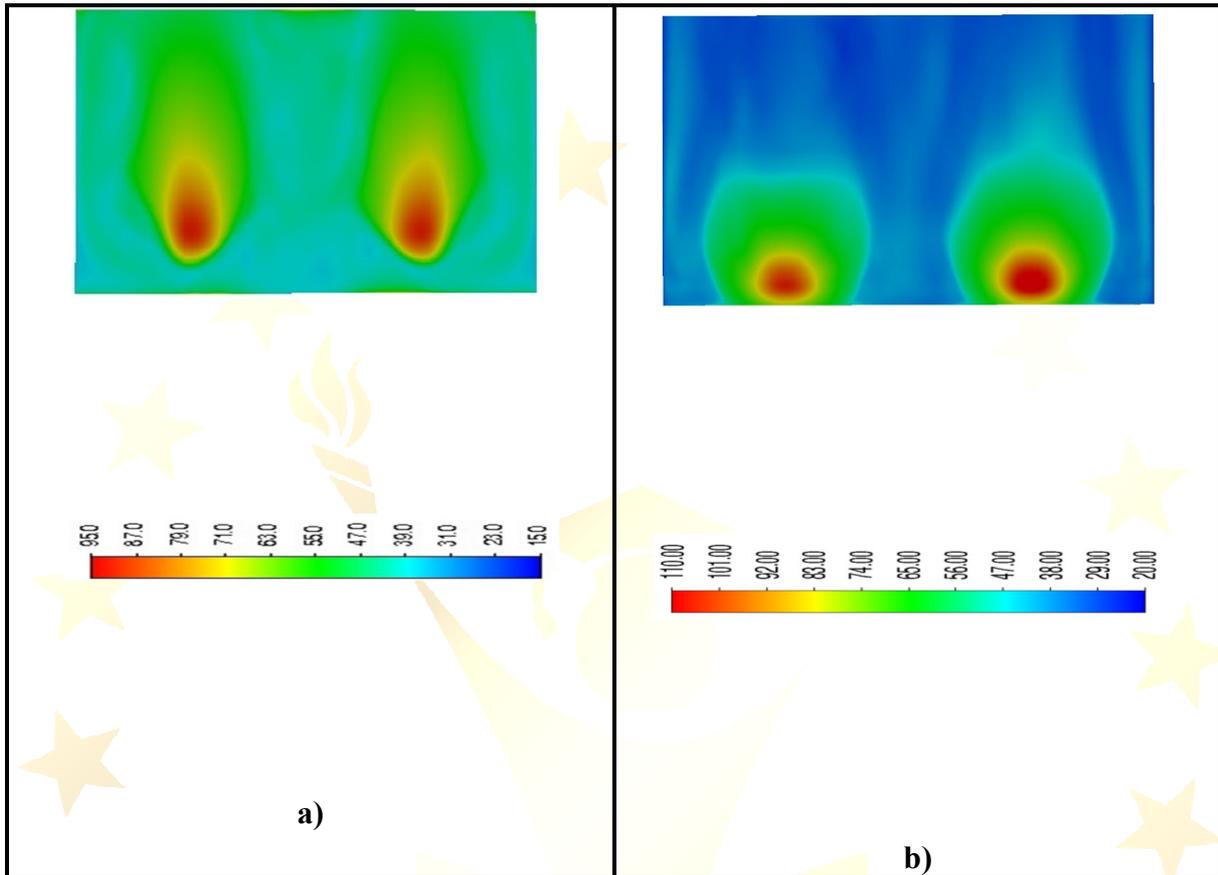


Figure 13 The Time-averaged Nu Number Distribution on Impact Surface for a) Angle 30 and b) Angle 60

The effect of heat transfer with changes in the impact angle was also examined with changes in the Re number. It is seen in **Figure 14** that the observed phenomenon did not change with the increase of the Re number. However, it should be noted that this may not hold true for all heat exchangers. As the Re number increase, there is a possibility of flow choking in the channel.

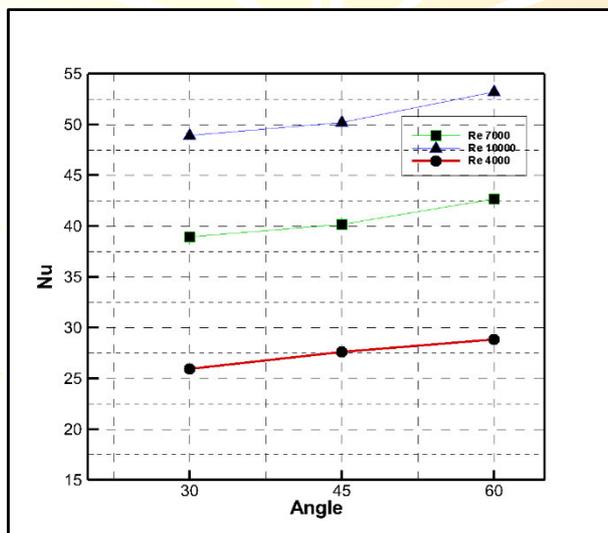


Figure 14 The Time-averaged and Area-averaged Nu Number Value

In order to better see the increase in turbulence with the change of the impact angle, the dimensionless temperature contour was examined in **Figure 15** on a common scale. When the contour is examined, it is seen that as the angle increases, the effect of sweeping in the jet flow and the fluctuating in the flow that occurs with the sweeping increase.

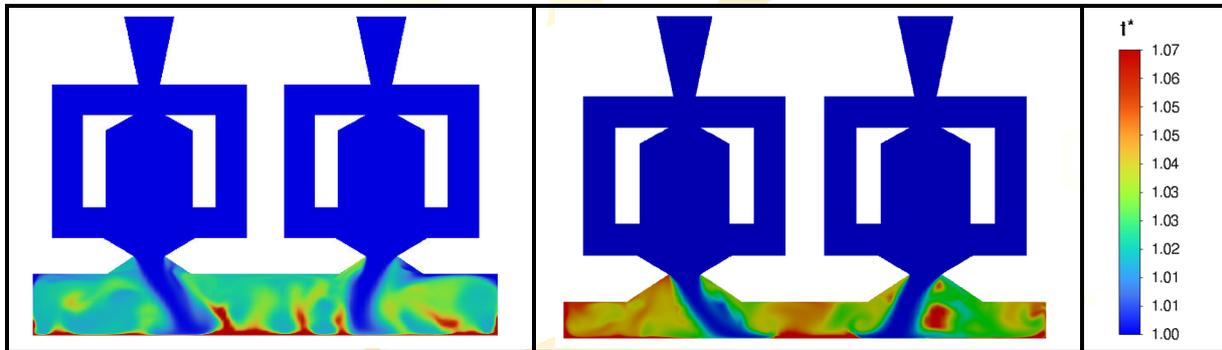


Figure 15 Non-dimensional Temperature Distribution for a) Angle 30 and b) Angle 60

Finally, when the effect of the distance between the oscillator arrays on the heat transfer was examined, it was observed that time-averaged Nu value increase when the distance between the arrays decreased. When the time-averaged Nu number is examined over $X/L=0.5$, it is seen in Figure 12b that the Nu number that decreases between the wall effect and the stagnation points occurs in a smaller region as the distance between the arrays decreases. In addition, it is seen that the maximum Nu number formed at the stagnation point increases as the distance between the arrays decreases. However, it is important to consider that reducing the distance between arrays may require the inclusion of additional fluidic oscillators, which could increase cost and pose placement challenges.

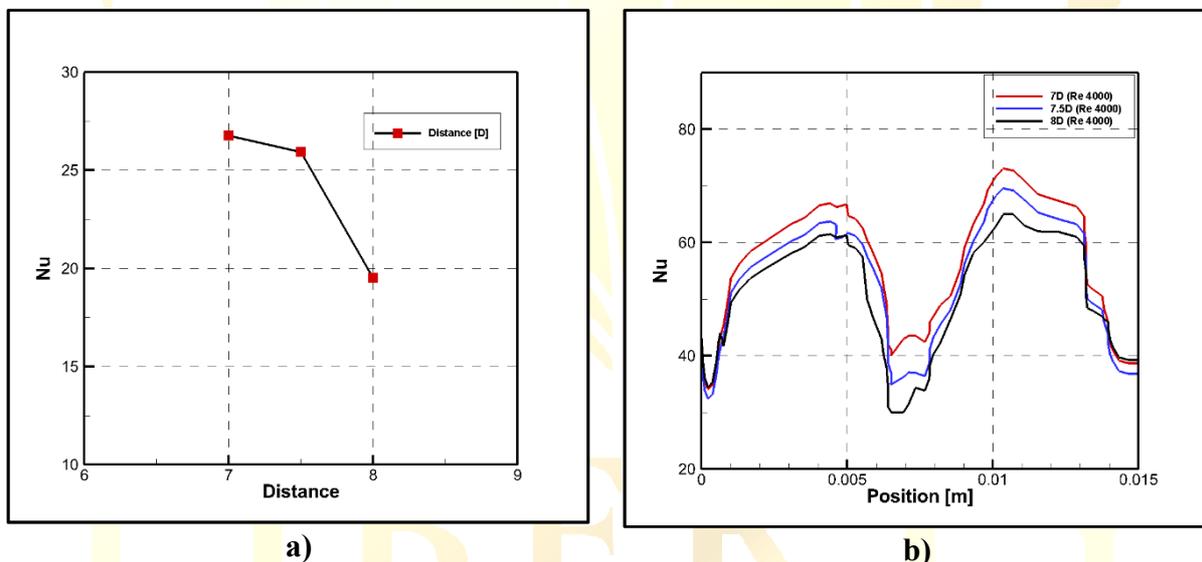


Figure 16 The Time-averaged Nu Distribution: a) Area-averaged Values for Distance and b) at $X/L=0.5$

4. Conclusion

A fluidic oscillator is a device that uses fluid flow to generate oscillations, and it has a wide range of applications in various fields, including air conditioning, aircraft control, and flow control systems.

It is a type of fluidic amplifier that amplifies small input signals to produce a larger output, and it can be used in situations where it is desirable to control the flow of a fluid without the use of mechanical components. Fluidic oscillators can operate over a wide range of frequencies and temperatures and are relatively simple and inexpensive to construct. They are also robust and can have a low maintenance requirement. There are several different types of fluidic oscillators, each with its own unique characteristics and suitability for different applications.

In this study, the heat transfer performance and fluid dynamics of a microchannel heat exchanger using two fluidic oscillators were investigated in order to enhance the heat transfer performance in impinging jet cooling. The Nu Number was increased and the external flow area was expanded by sweeping the fluid. The angle of the fluidic oscillator with the channel (30° , 45° , 60°) was varied and the distance ($7D$, $7.5D$, $8D$) between the two oscillators was also examined. Water was used as the working fluid, with an inlet temperature of 300 K and a constant heat flux of $q' = 10^6\text{ W/m}^2$ applied to the impingement surface, which had an area of $9D \times 15D$. The Re range of the fluid was varied from 3000 to 10000 , and other walls were considered adiabatic and non-slip. To summarize the CFD analysis results of a classical fluidic oscillator geometry:

- Oscillating the jet flow in the jet impingement cooling process increases the heat transfer performance.
- Increasing the impact angle both increases the pressure drop and increases the time-averaged Nu value as it increases the turbulence.
- It was observed that the heat transfer was positively affected when the distance between the arrays was reduced.

REFERENCES

- [1] M. A. Hossain, R. Prenter, R. K. Lundgreen, A. Ameri, J. W. Gregory, and J. P. Bons, "Experimental and numerical investigation of sweeping jet film cooling," *J Turbomach*, vol. 140, no. 3, Mar. 2018, doi: 10.1115/1.4038690.
- [2] J.H. Lienhard, Liquid jet impingement, *Ann. Rev. Heat Transfer* 6. 1995.
- [3] A. K. Shukla and A. Dewan, "Flow and thermal characteristics of jet impingement: Comprehensive review," *International Journal of Heat and Technology*, vol. 35, no. 1, pp. 153–166, Mar. 2017, doi: 10.18280/ijht.350121.
- [4] A. Dogruoz and M. Baris Publisher, "Experimental and Numerical Investigation of Turbulent Heat Transfer due to Rectangular Impinging Jets Item Type text; Electronic Dissertation." [Online]. Available: <http://hdl.handle.net/10150/195669>
- [5] M. Y. Andino, J. C. Lin, A. E. Washburn, E. A. Whalen, E. C. Graff, and I. J. Wygnanski, "Flow separation control on a full-scale vertical tail model using sweeping jet actuators," in *53rd AIAA Aerospace Sciences Meeting*, 2015. doi: 10.2514/6.2015-0785.
- [6] F. Ostermann, R. Woszidlo, C. N. Nayeri, and C. O. Paschereit, "Experimental comparison between the flow field of two common fluidic oscillator designs," in *53rd AIAA Aerospace Sciences Meeting*, 2015. doi: 10.2514/6.2015-0781.
- [7] M. A. Hossain et al., "Effects of roughness on the performance of fluidic oscillators," in *AIAA SciTech Forum - 55th AIAA Aerospace Sciences Meeting*, 2017. doi: 10.2514/6.2017-0770.
- [8] J. H. Seo and R. Mittal, "Computational modeling and analysis of sweeping jet fluidic oscillators," in *47th AIAA Fluid Dynamics Conference*, 2017, 2017. doi: 10.2514/6.2017-3312.

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[9] M. N. Tomac and J. W. Gregory, "Internal jet interactions in a fluidic oscillator at low flow rate," *Exp Fluids*, vol. 55, no. 5, 2014, doi: 10.1007/s00348-014-1730-8.

[10] O. Uzol and C. Camci, "EXPERIMENTAL AND COMPUTATIONAL VISUALIZATION AND FREQUENCY MEASUREMENTS OF THE JET OSCILLATION INSIDE A FLUIDIC OSCILLATOR."

[11] B. C. Bobusch, R. Wosidlo, O. Krüger, and C. O. Paschereit, "Numerical investigations on geometric parameters affecting the oscillation properties of a fluidic oscillator," in 21st AIAA Computational Fluid Dynamics Conference, 2013. doi: 10.2514/6.2013-2709.

[12] M. Metka and J. W. Gregory, "Drag reduction on the 25-deg Ahmed model using fluidic oscillators," *Journal of Fluids Engineering, Transactions of the ASME*, vol. 137, no. 5, May 2015, doi: 10.1115/1.4029535.

[13] T. Choephel, J. Coder, and M. D. Maughmer, "Airfoil Boundary-Layer Flow Control Using Fluidic Oscillators," in 30th AIAA Applied Aerodynamics Conference 2012, 2012, pp. 44–54. doi: 10.2514/6.2012-2655.

[14] J. C. Lin et al., "Full-scale testing of active flow control applied to a vertical tail," in *Journal of Aircraft*, 2019, vol. 56, no. 4, pp. 1376–1386. doi: 10.2514/1.C034907.

[15] C. Cerretelli, E. Gharaibah, G. Toplack, A. Gupta, and W. Wuerz, "Unsteady Separation Control for Wind Turbine Applications at Full Scale Reynolds Numbers," 2009.

[16] R. Wosidlo, H. Nawroth, S. Raghu, and I. J. Wygnanski, "Parametric Study of Sweeping Jet Actuators for Separation Control."

[17] E. Phillips, R. Wosidlo, and I. Wygnanski, "The Dynamics of Separation Control on a Rapidly Actuated Flap," 2010.

[18] G. Raman, S. Packiarajan, G. Papadopoulos, C. Weissman, and S. Raghu, "Jet thrust vectoring using a miniature," *The Aeronautical Journal*, pp. 129–138, 2005.

[19] D. Guyot, B. Bobusch, C. O. Paschereit, and S. Raghu, "Active Combustion Control Using a Fluidic Oscillator for Asymmetric Fuel Flow Modulation," 2008. [Online]. Available: www.advancedfluidics.com

[20] C. Camci and F. Herr, "Forced convection heat transfer enhancement using a self-oscillating impinging planar jet," *J Heat Transfer*, vol. 124, no. 4, pp. 770–782, Aug. 2002, doi: 10.1115/1.1471521.

[21] T. Park, K. Kara, and D. Kim, "Flow structure and heat transfer of a sweeping jet impinging on a flat wall," *Int J Heat Mass Transf*, vol. 124, pp. 920–928, Sep. 2018, doi: 10.1016/j.ijheatmasstransfer.2018.04.016.

[22] S. Mohammadshahi, H. Samsam-Khayani, T. Cai, and K. C. Kim, "Experimental and numerical study on flow characteristics and heat transfer of an oscillating jet in a channel," *Int J Heat Fluid Flow*, vol. 86, Dec. 2020, doi: 10.1016/j.ijheatfluidflow.2020.108701.

[23] S. Ghanami and M. Farhadi, "Heat transfer enhancement in a single-pipe heat exchanger with fluidic oscillators," *J Therm Anal Calorim*, vol. 140, no. 3, pp. 1107–1119, May 2020, doi: 10.1007/s10973-019-08816-2.

[24] R. K. Lundgreen, M. A. Hossain, R. Prenter, J. P. Bons, J. Gregory, and A. Ameri, "Impingement heat transfer characteristics of a sweeping jet," in AIAA SciTech Forum - 55th AIAA Aerospace Sciences Meeting, 2017. doi: 10.2514/6.2017-1535.

[25] F. Iachachene, A. Mataoui, and Y. Halouane, "Numerical investigations on heat transfer of self-sustained oscillation of a turbulent jet flow inside a cavity," *J Heat Transfer*, vol. 137, no. 10, Oct. 2015, doi: 10.1115/1.4030497.

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[26] T. S. O'Donovan and D. B. Murray, "Fluctuating fluid flow and heat transfer of an obliquely impinging air jet," *Int J Heat Mass Transf*, vol. 51, no. 25–26, pp. 6169–6179, Dec. 2008, doi: 10.1016/j.ijheatmasstransfer.2008.04.036.

[27] T. Ming, Z. Wang, X. Liao, T. Shi, G. Tan, and Y. Wu, "Unsteady RANS simulation of fluid dynamic and heat transfer in an oblique self-oscillating fluidic oscillator array," *Int J Heat Mass Transf*, vol. 177, Oct. 2021, doi: 10.1016/j.ijheatmasstransfer.2021.121515.

[28] "Ansys Fluent Theory Guide," 2022. [Online]. Available: <http://www.ansys.com>

NOMENCLATURE

Symbols

D	Characteristic length (m)
L_g	Gap length between two oscillator centers
Nu	Nusselt number
Re	Reynolds number
P	Pressure (Pa)
P_o	Pressure of Operating (Pa)
P^*	Non-dimensional Pressure (P/P_o)
T_f	Oscillating period (s)
T	Temperature (K)
T_i	Temperature of inlet (K)
T^*	Non-dimensional temperature (T/T_i)
q'	Heat flux (W/m^2)
ρ	Density (kg/m^3)
u	Velocity (m/s)
u_i	Velocity of Inlet (m/s)
u^*	Non- dimensional velocity (u/u_i)
α_i	Impact Angle

Abbreviations

CFD	Computational Fluid Dynamic
RANS	Reynolds-averaged Navier Stokes
SIMPLE	Semi-implicit Method for Pressure Linked Equations
SST	Shear Stress Transport

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COMPUTATION OF IN-CYLINDER TRANSIENT THERMODYNAMICS AND VALVE LIFT EFFECTS ON FOUR STROKE RECIPROCATING PISTON INTERNAL COMBUSTION ENGINE

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ABSTRACT

Several of advanced technological approach have been investigated, developed and tested in recent times in order to improve the efficiency and power output of Internal Combustion (IC) engine. However, in this study, the in-cylinder transient thermodynamics and valve lift effects on four stroke single cylinder IC engine cycle were modelled and simulated with ANSYS FLUENT version 15.0. Mass flow rate was varied at engine speeds ranging from 1000-12000 RPM for valve lifts in the range of 5-13mm. The simulated in-cylinder absolute mean velocity during combustion stroke attained peak values in the range of 1.30 and 1.50 m/s while turbulence kinetic energy attended peak values in the range of 0.26 to 0.30 m^2/s^2 . The peak turbulent velocity (0.44 m/s) and turbulent intensity (2.25) were caused by fluctuations resulting from random, unsteady and irregular nature of expanding air-fuel mixture in the cylinder. At engine loads of 25%, 50%, 75% and 100%, maximum cylinder pressure of 21 bar, 42 bar, 70 bar and 140 bar were obtained respectively. The in-cylinder air-fuel charges during combustion/expansion stroke was observed to be characterised by swirling turbulence and tumbling motion as it expanded towards the cylinder walls. A positive flow rate implies that charge is entering inside the cylinder while a negative flow rate implies that charge or air is leaving the engine cylinder. At low engine speed, higher valve lift led to greater charge loss while significant variation characterized by negative mass flow rate was observed after the bottom dead center.

Keywords: IC engine, Valve lift, In-cylinder pressure, Four stroke, Engine load, Air-fuel.

1. INTRODUCTION

In stoichiometric spark-ignition engines, where the intake gas velocity is controlled by throttle intake airflow, the efficiency of engine pumping losses is significantly reduced, especially at low loads. This often results in high fuel consumption in non-hybrid system operation [1]. However, adjusting the fresh gas inflow rate by adjusting the inlet valve closing angle (IVC) can significantly reduce pumping losses [2]. Although valve lift is designed for all cylinders in the intake and exhaust sections, valve timing is designed and operated for each intake and exhaust valve in a single cylinder of an IC engine [3]

Beginning with the 1.6-liter four-cylinder engine family, Volkswagen developed improved intake and exhaust variable valve timing (VVT) to effectively reduce compression while increasing exhaust temperature at minimum load [4].

Valve lift profiles can be grouped into three categories: opening, holding, and closing. These categories are mechanically automated to allow the valve to open, remain open, close, recover hydraulic fluids, and smoothly seat without the need for electronic feedback control and using just one magnetic coil per actuator. [5]

Clenchi et al. [6] performed a low-lift idle experiment on a port-injected engine with different intake valve lifts. The results of the study show that by controlling the maximum intake valve lift, intake quality and intake flow rate can be controlled while improving the air-fuel mixing process and in-cylinder vortex dynamics. The study also revealed clear improvements in fuel consumption and cycle variability. Therefore, intake valve lift can be used to overcome the drop in flow rate at the valve clearance, which can adversely affect combustion efficiency and stability.

Ikpe and Owunna [7] developed a model for a single-cylinder internal combustion engine that represents the four phases of a two-stroke cycle: intake, compression, expansion, and exhaust. They treated the engine as a closed system in their model. The temperature of the combusted gas within the cylinder of an internal combustion engine was found to be directly proportional to the pressure of the gas within the cylinder, when the air-fuel mixture was near ideal conditions (14.7:1) and both compression and expansion were taking place. The temperature of the combusted gas was observed to be in the range of 293.92-3000.60 K and the cylinder gas pressure was in the range of 60.76-80.20 bar. The maximum temperature of the engine was calculated to be 2367.56 K at equilibrium, and the maximum shear stress was determined to be 176×10^2 MPa, using a heat transfer coefficient of $581.236 \text{ W/m}^2\text{K}$.

Sawant and Bari [8] conducted a study in which they altered the intake valve timings (IVT) and valve lift at different engine speeds to assess the impact on engine performance, specifically torque and power. They found that the changes resulted in an average increase in performance of 6.02% across the entire range of engine speeds from 3000 to 9000 rpm. In addition, the changes to the varied valve lifts (VVL) and variable valve timings (VVT) also led to decrease in brake specific fuel consumption (BSFC) by an average of 0.35% at all engine speeds.

Ikpe et al. [9]. used MATLAB 2018b to model and simulate the performance of a four-stroke internal combustion engine (IC engine) called the Renault engine (specifically, a Mercedes-Benz 250SE W108). The displacement volume and the minimum volume occupied by the in-cylinder charge were $4.65 \times 10^{-4} \text{ mm}^3$ (or $4.65 \times 10^{-7} \text{ cm}^3$) and $0.5 \times 10^{-4} \text{ mm}^3$ (or $5 \times 10^{-8} \text{ cm}^3$), respectively.

The maximum velocity was recorded at 72 degrees of crank angle, with a value of 19.65 m/s, while the minimum velocity occurred at 288 degrees of crank angle with a value of -19.65 m/s. The maximum cylinder pressure was 28 bar at 20 degrees of crank angle, and then gradually decreased to 0.2 bar at subsequent crank angles of 100, 200, and 300 degrees. The results showed that the maximum peak pressure was between 5347 and 5320 KPa for simulated and experimental data, and the maximum in-cylinder spark pressure before combustion was 1849 and 1730 KPa for simulated and experimental data, respectively. The highest crank angles recorded for maximum pressure were 30 and 22 degrees for simulated and experimental data, respectively.

Using CFD simulation, Kumar and Jayashankar [10] investigated the effect of valve lift on fluid flow in cylinder of internal combustion engine with inlet port diameter of 46 mm, valve diameter of 43 mm and also the length and diameter of the cylinder of 562 mm and 93.65 mm. The results revealed that valve lift affects the flow velocity regime in the cylinder. Thus, flow separation becomes more critical with increasing valve lift, increasing losses near valve opening.

Akele et al. [11] performed a flapper flow analysis on an ICE to determine flow and swirl at different valve lifts. The model geometry was developed using ANSYS Design Modeler for one cylinder, one intake and one exhaust port, and two valves. The swirling airflow is turbulent as it flows against the cylinder wall where it is subjected to a stroke motion, which in turn ensures uniform combustion in the cylinder while the intake mass flow increases with valve lift.

Ikpe et al. [12] conducted a port flow analysis using ANSYS R-16 software with a valve lift of 8 mm. The velocity magnitude and mass flow rate were monitored using simulated profiles and cut planes, and the angular velocity of the cycle was determined using SOLIDWORKS 2017. The average angular velocity of the crankshaft was found to be 1315 rpm with a percentage deviation of less than 20%. The area-weighted average velocity of charge was measured at 11 m/s with a corresponding mass flow rate of -0.055479 kg/s. The maximum flow rate at 8 mm was calculated to be 0.005417 kg/s. The intensity of swirl increased along the stroke length in the engine cylinder, and an increase in the swirl number resulted in a more uniform radial temperature distribution as well as a reduction in the in-cylinder flame temperature.

The process of analysing the impact of valve lift on the performance of a single cylinder internal combustion engine using fluid dynamics is complex and time-consuming, often requiring data from experimental procedures [13]. However, by using computer-aided modelling and simulation to link theoretical principles to the thermodynamics of the internal combustion engine, the process can be made more efficient and the simulation time can be reduced to achieve optimal results. This study aims to use modelling, simulation, and computation to examine the effects of valve lift on in-cylinder thermodynamics (such as turbulent velocity, in-cylinder temperature, flame development and propagation, turbulent kinetic energy, absolute mean velocity, turbulent intensity, and volumetric efficiency) during the four-stroke cycle of a reciprocating piston internal combustion engine.

2. MATERIALS AND METHOD

The engine being studied was a Nissan Primera inline engine, which is believed to operate using a four-stroke cycle. The cylinder ports, valve seats, and head were modeled in Solidworks 2018 before being imported into the IC engine workbench on ANSYS R-15. The cylinder head was only modeled in half because it is symmetrical, which helps to reduce the computation time needed for the analysis.

Table 1. The internal combustion engine parameters and specification

<i>Parameters</i>	<i>Specification</i>	
<i>Number of Cylinders</i>	1	
<i>Stroke</i>	72 mm	
<i>Length of Connecting Rod</i>	122.4 mm	
<i>Compression Ratio</i>	11.9:1	
<i>Air/Fuel Ratio</i>	14.7:1	
<i>Specific heat ratio</i>	1.4	
<i>Swept volume</i>	499.5cm ³	
<i>Squish height at TDC</i>	1.1mm	
<i>Number of valves</i>	4	
<i>Intake</i>	<i>Stock Port Length</i>	420 mm
	<i>Length of Variable Section</i>	350 mm
	<i>Valve Diameter</i>	40 mm
	<i>Number of Valves</i>	2
	<i>Valve Diameter</i>	33 mm
<i>Exhaust</i>	<i>Stock Port Length</i>	550 mm
	<i>Number of Valves</i>	2

the governing equations of mass and momentum are given by Equation 1

$$\frac{\partial \bar{U}_i}{\partial x_i} = 0 \quad (1)$$

$$\frac{\partial \bar{U}_i}{\partial t} + \frac{\partial}{\partial x_j} (\bar{U}_i \bar{U}_j) = \frac{\partial \bar{p}}{\partial x_i} + \frac{\partial}{\partial x_i} \left(\nu \left(\frac{\partial \bar{U}_i}{\partial x_j} + \frac{\partial \bar{U}_j}{\partial x_i} \right) \right) - \frac{\partial \tau_{ij}}{\partial x_i} \quad (2)$$

where \bar{U} and \bar{p} are expressed velocity and pressure fields respectively while τ_{ij} remains the stress tensor. Thus the rate of mass flow which enters the IC engine cylinder is resolved by Equation 3a hence the rate of mass flow rate transiting the cylinder is shown in Equation 3b.

$$m(x) = \rho u F \quad (3a)$$

$$m(x + dx) = \rho u F + \frac{\partial}{\partial x} (\rho u F) dx \quad (3b)$$

It can be observed that the momentum conservation equation for the swirl velocity is expressed by Equation 4. Thus The strength of the swirl recorded can be evaluated by the swirl number (S_n) as shown in Equation 5 while the ratio of axial flux (tangential momentum to the axial flux) of axial momentum times the effective nozzle radius as expressed as swirl intensity (S_i) which is shown in Equation 6.

$$\frac{\partial}{\partial t} (\rho w) + \frac{1}{r} \frac{\partial}{\partial x} (r \rho u w) + \frac{1}{r} \frac{\partial}{\partial r} (r \rho v w) = \frac{1}{r} \frac{\partial}{\partial x} \left[r \mu \frac{\partial w}{\partial x} \right] + \frac{1}{r^2} \frac{\partial}{\partial r} \left[r^3 \mu \frac{\partial}{\partial r} \left(\frac{w}{r} \right) \right] - \rho \frac{v w}{r} \quad (4)$$

$$S_n = \frac{\int r w \vec{v} \cdot d\vec{A}}{\bar{R} \int u \vec{v} \cdot d\vec{A}} \quad (5)$$

$$S_i = \frac{\text{Axial flux of tangential momentum}}{\text{Axial flux of axial momentum} * \text{radius}} = \frac{2\pi \int_0^R \rho W U r^2 dr}{R * 2\pi \int_0^R \rho W U r^2 dr} \quad (6)$$

The momentum equation states that the total of the pressure and shear forces within the cylinder of an internal combustion engine is equal to the sum of the rate of change of momentum within the cylinder and the net momentum that leaves the cylinder. Thus, the pressure and shear forces can be represented by Equations 7 and 8.

$$pF - \left(p + \frac{\partial p}{\partial x} dx \right) \left(F + \frac{\partial F}{\partial x} dx \right) + p \frac{dF}{dx} dx = - \frac{\partial}{\partial x} (pF) dx + p \frac{dF}{dx} dx \quad (7)$$

$$\tau_w \pi D dx = -f \frac{\rho u^2}{2} \pi D dx \quad (8)$$

Thus D can be expressed as the equivalent diameter which the wall shear stress τ_w is related to the friction factor as shown in Equation 9. Hence it can be observed that the rate of change of momentum in the cylinder is shown in Equation 10.

$$f = \frac{\tau_w}{\frac{1}{2} \rho u^2} \quad (9)$$

$$\frac{\partial}{\partial t} (pFu dx) \quad (10)$$

Thus the net efflux of momentum (net) in the cylinder is shown by Equation 11 and the momentum Equation forms the basis for the equations given by Equation 12.

$$\left(p + \frac{\partial p}{\partial x} dx\right) \left(u + \frac{\partial u}{\partial x} dx\right)^2 \left(F + \frac{dF}{dx} dx\right) - pu^2 F = \frac{\partial}{\partial x} (pu^2 F) dx \quad (11)$$

$$-\frac{\partial}{\partial x} (pF) dx + p \frac{dF}{dx} dx - f \rho u^2 \frac{1}{2} \pi D dx = \frac{\partial}{\partial t} (pFu dx) + \frac{\partial}{\partial x} (pFu^2) dx \quad (12)$$

Moreso, the specific stagnation enthalpy, specific internal energy, and energy equation for a fixed volume with the heat transfer rate is expressed by Equation 13-16.

$$C_v T + \frac{u^2}{2} + \frac{p}{\rho} \quad (13)$$

$$C_v T + \frac{u^2}{2} \quad (14)$$

$$Q - W_s = \frac{\partial (E)_{cv}}{\partial t} + (\text{Net efflux of stagnation enthalpy}) \quad (15)$$

$$Q = q \rho F dx \quad (16)$$

Thus q represent the heat transfer energy per unit mass per unit time and W_s is the external rate of shear work. And the time rate of change (intemal energy in the cylinder) is given by Equation 17 and the net efflux of stagnation enthalpy(in the cylinder) is shown in Equation 18.

$$\frac{\partial (E)_{cv}}{\partial t} = \frac{\partial}{\partial t} \left\{ (\rho F dx) \left(C_v T + \frac{u^2}{2} \right) \right\} \quad (17)$$

$$\frac{\partial}{\partial x} \left\{ (\rho u F) \left(C_v T + \frac{u^2}{2} + \frac{p}{\rho} \right) \right\} dx \quad (18)$$

Resolving the substitution of Equaions 16-18 with Equation 15, the energy equation becomes thus ;

$$q \rho F dx = \frac{\partial}{\partial t} \left\{ (\rho F dx) \left(C_v T + \frac{u^2}{2} \right) \right\} + \frac{\partial}{\partial x} \left\{ (\rho u F) \left(C_v T + \frac{u^2}{2} + \frac{p}{\rho} \right) \right\} dx \quad (19)$$

Thus the conservative form of the governing equations are shown as follows;

$$\text{Momentum equation} = \frac{\partial (\rho F)}{\partial t} + \frac{\partial (\rho u F)}{\partial x} = 0 \quad (20)$$

$$\text{Continuity equation} = \frac{\partial (\rho u F)}{\partial t} + \frac{\partial (\rho u^2 + p) F}{\partial x} - p \frac{dF}{dx} + \frac{1}{2} \rho u^2 f \pi D = 0 \quad (21)$$

$$\text{Energy equation} = \frac{\partial (\rho e_0 F)}{\partial t} + \frac{\partial (\rho u h_0 F)}{\partial x} - q \rho F = 0 \quad (22)$$

$$\text{where } e_0 = C_v t + \frac{1}{2} u^2 \text{ and } h_0 = e_0 + \frac{p}{\rho} \quad (23)$$

Similarly, the volumetric efficiency expressed in Equation 24 can be expressed as the ratio of mass of air (inducted) into the cylinder and to the mass of air which the cylinder volume can accommodate [14].

$$\eta_v = \frac{m_g}{m_{tn}} = \frac{m_g}{v_{th} \cdot \rho_{th}} = \frac{v_g}{v_{th}} \quad (24)$$

Thus, η_v is the volumetric efficiency, m_g is the actual mass of air inducted, m_m is the theoretical mass of air that the cylinder can accommodate, ρ_{th} is the density of ambient air, v_g is the volume of air inducted while v_{th} is the swept volume. The Effective cam duration (ECD) is the degrees of cam rotation as shown by Equation 25.

$$ECD = \left(\frac{(N \cdot RV \cdot L_{eff})}{(ECD \cdot 0.25 \cdot C \cdot 2)} \right) - 0.5D \quad (25)$$

Thus C is the speed of sound at intake temperature, and N is the engine speed, RV is the Number of reflections, D is the average runner diameter and L_{eff} is the effective length of runner as expressed by Equation 26 [15], 16].

$$L_{eff} = \left(\frac{(ECD \cdot 0.25 \cdot C \cdot 2)}{(N \cdot RV)} \right) - 0.5D \quad (26)$$

The in-cylinder adiabatic flame temperature during combustion for a lean mixture is specified by Equation 27, and the in-cylinder adiabatic flame temperature for a rich mixture is specified by Equation 28.;

$$T_R \cong T_o + \frac{m_f \cdot LHV + (m_a + m_f) \bar{C}_{p,R} (T_R - T_o)}{(m_a + m_f) \bar{C}_{p,P}} \quad (27a)$$

$$T_R \frac{m_f \cdot LHV}{(m_a + m_f) \bar{C}_{p,P}} = T_R + \frac{m_f / m_a \cdot LHV}{(1 + m_f / m_a) \bar{C}_{p,P}} \quad (27b)$$

$$T_R + \frac{f \cdot LHV}{(1+f) \bar{C}_{p,P}} = T_R + \frac{\phi \cdot f_s \cdot LHV}{(1+\phi) \cdot f_s \bar{C}_{p,P}} \quad (27c)$$

$$T_P = T_R + \frac{f_s \cdot LHV}{(1+f) \bar{C}_{p,P}} = T_R + \frac{f_s \cdot LHV}{(1+\phi) \cdot f_s \bar{C}_{p,P}} \quad (28)$$

m_f and m_a is expressed as the mass of air and fuel, $\bar{C}_{p,P}$ is an average value of specific heat calculated at the average temperature of reactants and standard temperature, f_s is the stoichiometric fuel/air ratio by mass, and T_P is the adiabatic flame temperature.

2.1. ANSYS ICE Fluid Port Simulation

The IC engine model domain was visualized as a mesh, which included the ICE fluid port. This mesh contained a total of 689651 nodes and 1444243 elements. The boundary physics for the ICE, the boundary conditions used for the simulation, the relaxation and pressure-velocity coupling, and the discretization scheme were all adopted for the model are presented in Table 1. To analyze and solve the ICE port flow simulation, we used a computational fluid dynamics (CFD) method in ANSYS FLUENT version 15.0. This method uses the finite volume method of numerical analysis to solve the equations that govern the movement and energy of the air in the internal combustion engine cylinder, including the continuity, Navier-Stokes, and energy equations. [17]

The software completed various tasks such as checking the geometry, preparing the geometry, generating a mesh, setting up the solver, and creating the default swirl plane using information from the geometry. It also defined custom field functions for the swirl planes. In computational fluid dynamics, boundary conditions are the conditions that must be met at the edges of a simulation domain in order to solve a boundary value problem. These boundary conditions can include inlet conditions, outlet conditions, wall conditions, constant pressure conditions, axisymmetric conditions, symmetric conditions, and periodic or cyclic conditions. Table 2 shows the thermodynamic parameters used in the ANSYS ICE fluid port flow simulation for an internal combustion engine.

Table 2. Boundary conditions for ANSYS ICE fluid port simulation

<i>Type</i>	<i>Zones</i>	<i>Values</i>	
<i>pressure-outlet</i>	<i>ice-outlet</i>	<i>Gauge Pressure (pascal) -5000</i>	
		<i>Backflow Total Temperature (k) 300</i>	
<i>pressure-inlet</i>	<i>ice-inlet- inplenum1</i>	<i>Gauge Total Pressure (pascal) 0</i>	
		<i>Supersonic/Initial Gauge Pressure (pascal) 0</i>	
		<i>Total Temperature (k) 300</i>	
<i>wall</i>	<i>wall-ice-fluid-port</i>	<i>Temperature (k) 300</i>	
<i>wall</i>	<i>ice-cyl</i>	<i>Temperature (k) 300</i>	
<i>wall</i>	<i>ice-slipwall- inplenum1</i>	<i>Temperature (k) 300</i>	
<i>wall</i>	<i>ice-slipwall- outplenum</i>	<i>Temperature (k) 300</i>	
<i>wall</i>	<i>ice-valve- proximity-faces</i>	<i>Temperature (k) 300</i>	
<i>Relaxation Details</i>		<i>Pressure-Velocity Coupling</i>	
<i>Variable</i>	<i>Relaxation Factor</i>	<i>Parameter</i>	<i>Value</i>
<i>Density</i>	<i>1.000</i>	<i>Type</i>	<i>Coupled</i>
<i>Body Forces</i>	<i>1.000</i>	<i>Pseudo Transient</i>	<i>no</i>
<i>Turbulent Kinetic Energy</i>	<i>0.800</i>	<i>Flow Courant Number</i>	<i>200.000</i>
<i>Specific Dissipation Rate</i>	<i>0.800</i>	<i>Explicit momentum under-relaxation</i>	<i>0.750</i>
<i>Turbulent Viscosity</i>	<i>1.000</i>	<i>Explicit pressure under-relaxation</i>	<i>0.750</i>
<i>Energy</i>	<i>1.000</i>		
<i>Discretization Scheme</i>			
<i>Variable</i>		<i>Scheme</i>	
<i>Pressure</i>		<i>Standard</i>	
<i>Density</i>		<i>Second Order Upwind</i>	
<i>Momentum</i>		<i>Second Order Upwind</i>	
<i>Turbulent Kinetic Energy</i>		<i>First Order Upwind</i>	
<i>Specific Dissipation Rate</i>		<i>First Order Upwind</i>	
<i>Energy</i>		<i>Second Order Upwind</i>	

2.2. Mesh Report for the IC Engine Model

The process of dividing the domain in CFD into smaller elements, where the discretized governing equations are solved, is crucial but requires a significant amount of input from the user. It is important for this step to be done accurately and for the resulting mesh to be of high quality, as this will affect the accuracy and physical correctness of the solution. In areas with strong gradients, the mesh should be finer, while in areas with weaker gradients, the elements can be coarser to conserve computational effort. When conducting design optimization, it is desirable to minimize the amount of user input in order to streamline the process chain and save time and resources. This process involves repeating cycles of geometry generation, meshing, calculation, and post-processing, with an optimizer generating new parameter sets for each new cycle.

In order for the optimization process to run smoothly and efficiently, it is necessary for all of these steps to be fully automated and not require any manual input.

Hybrid mesh in the ANSYS ICE software is composed of tetrahedrons in the far field and prisms in the near wall boundary layer. The ANSYS IC mesher is designed to create smooth mesh flow and reduce the amount of manual input required. The mesh parameters were carefully chosen, particularly for the zones near the walls, to ensure that the edges of the valve and valve seat were accurately resolved with a fine enough mesh size to accurately represent the flow characteristics of that area. The surface was first meshed with triangular elements, and then the rest of the domain was filled with tetrahedral cells. The mesh details used in the IC engine simulation process are shown in Table 3 and the CAD model and mesh visualization can be seen in Figure 1.

Table 3. Mesh details for the simulation process

<i>Parameter</i>	<i>Value</i>
<i>Mesh Type</i>	<i>Hybrid</i>
<i>Reference Size (mm)</i>	<i>0.9</i>
<i>Min Mesh Size (mm)</i>	<i>0.3</i>
<i>Max Mesh Size (mm)</i>	<i>4.5</i>
<i>Curvature Normal Angle (deg)</i>	<i>30</i>
<i>Number of cells across gap</i>	<i>3</i>
<i>Growth Rate</i>	<i>1.2</i>
<i>Pinch Tolerance (mm)</i>	<i>0.1</i>
<i>Number of Inflation Layers</i>	<i>5</i>
<i>Chamber Size (mm)</i>	<i>1.35</i>
<i>Chamber Growth Rate</i>	<i>1.15</i>
<i>Valve Proximity Faces Size (mm)</i>	<i>0.25</i>

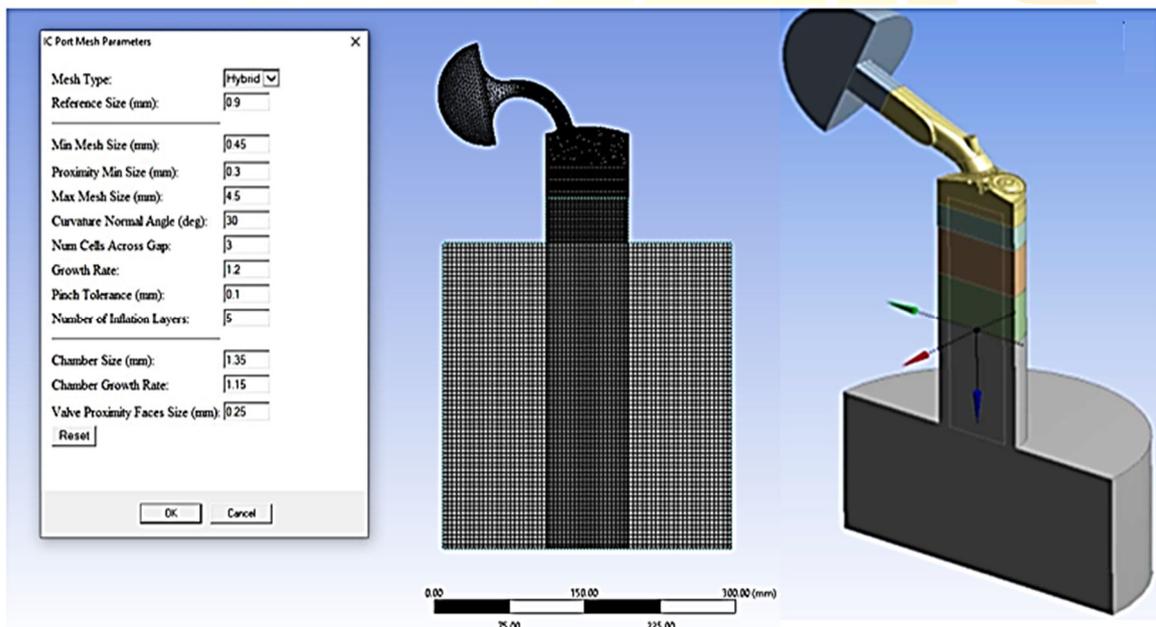


Figure 1. IC engine model and mesh visualization

3. RESULTS AND DISCUSSIONS

Figure 2a shows the absolute mean velocity versus the mean fluid particle flow or movement of the air-fuel mixture in the cylinder during combustion. Together with the relative and peripheral velocities of the fluid particles inside the cylinder, the absolute mean velocity characteristic of turbulent swirling motion is obtained. The simulated mean absolute velocity varies between 0.10 and 0.60 m/s as the air-fuel mixture enters the cylinder, as shown in blue in the ICE slice plane. As the combustion of the air-fuel mixture takes place in the cylinder, the simulated absolute average speed reaches a range of maximum values between 1.30 and 1.50 m/s as indicated by orange and red in the plane of ICE cut. Figure 2b illustrates the simulation of turbulent kinetic energy (TKE) in the ICE sectional plane during combustion and expansion of the air-fuel mixture in the ICE cylinder. In this case, TKE is the average kinetic energy per unit mass associated with vortices in turbulent flow and is characterized by flame velocity fluctuations in the cylinder. It has a minimum range of values between 0.0 and 0.04 m²/s² as indicated by blue color and maximum values between 0.26 and 0.30 m²/s² as indicated by orange and red in the Simulated ICE cutting plane in Figure 2b shown.

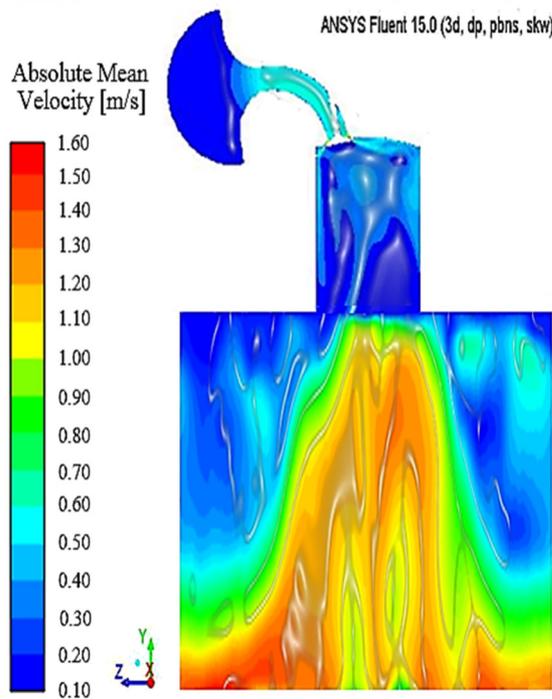


Figure 2a. Cut plane showing in-cylinder absolute mean velocity

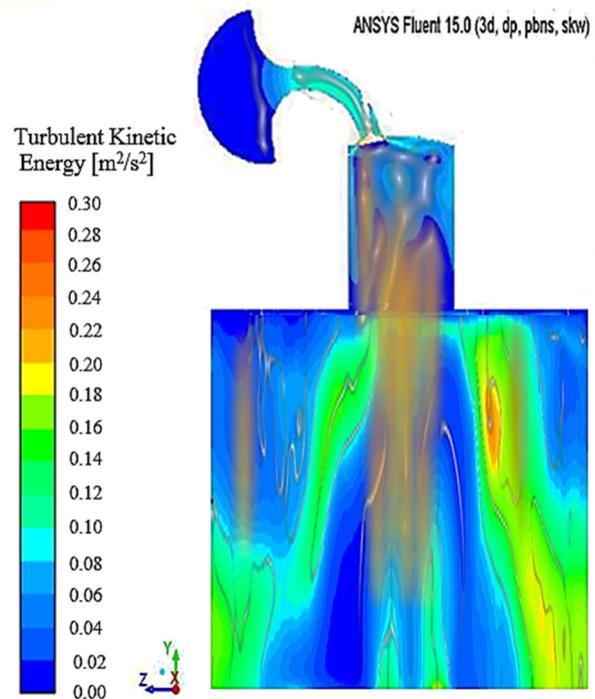


Figure 2b. Cut plane showing in-cylinder turbulent kinetic energy

For turbulent flow caused by the expansion of a mixture in a cylinder, the velocity and pressure at a given point are not constant with time, but appear as irregular high-frequency wave speed fluctuations. These fluctuations are the result of random, unstable and irregular fluid movement (air and fuel mixture) in the cylinder. Therefore, the velocity at a given time during combustion is called the instantaneous velocity because it changes continuously over time. Minimum turbulent velocities between 0.0 and 0.04 m/s are plotted in blue, and maximum values between 0.41 and 0.44 m/s are plotted in orange and red in the simulated ICE slice plane in Figure 2c. Quantifying in-cylinder charge motion is critical to understanding the effect of control actuators on flame entry velocity as characterized by volume flow and turbulence intensity.

Bulk fluid flow describes fluid motion patterns such as swirling, tumbling, compression, etc. and the average velocity of the air-fuel mixture in the cylinder.

The level of turbulence in the cylinder is determined by the fluctuation of the root-mean-square velocity, called the turbulence intensity [18], [19], which is an order of magnitude higher than the laminar flame velocity and is critical in the process of turbulent flame entrainment.

As shown in Figure 2d, the maximum value of the turbulence intensity is 2.25. A predictive turbulence intensity model is essential to develop combustion phase model-based control strategies for internal combustion engines. Due to the high temperature and high pressure in the cylinder, experimental measurements of the turbulence intensity are very difficult. To measure in-cylinder turbulence intensity using a hot-wire anemometer, the engine must be running without ignition while being monitored [20], [21]. However, laser-based methods provide spatial and temporal in-cylinder measurements of internal combustion engines, but these methods usually require extensive engine modifications [22].

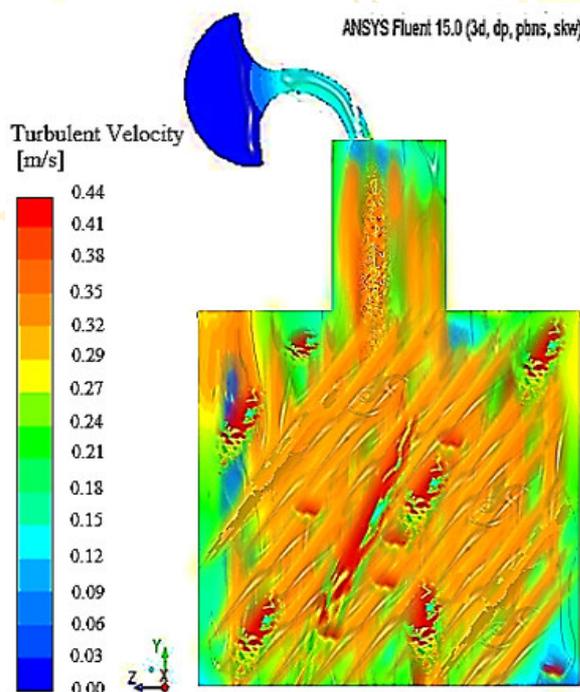


Figure 2c. Cut plane showing in-cylinder turbulent velocity

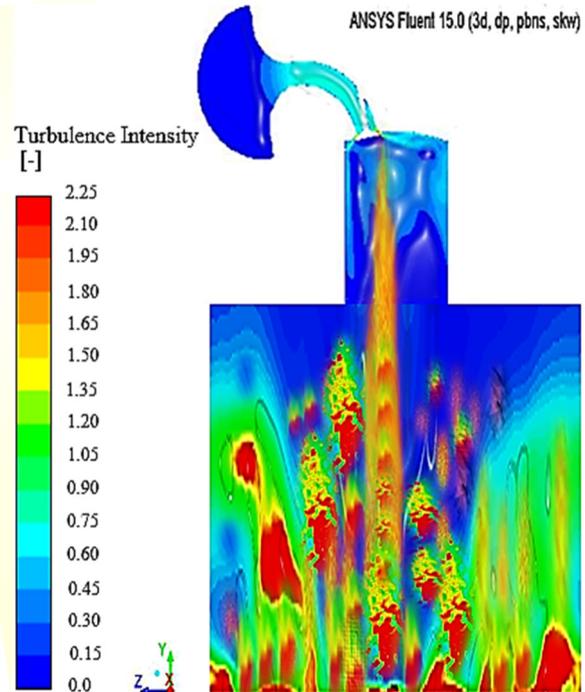


Figure 2d. Cut plane showing in-cylinder turbulence intensity

3.1. In-cylinder Pressure

Cylinder pressure measurement is the basis of cylinder pressure indication (CPI): Cylinder pressure indication is a metrological method for determining and analyzing the in-cylinder pressure curve of an internal combustion engine. Therefore, CPI provides more accurate information about thermodynamic processes in the combustion process and engine output power. Cylinder pressure measurements are typically determined using high temperature piezoelectric pressure sensors mounted through mounting holes drilled in the cylinder head. Measuring spark plugs with integrated high temperature and high pressure sensors are also used. This method does not require mounting holes as they can be easily screwed. Cylinder pressure is generally the pressure that exists in the cylinder during the four (4) strokes (intake, compression, expansion and exhaust) of a reciprocating engine.

In order to fully understand the pressure variation trend in the cylinder of a four-stroke internal combustion engine, the engine dynamometer was simulated and analyzed in Engine Analyzer Pro V3. machine) performance. As shown in Figure 3, the intake valve opens during the intake stroke and the piston moves down into the cylinder (the exhaust valve remains closed during the intake stroke). The increased cylinder volume creates a sub-atmospheric cylinder pressure that draws air into the cylinder and the intake valve closes [23]. The air/fuel mixture is compressed to a pressure of 6 to 13 bar or more, generating heat while vaporizing the fuel.

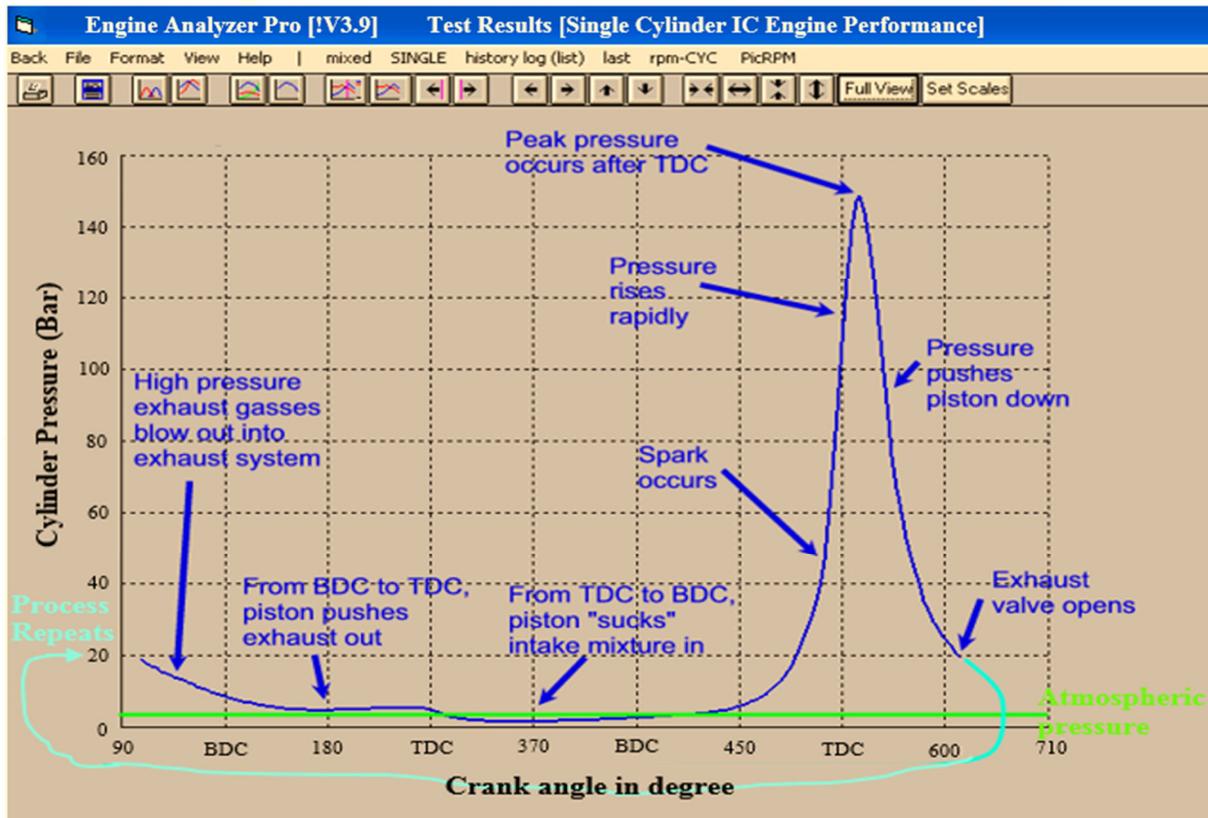


Figure 3. Flow dynamics showing variation of cylinder pressure with crank angle

The mixture is ignited by the spark plug during the combustion/expansion stroke, creating extremely high cylinder pressure that rises rapidly. Maximum cylinder pressure near top dead center (TDC) can range from 25-30 bar for lightly loaded engines, 70-100 bar for full power production engines, 103 bar and higher for high range racing engines. The engine gains power as the piston moves down, increasing cylinder volume while reducing cylinder pressure. As the piston moves to the bottom of the cylinder, called bottom dead center (BDC), the cylinder pressure can drop to a range of 6 to 30 bar.

The exhaust valve opens near BDC to bleed off any cylinder pressure above atmospheric pressure; this process is called "blowing". Depending on how fast the valves open and the pressure in the cylinder can create a pulse of sound, where the exhaust noise is coming from and why the engine makes a loud noise when it is under full load. The piston then returns the cylinder to TDC, forcing all remaining combustion air fuel (exhaust gas) out of the cylinder. How high or low the cylinder pressure is during the exhaust stroke determines how hard the engine has to work to expel burnt gases. Therefore, the cylinder pressure is the pressure that changes continuously in the cylinder during all four strokes.

Figure 4a–d shows cross-sections of cylinder pressure variation for different engine loads. The engine speed and load data used in the simulations are obtained from a study by Maroa and Inambao [24], where the authors performed engine tests on a four-cylinder Iveco dual-fuel diesel engine.

The engine is connected to a mechanical dynamometer with a position set at 500 rpm which corresponds to 25% engine load, 1000 rpm which corresponds to 50% engine load, 1500 rpm which corresponds to 75% engine load etc. efficiency and 2000 rpm is considered to correspond to 100% engine load. These data were used in ANSYS FLUENT version 15.0 to simulate the cylinder pressure as shown in the figure. 4a-d. Low engine load (25%) to full engine load (100%) results in a cylinder pressure of 21-140 bar respectively. Royal blue on the bar indicates minimum cylinder pressure per engine load, lemon indicates intermediate cylinder pressure per engine load, and red indicates maximum cylinder pressure per engine load.

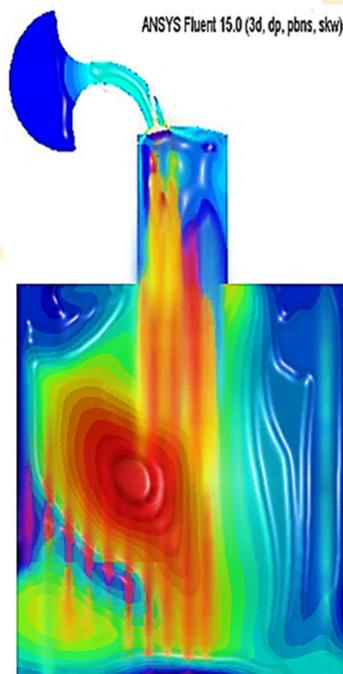


Figure 4a. Cut plane showing in-cylinder pressure @ 25% engine load

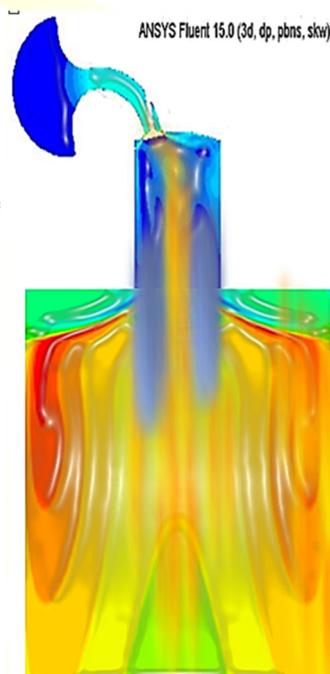
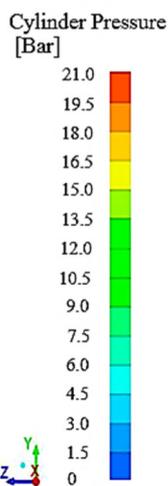
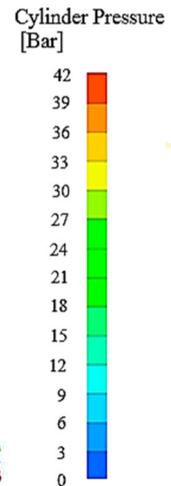


Figure 4b. Cut plane showing in-cylinder pressure @ 50% engine load



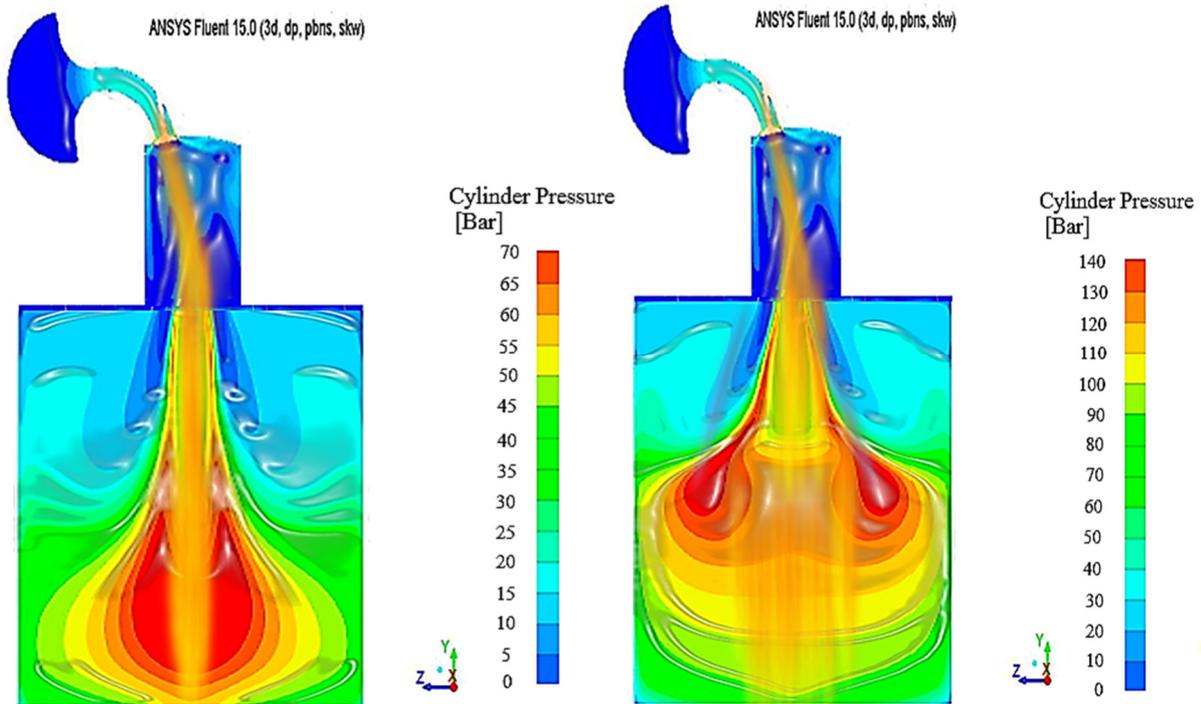


Figure 4c. Cut plane showing in-cylinder pressure @ 75% engine load

Figure 4d. Cut plane showing in-cylinder pressure @ 100% full engine load

Figure 5a shows the cyclic changes in cylinder temperature at an equivalent 25% idle or low engine load, while Figure 5b shows the cylinder temperature changes at an equivalent 100% full engine load. The in-cylinder temperature was observed to vary between 707-841°C when the engine was under low load and varied with significant increase between 2154-2254°C when the engine was fully loaded.

This is because at idle load, when the throttle is closed, the temperature and pressure in the cylinder are lower, which means that when the intake valve is closed, there is less air and fuel in the cylinder, so less power is produced. On the other hand, opening the throttle will cause the temperature and pressure in the intake cylinder to rise rapidly, and more air and fuel will be drawn in to achieve the best engine power. Hence, the temperature and pressure in the cylinder plays a crucial role in the operation of the engine.

Figure 6a shows changes in flame development, while Figure 6b shows changes in flame propagation in the cylinder. Flames in an internal combustion engine cycle are characterized by turbulent and unstable patterns of premixed air and fuel entering the combustion chamber. The presence of a turbulent condition in the flame pressure helps to spread the flame temperature and flame speed, thereby accelerating the rate of thermal reactions in the combustion chamber [25].

The transition between the flame development phase and the flame propagation phase is characterized by a gradual increase in temperature and turbulent velocity inside the cylinder. The flame propagation phase is characterized by high heat, extended engine run time and correspondingly increased engine load and speed.

In a similar study, it was observed that an increase in the temperature of the cylinder led to an increase in the number of inlet vortices (from 0.2-0.6 s), which improved the recirculation zone in the furnace and caused the formation of combustion substances in the internal recirculation zone [12] This allows for efficient mixing of fuel and air, thereby improving combustion efficiency by eliminating the high temperature zones responsible for nitrogen oxides (NO_x) produced by internal combustion engines.

In addition to increasing the number of vortices, the radial distribution of the flow is improved and the heat transfer area of the flame is also increased, while the maximum flame temperature is reduced, thereby improving the radiation efficiency of the flow. Due to the increase in the number of vortices caused by the decrease in the axial velocity component and the increase in the tangential component, the flow expands radially, resulting in a uniform temperature distribution in the combustion chamber [26].

The volumetric efficiency of an internal combustion engine expresses the ratio or percentage ratio between the amount of air drawn into the cylinder and the amount of air expelled from the cylinder. In other words, it is the percentage of mass of air and fuel that is in the cylinder during the intake stroke, divided by the mass that would occupy the displaced volume if the density of the air in the cylinder were equal to the density of the surrounding air.

Figure 7 shows the changes in volumetric efficiency in the cylinder of an internal combustion engine. Considering valve lift variation between 5-13 mm, the variation shows minimum and maximum volumetric efficiencies of 0.315 and 0.822. The maximum volumetric efficiency achieved is the maximum amount of air-fuel mixture that is filled into the cylinder during the intake stroke cycle. This is because the engine requires the valve to open at a higher rate to move the charge in and out of the engine during the larger cycle. Volume efficiency up to 1.00 or 100%. With this value, the engine is able to absorb all the required charge level for efficient operation.

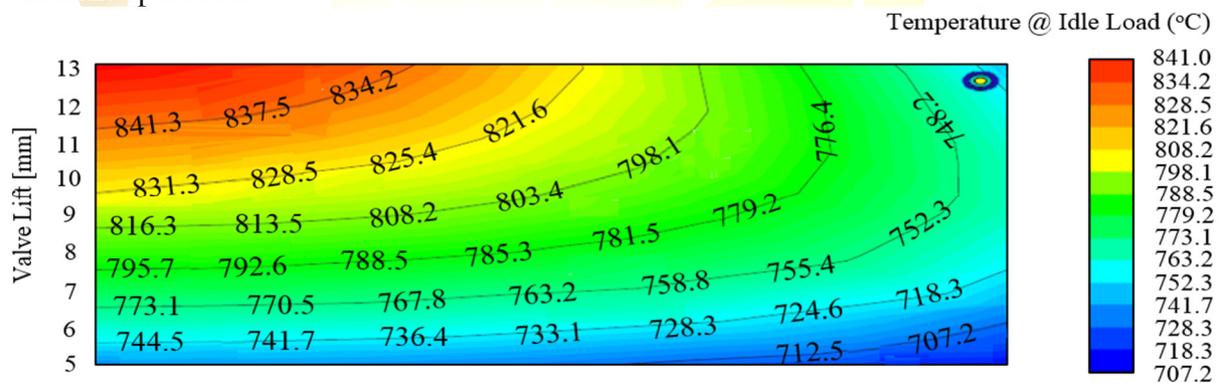


Figure 5a. Variation of valve lift with in-cylinder temperature @ idle engine load

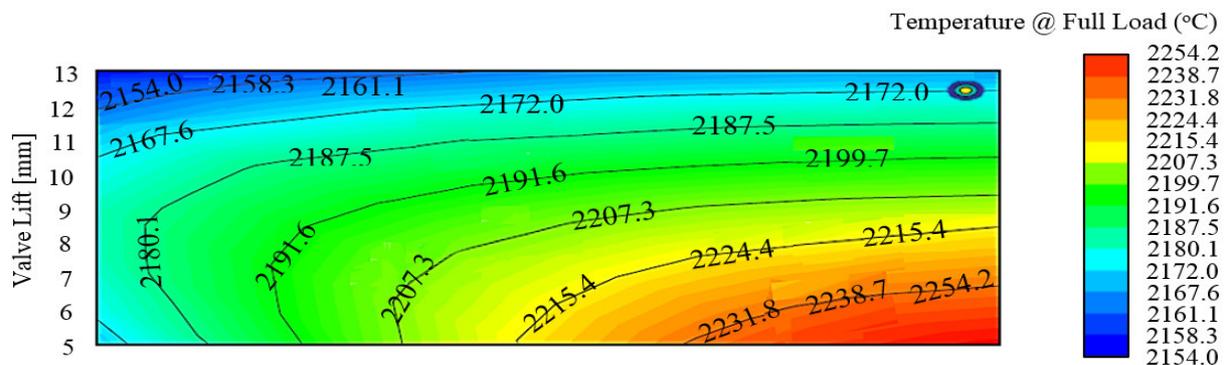


Figure 5b. Variation of valve lift with in-cylinder temperature @ full engine load

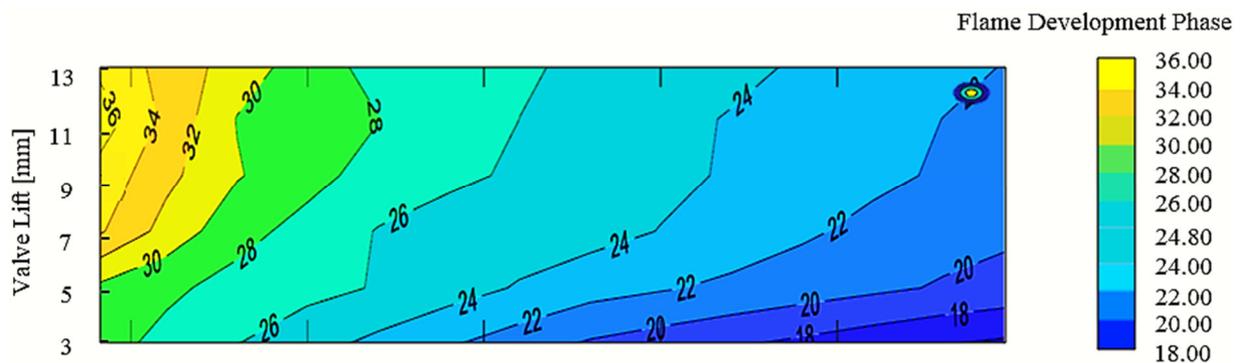


Figure 6a. Variation of valve lift with in-cylinder flame development

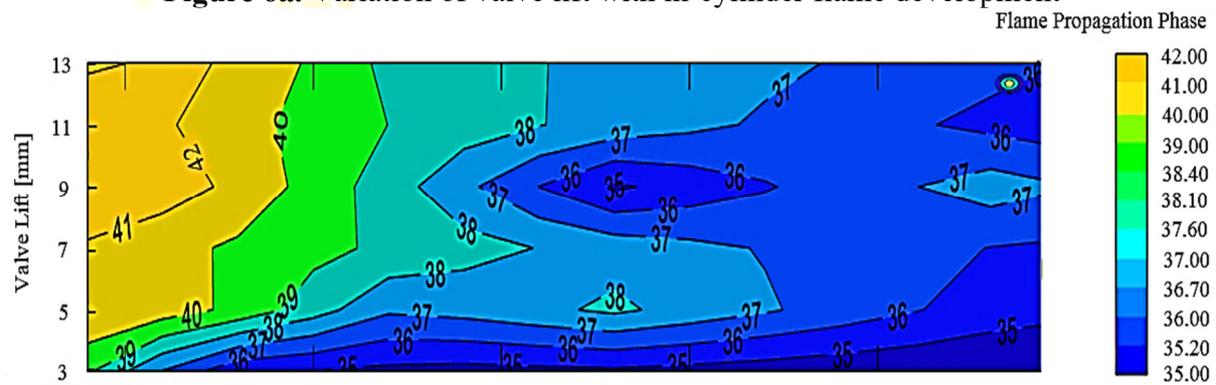


Figure 6b. Variation of valve lift with in-cylinder flame propagation

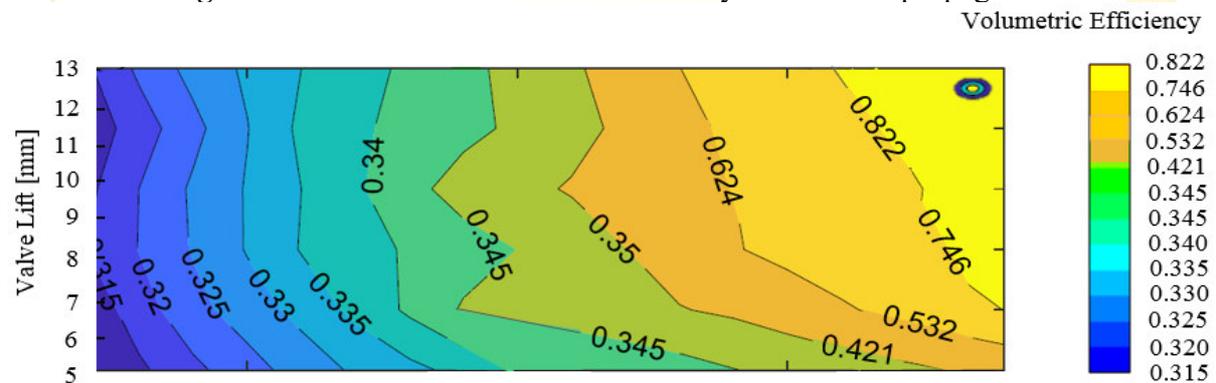


Figure 7. Variation of valve lift with in-cylinder volumetric efficiency

3.2. Variation of Mass Flow Rate with Crank Angle

Figure 8 shows the mass flow rate in the engine as a function of crank angle through the intake stroke. The graph is obtained from the time the intake valve opens until the time the intake valve closes. The intake process takes place between 350° and 585° crank angle. This means the intake valve opens about 10 degrees before top dead center and closes 45 degrees after bottom dead center. Looking at the graph in Figure 8, it shows that there is a small positive flow change at 1000 rpm engine speed. A positive flow indicates that the charge (air-fuel mixture) is entering the cylinder, a negative flow indicates that the charge is leaving the engine cylinder.

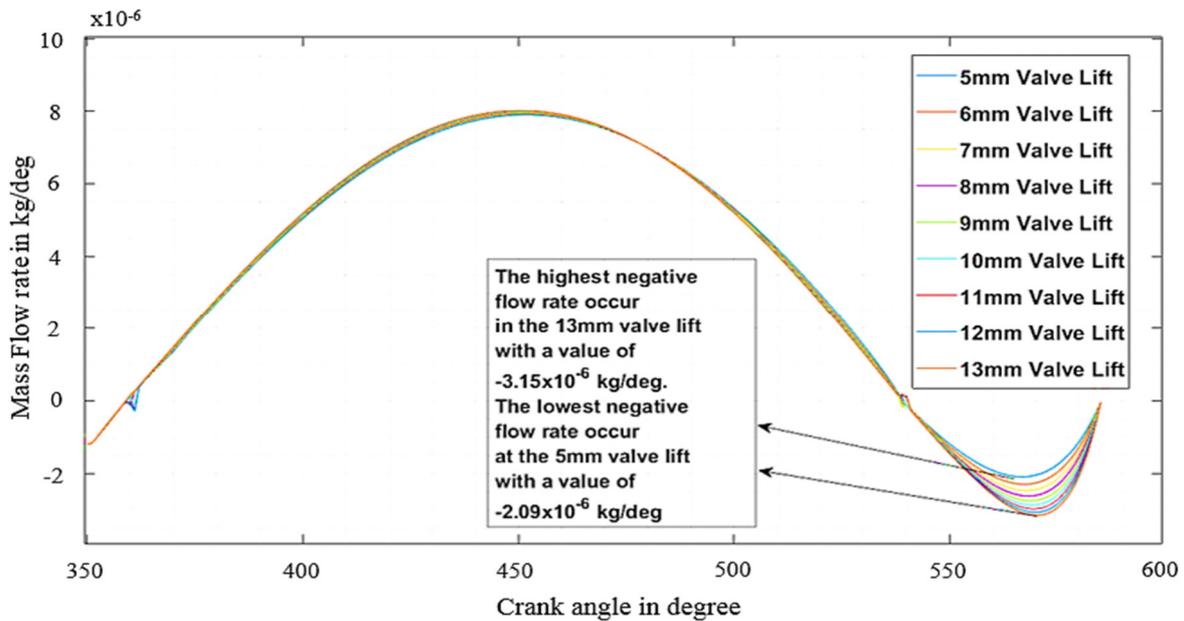


Figure 8. Mass flow rate at 1000 rpm for different valve lift

After bottom dead center, the higher the intake valve lift, the more charge is lost in the intake process. This is because at low engine speeds the air has enough time to escape through the intake valves.

The highest loss rate occurs at 13mm valve lift, the value of -3.15×10^{-6} kg/deg while, and the least is at 5mm valve lift, the value is -2.09×10^{-6} kg/deg as shown in Figure 8. Figure 9 shows the mass flow changes in the engine during intake at 3000 rpm. Unlike the 1000 rpm case, both positive flow (ie. flow into the engine) and negative flow (ie. flow out of the engine) are changing. At 3000 rpm, the 13mm shows the highest positive flow rate of 7.66×10^{-6} kg/deg at approx. 450 degree crank angle while 5mm valve lift shows the lowest positive flow rate of rate of 6.9×10^{-6} kg/deg at same crank angle. This means the 13mm carries more mass at 450 degrees than any other valve lifter. At approx. However, at 570 degrees after bottom dead center, 13 mm shows the largest flow loss compared to other valve lift values. This means that at 3000 rpm. A 13mm valve lifter draws air in and loses air at the same time.

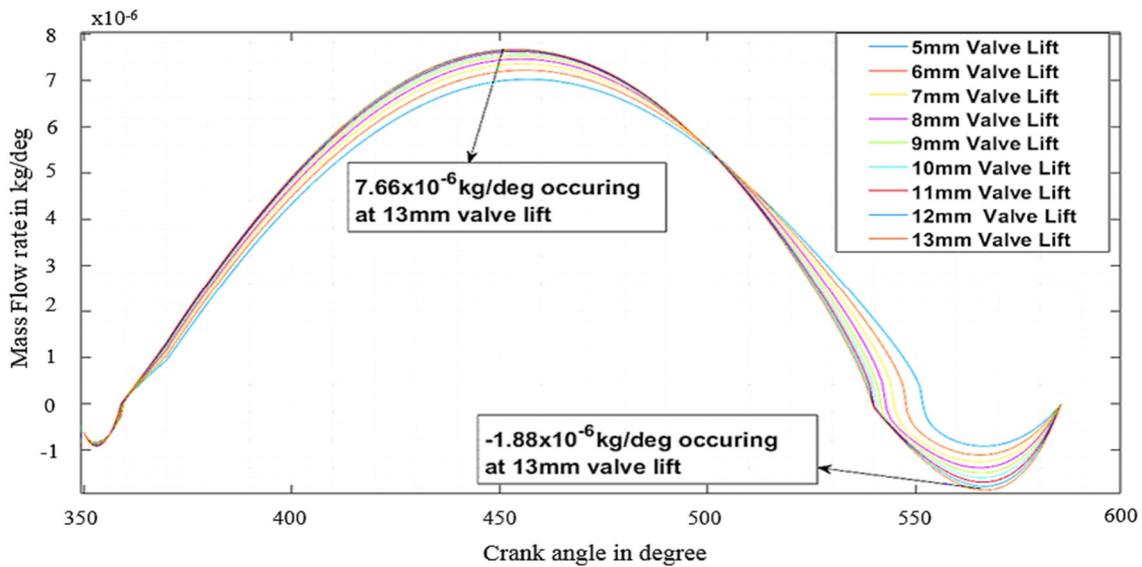


Figure 9. Mass flow rate at 3000 rpm for different valve lifts

Figure 10 shows the mass flow changes in the engine during intake at 6000 rpm. Similar to 3000 rpm, there is a change in both positive flow (ie into the engine) and negative flow (ie out of the engine). At 6000 rpm, with a 13mm crank angle of about 450 degrees, the maximum positive flow rate is $6.89 \times 10^{-6} \text{ kg/deg}$ while the minimum positive flow rate is $5.9 \times 10^{-6} \text{ kg/deg}$ with the same crank angle of 5mm valve lift. This means the 13mm carries more mass at 450 degrees than any other valve lifter. However at approximately 570 degrees after bottom dead center, 13mm shows the largest flow loss compared to other valve lift values. This means that at 6000rpm, while the valve lift of 13mm is drawing air in, it is also losing air. Comparing this flow rate to the flow rate at 3000 rpm also shows that there is a greater positive flow rate at 13 mm at 3000 rpm compared to 6000 rpm. This is because the engine is running so fast, there is less time to draw air into the engine.

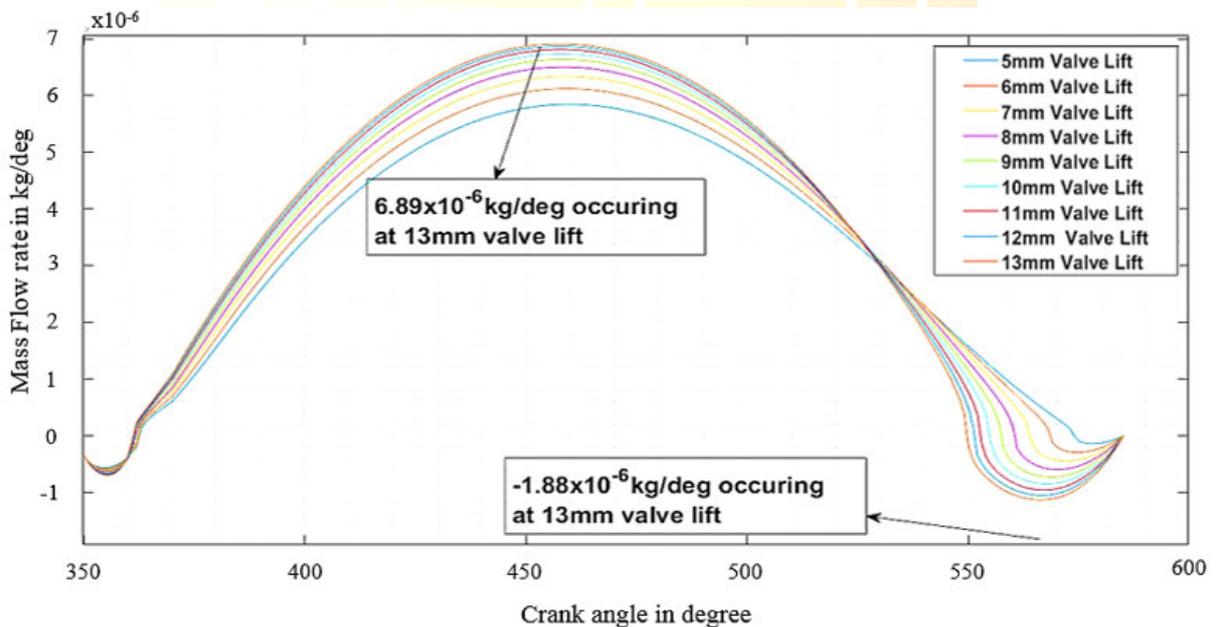


Figure 10. Mass flow rate at 6000 rpm for different valve lift

Figure 11 shows the changes in mass flow during engine intake at 9000 rpm. As with 6000 rpm, there is a change in both positive flow (ie into the engine) and negative flow (ie out of the engine). At 9000rpm, with a 13mm crank angle of about 450 degrees, the highest positive flow rate is $6.89 \times 10^{-6} \text{ kg/deg}$, while the 5mm valve lift means the lowest positive flow rate is $5.9 \times 10^{-6} \text{ kg/deg}$, at the same crank angle. This means the 13mm carries more mass at 450 degrees than any other valve lifter. But approx. At 570 degrees after bottom dead center, 13mm shows the largest flow loss compared to other valve lift values. This means that at 9000 rpm, a valve lift of 13 mm draws air in and also loses it.

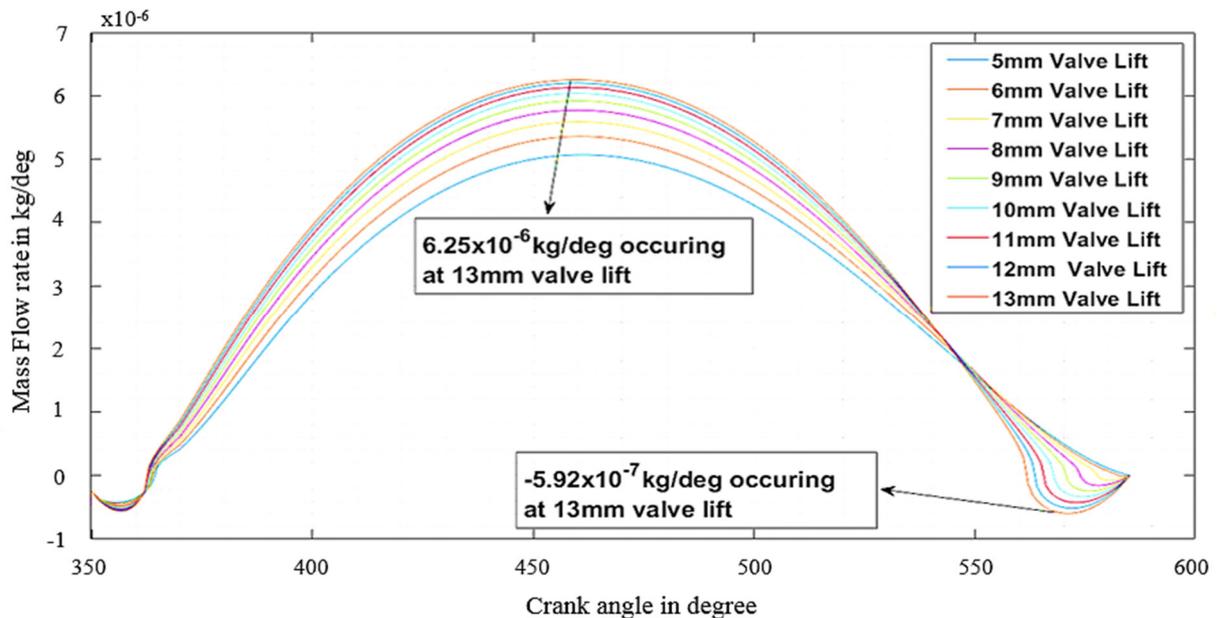


Figure 11. Mass flow rate at 9000 rpm for different valve lift

Figure 12 shows the mass flow changes in the engine during the intake stroke at 12000 rpm. Similar to 9000 rpm, both positive flow (ie. into the engine) and negative flow (ie. out of the engine) are changing. At 12,000 rpm 13mm means the highest positive flow rate of $5.74 \times 10^{-6} \text{ kg/deg}$ at which is about 450 degrees of crankshaft angle, while 5mm valve lift means the lowest positive the flow rate is $4.5 \times 10^{-6} \text{ kg/deg}$ with the same crank angle. This means the 13mm carries more mass at 450 degrees than any other valve lifter. However, at approximately 570 degrees after bottom dead center, the 13mm showed the greatest flow loss compared to the other valve lift values. This implies that at 12,000 rpm, while the 13mm valve lift is drawing in air, it is also losing air.

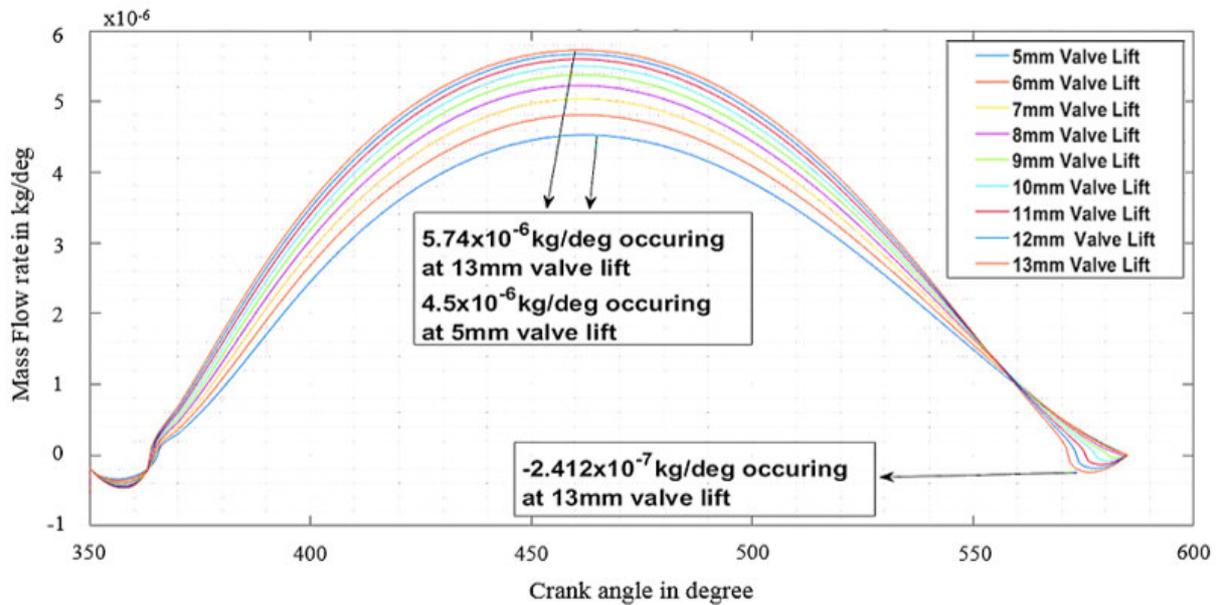


Figure 12. Mass flow rate at 12000 rpm for different valve lift

4. CONCLUSION

In this study, the cylinder thermodynamics and valve lift effects of a four-stroke piston internal combustion engine cycle were successfully modeled, simulated and calculated using ANSYS R-15 software. It's worth noting that three of the four strokes of the engine's duty cycle, just during combustion/expansion, will do some work to the process. This means that the work done during the combustion/expansion stroke must compensate for the other three strokes and still have enough room to produce useful power. Studies have shown that at low engine speeds the positive mass flow has almost the same value for all valve lifts between 5mm and 13mm, with only minor variations. However, at low engine speeds there is a significant change in the negative mass flow that occurs after BDC. It was also noted that at low engine speeds, higher valve lift resulted in higher charge loss. This means that a four-stroke engine running at low revs below 2000 rpm should use more valve lift. The study also found that engine performance can be improved by using a lower valve lift of less than 6 mm at lower engine speeds. This is because at low engine speeds the charge has enough time to enter the engine cylinders and this affects pressure, temperature, density and volumetric efficiency. At higher engine speeds, it was also observed that the engine performed better with higher valve lift, i.e. valve lift is greater than 9 mm. The reason for this behavior is that at high engine speeds, the charge (air-fuel mixture) needs less time to be pumped into the engine cylinders, and only a higher valve lift ensures high-quality flow through the engine. Therefore, high-speed cars need to use more valve lift to improve performance.

REFERENCES

- [1]. Y. Shiao and L. V. Dat, "Efficiency Improvement for an Unthrottled SI Engine at Part Load", *Int. J. of Auto. Tech.* 2012; 13: 885-893.
- [2]. Y. Wan and A. Du, "Reducing Part Load Pumping Loss and Improving Thermal Efficiency through High Compression Ratio over-Expanded Cycle", SAE Paper 2013-01-1744; SAE International in United States: Warrendale, PA, USA, 2013.
- [3]. I. B. Owunna and A. E. Ikpe, "Comparative Analysis of Four Stroke and Six Stroke Internal Combustion Renault Engine Efficiency using MATLAB Simulation Tool" *Nig. J. Eng.* 2021; 28(3): 62-69.

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[4]. A. Mork C. Heimermann, M. Schüttenhelm, and M. Frambourg, “CO₂-Lighthouse Diesel Engine from Volkswagen Group Research”, In Proceedings of the 27th Aachen Colloquium Automobile and Engine Technology, Aachen, Germany, 8-10 October 2018.

[5]. N. Zsiga, A. Omanovic, P. Soltic and W. Schneider, “Functionality and Potential of a New Electrohydraulic Valve Train”, MTZ World 2019; 80: 18-27.

[6]. A. Clenci, A. Bîziac, P. Podevin, G. Descombes, M. Deligant and R. Niculescu, “Idle Operation with Low Intake Valve Lift in a Port Fuel Injected Engine”, Energies 2013; 6: 2874-2891.

[7]. A. E. Ikpe and I. B. Owunna, “Design Analysis of Reciprocating Piston for Single Cylinder Internal Combustion Engine”, Int. J. of Auto. Sci. Tech. 2020; 4(2): 30-39.

[8]. P. Sawant and S. Bari, “Effects of Variable Intake Valve Timings and Valve Lift on the Performance and Fuel Efficiency of an Internal Combustion Engine”, SAE Technical Paper, 2018-01-0376, 2018.

[9]. A. E. Ikpe and I. B. Owunna, “Modelling the Performance Characteristics of Four Stroke Internal Combustion Renault Engine Cycle Using MATLAB Simulation Tool”, Arid Zone J. Eng., Tech. Environ. 2022; 18(2): 267-280.

[10]. H. Kumar and N. Jayashankar, “Port Flow Simulation of an IC Engine”, Int J. of Innov. Eng. Res. Tech. 2015; 2(9): 1-9.

[11]. C. Akele, E. Emeka, Y. Abudu-Mimini, S. Umukoro and R. Okonkwo, “CFD Port Flow Simulation of Air Flow Rate in Spark Ignition Engine” Int. J. Eng. Manage. Res. 2020; 10(6): 2020, 87-95.

[12]. A.E. Ikpe, I. B. Owunna and P. O. John, “Port Flow Simulation and In-cylinder Swirl Motion Characteristic Effects in Internal Combustion Engine Duty Cycle”, Appl Model. Sim. 2021; 5: 102-114.

[13]. A. E. Ikpe and I. B. Owunna, “Simulation of Mass and Pressure Dynamics of In-cylinder Charges at Variable Valve Lift Clearance in Four Stroke Spark Ignition Engine” Adv. Eng. Des. Tech. 2021; 3: 115-131.

[14]. A. Ibrahim and S. Bari, “Effect of Varying Compression Ratio on a Natural Gas SI Engine Performance in the Presence of EGR”, Energy & Fuels 2009; 23: 4949-4956.

[15]. D. Winterbone and M. Yoshitomi, “The Accuracy of Calculating Wave Action in Engine Intake Manifolds”, SAE Technical Paper, 0148-7191, 1990.

[16]. D. Chalet, A. Mahe, J. Migaud and J. A. Hetet, “A Frequency Modelling of the Pressure Waves in the Inlet Manifold of Internal Combustion Engine”, Appl. Energy 2011; 88: 2988-2994.

[17]. A. E. Ikpe, I. B. Owunna and P. Satope, “Finite element analysis of aircraft tire behaviour under overloaded aircraft landing phase”, Aero. Aero Open Acc. J. 2018; 2(1): 34-39.

[18]. J. B. Heywood, Internal Combustion Engine Fundamentals, McGraw-Hill, Inc. New York, 1988.

[19]. F. V. Bracco, “Structure of Flames in Premixed-Charge IC Engines”, Combustion Sci. Tech. 1988; 58: 209-230.

[20]. R. E. Winsor and D. J. Patterson, “Mixture Turbulence-A Key to Cyclic Variation”, SAE Technical Paper 730086, SAE Transactions 1973; 82: 368-383.

[21]. J. C. Dent and N. S. Salama, “The Measurement of the Turbulence Characteristics in an Internal Combustion Engine Cylinder”, SAE Technical Paper 750886, 1975.

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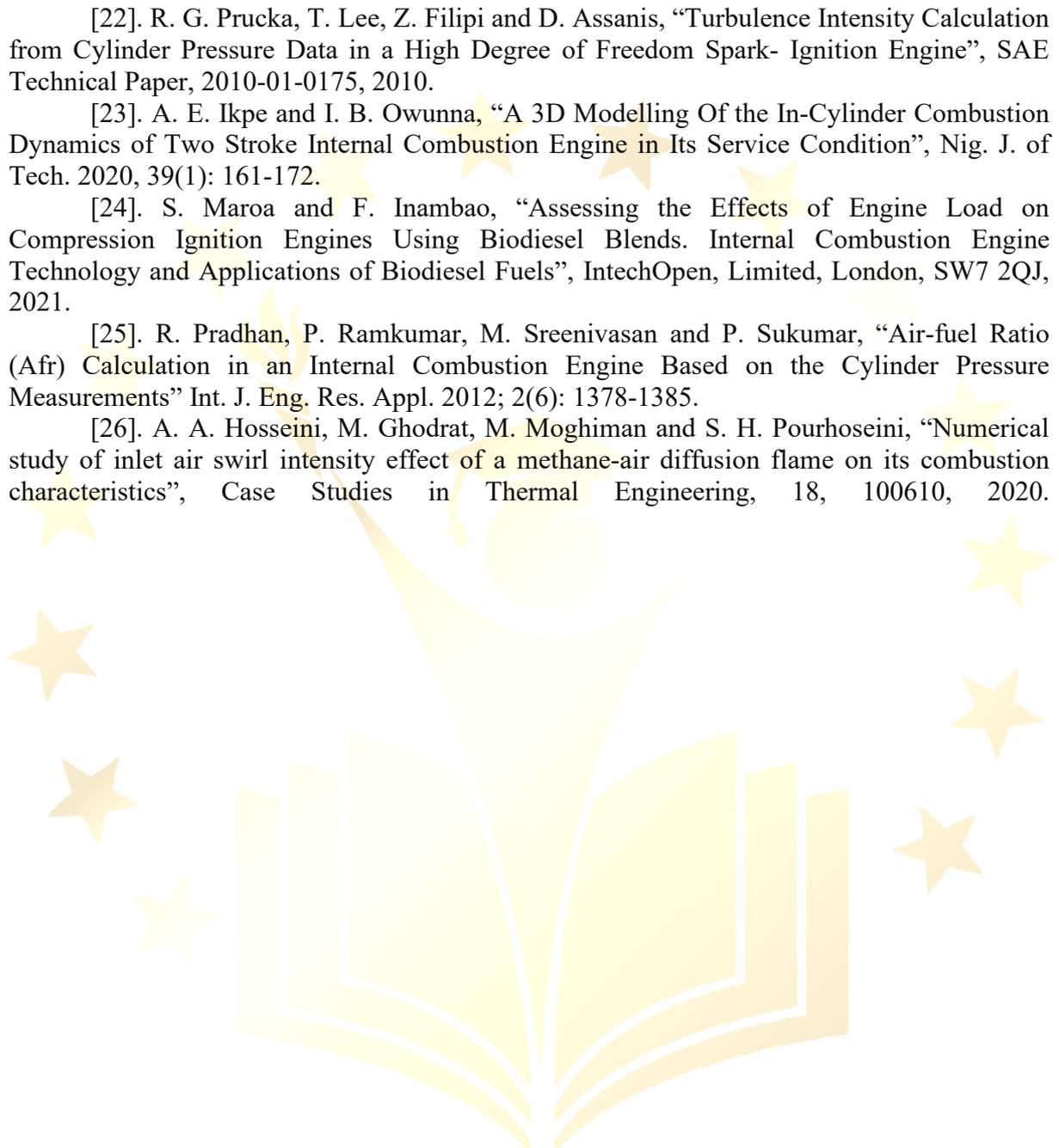
[22]. R. G. Prucka, T. Lee, Z. Filipi and D. Assanis, “Turbulence Intensity Calculation from Cylinder Pressure Data in a High Degree of Freedom Spark- Ignition Engine”, SAE Technical Paper, 2010-01-0175, 2010.

[23]. A. E. Ikpe and I. B. Owunna, “A 3D Modelling Of the In-Cylinder Combustion Dynamics of Two Stroke Internal Combustion Engine in Its Service Condition”, Nig. J. of Tech. 2020, 39(1): 161-172.

[24]. S. Maroa and F. Inambao, “Assessing the Effects of Engine Load on Compression Ignition Engines Using Biodiesel Blends. Internal Combustion Engine Technology and Applications of Biodiesel Fuels”, IntechOpen, Limited, London, SW7 2QJ, 2021.

[25]. R. Pradhan, P. Ramkumar, M. Sreenivasan and P. Sukumar, “Air-fuel Ratio (Afr) Calculation in an Internal Combustion Engine Based on the Cylinder Pressure Measurements” Int. J. Eng. Res. Appl. 2012; 2(6): 1378-1385.

[26]. A. A. Hosseini, M. Ghodrat, M. Moghiman and S. H. Pourhoseini, “Numerical study of inlet air swirl intensity effect of a methane-air diffusion flame on its combustion characteristics”, Case Studies in Thermal Engineering, 18, 100610, 2020.



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PROJECTS TO CO-CREATE SCIENCE AND THEIR GROWTH TREND - EMPIRICAL VERIFICATION

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Abstract

The focus of this paper are projects. We have defined their meaning, as well as differentiated between different types. Projects were classified into the following categories: national research programs and projects, young researchers, international research projects and international research programs. The difference between a project and a program was clarified. We then undertook a survey involving three Slovenian public universities: University of Maribor (cohesion region Eastern Slovenia), University of Ljubljana (cohesion region western Slovenia) and the University of Primorska (cohesion region western Slovenia), with the aim of providing an overview of the projects carried out between 2016 and 2021. It is clear that the University of Maribor (UM) is just below the Slovenian average in the implementation of ARRS as well as EU and other European projects and programs. In the following, we focus on the trend of projects carried out at the Faculty of Natural Sciences and Mathematics of the University of Maribor (FNM UM). Compared to other UM members, FNM UM has an above-average success rate in obtaining international research projects and national research programs and projects funded by the Slovenia Research Agency (ARRS).

Keywords: Project Programs, Average Number of Projects, ARRS, Self-Evaluation Reports

Introduction

Projects represent a way of solving a problem, which includes everything from the initial recognition and analysis of the problem and the desire to solve it, as well as the definition and implementation of actions to solve it [1]. Thus, the project is a unique goal-oriented process of interconnected activities that are limited with time and finances [2]. It also has a predetermined start and end date, and its implementation is aimed at achieving precisely defined goals [3]. A project differs from regular work in that it has temporary sources of financing, risks and uncertainties are present during its implementation, and it has a one-time and final execution. Every project has several phases in its life cycle. Initially, the formation of the project takes place, in which the participants prepare a draft of the project proposal. This is followed by the application of the project, and after the project has been successfully obtained, the actual implementation of the project activities begins. Interim reports are usually submitted at the time of implementation, and at the end of the implementation, the project is concluded with a final report. After the completion of the project, the obtained results, knowledge, infrastructure and other products can be used in the future. The key for successful implementation of the project, is a good design of the project documentation, efficiently organization of tasks and group leading, resolving conflicts on the spot, communicating, as well as keeping up with deadlines, finances and costs [2]. In addition to projects, we can also use for solving problems. While projects consist of individual activities, programs consist of several projects and thus represent a higher level.

A program can be defined as a large-scale long-term action consisting of a set of projects with common strategic goals and resources. Projects within a program are usually closely linked to overarching goals, processes, strategies and methods. The difference between a project and a program is that, as a rule, a project has a narrower extent of activities compared to a program, furthermore a project lasts a shorter period of time than a program. While the success of the project is measured by the implementation of the planned activities, the usage of costs and time and also by the quality of the goals realization, the success of the program is measured according to the newly acquired skills and capacities and the achievement of interest. Thus, while achieving the goals of individual projects, the program must also ensure the realization of the intended effects and goals of the entire program [3].

Types of projects

Projects are usually divided according to the source of funding and the area of implementation. Thus, in our article, we divided the projects into the following categories: national research programs and projects, young researchers, international research projects and international development projects. National research programs and projects include research programs, basic and applied projects, post-doctoral projects, targeted research projects and bilateral and multilateral collaborations, which are co-financed by the Public Research Agency of the Republic of Slovenia (ARRS). The category of young researchers included projects that were obtained under the ARRS Public Call for Young Researchers. We have included the following projects in the group of international research projects: Horizon 2020, Eureka, ERA-NET, COST, COSME, ARPAF, ESA, NATO and similar. The category of international development projects includes Erasmus+, CEEPUS, Interreg projects, transnational and cross-border cooperation programs, development projects financed by ministries from European structural funds (e.g., PKP, ŠIPK), interregional cooperation programs (Espon, Urbact), projects Creative Europe, Life, Europe for Citizens, projects of the European Social Fund, European Fund for Regional Development, EIP projects and other equivalent projects.

Facts about the implementation of cohesion policy and the impact on project financing

Slovenia is divided into two cohesion regions - eastern and western (Figure 1). The EU implements cohesion policy with the aim of reducing inconsistent development between different regions and consequently promoting more balanced and sustainable territorial development. But if we look realistically, this is not the case, as 8 Centers of Excellence were established in 2009, which were financed in the amount of €84.1 million. All Centers of Excellence are based in the cohesion region of western Slovenia, and only three of the eight involved a public research organization from the cohesion region of eastern Slovenia. A year later, 7 Competence Centers were established, which were financed in the amount of over €45 million. Only one Competence Center is based in the cohesion region of eastern Slovenia, and no Public Research Organization from the cohesion region of eastern Slovenia participated in the three Centers based in the west of the country. The implementation of cohesion policy in the period between 2007 and 2013 generously financed investments in research infrastructure in the Republic of Slovenia. The eastern part of the country received 33% of the available funds, and the National Plan prioritized investment in the construction of the Faculty of Medicine of the University of Maribor, which, with its medical graduates, played a key role in mitigating the consequences of the Covid-19 epidemic. Without this investment, the east of the country would not receive even 15% of the available funds.

During the period of implementation of the cohesion policy between 2014 and 2020, the S4 Smart Specialization strategy was prepared and implemented, on the basis of which 9 priority areas were defined and, as a result, 9 strategic development-innovation partnerships were established in 2017. Only 2 out of 9 so-called councils are based in the Cohesion Region of Eastern Slovenia [4].

In the eyes of the EU, Slovenia is divided into a well-developed western part of the country and a less developed eastern part of the country. The area is in the ratio of 60% - 40% in favor of the eastern part of the country, the distribution of funds is also in this ratio. But it should be added that out of a total of 8 thousand km² of the area of the Western Slovenia cohesion region, 3 thousand km² are represented by the Slovenian Alps, which represents just under 40% of the area of the Western Slovenia cohesion region [4].

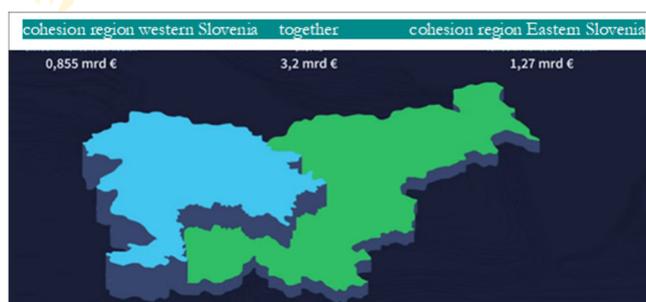


Figure 1: Distribution of resources in the outgoing perspective of the implementation of the European Cohesion Policy, [4].

It is necessary to be aware of the fact that, on an annual level, the state budget finances €350 million for the operation of knowledge investments in western Slovenia and only €70 million in eastern Slovenia. The number of researchers is key to the development of globally competitive science, and more than 74% of researchers are employed in the cohesion region of western Slovenia. Based on what has been written, we can understand that the eastern cohesion region of Slovenia is deprived of many projects, but despite this, the University of Maribor, which belongs to the eastern cohesion region of Slovenia, is above averagely successful in terms of the implementation of both national and international projects and programs.

Work methods, research implementation and results

In the theoretical part, the paper is based on the use of various qualitative methods (the theory is taken from Slovenian and foreign literature and sources) and in the empirical part on the use of quantitative methods. The exploration of our problem throughout the article requires a compatible complementation of descriptive and analytical approaches to research. Statistical methods, with the help of which analyzed data collected data, represented the key foundation of the research. As part of the empirical research, we: (i) collected data by online searches and (ii) analyzed the data.

Overview of completed projects by members of the University of Maribor (UM) in the time window 2016-2021

Based on the annual self-evaluation reports, we have prepared an overview of implemented projects, by individual UM members (faculties), in the time period of 2016 and 2021 (Table 1).

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In terms of the number of national research programs and projects, as well as the number of active young researchers, the Faculty of Mechanical Engineering strongly stands out, having implemented an average of 41 projects of this type in the considered time window and had an average of 22 young researchers per year. Faculty of Electrical Engineering and Computer Science had the largest number of international projects, which between 2016 and 2021 carried out an average of 11 international research and 25 international development projects.

Table 1: Average annual number of projects by UM members in the period 2016-2021. UM=University of Maribor; EPF=Faculty of Economics and Business; FERI= Faculty of Electrical Engineering and Computer Science; FE= Faculty of Energy Technology (dislocated unit in Velenje); FGPA=Faculty of Civil Engineering, Transportation Engineering and Architecture; FKKT= Faculty of Chemistry and Chemical Engineering; FKBV= Faculty of Agriculture and Life Sciences; FL=Faculty of Logistics (dislocated unit in Krško); FNM=Faculty of Natural Sciences and Mathematics; FOV= Faculty of Organizational Sciences (dislocated unit in Kranj); FVV= Faculty of Criminal Justice and Security (dislocated unit in Ljubljana); FS=Faculty of Mechanical Engineering; FZV=Faculty of Health Sciences; FF=Faculty of Art; MF=Faculty of Medicine; PEF=Faculty of Education; PF=Faculty of Law; FT=Faculty of Tourism (dislocated unit in Brežice); [5]–[37].

Project type	National research programs and projects	Young researchers	International research projects	International development projects
Member of the UM				
EPF	18	3	1	10
FE	3	0	0	6
FERI	22	18	11	25
FF	27	4	3	20
FGPA	7	1	5	14
FKBV	11	2	1	12
FKKT	30	9	5	6
FL	4	0	1	8
FNM	13	3	8	7
FOV	5	1	1	5
FS	41	22	9	14
FT	2	0	0	1
FVV	6	2	4	2
FZV	1	1	0	7
MF	20	5	4	6
PEF	7	0	0	15
PF	8	1	8	5

Graph 1 shows the average number of projects at the Faculty of Natural Sciences and Mathematics (FNM) and the average number of projects of all members of the University of Maribor (UM) between 2016 and 2021. Compared to the entire UM, FNM successfully obtains national research programs and projects. It is also necessary to point out the above-average implementation of international research projects, whereby FNM implemented, on average, one more project of this type per year in the considered time window. FNM, however, is slightly below average in the number of young researchers, as well as in international development projects.

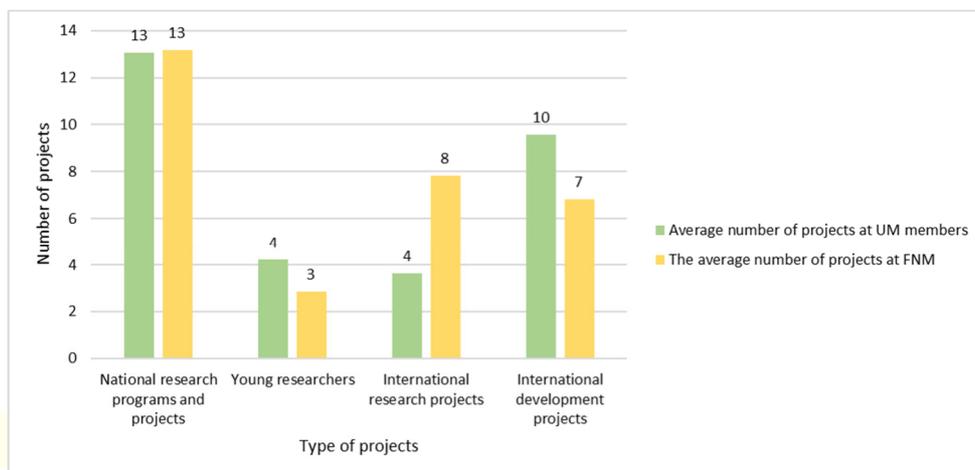
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Graph 1: Comparison of the annual average number of projects at FNM with the annual average number of projects at the entire UM, in the period 2016-2021.

Overview of completed projects at the University of Ljubljana, the University of Maribor and the University of Primorska during the years 2016-2021

Table 2 shows, according to the data available to us, the average number of projects at the entire University of Ljubljana (UL), University of Maribor (UM) and University of Primorska (UP) in the time frame 2016-2021. Most of the projects, both national and international, were carried out at the University of Ljubljana during the time period in question. The University of Maribor is thus, with an annual average number of 294 projects or programs financed by ARRS, and with 225 EU and other European projects or programs, in second place compared to other Slovenian universities.

Table 2: Average number of projects (according to the data available to us) at the University of Ljubljana, the University of Maribor and the University of Primorska between 2016 and 2021; UL=University of Ljubljana; UM=University of Maribor; UP=University of Primorska;); [5]–[46].

Project type	ARRS projects and programs	EU and other European projects and programs
University		
UL	489	498
UM	294	225
UP	116	58

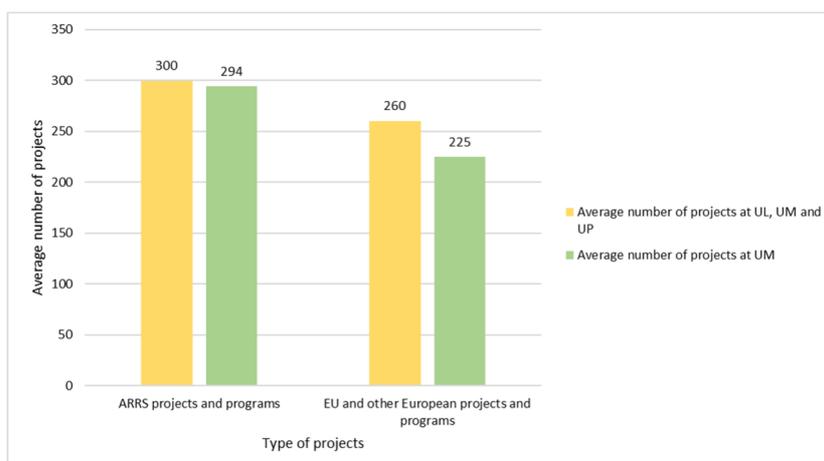
A comparison of the average number of projects at the entire UM with the average of all Slovenian public universities (UL, UM and UP) for the period 2016-2021 is shown in Graph 2. It can be seen that the University of Maribor is just below the Slovenian average both in the implementation of ARRS projects and programs as well as in the implementation of EU and other European projects and programs.

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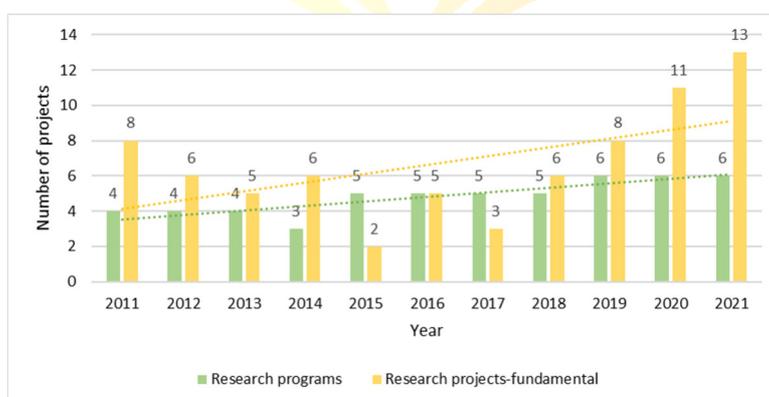
Graph 2: Average number of projects at the entire UM compared to the average number of all Slovenian public universities (UL, UM and UP) in the period 2016-2021.

The trend of obtaining projects at the Faculty of Natural Sciences and Mathematics of the UM

Table 3 presents the number of national research programs, basic research projects and young researchers from 2011 to 2021. Throughout the considered time period, we became more successful in obtaining the fundamental research projects, as well as in obtaining national research programs, which can be seen in Graph 3. The largest number of young researchers was in 2011. Despite the initial decline in their number, the trend of recruiting young researchers has been positive again in the last three years (Table 3).

Table 3: Number of national research programs, research foundation projects and young researchers in the period 2011-2021.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Research programs	4	4	4	3	5	5	5	5	6	6	6
Research projects-fundamental	8	6	5	6	2	5	3	6	8	11	13
Young researchers	10	9	9	9	6	2	1	1	4	4	5



Graph 3: Trend in the number of national research programs and basic research programs.

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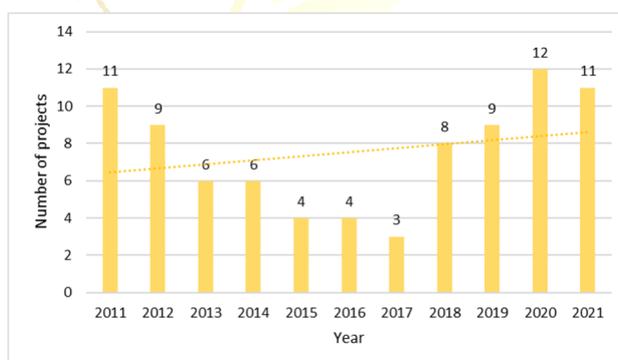
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The number of international research programs, by years from 2011 to 2021, is shown in Table 4. In this set of projects, it is necessary to highlight bilateral ARRS projects, which we have successfully applied for all years. Between 2012 and 2017, there was a noticeable drop in the number of these projects, but the trend significantly improved, and in 2020 and 2021 we again achieved numbers comparable to 2011. From 2018 onwards, we further expanded the range of successfully applied international research programs by acquiring the Interreg project. The positive trend of acquiring international projects can be seen from Graph 4.

Table 4: Number of international bilateral ARRS projects and Interreg projects between 2011 and 2021.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bilat. ARRS projects	11	9	6	6	4	4	3	7	8	11	10
Interreg	0	0	0	0	0	0	0	1	1	1	1

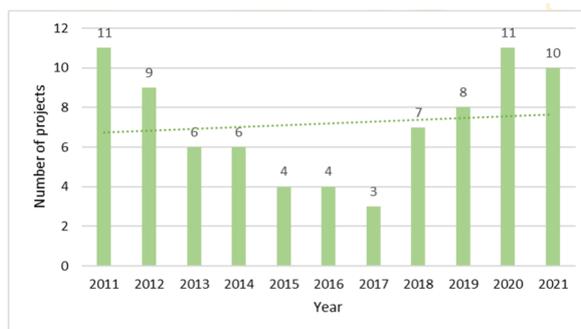


Graph 4: The trend of the success of the acquisition of international projects.

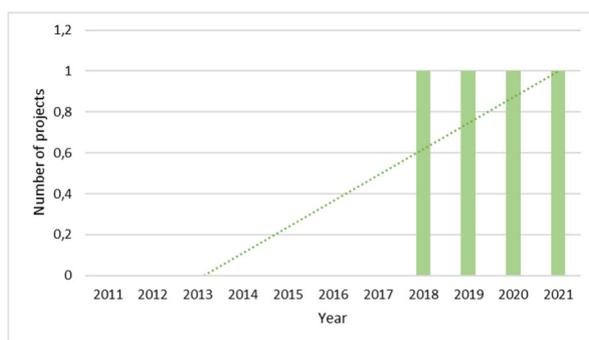
Table 5 shows the number of 70P or Horizon and Erasmus + projects between 2011 and 2021. After 2012, we initially recorded a decline in the number of 70P or Horizon projects, and already in 2019, the trend of acquiring them became positive again (Graph 5), while, in the considered time period, we became successful in acquiring Erasmus + projects after 2018 (Graph 6).

Table 5: 70P or Horizon and Erasmus + projects in the period 2011-2021.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
70P or HORIZON	11	9	6	6	4	4	3	7	8	11	10
Erasmus+	0	0	0	0	0	0	0	1	1	1	1



Graph 5: Trend of the number of 70P or Horizon projects.



Graph 6: Trend of acquisition of Erasmus+ projects.

Conclusions and possibilities for the future

In the period 2016-2021, the University of Maribor, of which the Faculty of Natural Sciences and Mathematics is a member, is in the Slovenian average in terms of the implementation of both national and international projects and programs. Compared to other UM members, FNM is above average successful in obtaining international research projects and national research programs and projects financed by ARRS. Thus, on an annual basis, in the period 2016-2021, FNM implemented an average of 13 national research programs or projects, trained 3 young researchers, and acquired 8 international research and 7 international development projects. Between 2011 and 2021, there is a clearly visible positive trend in the implementation of ARRS programs and projects as well as international projects at FNM. It is also necessary to point out Erasmus+ projects, which we successfully started acquiring in 2018.

Despite the success of project implementation at FNM, there is room for changes and improvements. In this regard, we could address the currently half-smaller number of young researchers compared to 2011. When comparing FNM with other UM members in the time period 2016-2021, we still note that FNM is just below the average of the entire UM in terms of the number of young researchers. FNM is also less successful in obtaining international development projects than other UM members, which could be improved with more effort in the future.

REFERENCES

[1] B. Prislan, 'Razvoj novih storitev v nepridobitnih organizacijah: študija primera evropskega projekta Job Rotation', Magistrsko delo, Ekonomska fakulteta, Univerza v Ljubljani, Ljubljana, 2015. Accessed: Jul. 26, 2022. [Online]. Available: <http://www.cek.ef.uni-lj.si/magister/prislan1862-B.pdf>

[2] D. Zupanc, 'Prva delavnica za pripravo prijav -Kaj je projekt?', Ljubljana, Mar. 07, 2017. Accessed: Jul. 26, 2022. [Online]. Available: https://lifeslovenija.si/wp-content/uploads/2017/02/WW1_ppt_kaj_je_projekt.pdf

[3] A. Kosmač, 'Managment programa projektov', Magistrsko delo, Ekonomska fakulteta, Univerza v Ljubljani, Ljubljana, 2010. Accessed: Jul. 26, 2022. [Online]. Available: <http://www.cek.ef.uni-lj.si/magister/kosmac431-B.pdf>

[4] UM, 'Cohesion region Eastern Slovenia - yesterday, today, tomorrow', 2022. <https://www.youtube.com/watch?v=OWB0GLuOqrM>

[5] KOK EPF UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Ekonomsko-poslovna fakulteta Univerze v Mariboru, Mar. 2022. Accessed: Jul. 02, 2022. [Online]. Available: https://www.epf.um.si/fileadmin/user_upload/Samoevalvacija_EPf_2020-2021.pdf

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[6] KOK EPF UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Ekonomsko-poslovna fakulteta Univerze v Mariboru, Mar. 2021. Accessed: Jul. 03, 2022. [Online]. Available:

https://www.epf.um.si/fileadmin/user_upload/O_fakulteti/Organi_in_komisije/KOK/SEP_EP_F_2019-2020.pdf

[7] KOK FE UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Fakulteta za energetiko Univerze v Mariboru, Mar. 2022. Accessed: Jul. 03, 2022. [Online]. Available: https://www.fe.um.si/images/1_SEP_FE_M_CISTOPIS_30322.pdf

[8] KOK FE UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Fakulteta za energetiko Univerze v Mariboru, Mar. 2021. Accessed: Jul. 03, 2022. [Online]. Available: https://www.fe.um.si/images/obvestila/0_2021_SEP_FE_UM_3132021_FINALE.pdf

[9] KOK FERI UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Fakulteta za elektrotehniko, računalništvo in informatiko Univerze v Mariboru, Mar. 2022. Accessed: Jul. 02, 2022. [Online]. Available: https://feri.um.si/site/assets/files/1311/um_feri_-_samoevalvacijsko_porocilo_2020_-_2021.pdf

[10] KOK FERI UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Fakulteta za elektrotehniko, računalništvo in informatiko Univerze v Mariboru, Mar. 2021. Accessed: Jul. 02, 2022. [Online]. Available: https://feri.um.si/site/assets/files/1311/um_feri_-_samoevalvacijsko_porocilo_2019_-_2020.pdf

[11] KOK FF UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Filozofska fakulteta Univerze v Mariboru, Mar. 2022. Accessed: Jul. 07, 2022. [Online]. Available: https://ff.um.si/wp-content/uploads/FF_SEP_2020-2021.pdf

[12] KOK FF UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Filozofska fakulteta Univerze v Mariboru, Mar. 2021. Accessed: Jul. 07, 2022. [Online]. Available: <https://ff.um.si/wp-content/uploads/ObrazecSEPFF2019-2020-25-22020-zadnja.pdf>

[13] KOK FGPA UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Fakulteta za gradbeništvo, prometno inženirstvo in arhitekturo Univerze v Mariboru, Mar. 2022. Accessed: Jul. 04, 2022. [Online]. Available: <https://www.fgpa.um.si/kakovost/>

[14] KOK FGPA UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Fakulteta za gradbeništvo, prometno inženirstvo in arhitekturo Univerze v Mariboru, Mar. 2021. Accessed: Jul. 04, 2022. [Online]. Available: <https://www.fgpa.um.si/kakovost/>

[15] KOK FKBV UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Fakulteta za kmetijstvo in biosistemske vede Univerze v Mariboru, Mar. 2022. Accessed: Jul. 20, 2022. [Online]. Available: <http://fkbv.um.si/kakovost>

[16] KOK FKBV UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Fakulteta za kmetijstvo in biosistemske vede Univerze v Mariboru, Mar. 2021. Accessed: Jul. 04, 2022. [Online]. Available: https://fk.uni-mb.si/images/stories/dokumenti/kakovost/2021/SEP_2019_2020_31-3-2021.pdf

[17] KOK FKKT UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Fakulteta za kemijo in kemijsko tehnologijo Univerze v Mariboru, Mar. 2022. Accessed: Jul. 04, 2022. [Online]. Available: <https://www.fkkt.um.si/wp-content/uploads/2022/04/SEP-FKKT-2020-2021.pdf>

[18] KOK FKKT UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Fakulteta za kemijo in kemijsko tehnologijo Univerze v Mariboru, Mar. 2021. Accessed: Jul. 04, 2022. [Online]. Available: <https://www.fkkt.um.si/wp-content/uploads/2021/05/SEP-FKKT-2019-2020.pdf>

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[19] KOK FL UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Fakulteta za logistiko Univerze v Mariboru, Mar. 2022. Accessed: Jul. 07, 2022. [Online]. Available: https://fl.um.si/wp-content/uploads/2019/01/FL_SEP-2020-2021-potrjeno.pdf

[20] KOK FL UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Fakulteta za logistiko Univerze v Mariboru, Mar. 2021. Accessed: Jul. 07, 2022. [Online]. Available: <https://fl.um.si/wp-content/uploads/2019/01/SEP-FL-2019-2020K.docx.pdf>

[21] KOK FNM UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Fakulteta za naravoslovje in matematiko Univerze v Mariboru, Mar. 2022. Accessed: Jul. 07, 2022. [Online]. Available: https://www.fnm.um.si/wp-content/uploads/2022/07/FNM_SEP_2020-21.pdf

[22] KOK FNM UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Fakulteta za naravoslovje in matematiko Univerze v Mariboru, Mar. 2021. Accessed: Jul. 07, 2022. [Online]. Available: https://www.fnm.um.si/wp-content/uploads/2021/04/SEP_FNM_2019-2020.pdf

[23] KOK FOV UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Fakulteta za organizacijske vede Univerze v Mariboru, Mar. 2022. Accessed: Jul. 07, 2022. [Online]. Available: https://www.fov.um.si/sites/default/files/upload/documents/fov_sep_2020_21_final_potrjeno_brez_prilog_2.pdf

[24] KOK FOV UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Fakulteta za organizacijske vede Univerze v Mariboru, Mar. 2021. Accessed: Jul. 07, 2022. [Online]. Available: https://www.fov.um.si/sites/default/files/upload/documents/sep_fov_2019-2020_final_2_4_21_brez_prilog_za_objavo_na_fov.pdf

[25] KOK FS UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Fakulteta za strojništvo Univerze v Mariboru, Mar. 2022. Accessed: Jul. 07, 2022. [Online]. Available: https://www.fs.um.si/fileadmin/Documents/FS/Kakovost/SamoevalvacijskaPorocila/2020-2021_SEP_FS_s_prilogami.pdf

[26] KOK FS UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Fakulteta za strojništvo Univerze v Mariboru, Mar. 2021. Accessed: Jul. 07, 2022. [Online]. Available: https://www.fs.um.si/fileadmin/Documents/FS/Kakovost/SamoevalvacijskaPorocila/Obrazec_SEP_FS_2019-2020_s_prilogami.pdf

[27] KOK FT UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Fakulteta za turizem Univerze v Mariboru, Mar. 2022. Accessed: Jul. 07, 2022. [Online]. Available: <https://www.ft.um.si/o-fakulteti/kakovost/>

[28] KOK FT UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Fakulteta za turizem Univerze v Mariboru, Mar. 2021. Accessed: Jul. 07, 2022. [Online]. Available: <https://www.ft.um.si/wp-content/uploads/SEP-FT-UM-2019-2020.pdf>

[29] KOK FVV UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/2021'. Fakulteta za varnostne vede Univerze v Mariboru, Mar. 2022. Accessed: Jul. 07, 2022. [Online]. Available: <https://www.fvv.um.si/wp-content/uploads/2022/03/SEP-FVV-UM-2020-2021.pdf>

[30] KOK FVV UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Fakulteta za varnostne vede Univerze v Mariboru, Mar. 2021. Accessed: Jul. 07, 2022. [Online]. Available: https://www.fvv.um.si/wp-content/uploads/2021/03/SEP-FVV-2019-2020_UM-FVV.pdf

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[31] KOK FZV UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Fakulteta za zdravstvene vede Univerze v Mariboru, Mar. 2022. Accessed: Jul. 07, 2022. [Online]. Available: https://www.fzv.um.si/sites/default/files/2022/Poro%C4%8Dilo%20za%20leto%202020_2021.pdf

[32] KOK MF UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Medicinska fakulteta Univerze v Mariboru, Mar. 2022. Accessed: Jul. 07, 2022. [Online]. Available: <https://www.mf.um.si/attachments/article/88/eval2021.pdf>

[33] KOK MF UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Medicinska fakulteta Univerze v Mariboru, Mar. 2021. Accessed: Jul. 07, 2022. [Online]. Available: <https://www.mf.um.si/attachments/article/88/eval1920.pdf>

[34] KOK PEF UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Pedagoška fakulteta Univerze v Mariboru, Mar. 2022. Accessed: Jul. 10, 2022. [Online]. Available: https://pef.um.si/wp-content/uploads/2019/08/SEP-UM-PEF-2020_21.pdf

[35] KOK PEF UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Pedagoška fakulteta Univerze v Mariboru, Mar. 2021. Accessed: Jul. 10, 2022. [Online]. Available: https://pef.um.si/wp-content/uploads/2019/09/SEP-UM-PEF-2019_20.pdf

[36] KOK PF UM, 'Samoevalvacijsko poročilo za študijsko leto 2020/21'. Pravna fakulteta Univerze v Mariboru, Mar. 2022. Accessed: Jul. 10, 2022. [Online]. Available: https://www.pf.um.si/site/assets/files/1061/sep_pf_um_20-21-finale.pdf

[37] KOK PF UM, 'Samoevalvacijsko poročilo za študijsko leto 2019/20'. Pravna fakulteta Univerze v Mariboru, Mar. 2021. Accessed: Jul. 10, 2022. [Online]. Available: https://www.pf.um.si/site/assets/files/1061/sep_pf_2019-2020_finale.pdf

[38] Univerza na Primorskem, 'Letno poročilo 2018'. Feb. 27, 2019. Accessed: Jul. 15, 2022. [Online]. Available: <https://www.upr.si/si/o-univerzi-/predpisi-in-dokumenti-/temeljni-dokumenti/>

[39] Univerza na Primorskem, 'Letno poročilo 2020'. Feb. 25, 2021. Accessed: Jul. 15, 2022. [Online]. Available: <https://www.upr.si/si/o-univerzi-/predpisi-in-dokumenti-/temeljni-dokumenti/>

[40] Univerza na Primorskem, 'Letno poročilo 2021'. Feb. 24, 2022. Accessed: Jul. 15, 2022. [Online]. Available: <https://www.upr.si/si/o-univerzi-/predpisi-in-dokumenti-/temeljni-dokumenti/>

[41] Univerza v Ljubljani, 'Program dela UL 2016'. 2016. Accessed: Jun. 20, 2022. [Online]. Available: <https://kakovost.uni-lj.si/samoevalvacija-univerze/>

[42] Univerza v Ljubljani, 'Program dela UL 2017'. 2017. Accessed: Jun. 20, 2022. [Online]. Available: <https://kakovost.uni-lj.si/samoevalvacija-univerze/>

[43] Univerza v Ljubljani, 'Program dela UL 2018'. 2018. Accessed: Jun. 20, 2022. [Online]. Available: <https://kakovost.uni-lj.si/samoevalvacija-univerze/>

[44] Univerza v Ljubljani, 'Program dela UL 2019'. 2019. Accessed: Jun. 20, 2022. [Online]. Available: <https://kakovost.uni-lj.si/samoevalvacija-univerze/>

[45] Univerza v Ljubljani, 'Program dela UL 2020'. 2020. Accessed: Jun. 20, 2022. [Online]. Available: <https://kakovost.uni-lj.si/samoevalvacija-univerze/>

[46] Univerza v Ljubljani, 'Program dela UL 2021'. 2021. Accessed: Jun. 20, 2022. [Online]. Available: <https://kakovost.uni-lj.si/samoevalvacija-univerze/>

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A SIMULATION STUDY OF COMBUSTION CHARACTERISTICS OF THE CUMMINS DIESEL ENGINE BY KIVA SOFTWARE

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Abstract

In recent years, the research on engines by simulation method was very developed. In there, the software to calculate and simulate the working cycle of diesel engines is used, which helped improve the extraction process, and better diagnosis of technical status, thereby increasing the reliability during engine use. In this study, the paper presents the application of CFD software Kiva-3V to simulate the combustion characteristics of the Cummins NTA 855 diesel engine. The results show that pressure changes, heat release rate, and the distribution of combustion temperature in the combustion chamber are consistent with the theory of diesel engines, which is the basis for adjusting the working modes to improve engine efficiency.

Keywords: Cummins nta 855, combustion pressure, combustion temperature, heat release rate, kiva – 3V.

Introduction

Improving the performance of an internal combustion engine to be better is a complicated job that needs to be studied theoretically or simulated before conducting experiments. Although simulation parameters may not be as accurate as experimental ones, this method still has outstanding advantages and is helpful for engine development [3]. Therefore, this is the method used a lot at engine research facilities, especially when conducting studies on changing work parameters, and structural parameters, using alternative fuels, and improving performance for internal combustion engines [4-5], [10-11].

Currently, there are a lot of Computational Fluid Dynamics - CFD software on the market such as Ansys fluent, Kiva, Avl-fire, and Star-cd. This software has calculated the combustion process inside the engine giving results consistent with experimental data. Among them, Kiva -3v simulation software has been widely used in the world [3].

The Kiva CFD software was developed over the years at Los Alamos National Laboratory (LANL) USA. Which is an open-source program using the Fortran language, simulating 2D and 3D flows of turbulent, chemically reactive substances, such as simulating the fuel injection and combustion of an internal combustion engine [1-2].

2. THE BASIS OF SIMULATION

Conservation of mass:

$$\frac{\partial \rho_m}{\partial t} + \frac{\partial (\rho_m u_i)}{\partial x_i} = \frac{\partial}{\partial x_i} \left(\rho D \frac{\partial (\rho_m / \rho)}{\partial x_i} \right) + \dot{\rho}_m^s + \dot{\rho}_m^c \quad (1)$$

Momentum equation:

$$\frac{\partial (\rho u_j)}{\partial t} + \frac{\partial (\rho u_i u_j - \tau_{ij})}{\partial x_i} = -\frac{1}{\alpha^2} \frac{\partial p}{\partial x_j} + \rho F_j^s + \rho g_j - A_0 \frac{2}{3} \frac{\partial (\rho k)}{\partial x_i} ; j = 1, 2, 3 \quad (2)$$

Conservation of energy:

$$\rho c_p \left(\frac{\partial T}{\partial t} + \frac{\partial T}{\partial x_i} \right) = \frac{\partial}{\partial x_i} \left(\rho D \sum_m h_m \frac{\partial (\rho_m / \rho)}{\partial x_i} \right) + k \frac{\partial^2 T}{\partial x_i^2} + A_0 \rho \varepsilon + \dot{Q}^s + \dot{Q}^c \quad (3)$$

The source functions to describe the interaction between the gas phase and the liquid phase and preserve the mass, momentum, and energy of the entire system. The source function is expressed through the equation [6]:

$$\dot{\rho}^s = - \int (4\pi r^2 f \rho_l R) d\bar{v} dr dy dT_d \quad (4)$$

The rate of momentum changes due to particle drag, inertia, and evaporation:

$$\rho_g \bar{F}^s = - \int f \rho_l \left(\frac{4}{3} \pi r^3 \bar{F}' + 4\pi r^2 R \bar{v} \right) d\bar{v} dr dy dT_d \quad (5)$$

Energy transfer between gas and fuel particles by evaporation, heat transfer to particles, and energy created by turbulent motion:

$$\begin{aligned} \dot{Q}^s &= - \int f \rho_l (A + B) d\bar{v} dr dy dT_d \\ A &= \left[\frac{4}{3} \pi r^2 R (u_d + \frac{1}{2} (\bar{v} - \bar{u})^2) \right] \\ B &= \left[\frac{4}{3} \pi r^3 (c_p \dot{T}_d + \bar{F}' (\bar{v} - \bar{u} - \bar{u}')) \right] \end{aligned} \quad (6)$$

The attenuation of turbulent potential energy due to fuel particle dispersion:

$$\dot{W}^s = - \int \left(\frac{4}{3} \pi r^3 f \rho_l \bar{F}' \bar{u}' \right) d\bar{v} dr dy dT_d \quad (7)$$

The RNG k-ε turbulent model (RNG k- ε) is used by Kiva because it describes the phenomena occurring in the engine combustion chamber in more detail than the k- ε standard turbulent model, especially the combustion chamber type unified [7-9], [12-13]:

$$\frac{\partial \rho k}{\partial t} + \nabla (\rho k u) = - \frac{2}{3} \rho k \nabla u + \tau : \nabla u + \nabla (\alpha_k \mu \nabla k) - \rho \varepsilon + \dot{W}^s \quad (8)$$

$$\begin{aligned} \frac{\partial \rho \varepsilon}{\partial t} + \nabla (\rho \varepsilon u) &= - \left[\frac{2}{3} C_1 - C_3 \right] \rho \varepsilon \nabla u + \left[\frac{2}{3} C_\mu C_\eta \frac{k}{\varepsilon} \nabla u \right] \rho \varepsilon \nabla u + \nabla (\alpha_\varepsilon \mu \nabla \varepsilon) \\ &+ \frac{\varepsilon}{k} \left[(C_1 - C_\eta) \tau : \nabla u - C_2 \rho \varepsilon + C_s W^s \right] \end{aligned} \quad (9)$$

Additional coefficients:

$$C_3 = \frac{-1 + 2C_1 - 3m(n-1) + (-1)^8 \sqrt{6} C_\mu C_\eta \eta}{3} \quad (10)$$

$$C_\eta = \frac{\eta(1 - \eta/\eta_0)}{1 + \beta \eta^3}, \quad \eta = S \frac{k}{\varepsilon}, \quad S = (2S_{ij} S_{ij})^{1/2}, \quad S_{ij} = \frac{1}{2} \left(\frac{\partial u_i}{\partial x_j} + \frac{\partial u_j}{\partial x_i} \right) \quad (11)$$

In the above equations:

T – temperature, K; t – time, s; x_i – coordinates, m; p – pressure, N/m²; ρ – density of liquid, kg/m³; ρ_m – density of a substance m, kg/m³; u_i, u_j – velocity of the fluid element, m/s; τ_{ij} – components of the stress tensor, N/m²; μ – dynamic viscosity, kg/ms; c_p – isostatic specific heat, J/kgK; h_m – enthalpy, J/kgK; ρ_m^s – the density of substance m when spraying, kg/m³; ρ_m^c – density of substance m when burning, kg/m³; F_j^s – the rate of momentum due to the spray, kgm/s; \dot{Q}^s – mass component due to injection, kg/m³s; \dot{Q}^c – mass composition due to combustion, kg/m³s; \dot{W}^s – source terms interaction with the spray, kg/m³s; k – turbulent kinetic energy, kJ/kg; ε – dissipation rate of turbulent kinetic energy, kJ/kg; η – is the

dependence ratio S ; S - mean strain magnitude; model constants: $m_1=0.5$ và $m_2=1.4$; $C_s = 1.5$; $C_\mu = 0.0845$; $C_1 = 1.42$; $C_2 = 1.68$; $\alpha_k = \alpha_\varepsilon = 1.39$; $\eta_0 = 4.38$ và $\beta = 0.012$; A_0 and $1/\alpha^2$ - parameter improves computational performance for flows with small Mach numbers (the quantity A_0 is zero in laminar calculations and unity when one of the turbulence models is used ($A_0 = 1$)); \bar{F}' - difference between acceleration and acceleration due to gravity; \bar{F}^s - particle velocity vector in liquid phase; \bar{u} - gas flow velocity vector; $(\bar{v}-\bar{u})$ - relative velocity between particle and gas phase; \bar{u}' - turbulent amplitude of gas velocity; u_d - specific internal energy of the particle.

To build a highly reliable simulation model of the combustion process of the Cummins diesel engine, in addition to the basic parameters of the engine as shown in Table 1, the geometrical parameters of the combustion chamber, especially the dimension of the Omega profile of the Piston must be complete. So the grid of the combustion chamber used for simulation is present as shown in Figure 1.

Table 1. Engine and simulation parameters [14]

Parameters	Value
Engine/ Chamber type	Cummins NTA 855/Unified
Number of cylinders	6
Cylinder diameter, mm	140
Piston stroke, mm	152
Compression ratio	14.1:1
The engine speed of simulation, rpm	1200

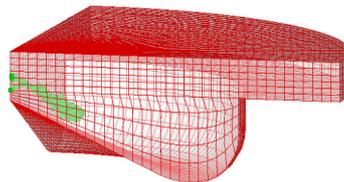


Fig. 1. Grid model simulating the fuel injection process

3. RESEARCH RESULTS AND DISCUSSION

3.1. Variation of combustion pressure in the cylinder

Figure 2 shows the variation of combustion pressure in the cylinder of the engine, a is the fuel injection time, corresponding to 16^0 CA BTDC (crank angle before top dead center); b is the starting time of the fire, corresponding to about 4^0 CA BTDC; the bc stage is the rapid combustion stage, also known as the pre-mixed combustion of the Cummins engine, this stage has the pressure in the cylinder rapidly increasing and reaching the maximum, at this time the fuel continues to injection and ignited in the next stage.

Due to the high temperature and pressure, the amount of fuel burned in this stage is also called the main combustion stage (controlled combustion). After reaching the maximum, the combustion pressure begins to decrease rapidly (the pressure curve goes down) because at this time the piston goes down to increase the volume and the combustion in this stage drop. With diesel engines, late fire is an undesirable thing to happen in all cases.

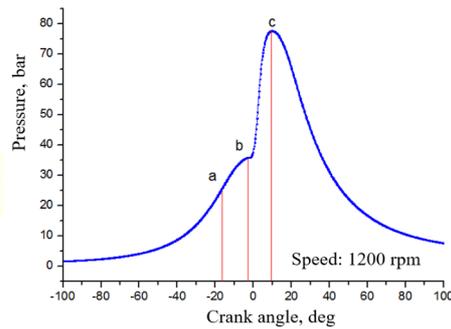


Fig. 2. Pressure evolution in the cylinder of Cummins NTA855 engine at 1200 rpm

3.2. Temperature variation and heat release rate

Figure 3 shows the variation of the heat release curve, the heat of fuel combustion divided into three different stages. In the first stage, the burning rate is high and lengthens by about 5° CA, this stage has a rapidly increasing pressure in the cylinder (first peak on the graph). The second stage has a decreasing heat release rate. The third stage is the rest of the graph.

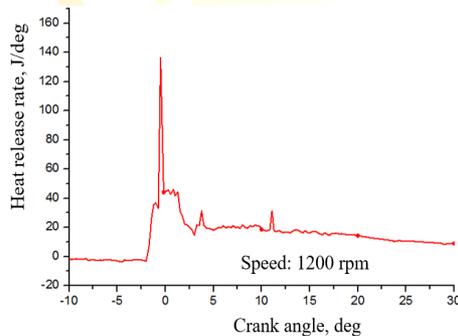


Fig.3. Heat release rate in the Cummins engine combustion chamber

Figure 4 shows the temperature variation in the engine combustion chamber according to the CA. From the graph, it can be seen that the time of increasing the fuel's combustion temperature is about 4° CA BTDC, and reach the maximum value at about 20° CA ATDC (crank angle after top dead center), this rule is consistent with the graph of pressure and heat release rate (Figure 5). Because right after the fire occurs, it is also the time when the heat release rate increases rapidly to reach the maximum value as shown in Figure 6.

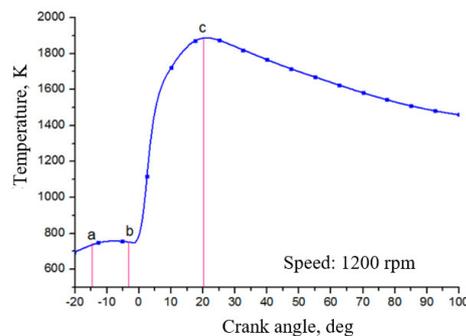


Fig. 4. Combustion temperature variation in the Cummins engine cylinder at 1200 rpm

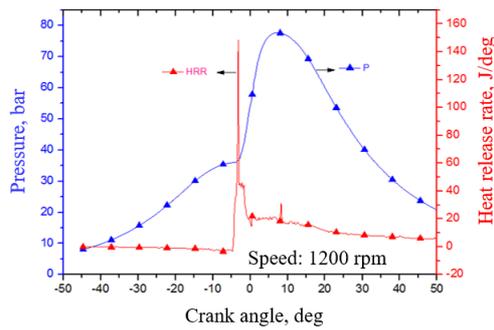


Fig. 5. Pressure characteristics and heat release rate in a working cycle of the Cummins engine

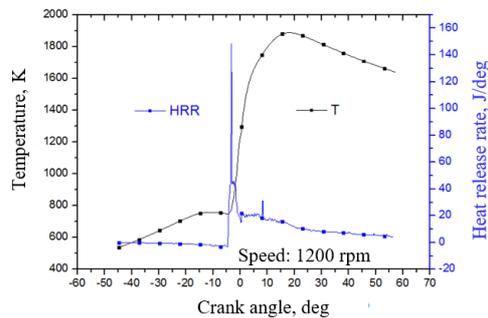


Fig. 6. Temperature characteristics and heat release rate in a working cycle of the Cummins engine

In Figure 7, the combustion pressure peaks in the range of 2-3⁰ CA, then decrease rapidly. So the top of the temperature curve deflect to the right of TDC compare with the top of the combustion pressure curve. The temperature distribution during combustion is shown in Figures 8 and 9.

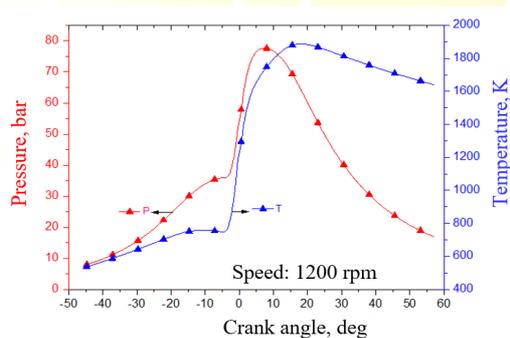


Fig. 7. Temperature characteristics and pressure in a working cycle of the Cummins engine

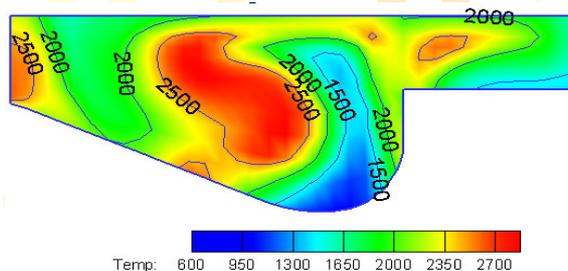


Fig. 8. Combustion temperature distribution at 10⁰ CA ATDC

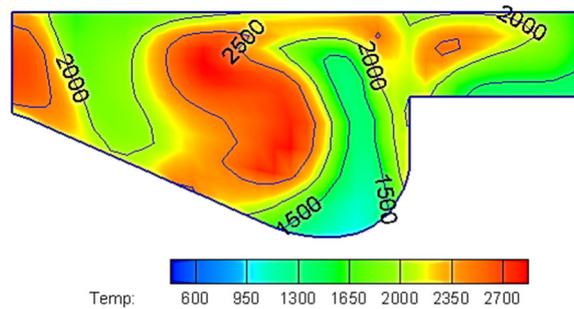


Fig. 9. Combustion temperature distribution at 20° CA ATDC

4. CONCLUSION

Simulation of the working cycle of the engine shows the evolution of pressure, temperature, and heat release rate in the combustion chamber. Thereby, it is possible to adjust fuel injection parameters to optimize the combustion process to improve engine performance. Simulation results of the Cummins NTA 855 engine are consistent with the theoretical basis of diesel engines. From the above simulation model, it is possible to change the input parameters and boundary conditions to simulate and evaluate the work characteristics of Cummins diesel engines with similar structural and fuel injection parameters. Therefore, using the Kiva software to simulate the engine is very necessary, reducing costs and time, especially when conducting studies on the transformation of working, structure parameters, and alternative fuel for internal combustion engines.

REFERENCES

- Amsden, 1997, Kiva-3V: a Kiva Program with Block-Structured Mesh for Complex Geometries, Los Alamos National Laboratory.
- Anthony A. Amsden, T-3, 1999, Kiva - 3v, Release 2, Improvements to Kiva-3v, Los Alamos National Laboratory.
- Abdul Siddique, 2016, Simulation And CFD Analysis of Various Combustion Chamber Geometry of A C.I Engine Using CFX, International Refereed Journal of Engineering and Science (IRJES) ISSN (online) 2319-183X, (print) 2319-1821, volume 5, issue 8, pp.33-39.
- Carsten Baumgarten, 2006, Mixture Formation in Internal Combustion Engines, Springer - Verlag Berlin Heidelberg
- G.P. Merker, C. Schwarz, G. Stiesch, F. Otto, 2006, Simulating Combustion, Springer - Verlag Berlin Heidelberg.
- Gunnar Stiesch, 2003, Modeling Engine Spray and Combustion Processes, Springer - Verlag Berlin Heidelberg.
- Han, Z. and R.D. Reitz, 1995, Turbulence Modelling of Internal Combustion Engine Using RNG k-e Models. Comb. Sci. Tech.
- Kazakov, A., and D.E.Foster, 1998, Modeling of Soot Formation During DI Diesel Combustion Using a Multi - Step Phenomenological Model, SAE paper No. 98246.
- Kong, S, Z.Han, R.D.Reitz, 1994, The Development and Application of a Diesel Ignition and Combustion Model for Multidimensional Engine Simulation. SAE paper 950278.
- K.Mollenhauer, H. Tschoeke, 2010, Handbook of Diesel Engines, DOI 10.1007/978-3-540-89083-6, Springer - Verlag Berlin Heidelberg.

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Mustafa Tuti, 2017, Thermodynamic diesel engine cycle modeling and prediction of engine performance parameters, GMO-SHIPMA/Number-207 march 2017.

P.A.Lakshminarayanan, Yogesh V. Aghav, 2010, Modelling Diesel Combustion, Springer Science, Business Media B.V.

Rakesh Kumar Maurya, 2018, Characteristics and Control of Low Temperature Combustion Engines, springer.

<https://www.artstc.com/marine/nt855-diesel-engine.html>.



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ANTI-SEISMIC MEASURES OF CIVIL CONSTRUCTIONS

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ABSTRACT

The article discusses and recommends known methods for reducing and protecting against the most catastrophic terrestrial phenomenon - an earthquake.

Humanity, its cultural and civilizational achievements suffer the most from a sudden catastrophic earthquake.

From time immemorial, our ancestors fought earthquakes, creating such engineering techniques, specifically to increase the stability of religious buildings, which are still known with interest, and some are even used in modern mass and industrial construction.

Humanity, its cultural and civilizational achievements suffer the most from a sudden catastrophic earthquake.

Since time immemorial, our ancestors have been fighting earthquakes, creating such engineering techniques, specifically to increase the stability of iconic buildings, which are still known with interest, and some are even used in modern mass and industrial construction.

It is known that cracks of various sizes appear in the building as a result of a reporting earthquake, and subsequently the number of cracks increases with repeated shocks, while the stiffness of the building decreases, and, as a result, the magnitude of the seismic load decreases. But if we know that by reducing the stiffness of a building, we can reduce the seismic impact on it, then we should think about how we can save the building in this way.

It was this circumstance that prompted scientists to search for a seismic protection system. Over the past three decades, several reporting practices have been developed: seismic isolation systems that are widely used outside of our country. These are systems of active and passive seismic isolation and seismic damping.

In seismic protection systems, seismic isolation foundations are widely used, which are used in many countries of the world.

The article discusses earthquake-resistant supports, which are resin-metal and rubber-plastic elements manufactured and used in new construction, especially in multi-storey buildings.

Multi-layer resin metal supports are easy to manufacture due to their simplicity, in building design, the choice of support parameters is easily carried out by determining the thickness and number of layers.

Such supports significantly increase vibration damping and almost double the building's response to seismic action and double the main oscillation period.

In connection with the state of existing buildings in our cities, the issue of strengthening and strengthening such buildings is of particular importance, special importance is attached to such buildings that will cause irreparable consequences, and some of them are not subject to demolition. These are: hospitals, kindergartens, schools, police, prisons, communications, water supply and other buildings that must function properly. Based on the material available in foreign and domestic literature, the purpose of the article is to clarify the methodology for calculating seismic impact systems and create the foundations for the implementation of these systems in the country.

An analysis of the results obtained shows a decrease in the seismic load acting on the building by about 2-2.5 times.

The goal set in this way is to use the world-proven method of preventing catastrophic earthquakes with the help of seismic isolation systems in Georgia.

Keywords: Active and passive seismic isolation and seismic damping, vibration damping,

Main Part

The territory of Georgia is located in a zone of increased seismic activity. Due to the impact of the earthquake, many buildings were destroyed over the centuries and are still being destroyed.

The following is a chronological list of destructive earthquakes:

- 1088, Tmogvskoe earthquake. Magnitude _ 6.5;
- 1283 Mtskheta earthquake (at that time the dome of Svetitskhovli collapsed).
- 1283, Samtsakh earthquake. Magnitude _ 7.0;
- 1742. Alaverdi earthquake. Magnitude _ 6.7;
- December 31, 1899, 00:50; Akhalkalaki earthquake. Value _ 6.3.

Intensity _ 8-9 points, 240 people died;

- February 20, 1920, Gori. The first strong shock was recorded at 02:55, and the second one at 14:45. Magnitude - 6.2, intensity 8-9 points. 9-point traction 3 km from Gori, p. This was noted on the bridgehead. St. And in Gori - 8 points. 114 people died. After that, Mazra Gori almost did not exist.

- May 7, 1940, 10:23 pm. Tabaksur. The epicenter of the earthquake was in the area of Lake Tabatskuri. Magnitude 6, intensity at the epicenter 8 points. Buildings were destroyed. 40 people died.

- Martvili earthquakes. January 26, 1957 (4:30 pm - 7:00 am), January 29 (3:17 pm and 3:21 pm - 8:00 am), which caused significant damage: buildings collapsed, no one was injured.

- July 16, 1963. 18:27 Abkhazia, Kodori Gorge, village of sticks.

The magnitude of the earthquake - 6.4 points, the force at the epicenter - 9 points. Since the Mechhris live in the area, there were no casualties from the earthquake. Damaged houses in the surrounding villages of Chkhalta. The earthquake was accompanied by landslides and rockfalls.

January 2, 1978 18:31 Dmanis. The magnitude of the earthquake is 5.3 points, and the intensity at the epicenter is 7-8 points. Minor damage and destruction, fortunately, did not lead to human casualties.

- May 13, 1986 20:44 Lake Paravni, magnitude of the earthquake - 5.6, strength at the epicenter (near Lake Paravni, on the Javakheti plateau) - 8. Houses were destroyed in nearby villages. The earthquake killed 2 people.

- 1991, April 29, 9:12 am. Racha earthquake, the epicenter of which was located east of the Tofar-Sabvi ridge. As a result of the earthquake, the rock that blocked the river collapsed.

Narrow gorge Khakhiatiskali and formed a lake 100 m wide and 300 m long. As a result of the earthquake, a 20-apartment village with 40 inhabitants fell under the collapsed mass.

It was the strongest earthquake that occurred on the territory of Georgia in the 20th century. Magnitude - 7, intensity at the epicenter - 9 points. The earthquake caused great destruction in the regions of Racha, Imereti, Shida Kartli. About 25,000 houses were destroyed and damaged. About 100,000 people were left homeless. 200 people died, the damage from the earthquake is estimated at 10 billion people at the rate of 1991. The fluctuation of intensity by 4-5 degrees was also felt in Tbilisi.

After the Racha earthquake, 18 aftershocks were recorded. The strongest of them was on June 15, 1991 at 0:05. The magnitude of which was 6.1, and the intensity at the epicenter was 8 points, which led to human casualties and destruction.

- October 23, 1992 23:19, Barisakh earthquake. A year and a half after the Racha earthquake, another strong earthquake occurred, the magnitude of which was 6.3 points, and the intensity at the epicenter - 7-8 points. The earthquake did not result in human casualties. The damage was minor.

- November 27, 1997, 5:34 pm. The magnitude of the earthquake near Khashmi was 5.3. The intensity at the epicenter is 7 points. Buildings in Khashmi and nearby villages were damaged. There were no victims. The earthquake was strongly felt in Tbilisi.

April 25, 2002, 5:34 pm. Tbilisi earthquake. Magnitude _ 4.5. The intensity at the epicenter is 7 points. The epicenter was located from Chugureti in the direction of the Tbilisi Sea. 12 thousand buildings were damaged, especially in the old districts - Chugureti, Sololak, Nadzaladevi, Mtatsminda district. 5 people died. Direct damage was estimated at \$300,000, but the actual damage was much higher.

- February 6, 2006, 8:00 am. Racha. The magnitude of the earthquake - 5.2 points, the strength at the epicenter - 6-7 points. Many houses were damaged.

- September 7, 2009, 10:46 pm. Racha. The magnitude of the earthquake is 5.9, the strength at the epicenter is 7-8 points. There were no victims. Many buildings were damaged.

- January 19, 2011, 10:46 pm. Baghdad. The magnitude of the earthquake is 5.4, the intensity at the epicenter is 7 points. The earthquake was followed by destruction. There were no victims.

- December 25, 2012, in the Black Sea, 40 km west of Poti. At 22:44 an earthquake was recorded, it repeated at 22:55. The magnitude of the first earthquake was 5.6 points, the second - 4.9 points, but since the earthquake occurred in the sea, away from the coast, it did not lead to destruction and loss of life.

- July 12, 2016, 15 km west of Dmanis. At 10:14 there was an earthquake. Magnitude - 4.8, intensity at the epicenter - 7 points. The earthquake did not result in human casualties. The shake-up was also felt in Tbilisi.

Based on the foregoing, all issues related to seismic resistance in Georgia are very relevant and require the adoption of urgent effective measures.

In seismically active countries, the safety of people and the safety of buildings and structures during an earthquake is the most important scientific, technical and socio-economic problem. Historically, earthquake protection has always meant, first of all, predicting at its occurrence that in the event of a future earthquake and with knowledge of the place, people can be evacuated from a building to safe places and thus protect themselves from an earthquake.

The experience of past earthquakes has shown that the use of this method of protection in some cases gives a positive result. In most cases, strong earthquakes caused not only the destruction of thousands of buildings, but also the death of tens of thousands of people. In principle, that will give society a positive solution to the problem of earthquake prediction.

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It does not save us from earthquakes. An earthquake will still occur and cause the destruction of buildings and structures, life support, historical and cultural monuments.

Even with the most successful forecast, it is possible to indicate the location of the epicenter of the earthquake with an accuracy of only ten kilometers, the time - from several days to several months or years, and the strength - within 1-2 points. There will be many questions with ambiguous answers on the main measures of protection - evacuation.

If the prophetic epicenter turns out to be near a large population center, many questions will arise: when to evacuate people, stop industrial production, transport, social and medical services, stop the migration of people, who will compensate for the damage and compensation in case of a natural disaster. wrong prediction? Will economic losses be justified just because an earthquake could have happened? There will be calls to bring the wrong forecasters to justice. It is impossible to predict an earthquake in advance, but the future will show how well scientists can solve this problem.

At present, there simply isn't enough reliable data on any pre-earthquake event for us to make reliable predictions. It will take many years, many earthquakes, before this goal is fully achieved. Nevertheless, when the apartments retreated before this terrible event, we agree with the famous American Scientist J. Geary and H. Shah that "we can predict with certainty that most future earthquakes will not be prophetic."

Therefore, engineers and scientists have long been of the opinion that the best way to protect against earthquakes is reliable earthquake-resistant construction. This can be done, first of all, by improving the concept of seismic impact, calculation methods, introducing new technologies for planning and constructing buildings, and systematically improving the production of earthquake-resistant construction. The focus should be on building safety, material seismic resistance and durability.

To reduce the negative consequences of an earthquake, the most important scientific problem is not the exact time of predicting the expected earthquake, but the prediction of the behavior of buildings during an earthquake.

We believe the time has come to radically change our approach to these two aspects of earthquakes. We know "too much" about earthquakes, it's time to learn how to reliably defend against them. The 21st century should be the century of protection from the devastating effects of earthquakes. Only then will we be sure that the number of victims and the level of damage in future earthquakes will be minimal.

The opinion of Guram Gabrichidze, Corresponding Member of the National Academy of Sciences of Georgia, should be noted: "If humanity does not realize the need to reduce the level of risk inherent in the ideology of earthquake-resistant construction, the number of seismically unsafe buildings built around the world in the 20th century will increase even more in the 21st century.

It is known that cracks of various sizes appear in buildings as a result of a registered earthquake. With repeated shocks, the number of cracks and damage increases, which reduces seismic resistance. This also reduces the rigidity of the building and the magnitude of the seismic load.

It will be possible, i.e. If we know that by reducing the rigidity of the building it is possible to reduce the seismic effect on it, then we should think that in this way it will be possible to save the building.

It was this circumstance that prompted scientists to look for a system of protection against seismic effects. In recent years, several practical calculation methods have been created [1-20], these methods take into account the use of seismic isolation systems such as active and passive seismic isolation and other seismic resistance systems.

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The essence of seismic isolation is to shift the period of natural oscillations of the building (for rigid structures, usually $t = 0.3-1$ s, in cases of higher periods $t = 2-3$ s), which can significantly reduce the amount of acceleration acting on the building during an earthquake, and "isolate" the building from the top of the ground.

The main purpose of these systems is to divide the building into two parts (two separate masses).

The foundation is arranged, for example, on a rigid slab, on which columns or walls are placed (within the basement) and seismic isolators are arranged on them, and the roof on these seismic isolators is made of reinforced concrete slabs or coils, on which the building is then built.

The dynamic horizontal impact caused by an earthquake is either not transmitted to the above-ground structure and is completely absorbed by the insulators located in the underground part, or significantly reduces their impact.

In seismic isolation systems, a reduction in the mechanical energy received from the foundation structure is ensured. This is achieved by leaving an air gap between the foundation and the volumes of the main building, in which shock absorbers (rubber-metal supports) will be placed, which, with their flexibility, will (subsequently) absorb the destructive deformations of the building. Such foundations (shock absorbers) provide free ground movement, the amplitude of which is greater than the amplitude of a destructive earthquake, so seismic ground vibrations cannot cause the transfer of forces to the walls and the entire building.

It has been calculated by calculation that the intensity of an earthquake is reduced by 1.5-2 points when using a system of insulators.

Currently, seismic isolation systems [1] are widely used in both low-rise and high-rise construction (up to 101 floors) in almost all seismically active countries (except Georgia).

The calculation is also possible using the corrected software package LIRA 9.6 [21].

seismic isolation systems. As you know, about a hundred seismic isolation systems have been patented.

We will look at some of them:

Active seismic protection systems include additional energy sources and elements that regulate the operation of these sources, but their implementation requires significant costs for their arrangement and operation. Therefore, it is less usable;

Passive seismic protection systems include seismic damping and seismic isolation. No additional energy sources are used here;

Seismic damping systems include dampers and dynamic dampers, in which mechanical energy is converted into another form of energy, causing damping or distribution of vibration in the protective structure before damping.

Along with all known methods, adaptive systems have found wide application in seismic engineering, in which dynamic characteristics change irreversibly during an earthquake, since it "adapts" to seismic effects.

In the lower floor of the building between its supporting columns, connecting (link) panels are arranged, which are switched off during intense seismic impact, when the impact spectrum has periods equal to or close in magnitude to the period of free oscillation of the building. When the connected panels are destroyed under the action of a seismic shock, the frequency of free oscillations decreases, and the period of oscillations increases, and the seismic load decreases.

In low-frequency impacts, the period of free vibrations of a building with connected panels is much shorter than that of the ground, so the resonance phenomenon is weak and the connected panels are not destroyed. This method is especially effective when the forecast of the expected frequency of seismic shocks is known.

The negative side is that after an earthquake, when the disconnect connections are destroyed, it is necessary to restore them, which is always practically impossible.

In addition to the above, in some cases, at the final stage of the seismic process, the frequency of excessive impacts decreases. As a result, secondary resonance may occur and the capacity of the building structure may be lost. In this case, it is necessary to apply special construction measures associated with additional costs and an increase in the cost of construction.

The introduction of seismic isolation systems in construction should be carried out in accordance with building codes and regulations (PN 01.01-09).

The construction of high-rise buildings above ten floors on non-rocky ground must be carried out using reinforced concrete slabs or concrete slabs, or a combination of reinforced concrete slabs and concrete slabs.

As a rule, preference is given to concrete bases.

The positive role of pile foundations in construction, their resistance to seismic effects, and the positive effect of piles on the dynamic characteristics of a building are widely known. Therefore, the installation of concrete foundations is a correct, reasonable engineering decision.

The effectiveness of pile foundations on soft soils in seismic areas can be achieved by placing piles on soils of the I category of seismicity. When constructing stone foundations on category I soils, it is first necessary to determine their bearing capacity.

"Intermediate cushions" - a new word when using a rock foundation in seismic areas.

At the end of the last century in Chile, Russia and Moldova, stone foundations and "intermediate cushions" made of inert material were offered.

In our opinion, this method should have positive results if there is no strong connection between the roaster and pile. Above the chemicals buried in the soil of the third category of seismic resistance, a sand and gravel "cushion" is laid and compacted. On this "cushion" a conventional reinforced concrete lattice-type structure is arranged, which is calculated as a coil on an elastic foundation.

Intermediate shock-absorbed rock foundations drastically reduce the horizontal seismic load transmitted to the top of the building, which will be distributed, that is, embarrassed, along the "cushion".

Earthquake prediction. Since time immemorial, man has tried to predict earthquakes in order to save his life and his family.

During an earthquake, the safety of people and the preservation of buildings in seismically active countries is the most important scientific, technical and socio-economic problem.

Conclusions

The paper proposes the use of seismic protection systems for buildings, in particular, seismic isolators, the room is placed between the foundation of the building and the supporting structures of the building. As a result of the research, it was established:

- The reproducibility of the earthquakes mentioned in the article clearly shows that Georgia is in a zone of high seismic activity.

Improving seismic resistance is the responsibility of specialists, scientists, designers and builders to conduct joint research.

State bodies have a special role in saving the population from the devastating consequences of an earthquake;

- Scientists and engineers have long been of the opinion that the best way to protect against an earthquake is a reliable earthquake-resistant structure and its timely preparation.

This can be implemented by creating new constructive systems of seismic effects, methods of calculation, planning and construction of buildings and structures, systematic, regular improvement of seismic engineering standards of construction;

- In the recent period, various variants of seismic isolation systems have been created and massively implemented in seismically active countries.

The use of seismic isolation systems leads to a 2.0-fold decrease in seismic loads acting on buildings, resulting in a reduction in the frequency of destruction of structural elements during an earthquake;

- Reducing the impact of seismic forces on the supporting structures leads to a decrease in inertial forces, which in turn reduces the movement of the supporting structures of the building.

This is very important when calculating and designing the seismic resistance of a building.

Literature

1. V. Gabrichidze. Order and disorder... Volume: Nauka, 2014. - p. 80.

2. M. A. Mardzhanishvili, L. M. Mardzhanishvili, Sh. M. Mardzhanishvili, Modern earthquake-resistant buildings and calculation methods. Tb.: TSU, Tbilisi State University. 2002. p. 332.

3. Aubakirov A. Seismic isolation pile foundations. Alma-Ata, Kazakhstan 1987, 168 pages.

4. I. M. Aizenberg. Adapted systems of seismic protection structures. M.: Nauka, 1978. p. 246.

5. Gir D., Shah H., Unsteady firmament. What is an earthquake and how to avoid it., M. "Mir", 1988, pp. 1-128

6. Bediashvili V., Kifiani G. Modern challenges to seismic stability and its current problems. Proceedings of the International Scientific and Practical Conference "Modern Challenges, Actual Problems of Science and European Integration", Tbilisi State University, November 22-23, Tbilisi, p. 74-78.

7. Bediashvili M., Kipiani G., Todua M., Methods of reduce the losses at catastrophic earthquake., Problems of mechanics, #3 (68), Tbilisi, pp 77-82.

8. Kipiani G., Bediashvili M., construction with seismic isolation measures. Sat. Proceedings of the International Scientific and Technical Conference "Construction Science, XXI Century" 2017, Federal State Autonomous Educational Institution of Higher Education "Northern (Arctic) Federal University named after M.V. Lomonosov", Arkhangelsk, Russia, p. 47-52.

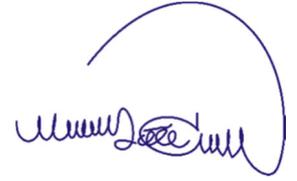
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İLGİLİ MAKAMA

3. ULUSLARARASI LIBERTY DİSİPLİNLERARASI ÇALIŞMALAR KONGRESİ 13-15 Ocak 2023 tarihleri arasında Miami / ABD’de 25 farklı ülkenin (Türkiye-15, Diğer Ülkelerden-50) akademisyen/araştırmacılarının katılımıyla gerçekleşmiştir. Kongre 16 Ocak 2020 Akademik Teşvik Ödeneği Yönetmeliğine getirilen “Tebliğlerin sunulduğu yurt içinde veya yurt dışındaki etkinliğin uluslararası olarak nitelendirilebilmesi için Türkiye dışında en az beş farklı ülkeden sözlü tebliğ sunan konuşmacının katılım sağlaması ve tebliğlerin yarıdan fazlasının Türkiye dışından katılımcılar tarafından sunulması esastır.” değişikliğine uygun düzenlenmiştir.

*Bilgilerinize arz edilir,
Saygılarımla*



Dr. Mustafa Latif EMEK

On behalf of Organizing Board

Reference: www.libertyacademicbooks.com/libertyconference