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A. Kola-Olusanya , B.O. Oginni* ,
T.S. Olaniyan , M.S. Kasumu

Osun State University, Osogbo, Nigeria
*e-mail: babalola.oginni@uniosun.edu.ng

WORKPLACE SPIRITUALITY: EMPLOYEE CONNECTION TO WORK ENVIRONMENT AND WORKING CONDITIONS

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Abstract. The study focused on workplace spirituality as a connector of the employee to the work environment and working conditions in the face of economic recession or depression by using the manufacturing organizations as the unit of analysis. The study identified the place of workplace spirituality in employee connection to work environment and working conditions and the relationship between all the components of workplace spirituality and work environment and working conditions. A questionnaire was used as the research instrument and was randomly administered to the respondents in the selected manufacturing organizations where in 187 copies of the questionnaires were found useable. It was found that workplace spirituality has a significant place in employee connection to the work environment and working conditions and that alignment of values one of the dimensions of workplace spirituality has a significant and positive relationship with the work environment and working conditions. It was concluded that employee connection to the work environment and working conditions in the face of economic recession or depression can be derived through the alignment of values, interconnectedness, and meaningful work. However, it was recommended that there should be a minimum safety benchmark for all the parties in the industrial organizations to prevent hazardous work environments and working conditions.
Key words: workplace spirituality, working life, work environment, employee well-being, working conditions, employee connection.

Introduction

The evolution in workforce management heralded the evolvement of human resource management in the 19th Century to signify a better way to manage people at work. This places an enormous premium on people at work, wherein their needs are incorporated into the overall organizational objectives without prejudice to any stakeholders' interests in the workplace. The aftermath of COVID-19 has further made organizations show more concern towards their employees and their activities in the environment, thereby seeking the well-being of the individual employee and that of the communities at large knowing fully well that work is central to employee's life and the course of their life, especially their mental and physical health. To respond to this new order in the workplace, the focus shifted to the need for constant changes and adjustments in the working life of the employees to ensure that working life is healthier, sustainable, and attractive to engage them, being aware of risks that exist in the workplace which is domiciled in the work environment and working conditions.

The changes and adjustments in the working life of every employee towards sound mental and physical health are contingent upon the work environment and working conditions which often serve as a sword of double edges on account of their significance to employers and employees (Akinruwa, Babatunde, & Ogah, 2024). According to Kabari (2021), the work environment and working conditions are the two major key factors among other factors being used by employees when appraising their workplace and the outcomes of the appraisal invariably determine their mindset towards responding to their organic role in the organization i.e., the desire to identify needs and dynamics of the organization and willingness to take

initiatives and demonstrate expertise or passion in filling the vacuum without prejudice when such roles were not explicitly assigned. Evolving from the appraisal of the work environment and working conditions are mutual benefits if positive and mutual loss, if negative. Therefore, employee working conditions are essential to the overall health of an organization especially in a competitive environment in order to promote positive industrial outcomes.

The rationale behind the mutual benefits and loss is the degree of alignment between individual and organizational goals. In the views of Bashir, Amir, Jawaad, and Hasan (2020) working conditions can significantly impact employees' mental well-being, health and safety, and productivity when there is congruence between an individual employee and organizational goals because working conditions are the physical and psychological conditions that workers are exposed to while working. The work environment revolves around the physical (technology, space, comfort, temperature), social (communication, team dynamics, leadership, development, integration, work-life balance, well-being, diversity, and inclusion), and cultural conditions (values, norms, beliefs, traditions, practices) where employees perform their operational activities from time to time and this explains why work environment and working conditions are often seen as Siamese twins (Owota & Elliot, 2022).

However, a poor work environment can be a potent force in the survival, growth, and profit of an organization on account of unethical behaviour, unsupportive relationship, unfair treatment, unclear communication, physically dangerous and unhealthy environments as well as outdated technology, poor lighting, poor benefits, and poor workplace culture. Therefore, for any organization to meet its obligations towards all the stakeholders, there is a need to align individual goals with organizational goals, integrate personal beliefs with workplace beliefs to promote integrity, and give a sense of fulfillment, and interconnectedness within the organization, thus, ensuring organizational survival, growth, and profitability (Owota & Elliot, 2022).

Today, the economic and financial environment of business in Nigeria has greatly impacted the work environment and working conditions that employers could make available for individual employees to carry out their daily operational activities which are somewhat below ILO's decent work agenda standard. The implication is that employee suffers untold hardship in the workplace while carrying out their daily activities and constantly seek out a way to search for a more convenient alternative job thus, leading to work abandonment and loss of qualified and competent personnel. Since the prevailing hardship in the economic and financial environment lingers, organizations are in search of strategies to adopt that will be cost-effective to alleviate the impact of the economic meltdown. Then, can workplace spirituality (WPS) be the missing link in the workplace that will connect and integrate employee personal beliefs with workplace beliefs to promote integrity, give a sense of fulfillment, and interconnectedness within the organization towards organizational survival, growth, profitability, and sustainability considering the economic and political environment of business in Nigeria? Therefore, the study seeks to investigate the place of workplace spirituality in employee connection to the work environment and working conditions; and examine the relationship between the components of workplace spirituality and work environment and working conditions.

Work Environment and Working Conditions

The high premium placed on employees in workplace settings by scholars signifies their importance as a valuable resource that has been linked to organizational survival, growth, and profitability which explains why the management of various organizations is more concerned about the well-being of employees in their respective workplace thus, reflected in the policies and practices manifesting or prevailing in the atmosphere of these organizations. (Zainon, 2020; Tomcikova & Coculova, 2020; Oginni, Ojo & Adesanya, 2019). One of the pieces of evidence of an employer's concern for employee well-being through policies and practices is evident in employee working conditions which is critical to employee well-being and work performance (Eluka & Okafor, 2014). Eluka and Okafor (2014) described working conditions as facilities that aid employees while at work for their convenience and comfort in their job performance. In the views of Sukalova (2021), working conditions represent a convex set of conditions, factors, and other elements affecting the worker who performs the assigned work tasks for the employer and significantly affects his productivity, well-being, health, and loyalty to the employer while the earlier work of Gerber *et. al* (1998) described working conditions as a phenomenon created by the interaction of employee with their organizational climate, and includes psychological as well as physical working conditions.

This implies that working conditions are the psychological and physical conditions that employees

are exposed to while performing their daily activities. However, Bashir *et. al* (2020) citing Ali, Ali, and Adan (2013) posited that working conditions refer to the working environment and aspects of an employee's terms and conditions of employment i.e., conditions in a workplace encompass everything from the working environment to an employee's terms and conditions of employment. It can then be posited that the work environment can clearly explain the nature of working conditions in any organizational setting at any given time because it comprises physical and emotional environments which can be classified into three i.e., physical environment, working conditions, and organizational culture. The work of Dzogbede and Asimah (2020) which was corroborated by the work of Baka and Saka (2023) posited that the physical environment covers the layout and amenities of an in-person office, with items such as desk space, lighting, and location.

In contrast, for remote workers, the physical environment refers to software, tools, and equipment. The working conditions summarise the terms under which an employee agrees to do their job such as physical environment, working hours and patterns, wages and salary, workload, overtime arrangements, holiday entitlement, employee benefits, support for working parents, interpersonal relationships, inclusion and diversity as well as managerial/employee support, reporting structure, and safety regulations. Organizational culture describes how an organization functions on a social level by incorporating both formal and informal structures at operational levels of activities such as organizational mission statement, open communication policy, office politics, and interpersonal relationships, etc., although informal structures are unsanctioned, it is still influential (Kabari, 2021). Baka and Saka (2023) however, posited that a good work environment and working conditions will reposition an organization towards improving employee well-being, high performance, job satisfaction, reduction in deviant behaviour, and enhanced quality of attraction.

This explains why Baka and Saka (2023) opined that the combination of these components determines what is obtainable in the workplace environment which often dictates and affects every employee's workflow and mood and concluded that 35% of job seekers would decline the perfect role if they didn't connect with organizational culture on account of clear evidence of meaningful rewards, opportunities for employees to grow, and advance their careers as well as respect and recognition. Creating a healthy work environment is always the dream of every employer since it enhances quality work, quality of attraction, a high level of productivity, and reduces employee attrition but sometimes becomes a mirage in the face of economic hardship faced by the organization, especially during the economic recession or depression (Khaled & Haneen, 2017). Zhenjing, Chupradit, Ku, Nassani, and Haffar (2022) believed that employees tend to show a higher level of task performance and commitment even in difficult situations, especially in a work environment characterized by unemployment where alternative jobs are scarce.

The works of Khaled and Haneen (2017) and Zhenjing, *et. al* (2022) were corroborated by the position of Jubril and Hammed (2024) that recession or depression hinders employers' desire to ensure a sound and healthy work environment however concluded that employees can be motivated towards higher performance with the use of relationship tools such as respect and recognition, meaningful work, sincerity, good rapport between management and employees at all levels, open communication, sense of belongingness, holism, etc. which has a low-cost implication. The earlier work of Dappa and Onuoha (2020) on work environment and employee performance explained that any organization operating on a going-concern would constantly encounter constraints from the government (dimensions of policies), nature (physical and development), and employee (quality of attraction and labour turnover) which explains why, the organizational work environment can never meet the expectation of employees or desire of employers. It was, however, concluded that the work conditions of any organization should be designed in such a way that the minimum requirements as specified by the government or ILO for the safety of all the stakeholders should be strictly adhered to without compromise. The conclusion of Shaari, Sarip, and Ramadhinda (2022) corroborated this. Further, it posited that what constitutes work environment acceptability is more of employee perception and their expectation is the provision of a comfortable workplace to work with a positive impact on employee well-being, mental health, and work balance.

Workplace Spirituality

The humanistic nature of the modern work environment, especially the 21st Century necessitated a win-win situation for both the employees and the organization on account of the strong connection existing between the mind and the body where scientific observers have shown that techniques such as meditation, mindfulness, prayer can reduce anxiety, fear, depression, and stress which are elements of

spirituality, thus introducing spiritual dimension to organizational life (Rathee & Rajain, 2020). This is the state of intimate relationship with the inner self of higher values, morality, and recognizing the truth of the inner nature of people. When applied to the workplace, it becomes workplace spirituality which explains the integration of personal spiritual beliefs with the workplace to promote a sense of fulfillment, integrity, and interconnectedness within the organization i.e., an experience of interconnectedness that is shared by all those involved in the work process with the awareness that each is individually driven by an inner power to raise and maintain their sense of honesty, kindness, and courage, thus, leading to the collective creation of an aesthetically motivational environment characterized by a sense of purpose, high ethical standards, acceptance, peace, trust, thus establishing an atmosphere of enhanced team performance and overall harmony (Krishnani, 2023; Rathee & Rajain, 2020). Therefore, workplace Spirituality is the framework of organizational values exhibited in the culture that promotes employees' experience of transcendence through the work process, facilitating their sense of being connected to others in a way that provides a feeling of completeness and joy.

According to Giacalone and Jurkiewicz (2014), workplace spirituality is that aspect of the workplace, either in the individual, the group, or the organization, that promotes individual feelings of satisfaction through transcendence. In the views of Robbins and Judge (2013) workplace spirituality is the recognition that people have both a mind and a spirit, seek to find meaning and purpose in their work, and desire to connect with other human beings and be part of a community while the earlier work of Ashmos and Duchon (2000) described workplace spirituality as the recognition that employees have an inner life that is nourished by meaningful work that takes place in the context of community. Therefore, workplace spirituality has a clear interior focus (an inner), subjective experience that reflects core values but one that is integrated with and facilitated by an organizational milieu (Dent, Higgins, & Wharff, 2005). This implies that spirituality at work has three components: inner life, meaningful work, and community which was summarised by Ashmos and Duchon (2000) as meaning and purpose, interconnectedness, and alignment of values.

Meaning and Purpose revolve around acknowledging that employees need to perceive their work as meaningful and purposeful. It involves aspects like having a clear purpose, committing to organizational goals, making a significant contribution to the company, and making a difference. For example, if employees find their work meaningful, their levels of job satisfaction are enhanced, thus leading to lower turnover rates. Interconnectedness involves fostering a sense of community within the organization where employees feel a sense of belonging, mutual respect, empathy, and understanding i.e., a feeling of sense of community among employees, causing them to feel valued and part of a bigger picture, thus heightening their contentment in the workplace and alignment of values is the belief that employees should be able to align their personal values, ethics, and morale with the values of the organization. This alignment results in a higher sense of fulfillment and job satisfaction because employees who align their values with the organization tend to experience higher job satisfaction, improved motivation, and increased dedication towards the organization. It is evident that workplace spirituality leads to various positive outcomes, such as increased job satisfaction, boosted productivity, and a motivational work climate (Jaya & Sandeep, 2018). Also, it helps in nurturing and retaining talent, creating a positive corporate image, and improving organizational performance as well as encouraging employees to bring their authentic selves to work, increased levels of productivity, work quality, and employee engagement (Krishnani, 2023).

Despite the growing significance of workplace spirituality, there are several misconceptions about workplace spirituality. One of the most common misconceptions is that workplace spirituality revolves around religion i.e., instilling specific religious beliefs or practices in the organization. In truth, workplace spirituality goes beyond religion, it focuses on connecting with inner life, seeking personal authenticity, and interconnectedness as well as finding a sense of purpose in work (Giacalone & Jurkiewicz, 2014). This should not be confused with religion which refers to a specific set of beliefs and practices, spirituality in the workplace transcends religiosity and emphasizes individuals' quest for ultimate meaning and purpose, interconnectedness with others, and alignment with their core values. Therefore, it is important to note that this doesn't necessarily imply religious practices at work. Instead, it means enhancing feelings of purpose, connectedness, and compatibility between personal and organizational values, thus, fostering well-being and work satisfaction. Another misconception is that only non-profit organizations or those involved in philanthropic activities can foster workplace spirituality. This is untrue as any organization, regardless of its nature of business, can cultivate workplace spirituality because it focuses on

creating an environment where employees can find meaning, purpose, and a sense of belonging (Rathee & Rajain, 2020). Some believe that workplace spirituality is a panacea for all organizational issues, but it's not a quick fix or a means to gloss over organizational problems. Instead, it's a journey and a long-term commitment to creating a work environment that is emotionally and spiritually nourishing (Sadeghi, Zamani & Mamasani, 2015).

Incorporating spirituality in the workplace can lead to various positive impacts such as employee morale, productivity, commitment, creativity, decreased turnover rates, mutual respect, a caring and positive work environment, understanding, and empathetic leaders as well as loyalty to the organization (Krishnani, 2023). Jaya and Sandeep (2018) posited that organizations instituting workplace spirituality benefitted from increased profitability, customer satisfaction, market share, employee retention, productivity, improved organizational culture, quality of work, and employee engagement. This was also corroborated by Kendall (2019) that the practice of workplace spirituality enables organizations to attain a greater sense of satisfaction at work, fulfillment, and growth of the individual work becomes meaningful and valuable, psychological safety is enhanced by values of collaboration and understanding and promote the ability to be creative as well as ethical behaviour. In the same vein, it also supported the earlier position of Ghosh (2013) who posited that workplace spirituality has a profound impact on employee well-being, increased job satisfaction, reduced stress levels, better work-life balance, and improved workplace relationships. In addition, it fosters a strong sense of community and interconnectedness among employees wherein opinions, values, and individual contributions are recognized and appreciated, thus, promoting a feeling of belongingness with a positive effect on a sense of community, and mental health, leading to happier and healthier employees. The works of Williams (2023) on workplace spirituality and work ethics supported this position. The work adduced that workplace spirituality creates a sound ethical work environment encompassing attributes such as commitment, integrity, professionalism, and responsibility heralding increased levels of trust among employees and management, thus promoting efficient teamwork and collaboration for the overall well-being of the organization and employees.

Spirituality in the workplace is good and ideal for organizations to survive, grow, and make profit, however, the operationalization of workplace spirituality techniques has always been the limitation on account of the application of different strategies that encompass the cultivation of personal spiritual practices, fostering an organizational culture that embraces spiritual values, and promoting leadership styles and policies that allow for the integration of individual and organizational values (Sree Raj, 2011). It is important to know that the objective is not to enforce a spiritual perspective but to create an environment where employees can have the freedom to express and integrate their spiritual values at the workplace. In the views of Krishnani (2023) providing opportunities for meaningful work that aligns with personal and organizational values that will enliven the spirit at the workplace, especially in the face of economic hardship is a challenge. Not only that, creating an inclusive, diverse, and respectful environment is crucial on account of management prerogatives. Srivastava and Gupta (2022) concluded that the decision to practice spirituality in the world of work will benefit both the organization and employees in the short and long run without prejudice if properly implemented.

Kendall (2019) asserted that all the benefits adduced forward by Giacalone and Jurkiewicz (2014) as a result of institutionalizing workplace spirituality such as a sense of relevance and purpose to employees' lives, a better work ethic and work-life balance, greater respect for diversity in the organization, lower stress for employees, less ego and less organizational conflict, increased competitive advantage, mentoring and supportiveness, high levels of creativity and innovation, respect for the conservation of resources would be lost and resulted into blurring lines between personal and professional life, religious discrimination or exclusion, discomfort among employees who do not share the same beliefs, or fostering a cult-like organizational culture if the operationalization of the techniques fail to take into consideration the dynamism of organizational culture, prevailing economic conditions. Williams (2023) supported the earlier works of Shrestha (2017) and Ghosh (2013) where it was concluded that introducing spirituality in the workplace is good however, it should be done with caution so that employees may not confuse it with religion and may blame the organization for bringing in religious convictions. There is a need for strong conviction as most of the employees would like to work in a secular environment where work is separated from faith hence, the need to be convinced that spirituality is different from religion and that whatever is being done is for the good of the individual and the organization (Srivastava & Gupta, 2022).

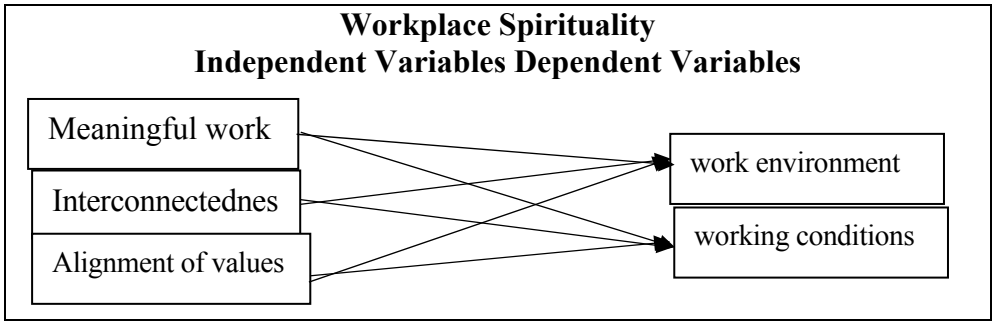

Figure 1 – Conceptual framework of the study

Figure 1 was based on the focus of the study which seeks to understand the place of workplace spirituality in employee connection to the work environment and working conditions and examine the relationship between workplace spirituality and work environment and working conditions. Thus, six hypotheses were formulated to understand the direction of the objectives of the study as follows;

H_1: Meaningful work has no relationship with the work environment.

H_2: Meaningful work has no relationship with working conditions.

H_3: Interconnectedness has no relationship with the work environment.

H_4: Interconnectedness has no relationship with working conditions.

H_5: Alignment of values has no relationship with the work environment.

H_6: Alignment of values has no relationship with working conditions.

Methodology

The study was domiciled in manufacturing organizations of Lagos State, Nigeria because the research study focused on work environment and working conditions. Data for this study were collected through the use of primary (questionnaire) and secondary (journal articles) data wherein the research instrument developed by Shrestha (2017) for workplace spirituality, Nanzushi (2015), and Manu (2015) for the work environment and working conditions were adopted as a set of questionnaires to elicit information for both independent and dependent variables of the study. The adopted structured questionnaire used was in line with 5-point Likert scales ranging from strongly agree (5) to strongly disagree (1); and the scales were summed to create an overall score for each variable, with higher scores indicating the higher levels of respective constructs. Workplace spirituality measures had Cronbach's alpha values of 0.71, work environment measures had an alpha value of 0.64, and working conditions measures had an alpha value of 0.78.

The total population for the study was 478 employees from which the sample size of 218 was obtained through Yamane's sample size formula and a total of 201 copies of the questionnaire were returned from employees of the selected organization in Lagos, Nigeria but 187 copies of the questionnaires were found useful. For the analysis of the data, descriptive and inferential statistics were used where the descriptive statistics were in the form of mean and percentage distribution reports and the inferential statistics had Pearson's correlation analysis and linear regression analysis in order to measure the relationship between workplace spirituality and work environment and working conditions as well as explaining the influence of workplace spirituality on work environment and working conditions.

Results

It was evident from Table 1 that male respondents dominated the respondents from the selected manufacturing organizations with 126 respondents representing 67.4% as against female respondents of 32.6% i.e., there are more male respondents than female respondents among the research sample size respondents. The age of the respondents shows the degree of maturity among the respondents with the age range of 31yrs – 40yrs and 41yrs – 50yrs thus, representing a combined percentage of 65.2%. In contrast, the other respondents were not considered as immature respondents. On work experience, the range of 11yrs – 15yrs, 16yrs – 20yrs, and 21yrs & above representing a combined 79.1% indicated sta-

bility in the workforce with a low level of attrition and qualified to understand what constitutes standard work environment and working conditions. The marital status of the respondents shows that the majority of the respondents were married with few of the respondents out of marriage representing 25.1% while 18.2% were yet to be married which implies sustainability of family responsibility and source of livelihood. The educational qualifications of the respondents show that respondents are educated and knowledgeable enough to understand the contents of the questionnaire without prejudice.

Table 1 – Analysis of Demographic Variables of the Respondents

Variables	Frequency Distribution	Percentage
Gender		
Male	126	67.4
Female	61	32.6
Total	**187**	**100**
Age		
Less than 20yrs	22	11.8
20yrs – 30yrs	23	12.3
31yrs – 40yrs	67	35.8
41yrs – 50yrs	55	29.4
51yrs – 60yrs	20	10.7
Total	**187**	**100**
Marital Status		
Single	34	18.2
Married	106	56.7
Widow	29	15.5
Widower	10	5.3
Divorced	8	4.3
Total	**187**	**100**
Work Experience		
Less than 5yrs	17	9.1
5yrs – 10yrs	22	11.8
11yrs – 15yrs	38	20.3
16yrs – 20yrs	87	46.5
21yrs & above	23	12.3
Total	**187**	**100**
Educational Qualifications		
'O' level	34	18.2
National Diploma	22	11.8
1st Degree	102	54.5
2nd Degree	17	9.1
Professional Membership	12	6.4
Total	**187**	**100**

Source: Field Survey 2024

Objective 1: To determine which components of workplace spirituality have a high frequency for employee connection to the work environment and working conditions.

Based on the review of the relevant literature, three components of workplace spirituality were identified as generic to all organizations including meaningful work, interconnectedness, and alignment of values which can provide an enabling environment for organizations to survive, grow, and make profit. These components formed the basis of objective 1 i.e., to determine which of the components of workplace spirituality have a high frequency for employee connection to the work environment and working conditions.

Table 2 – Descriptive analysis of the components of workplace spirituality in the selected manufacturing organizations connecting employees to work environment and working conditions

Components of workplace spirituality	Measurement Scales/Percentage (%)					Mean Scores	Std. Dev.	Mean Score	R
	SA	A	N	D	SD				
Meaningful work	94(50)	55(29)	20(11)	11(6)	7(4)	4.048	0.384	3	A
Interconnectedness	49(26)	128(68)	10(5)	-	-	4.209	0.450	2	A
Alignment of values	61(33)	119(64)	7(4)	-	-	4.289	0.472	1	A

*Source: Field Survey, 2024; Remarks = R where Agreement (A) is ≥ 3/0 and Disagreement (D) is ≤ 3.0

The results in Table 2 show that all the dimensions of workplace spirituality were connected to the work environment and working conditions with each meeting the benchmark criterion set for agreement decision at a weighted mean of ≥ 3.0. Therefore, alignment with values ranked highest with a mean score of 4.289 and standard deviation of 0.472, this was followed by interconnectedness with a mean score of 4,209 and standard deviation of 0.450 while meaningful work was ranked third with a mean score of 4.048 and standard deviation of 0.384. The overall implication of this result was that alignment with values i.e., individual and organizational values will be the most feasible component of workplace spirituality to connect employees to the work environment and working conditions even in the wake of economic hardship. It will be a reliable avenue for employees to express their contentment with the work environment and working conditions. The availability of interconnectedness will further reinforce the connection of employees to their work environment and working conditions on account of what it can bring to the organization i.e., fostering a sense of community within the organization where employees feel a sense of belonging, mutual respect, empathy, understanding, and meaningful work will provide employees with a sense of purpose thus understanding the existence of the organization. Hence, objective 1 which seeks to understand the place of workplace spirituality in work environment and working conditions was achieved.

Objective 2: To examine the relationship between components of workplace spirituality and work environment and working conditions.

Objective 2 was derived from the problem of the study which was one of the focuses of the research study and the result of the analysis was presented in matrix form in order to understand the dimension of the correlation and the relationship.

Table 3 – Pearson Correlational Matrix for the variables of the study

Row	Variables	1	2	3	4	5
1	Work environment	1				
2	Working conditions	0.832	1			
3	Meaningful work	0.582	0.627	1		
4	Interconnectedness	0.624	0.761	0.611	1	
5	Alignment of values	0.712	0.813	0.671	0.661	1

**Correlation is significant at < 0.05 level (2-tailed)

It was evident from the result obtained in Table 3 that there exists a positive correlation between and among all the components of the study's variables which was found to be significant at < 0.05 level. Therefore, there are positive significant relationships among all the components of workplace spirituality, work environment, and working conditions of the study. The result in Table 4 summarizes all the hypotheses tested for the study.

Table 4 – Summary of Pearson Correlation Results for the six (6) hypotheses of the study

Hypotheses	1	2	3	4	5	6
Correlation	0.582	0.627	0.624	0.761	0.712	0.813
Sig.	0.000	0.000	0.000	0.000	0.000	0.000
Remarks	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed

Table 4 result shows that all six (6) null hypotheses stated for the study should be rejected and all the alternate hypotheses should be accepted on account of positive correlation of the results. The study confirmed that there exists a positive relationship among the variables of the research study. It was also evident from Table 4 that hypothesis number six (6) has the highest positive correlation result indicating that alignment of values (individual and organization) will influence employee perception of what constitutes working conditions and ditto for interconnectedness and working conditions. Therefore, the study confirmed the significance of alignment of values, interconnectedness, and meaningful work in employees' work environment and working conditions.

Discussion

From the analysis of the respondents' demographic information, it was found that the manufacturing sector which was the unit of analysis was dominated by the male gender. The respondents were knowledgeable to understand the contents of the research instrument, matured on account of their age, and had spent a considerable number of years in the service of the organizations, thus, making the respondents to understand the trends in the economic and financial environments vis-à-vis the prevailing work environment and working conditions in the last two decades. It was also found that the majority of the respondents were married which signifies stability and a low attrition rate in the workforce on account of the need to sustain family responsibility and source of livelihood.

The results of the study confirmed the significant place of workplace spirituality in work environment and working conditions by adducing forward that workplace spirituality will provide avenue for employees to express their degree of contentment, reinforce their connection, foster a sense of community within the organisation, and make employees feel a sense of belonging, mutual respect, empathy, and understand the existence of the organisation which invariably will usher in positive industrial outcomes such as increased profitability, customer satisfaction, market share, employee retention, productivity, and improved organisational culture as well as quality of work and employee engagement as noted by Jaya and Sandeep (2018) and Kendall (2019) which was the expectation of good work environment and working conditions as posited by Bashir, Amir, Jawaad, and Hasan (2020) that working conditions can significantly impact employees' mental well-being, health and safety, and productivity when there is congruence between an individual employee and organisational goals. This was also supported by the position of Baka and Saka (2023) that a good work environment and working conditions will reposition an organization towards improving employee well-being, high performance, job satisfaction, reduction in deviant behaviour, and enhanced quality of attraction.

This was also in line with the position of Krishnani (2023) that workplace spirituality helps in nurturing and retaining talent, creating a positive corporate image, and improving organizational performance as well as encouraging employees to bring their authentic selves to work, increased levels of productivity, work quality, and employee engagement although creating alignment with personal and organizational values that will enliven the spirit at the workplace, especially in the face of economic hardship is a challenge but Srivastava and Gupta (2022) concluded that the decision to practice spirituality in the world of work would benefit both the organization and employees at short and long run without prejudice if properly implemented. Williams (2023) concluded that introducing spirituality in the workplace is good however, it should be done with caution so that employees may not confuse it with religion and blame the organization for bringing in religious convictions. Similarly, the shortfall as a result of poor work environment and working conditions such as unethical behaviour, unsupportive relationships, unfair treatment, unclear communication, physically dangerous and unhealthy environments as well as outdated technology, poor lighting, poor benefits, and poor workplace culture can be accommodated and enhanced by

the practice of workplace spirituality (Akinruwa, *et al,* 2024; Jubril & Hammed, 2024).

The study confirmed there exists a positive relationship between the components of workplace spirituality and the work environment and working conditions. The works of Baka and Saka (2023) opined that the combination of these components determines what is obtainable in the workplace environment which often dictates and affects every employee's workflow and mood and concluded that 35% of job seekers would decline the perfect role if they didn't connect with organizational culture on account of clear evidence of meaningful rewards, opportunities for employees to grow, and advance their careers as well as respect and recognition buttressed this position. The earlier work of Giacalone and Jurkiewicz (2014) also validated the outcome of the research study that workplace spirituality is that aspect of the workplace, either in the individual, the group, or the organization, that promotes individual feelings of satisfaction through transcendence. Kabari (2021) also supported the result of the study by positing that work environment and working conditions are the two major key factors employees look out for in employment appraisal decisions which often determine their mindset towards the organizations in terms of personal and organizational needs, values and initiatives without any form of prejudice.

The study's result showed clearly that alignment of personal and organizational values through working conditions is beneficial to both the employees and the organization which corroborates the position of Owota and Elliot (2022) that for any organization to meet its obligations towards all the stakeholders, there is a need to align individual goals with organizational goals, integrate personal beliefs with workplace beliefs to promote integrity, give a sense of fulfillment, and interconnectedness within the organization, thus, ensuring organizational survival, growth, and profitability. The positions of Khaled and Haneen (2017) and Zhenjing, *et. al* (2022) negated the alignment of personal and organizational values in the face of economic hardship faced by the organization, especially during an economic recession or depression which often prevents employers from creating a healthy work environment and this does not prevent employees from attaining a higher level of task performance and commitment even in such difficult situations, especially the work environment that is characterized by unemployment where alternative jobs are scarce. The position of Shaari, Sarip, and Ramadhinda (2022) supported the study's outcome and Owota and Elliot (2022) without discarding the positions of Khaled and Haneen (2017) and Zhenjing, *et. al* (2022) by alluding that the work conditions of any organization should be designed in such a way that the minimum requirements as specified by the government or ILO for the safety of all the stakeholders should be strictly adhered to without compromise and that what constitutes work environment and working conditions acceptability are more of employee perception and expectations are the provision of a comfortable workplace to work with a positive impact on well-being, mental health, and work balance.

Conclusion

The crux of the study was contingent upon the need for organizations to survive, grow, and make profit and, at the same time motivate the workforce by an enabling work climate not inimical to their aspiration, well-being, and safety. However, the economic hardship faced by industrial organizations as a result of the financial meltdown culminating in an economic recession or depression for these organizations propelled the study to ask a question, if workplace spirituality as a practice can be a means or tool to connect employees to the work environment and working conditions towards the attainment of organizational objectives under unfavourable economic conditions (economic recession or depression) using manufacturing organization as the unit of analysis.

The study examined the three (3) components of workplace spirituality vis-à-vis work environment and working conditions and found that workplace spirituality has a significant place in employee connection to work environment and working conditions and also found that alignment of values (individual and organization) will influence employee perception of what constitutes acceptable work environment and working conditions and ditto for interconnectedness on work environment and working conditions as well as meaningful work on work environment and working conditions. Therefore, the study concluded that employee connection to the work environment and working conditions in the face of economic recession or depression can be attained through the alignment of values, interconnectedness, and meaningful work i.e., all the dimensions of workplace spirituality. However, there must be a minimum safety benchmark for all the parties in the industrial organizations.

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Information about authors:

Anthony Kola-Olusanya – Professor, PhD, Department of Science, Technology, and Mathematics Education, Osun State University, (Osogbo, Nigeria, e-mail: anthony.kola-olusanya@uniosun.edu.ng)

Babalola Olayemi Oginni (corresponding author) – PhD, Department of Employment Relations & Human Resource Management, Osun State University, (Osogbo, Nigeria, e-mail: babalola.oginni@uniosun.edu.ng)

Olaniyan Toyin Solomon – PhD, Department of Employment Relations & Human Resource Management, Osun State University, (Osogbo, Nigeria, e-mail: toyin.olaniyan@uniosun.edu.ng)

Modupe Silifat Kasumu – PhD, Department of Sociology, Faculty of Social Sciences, Osun State University, (Osogbo, Nigeria)

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A. Sabikenova*, B. Mukhamediyev

Al-Farabi Kazakh National University, Almaty, Kazakhstan
*e-mail: aidanasabikenova@gmail.com

OIL PRODUCTION, INVESTMENT AND EXCHANGE RATE AS THE KEY DRIVERS OF KAZAKHSTAN'S ECONOMY

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Abstract. The study assesses the impact of crude oil production, oil exports, inflation, Brent crude oil prices and fluctuations in the exchange rate on the real GDP of Kazakhstan. The research aim is to evaluate how these key macroeconomic variables influence on the economic growth of a resource dependent nation. The study used time series data from 1995 to 2023 and multiple regression analysis with several model specifications to understand the effects of oil related factors, exchange rates, inflation and investment on real GDP growth. Furthermore, four model specifications were utilized, a baseline model with Brent crude oil prices, exchange rates and inflation, an extended model including oil production, its alternative specification which replaces oil production with oil exports and a comprehensive model integrating investment whilst accounting for auto regressive effects. Diagnostic tests confirm the absence pf multicollinearity and autocorrelation, strengthening the validity and reliability of the findings.
Key words: real GDP, oil production, Brent, inflation, investment, regression analysis.

Introduction

The choice of the research topic is justified by the fact that oil, its production and export, as well as exchange rate, inflation and investment have an important role when it comes to the economic trajectory, structure and development of resource rich countries such as Kazakhstan. Being one of the world's leading oil-producing nations with substantial oil reserves, the country's economy is heavily influenced by fluctuations in these indicators. Despite the extensive body of literature examining the relationship between oil prices and economic growth, the gap in understanding how these variables influence the real GDP within the unique context of Kazakhstan still remains. In addition, few studies have provided a comprehensive analysis that incorporates exchange rates and inflation for Kazakhstan's economy.

This study seeks to address the gap by analyzing the effect of crude oil production, inflation, exchange rate fluctuations, investment and Brent crude oil prices on Kazakhstan's real GDP by employing several model specifications that allow to gain a more detailed understanding of their relationships. The object of this study is Kazakhstan's economy while the subject is the impact of the aforementioned variables on real GDP. The primary goal of the research is to understand how and to what extent the key macroeconomic variables influence Kazakhstan's economic output. To achieve this, the study employs time-series data between 1995 and 2023 and utilizes multiple regression analysis to determine the combined effects of the indicators.

The urgency of the topic is underscored by the global economic volatility and the increasing importance of economic diversification for resource-dependent nations. The relevance of the research is further supported by its theoretical and practical significance. From a theoretical perspective, a detailed comprehension of the mechanism of the influence of key macroeconomic indicators may offer a foundation and insights, which could be applied to similar studies. Practically, the findings have implications for policymakers in Kazakhstan, particularly in terms of the exchange rate management and strategies for economic diversification. The study's originality lies in its unique model specifications, which adds exchange

rate, investment, inflation and previous GDP growth impact for a more comprehensive understanding, which differentiate it from prior research. The article could potentially assist policymakers and country authorities who pursue economic resilience and long-term stability amid external shocks and global market fluctuations.

Literature Review

The associations among oil production and export, inflation and investment, exchange rates and GDP has been explored substantially since the last century researchers. In particular, Hamilton (1983:228) analyzed the consequences of oil price shocks on the U.S. economy and determined that increase in oil prices has an important role in starting recessions in the post-World War II period. Adding to this, Mork (1989:740) introduced an asymmetric approach to oil price changes by finding that GDP reacts more strongly to price increases than decreases. Lardic and Mignon (2006:846) inspected the long-term links between oil prices and growth of the European economy and concluded that increasing prices of oil negatively affect the GDP. Blanchard and Gali (2007:145) explored the evolution of oil price fluctuations and macroeconomic variables and concluded that improved monetary policies and decrease in dependence on oil production have the ability to reduce the impact of price shocks while Killian (2008:1054) have dived into the details of the differences between supply and demand driven oil price increases, showing that demand shocks possess a more serious negative influence on real GDP. Similarly, Berument et al (2010:169) who studied Middle Eastern economies found that oil-exporting nations benefit from higher oil prices whilst countries that import oil face economic downturns. Alvarez et al. (2011:518) focused on specific economies (Spain) and explored its economic response to oil price fluctuations and highlighted that rising oil prices caused inflation increase and slow in GDP growth while exchange rate movements amplified these effects. The same year Bodenstein (2011:110) analyzed oil supply shocks in the USA and revealed that they contributed to inflation and lower economic output, with exchange rates being a key transmission mechanism. Filis et al. (2011:124) studied the dynamic link between oil prices and stock markets, noting that volatility increases uncertainty, discourages investment and indirectly affects GDP. Joets et al. (2012:65) assessed the interaction between oil prices and GDP in developed economies, highlighting the role of inflation and exchange rate fluctuations in shaping economic outcomes, while Peersman et al. (2012:153) who also focused on the European nations came to a conclusion that oil price shocks have a completely different influence on GDP as well as inflation, and that distinction is caused by the nature of the oil price shocks. Jo (2014:150) by studying nations who export oil have shown that fluctuations in exchange rate considerably affect oil prices and GDP growth as well. Arezki et al. (2014:3) investigated the decline in oil prices during the 2014 crises and linked it to the factors of the supply of the product. He also found that oil-importing economies benefited from the situation but exporters exhibited significant revenue losses. Cashnin et al. (2014:88) explored exchange rate volatility and its effect on the prices of the products and revealed the significance of currency fluctuations when it comes to GDP growth of countries that are oil exporters and importers. Aastveit et al. (2015:275) explored inflation expectations caused by oil price shocks, finding a direct link between oil price movements and nominal GDP, emphasizing vulnerability to market instability. Sarmah et al. (2021:1) analyzed India's experience with crude oil price fluctuations, showing that its volatility has a direct impact on the macroeconomic situation of the country, specifically inflation and growth of GDP. The Federal Reserve (2023:1) assessed the second round effects of oil price shocks on inflation in advanced economies, showing that oil price surges such as those seen in 2022 exert upward pressure on global inflation rates. Sule-lko et al. (2023:125) examined the impact of international crude oil prices on Nigeria's GDP between 1985 and 2020 by employing an Auto-Regressive Distributed Lag (ARDL) model with findings indicating that a 1% increase in oil prices raises real GDP by 1.528% in the short-run, and 14.67% in the long-run which reinforces Nigeria's economic dependence on crude oil revenue. Regarding domestic investment, Morina et al. (2023:7) explored the long-term relationship between investment and economic growth in OECD countries from 2000 to 2020 with data from World Bank, IMF and OECD and found that domestic investment is a key driver of economic growth, which emphasizes the importance of internal capital formation. In a more contemporary analysis, The

Guardian (2024:1) reported on how geopolitical tensions in the Middle East led to a sharp rise in global oil petrol prices, particularly affecting Australian consumers including business and households.

These studies collectively enhance our understanding of the complex interaction of oil prices, inflation, exchange rates investment and real GDP. They highlight the importance of the direct and indirect links between the aforementioned factors and the significance of the monetary and other policies to mitigate the adverse effects. Nevertheless, several areas remain unexplored. First, existing studies usually focus on developed economies, leaving a gap in understanding the effects in emerging and developing nations. Furthermore, previous studies often overlook the need for multiple specifications to capture the different perspectives on the relationship between oil-related factors, macroeconomic variables and economic growth. Thus, our research seeks to fill these gaps by utilizing diverse modelling approaches to offer deeper insights into the connections between oil-related factors, macroeconomic variables and economic growth in an emerging economy.

Materials and methods

This study investigates the following key questions:

1. How does crude oil production and export influence Kazakhstan's real GDP growth?
2. What is the relationship between exchange rate fluctuations and Kazakhstan's real GDP growth?
3. To what extent inflation, real Brent crude oil prices and investment influence economic growth?

H_0: Real Brent crude oil prices, inflation, investment, exchange rate, crude oil production and its export do not significantly affect real GDP growth of Kazakhstan.

H_1: Crude oil production, oil export, inflation, investment, exchange rate and real Brent crude oil price significantly affect Kazakhstan's real GDP growth.

The research uses time-series data from 1995 to 2025, collected from reputable organizations such as the Bureau of National Statistics of Kazakhstan, U.S. Bureau of Labor Statistics, International Monetary Fund, Ministry of Energy of the Republic of Kazakhstan and National Bank of Kazakhstan. The data includes:

1) Real GDP of Kazakhstan calculated by Nominal GDP and GDP Deflator, measured in USD billion.

2) Real GDP = $\frac{Nominal\ GDP}{GDP\ Deflator} \times 100$

3) GDP Deflator (index)

4) Exchange Rate as in 1 USD in Kazakhstani tenge

5) Real Brent Crude Oil Price, computed by the nominal Brent Oil Price and CPI of the USA, measured in USD per barrel, the annual average

6) Real Brent Crude Oil Price = $\frac{Nominal\ Brent\ Crude\ Oil\ Price}{USA\ CPI} \times 100$

7) Crude oil production, measured in USD billion

Real GDP and Real Brent Crude Oil price were calculated to remove inflationary effects and reflect actual market trends rather than general price level shifts. The dataset was compiled in MS Excel, which ensured consistency in data formatting before being imported in EViews for further analysis. EViews is a specialized econometric software widely used for time-series analysis and forecasting and was chosen for its robust statistical and econometric tools, user-friendly interface and ability to handle large datasets efficiently.

To capture economic dynamics, ensure stationarity in the time series and allow for easier interpretation of percentage changes growth rates of all variables were computed using first differences of their natural logarithms:

$$X_{Growth} = \ln(X_t) - \ln(X_{t-1}),$$

where X_{Growth} – logarithmic growth rate of the variable X, X_t – Value of the variable at time t, X_{t-1} – Value of the variable at time t-1 (previous period)

This transformation is preferred over simple percentage change calculations because it approximates continuous growth rates and stabilizes variance in economic data. What is more, by doing so we are able to have coefficients as elasticities (i.e. how a 1% change in an independent variable affects the dependent one).

In this study, we developed four distinct econometric models using the Ordinary Least Squares (OLS) method to analyze the key drivers of real GDP growth in Kazakhstan, an oil-dependent economy where fluctuations in oil prices (RPOIL),

oil production (OILPROD) and oil exports (OILEXP) play a critical role in shaping macroeconomic stability. Given the country's heavy reliance on oil revenue changes in these variables can have far reaching effects on economic performance. By constructing separate models, we aimed to capture the diverse transmission mechanisms through which the oil sector impacts GDP. Beyond the oil sector, macroeconomic factors such as inflation (DEFL) and exchange rate movements (EXCH) significantly influence economic growth, since inflation could distort real incomes, increase costs of doing business and decrease investment confidence which results in the economic problems while the currency depreciation can lead to higher import costs, financial instability for open economies which in turn also negatively affects GDP. Recognizing the importance of investment (RINVEST), our model adds this variable to evaluate if capital formation can stimulate economic growth factor due to it serving as a key driver of productivity and economic diversification. Moreover, to account for economic inertia and historical trends, we include lagged GDP growth terms (AR(1) and AR (2)) in models since it reflects the lasting effects of past growth. To validate the robustness of our findings, we applied White heteroskedasticity-consistent standard errors & covariance and Variance Inflation Factor (VIF) analysis to address potential heteroskedasticity and detect potential multicollinearity among independent variables, improving the reliability of statistical inference and confirming that each coefficient reflects a distinct and meaningful relationship with GDP growth.

The models equation are as follows:

1) $\Delta ln\ (RGDP)_t = \beta 0 + \beta 1 \Delta ln\ (RPOIL)_t + \beta 2 \Delta ln\ (EXCH)_t + \beta 3 \Delta ln\ (DEFL)_t + \phi \mathrm{AR}(1) + \varepsilon_t$

2) $\Delta ln\ (RGDP)_t = \beta 0 + \beta 1 \Delta ln\ (OILPROD)_t + \beta 2 \Delta ln\ (EXCH)_t + \beta 3 \Delta ln\ (DEFL)_t + \phi \mathrm{AR}(1) + \varepsilon_t$

3) $\Delta ln\ (RGDP)_t = \beta 0 + \beta 1 \Delta ln\ (OILEXP)_t + \beta 2 \Delta ln\ (EXCH)_t + \beta 3 \Delta ln\ (DEFL)_t + \phi \mathrm{AR}(1) + \phi \mathrm{AR}(2) + \varepsilon_t$

4) $\Delta ln\ (RGDP)_t = \beta 0 + \beta 1 \Delta ln\ (RPOIL)_t + \beta 2 \Delta ln\ (RINVEST)_t + \beta 3 \Delta ln\ (EXCH)_t + \beta 3 \Delta ln\ (DEFL)t + \phi \mathrm{AR}(1) + \phi \mathrm{AR}(2) + \varepsilon_t$

Results and Discussion

The first model examines the impact of real oil prices, exchange rate and inflation of Kazakhstan's real GDP and explains 94.47% of real GDP fluctuations, with all variables showing strong statistical significance. To be specific, a 1% increase in real oil prices raises real GDP by 0.13% while a 1% depreciation of the tenge reduces it by 1.11%. Similarly, a 1% rise in inflation lowers real GDP by 0.72% and the autoregressive term of 0.42 suggests that past growth influences current performance. The F-statistic (93.90, p = 0.0000) confirms the model's reliability, while a Durbin-Watson score of 1.81 suggests no severe autocorrelation. The second model assesses the relationship between oil production, exchange rates and inflation on Kazakhstan's GDP growth, explaining 95.06% of variations. Furthermore, a 1% increase in oil production raises real GDP by 0.14% whilst a 1% growth in inflation and depreciation of tenge lowers it by 0.73% and 1.13% respectively. The autoregressive term of 0.30 suggests weak momentum from past growth. The F-statistic (105.83, p = 0.0000) confirms the robustness of the model, while a Durbin-Watson coefficient of 1.73 indicates no severe autocorrelation. The third model examines the effects of oil exports, exchange rates and inflation of Kazakhstan's real GDP, accounting for 92.72% of variations. A 1% increase in oil exports raises real GDP by 0.07%, though the effect is statistically insignificant. In contrast, a 1% rise in inflation and tenge depreciation decrease real GDP by 0.58% and 1.10% respectively, with strong significance. The autoregressive term of 0.33 suggests moderate persistence in growth fluctuations. The F-statistic (70.04, p = 0.0000) validates the model's strength, while a Dubrin-Watson statistic of 1.75 indicates no severe autocorrelation issues. The fourth model evaluates the impact of oil prices, investment, exchange rates and inflation on Kazakhstan's real GDP and explains 95.93% of variations. A 1% increase in oil prices and investment raises GDP by 0.10% and 0.19%, respectively, while inflation and tenge depreciation lower it by 0.44% and 1.12%, with all coefficients being statistically significant. The inclusion of two autoregressive terms (AR (1) = 0.46, AR (2) = -0.32) captures past GDP fluctuations, where the positive AR (1) term implies

short-term persistence in growth, while the negative AR (2) suggests that past growth leads to some degree of adjustment or slowdown. The F-statistic (74.71, p = 0.0000) confirms model reliability and the Durbin-Watson statistic of 1.89 suggests no significant autocorrelation. (Table 1).

Table 1 – The results of the regression analysis

	Dependent Variable			
	D(LGDP)			
	Model 1	Model 2	Model 3	Model 4
D(LRPOIL)	0.132*** (0.038)	-	-	0.103** (0.037)
D(LOILPROD)	-	0.136*** (0.034)	-	-
D(LOILEXP)	-	-	0.074 (0.048)	-
D(LRINVEST)	-	-	-	0.191** (0.076)
D(LEXCH)	-1.114*** (0.051)	-1.132*** (0.065)	-1.101***(0.078)	-1.121*** (0.060)
D(LDEFL)	-0.722*** (0.111)	-0.733*** (0.118)	-0.581*** (0.123)	-0.444*** (0.155)
Constant	0.168*** (0.017)	0.159*** (0.015)	0.163***(0.023)	0.140*** (0.021)
AR(1)	0.417** (0.156)	0.301* (0.158)	0.334** (0.152)	0.465*** (0.160)
AR(2)	-	-	-	-0.321** (0.120)
R2	0.945	0.951	0.927	0.959
Adj. R2	0.935	0.942	0.914	0.947
F-statistic	93.90***	105.83***	70.04***	74.71***
D-W statistic	1.808	1.729	1.748	1.889

Notes: Standard errors are in parentheses. *, **, and *** denote significance at the 10%, 5% and 1% levels, respectively. F-Statistics are significant at the 1% level.

In addition, all centered VIF values were below 5, indicating that multicollinearity is not a severe concern.

Conclusion

The research set out to examine how key economic factors – crude oil production, oil export, Brent crude prices, inflation, exchange rate fluctuations and investment shape Kazakhstan's real GDP. By employing four econometric models on time-series data spanning from 1995 to 2023, the study provided a comprehensive analysis of the interplay between these variables in a resource-driven economy. Statistical robustness checks confirmed the reliability of the results, ensuring that the findings accurately reflect Kazakhstan's macroeconomic reality.

The study's results reinforce the critical influence of oil-related dynamics on GDP growth, with crude oil production showing a stronger correlation with economic expansion than oil exports. Notably, exchange rate depreciation emerged as a significant constraint on growth, underlining the vulnerability of Kazakhstan's economy to currency fluctuations while inflation demonstrated a strong negative influence, necessitating monetary policies, which assist in maintaining price stability. On the contrary, investment also reflected its crucial role in improving economic performance, signifying its ability to achieve long-term growth and development in non-oil sectors. Therefore, these findings overwhelmingly support the alternative hypothesis that these macroeconomic indicators play a significant role in shaping the economic performance of Kazakhstan.

These findings also carry meaningful implications for economic strategy. Country authorities and the National Bank of Kazakhstan must aim for a more predictable environment by maintaining the exchange rate and inflation within suitable ranges as well as prioritize strategic investment, with economic diversification being a key policy objective to reduce over- reliance on oil revenues. Additionally, the findings imply that while oil is still the country's one of the most important sectors and priorities, investments may

help the nation to be more economically resilient against external factors and oil market fluctuations.

Moving forward, further research could explore the evolving role of renewable energy and technological innovation in diversifying Kazakhstan's economic base as well as incorporating geopolitical factors and global oil market trends into future analyses could provide deeper insights into the external forces that also might affect the country's growth trajectory.

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Information about authors:

Sabikenova Aidana (corresponding author) – student 4th course of the Department of economics, Al-Farabi Kazakh National University (Almaty, Kazakhstan, e-mail: aidanasabikenova@gmail.com

Mukhamediyev Bulat – Doctor of economic sciences, professor of the Department of economics, Al-Farabi Kazakh National University (Almaty, Kazakhstan, e-mail: Bulat.Mukhamediyev@kaznu.kz)

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N. Kuzembayeva*, Sh. Nurgazy, A. Kaliyeva, D. Khalizhan

Al-Farabi Kazakh National University, Almaty, Kazakhstan
*e-mail: kanuraii@mail.ru

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON ORGANIZATIONAL PERFORMANCE

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Abstract. This research explores how faculty training and development initiatives influence organizational performance within Kazakhstan's higher education institutions. It further examines the mediating effect of AI adoption on this relationship.

A structured questionnaire was used as the primary method for data collection, with responses gathered from a sample of 218 employees working in higher education institutions across Kazakhstan.

The results indicate that AI adoption serves as an intermediary factor between training and development practices and organizational performance, confirming the proposed research model.

Additionally, the study introduces a theoretical framework based on Career Construction Theory to analyze AI adoption's potential role in shaping organizational performance. By integrating both institutional and individual factors, this research provides deeper insights into the drivers of organizational performance.

Key words: training and development; AI adoption; organizational performance; Higher Education; Quantitative.

Introduction

The last decade has been a time of rapid development of artificial intelligence, especially in terms of its application in various fields. Bresnahan (2016) stated that the application of AI requires a complete restructuring of the organization, after which it can be considered as an information technology. This statement was based on a large amount of research and the fundamentals of AI implementation in this area. Mehr et al. (2017) noted some of the most important applications of artificial intelligence, such as process automation, knowledge management, fraud detection, etc. In this article, we are going to discuss the use of artificial intelligence, especially in universities, as well as consider training programs for the implementation of artificial intelligence. The introduction of AI is crucial not only for individual businesses, but also for the economy as a whole, as the pandemic has shown that AI expands interactive opportunities and accelerates processes (Madsen & Strulik, 2023). The use of artificial intelligence has helped companies more than initially expected. Various empirical studies confirm this statement. According to McKinsey (2019), the adoption of AI is growing, and companies implementing AI in various departments are seeing huge revenue growth along with cost reductions. As companies compete for leadership in the digital world, AI adoption has become a critical area for efficiency, innovation, and strategic decisions (Duan et al., 2019; Dwivedi et al., 2021; Knight, 2015). However, its implementation also requires structural changes, staff development, and ethical standards to fully realize its potential. It is important to understand the contribution of AI to organizational effectiveness in order to develop strategies to harness its potential and overcome its challenges. Recently, a growing body of research has focused on AI implementation across various sectors, including healthcare, manufacturing, smart homes, banking, programming, and more (Mehr et al., 2023). However, due to its vast scope, many questions remain open for future researchers. For instance, existing literature does not sufficiently cover AI implementation in higher education institutions or justify the necessity of studying AI in this educational context.

Previous research has not given enough significance to the variety of learning settings or the use

of AI in the learning process for students and educators. It can be argued that a significant gap in research is the lack of focus on AI integration in universities, despite its growing relevance in this field. Savickas (2005) proposed the "career construction theory" concept, which suggests that individual career development is a process of adaptation between a person and a dynamic external world. Compared to other career theories, career construction theory helps students adapt to the complex and evolving job market of the future and encourages a broader perspective on career development (Gao & Qiao, 2022).

Understanding how artificial intelligence is integrated into the academic environment can enhance students' preparedness to work with AI in companies in the future and improve learning outcomes.

For this study, we will conduct a survey among university faculty members to examine how training and development influences AI implementation, and its impact on organizational efficiency. The objective of this research is to analyze AI adoption in higher education institutions and develop effective recommendations for its integration into the educational system.

Literature review

The potential success of an organization depends on its performance, which reflects its ability to effectively implement strategies and achieve institutional objectives (Randeree and Al Youha, 2009). An organization's performance is not only determined by its strategic implementation but also by its employees, who play a crucial role in driving its success. As the core of the organization, they collaborate to achieve institutional objectives, making their skills and adaptability essential for overall effectiveness (Mukherjee et al., 2012).To enhance organizational performance, institutions must continuously adapt to technological advancements that optimize efficiency and decision-making. One such transformative technology is artificial intelligence, which has the potential to streamline operations, improve analytical capabilities, and support employees in performing complex tasks.

Many scholars have attempted to define the concept of artificial intelligence. AI is a field of science dedicated to creating intelligent systems and software capable of analyzing information, learning, making decisions, interacting with the environment, and performing complex tasks. The term "artificial intelligence" was introduced by John McCarthy in 1956 and refers to a branch of computer science aimed at developing technologies that simulate human thinking and behavior.

There have also been studies on the adoption of AI in organizations, primarily based on the TOE and TAM theories (Chatterjee S. 2021). In our literature review, we examined and analyzed the aforementioned studies. Among the leading research topics on AI implementation in organizations are: autonomous vehicles, big data analytics, robotics, and more (Jayanthi Radhakrishnan, Manojit Chattopadhyay, 2020). We decided to contribute to this field by studying AI adoption in universities. Acemoglu and Restrepo (2018) emphasize that automation is transforming the labor market by replacing routine tasks and creating new jobs that require advanced skills. In this context, education plays a critical role in the AI adaptation process. Brynjolfsson, Rock, and Syverson (2018) argue that organizations investing in employee upskilling gain greater benefits from AI, as trained professionals adapt to new technologies more quickly and increase productivity.

T&D and AI adaption

The approach to employee training and development has evolved significantly over time. While the early twentieth century focused on mass upskilling in batches, modern training emphasizes personalized and individualized learning tailored to specific needs (Souvik Maity, 2019).In some cases, firms can minimize or even eliminate net training costs during apprenticeships. This effectively reduces the marginal cost of training future skilled workers to near zero, particularly for specialized tasks (Muehlemann and Wolter, 2020; Wolter and Ryan, 2011). As a result, in countries with strong apprenticeship systems, such as Germany, labor costs for workers with AI-related skills can be significantly lower when acquired through apprenticeship programs compared to continuous training or external hiring. Implementing structured training protocols not only helps firms familiarize themselves with new technologies but also enhances their digital innovation performance and productivity (Soetekouw & Angelopoulos, 2022). Addressing skill gaps through targeted training interventions is essential to preparing the workforce for AI-driven transformations. Research suggests that AI training should go beyond basic IT exposure and include advanced competencies such as machine learning, AI integration, and the ethical use of AI (Doi, 2023).

H1: Training and development positively affects to AI adoption

AI adoption and organizational effectiveness

Chatterjee et al. (2021) emphasize the transformative impact of AI on organizational processes, highlighting its role in enhancing efficiency and decision-making. One of AI's key advantages is its ability to rapidly analyze vast datasets, allowing institutions to optimize operations, allocate resources effectively, and improve overall performance. By leveraging AI-driven insights, universities can enhance administrative processes, streamline academic management, and support data-driven decision-making.

The adoption of business analytics further strengthens institutional performance by enabling accurate processing and analysis of data collected through various academic and operational activities (Akter et al., 2019a, b). Technological advancements have consistently been linked to improved organizational performance, with studies demonstrating that AI-driven tools contribute to higher efficiency and better strategic planning in various sectors, including education (Marchiori et al., 2022; Mariani et al., 2023; Parteka & Kordalska, 2023; Pillai & Srivastava, 2023).

Moreover, generative AI (GenAI) plays a crucial role in supporting institutional operations by providing stakeholders with real-time insights and automating routine tasks, thereby enhancing productivity and innovation (Chu, 2023; Wamba et al., 2023; Raj et al., 2023). Research on AI applications such as ChatGPT also supports its positive impact on organizational performance, reinforcing the growing importance of AI integration in higher education management (Chu, 2023; De Smet et al., 2023).

Similarly, in higher education, Selwyn (2019) highlights that preparing students to work in AI-driven environments enhances their competitiveness and adaptability in the job market. Moreover, AI contributes to overall organizational efficiency by accelerating data analysis and optimizing business processes (Davenport & Ronanki, 2018). Haefner et al. (2021) demonstrate that companies using AI in workforce management and business operations achieve higher productivity and greater employee satisfaction.

H2: AI adoption positively affects to Organizational Performance

Mediating role of AI between T&D and organizational performance

AI plays a vital role throughout the entire training life cycle, from assessing training needs to delivering customized learning experiences, enabling learners to progress at their own pace while enhancing retention rates (Upadhyay & Khandelwal, 2019).

Despite the extensive research on this topic, several gaps remain, particularly in understanding the long-term effects of AI on the labor market and the role of universities in training specialists capable of effectively working with these technologies. Future research should address these aspects to provide a deeper understanding of the mechanisms behind AI integration across different industries.

According to the "Career Construction" theory, the adaptation model in career development suggests that individuals differ in their readiness and ability ("adaptation resources" or "career adaptability") to act in ways that align with changing environmental conditions. This raises the idea that AI adoption is perceived differently by individuals, but if they are properly prepared for these changes, it can lead to greater success. By providing adaptive learning environments, AI ensures that training programs are tailored to individual skill levels, enhancing knowledge acquisition and workforce readiness. This, in turn, facilitates a smoother transition of newly acquired skills into practical applications within the organization, ultimately leading to improved operational efficiency and performance. As AI optimizes training methodologies and knowledge transfer, it acts as a crucial mediator, bridging the gap between training and development (T&D) efforts and measurable improvements in organizational performance.

H3: AI adoption mediates the relationship between T&D and Organizational Performance

Methodology

A total of 350 questionnaires were distributed among faculty members in natural sciences, mathematics, economics, and technology at leading national universities in Astana and Almaty. These cities serve as Kazakhstan's main educational hubs. In total, we received 218 responses, of which 198 were used for analysis, while the remaining responses were excluded due to incomplete data or invalid answers. The actual response rate was 56%.Among the respondents, 60.7% were women, while 39.3% were men. The age distribution of the respondents was as follows: 5% were between 20-24 years old, 34.3% were between 25-29 years old, 18.2% were between 30-39 years old, 25.1% were between 40-49 years old, and 17.4% were over 50 years old. Their work experience ranged from one to twenty years.

Figure 1 – Research Framework

Measures

The measurement for each construct was taken from previously validated sources. All constructs were assessed using a Likert scale ranging from "strongly disagree" to "strongly agree."

T&D

Training aims to equip individuals with the knowledge, skills, and mindset required to carry out job-related tasks effectively, with the primary goal of directly enhancing job performance. (Truelove, 1992: 273) The questions for **Training and Development** were adapted from Gertner & Nollen (1989) and consisted of five items. An example question is: *"Training is considered a way to improve productivity."* The Cronbach's alpha for this scale was 0.83.

AI adoption

AI adoption is the process of "integration of new and diverse knowledge through the creation…of new capabilities, technologies and training programmes" (Ashok et al., 2016, p. 1008). The **AI** construct was adapted from Wang et al. (2016), with an example question: *"The management of our organization is likely to invest in AI technology implementation."* The Cronbach's alpha for this scale was 0.91.

Organizational performance

The final variable, **Organizational performance (OE)**, was taken from Deshpande et al. and Drew (1993) and consisted of five items. Organizational performance refers to an organization's ability to efficiently accomplish its objectives and fulfill its strategic goal (Selden & Sowa, 2004), with each item beginning with the phrase: *"Compared to our main competitors..."* The Cronbach's alpha for this scale was 0.89. An example item is: *"Compared to our main competitors, our organization is growing faster."*

For data analysis, **SmartPLS 4.0** and the **PLS-SEM model** were used. The choice of this software was based on its widespread use and preference as a method for structural equation modeling. As a result, we got the following model:

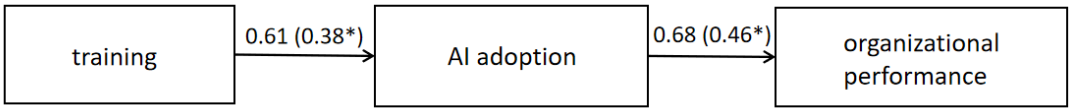

Figure 2 – Research Model

The mean values, Cronbach's alpha, and standard deviation for each question were also calculated.

The Cronbach's alpha values, as a measure of reliability, were all above the recommended threshold of 0.7. Additionally, the mean values were above 0.6.

Additionally, to analyze our research model, we employed the bootstrapping technique to test the hypotheses of mediated moderation, using 5,000 resampling bootstrap samples.

Results

Reliability and validity

To test the measurement model, we tested reliability, convergent validity, and discriminant validity. The reliability of each design was assessed using the Cronbach's alpha coefficient, which ranged from 0.83 to 0.91, which exceeds the recommended threshold of 0.7 (Nunnally & Bernstein, 1967). For further reliability testing, composite reliability (CR) was also calculated, and all values ranged from 0.86 to 0.93, which exceeds the minimum threshold of 0.7. Convergent validity was verified using the method proposed by Fornell and Larker (1981), which requires that the mean extracted variance (AVE) be greater than 0.50. Our results confirm that all AVE have reached this threshold. To test discriminant validity, we used the Fornell and Larker criterion (1981), which requires that the square root of AVE exceed the correlations of the construct. Our results show that this criterion was met, which confirms the discriminant validity.

Table 1 – Latent variable correlation matrix, internal consistency and average variance extracted

	Ai adoption	Training	Organizational effectiveness	Composite reliability	Cronbach's coefficent	AVE	AVE (square root)
Ai adoption	-			0.94	0.91	0.85	0.9
Training	0.61***			0.88	0.83	0.66	0.8
Organizational effectiveness	0,68***	0,83***	-	0.92	0.89	0.71	0.9

Note:t-values > 1.65* (p < 0.1); t-values > 1.96** (p < 0.05); t-values > 2.57*** (p < 0.001)

Research results validated both suggested hypotheses, affirming that training is a determining variable in the AI implementation process and AI itself has a positive influence on organizational performance. In order to determine the statistical significance of the variable relationships, p-values were utilized. As the p-values obtained were less than the standard cutoff value of 0.05, the findings show that the observed effects are statistically significant and thus validate the hypothesized hypotheses.

Table 2 – Testing mediation

Paths	Standardized coefficents (t-values)	
	Direct effects	Indirect effects
Ai adoption -> Organizational effectiveness	0.68 (10.8***)	
Training -> ai adoption	0.61 (6.8***)	
Training -> ai adoption -> Organizational effectiveness	0.42 (4.6***)	0.42 (4.6***)

Note: t-values > 1.65* (p < 0.1); t-values > 1.96** (p < 0.05); t-values > 2.57*** (p < 0.001)

To begin with, evidence showed that training was one of the main determinants of AI adoption success ($\beta = 10.803$, $p < 0.05$). That is, the more students and staff are trained on matters related to AI, the better and easier such technologies are adopted into organizational procedures. Well-trained users adapt more quickly to new tools, enhancing the overall digital maturity of the organization.

Second, the analysis revealed that **AI implementation has a significant positive impact on organizational performance** ($\beta = 6.88$, $p < 0.05$). Organizations that adopt AI optimize processes, accelerate data processing, and improve decision-making, ultimately leading to increased productivity and better overall performance.

Additional calculations confirmed the **reliability of the scales used**: Cronbach's alpha for all indicators exceeded **0.7**, indicating a high level of internal consistency in the data.

Furthermore, significant positive **correlations** were identified between the key variables, supporting the logical relationships within the model. The **p-values** were all below **0.05**, confirming the statistical significance of the findings.

Discussion and Conclusion

Our empirical results confirm the role of learning in ensuring the successful implementation of artificial intelligence (AI) and its beneficial impact on organizational effectiveness. Our results showed that the acquisition of AI-related skills by employees makes it possible to successfully implement such technologies in organizational practice, which is consistent with the literature (Wamba S.F., 2022).

Based on the theory of career building (Savickas, 2005), the study provides an improved understanding of the process of the proposed model. The model serves to explain how training affects employees' adaptability to technological progress, i.e. AI, and how this affects organizational effectiveness in general. By integrating these theoretical observations, our research complements both academic science and practice, emphasizing the need for continuous professional development in the age of digitalization. Our research has established, firstly, that learning is at the heart of effective AI implementation. These results are consistent with the literature, which emphasizes that employees should be provided with the necessary skills and knowledge to successfully collaborate with AI technologies (Sidhu, G. S., et al, 2024). Moreover, continuous learning promotes flexibility, which ensures that employees can easily integrate AI into organizational processes. Secondly, we found that the introduction of AI significantly improves organizational productivity, which is consistent with what is observed in the literature. This means that organizations using AI are able to automate processes, achieve improved decision-making and greater overall efficiency. Therefore, we conclude that the introduction of AI mediates the link between learning and organizational effectiveness, allowing organizations to transform acquired opportunities into measurable productivity gains and sustainable competitive advantages.

Practical implications

This research emphasizes the practical advantages of AI incorporation in training and development for the purpose of improving organizational efficiency, particularly in universities. AI has the potential to render education processes more effective through the automation of administrative processes, customization of learning, and improvement of data-based decision-making. AI also prepares the faculty and students with future job market skills in AI that render them more competitive. Besides, AI simplifies operations by automating routine processes so that staff can concentrate on more value-added tasks. Its scalability enables quality education for everyone, while its flexibility positions institutions to be future-proof and innovative. Through the strategic adoption of AI, organizations are able to enhance productivity, efficiency, as well as long-term success.

Limitations and future research

As this research had certain limitations, for example, the sample, the narrow focus of the research, and being only in the Kazakhstani context, future research needs to aim at more than a single school or move into other sectors like healthcare, schools, and other business organizations.Our study serves applied use by validating current theory and empirical findings. Additionally, confirming the mediating role of AI provides valuable insights into its influence on various individual theories and business practices. This study enhances the understanding of AI adoption and broadens opportunities for further research with additional variables.

However, it would be interesting to conduct future studies in different settings with an expanded scope. Moreover, since all survey questions were self-collected and adapted, there is a potential methodological bias. Additionally, the data was gathered from a single university in one city, which may introduce sampling bias. Therefore, future research should aim for a broader dataset to ensure more comprehensive and generalizable findings.

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Information about authors:

Kuzembayeva Nurailym (corresponding author) – student 4th course of the Department of economics, Al-Farabi Kazakh National University (Almaty, Kazakhstan, e-mail: *kanuraii@mail.ru)*

Nurgazy Shynggys – PhD candidate, senior lecturer of the Department of economics, Al-Farabi Kazakh National University (Almaty, Kazakhstan, e-mail: shynggys.nurgazy@kaznu.edu.kz)

Kaliyeva Assem – PhD, senior lecturer of the Department of economics, Al-Farabi Kazakh National University (Almaty, Kazakhstan, e-mail: assem.kalieva@kaznu.edu.kz)

Khalizhan Diana – student 3rd course of the Department of economics, Al-Farabi Kazakh National University (Almaty, Kazakhstan, e-mail: *halizhan.diana@jmail.com*)

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A.A. Zhantaeva[1], A.S. Bekbossinova[2*], B.A. Abdullaeva[3], A.S. Bekbossinov[4]

[1]Eurasian University of Technology, Almaty, Kazakhstan
[2] University of International Business, Almaty, Kazakhstan
[3] Narxoz University, Almaty, Kazakhstan
[4]Inter Service LLP, Almaty, Kazakhstan
*e-mail: assel.bekbossinova1985@gail.ru

USING THE MULTIDIMENSIONAL ANALYSIS METHOD IN THE MANAGEMENT OF FINANCIAL ASSETS OF PENSION FUNDS

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Abstract. Effective management of pension assets is crucial for ensuring the long-term financial stability of national pension systems. In Kazakhstan, the Unified Accumulative Pension Fund (UAPF) plays a key role in accumulating and investing pension savings, yet its asset management strategies face challenges due to inflation, market volatility, and limited investment options. As of 2024, UAPF's total assets exceeded 18.6 trillion tenge, growing by 16% year-over-year. However, with inflation surpassing pension returns (9.8% vs. 8.3% in 2023), the real value of savings is declining. This study aims to develop a methodological approach for optimizing pension asset management using multidimensional classification techniques. The research employs a quantitative approach, utilizing data from the Bureau of National Statistics of Kazakhstan for 2013–2023. Statistical and econometric methods, including correlation analysis, cluster analysis, and variance analysis, were applied to classify assets based on risk and return characteristics. The study identifies three pension portfolio categories: (1) moderately aggressive, with returns up to 8.3% and higher risk; (2) moderately conservative, offering 5.5% returns with balanced risk; and (3) conservative, providing stable but low returns, failing to offset inflation. Findings highlight that Kazakhstan's pension system remains highly dependent on government securities (46% of total assets), limiting growth potential. The research suggests diversification strategies, including alternative assets, ESG investments, and digital financial tools. The study contributes to the literature on pension fund management in emerging markets and offers practical recommendations for enhancing investment efficiency and long-term financial security for pensioners.

Key words: pension asset management, investment strategy, financial stability, risk diversification, cluster analysis, pension fund, Kazakhstan, digital financial tools, economic modeling, ESG investments.

Introduction

Effective management of pension assets is one of the key objectives of the state social policy aimed at ensuring the financial stability of the pension system and guaranteeing future payments to citizens. In Kazakhstan, this problem is becoming particularly relevant in connection with the functioning of the Unified Accumulative Pension Fund (UAPF), which accumulates pension savings of citizens and is responsible for their safety and increase. As of 2024, the total assets of the UAPF amounted to more than 18.6 trillion tenge, an increase of 16% compared to the previous year (Bureau of National Statistics of the Republic of Kazakhstan, 2024). However, the challenges associated with high inflation, instability of financial markets and limited investment instruments require the introduction of effective asset management strategies based on modern economic and mathematical methods.

In world practice, pension funds play an important role in financial systems, being the largest institutional investors. According to the OECD (2023), the total assets of pension funds in the organization's

member countries reached 55.4 trillion US dollars, which is about 32% of global GDP. In countries such as the Netherlands, Denmark and Switzerland, pension assets exceed 150% of GDP, while in Kazakhstan this figure is at 14% of GDP, which indicates the potential for further development of the funded pension system.

The use of mathematical models in pension asset management makes it possible to objectively evaluate possible investment strategies, minimize risks and increase portfolio profitability. In Kazakhstan, the UAPF's investment policy focuses on investments in government securities (about 46% of the portfolio), corporate bonds (15%), shares of Kazakhstani and foreign issuers (13%) and deposits with banks (12%) (UAPF, 2024). However, the high concentration of assets in government bonds limits the potential profitability of the fund, which requires the diversification of investments and the introduction of more flexible asset management strategies.

One of the most effective analysis tools is the methods of multidimensional statistical analysis and clustering, which make it possible to identify hidden patterns in data, group assets by risk and profitability, and predict their behavior in the long term. Various models of optimal asset allocation are used in world practice, including Markowitz theory (1952), the financial asset valuation model (Sharpe, 1964), Value-at-Risk and Conditional Value-at-Risk optimization models, as well as approaches based on machine learning and neural network algorithms.

In the context of Kazakhstan, the pension asset management process faces a number of specific challenges, including limited stock market liquidity, high dependence on the commodity sector, insufficient development of private investment instruments, and the need to comply with strict regulatory requirements. For example, the return on pension assets in Kazakhstan in 2023 was 8.3%, while the inflation rate reached 9.8%, which led to a negative real return (National Bank of the Republic of Kazakhstan, 2024). At the same time, in countries with a developed pension system, the average return on pension funds exceeds 5% in real terms, which indicates the need to reform the investment strategy of the UAPF.

Taking into account these factors, within the framework of this study, pension assets were systematized in the structure of the UAPF using multidimensional classification methods. The use of multidimensional analysis allows you to group assets by similar characteristics, identify optimal combinations for portfolio diversification and minimize investment risks. This approach makes it possible not only to improve the efficiency of asset management, but also to develop recommendations for the future modernization of the pension system in Kazakhstan.

Thus, this study is aimed at developing a methodological approach to the management of pension assets of the UAPF using economic and mathematical modeling. For this purpose, preliminary data processing, standardization of variables and the use of multidimensional analysis methods were carried out. The results of the study will make it possible to substantiate the most effective pension asset management strategies that will ensure the long-term sustainability of the pension system and increase the level of social protection of the population.

Literature review

Modern management of funds' financial assets requires the use of multidimensional analysis to optimize investment decisions, minimize risks and increase profitability. Statistical, econometric, and machine learning methods are used worldwide to analyze complex relationships between assets and macroeconomic factors (Fama & French, 1993; Jolliffe, 2002). Kazakhstan is also actively implementing digital technologies and adapting international methodologies for the management of public and private investment funds (National Bank of Kazakhstan, 2023).

Markowitz's classical theory of portfolio investment (1952) remains the basic tool for asset optimization. However, taking into account the volatility of markets, more complex models are used, such as GARCH (Bollerslev, 1986) and EGARCH (Nelson, 1991), which make it possible to predict asset instability. In Kazakhstan, these models are used in stock market and currency risk analysis (Kasymkhanov & Akhmetov, 2022). An important role in risk management is played by the VaR (Value-at-Risk) method, which allows estimating potential losses (Fadilah et al. 2024). This approach is actively used in the Unified Accumulative Pension Fund (UAPF) (Amirova et al., 2024). Additionally, the use of copula functions (Sklar, 1959) makes it possible to evaluate non-linear dependencies between assets, which is especially

important in Kazakhstan, where the stock market is closely linked to the commodity sectors of the economy.

To simplify the analysis of financial assets, multivariate statistical analysis methods such as factor analysis and principal component analysis (PCA) are used to identify key factors affecting profitability (Jolliffe, 2002). In Kazakhstan, this approach is used in modeling the dynamics of investments in the stock market (KASE, 2023). Cluster analysis, based on K-means algorithms (MacQueen, 1967) and hierarchical clustering (Ward, 1963), is widely used to group assets by risk and profitability. Shayakhmetova et al. (2015) note that in Kazakhstan, cluster analysis helps diversify pension assets and determine optimal investment strategies.

Econometric methods, including multiple regression (OLS) and vector autoregressive models (VAR), make it possible to identify relationships between macroeconomic variables and financial assets. Studies by Fama and French (1993) demonstrate the effectiveness of regression models for predicting stock market returns. In Kazakhstan, VAR models are used to analyze the impact of inflation, exchange rate, and interest rates on investment funds (Akylbekov et al., 2023).

With the development of digital technologies, machine learning (ML) and artificial intelligence (AI) methods are increasingly being used in asset management. The Random Forest method (Breiman, 2001) and gradient boosting (XGBoost) (Chen & Guestrin, 2016) demonstrate high accuracy in predicting stock market dynamics. In Kazakhstan, these methods are used for automated analysis of investment strategies and risk assessment (Liu & Cheng, 2022). Deep learning, in particular recurrent neural networks (RNN) and LSTM (Hochreiter & Schmidhuber, 1997), are used to predict time series in public asset management (Bernhart, 2021).

Kazakhstan's experience shows the active development of digitalization in fund management. The National Bank of Kazakhstan and KASE are implementing digital platforms for automated asset analysis and risk forecasting (National Bank of Kazakhstan, 2023). An important area is the use of blockchain technologies that increase the transparency of investment processes. ESG investing is also gaining popularity, requiring new methods of multidimensional analysis to assess the environmental and social sustainability of investment strategies (D'Amato et al., 2022).

The literature review confirms that multidimensional analysis is a key tool in fund asset management. Kazakhstan is adapting global methodologies, which contributes to the development of the investment market. However, further research is needed to improve the effectiveness of the methods used and adapt international experience to local conditions.

Methodology

The initial data was the structure of pension assets presented on the official website of the UAPF, which is grouped by issuers, within the group the data is presented by types of securities and identifiers, rating, nominal and current value and share in the total volume (UAPF, 2024). The amount of data is 876 records. However, with this presentation of information, there is a fairly large number of matching classification objects by issuer, type of security, rating, urgency, only the identifiers differ. In this form, the data is not directly applicable to solving the problem, since the classification results in clusters that cannot unambiguously identify significant differences between groups of pension assets. The data was rearranged using Excel tools. The types of securities with the indication of the issuer were identified as objects of classification. The same-named objects with the same rating and urgency values were assigned to one group, the average yield was calculated for the group based on the price lists of the official website of the stock exchange (KASE, 2024), as well as the group's share in the total current value of assets. The financial instrument identifiers were associated with the corresponding group at the next lowest level of the hierarchy.

Thus, by choosing not a single paper as objects of classification, but groups of securities of the same type and urgency, but with different identifiers, their number was reduced to 125. The indicators of rating, urgency, specific weight in the total current value of the portfolio and the average profitability for the group were determined as classification features. Since the rating of the securities included in the UAPF investment portfolio is given in the assessment of different agencies (Moody's, Standard & Poor's and Fitch), they were ranked for comparability of estimates, Table 1.

Table 1 – Correspondence of the rating and assigned ranks

Moody's	Standard & Poor's	Rang	Rating characteristics
Aaa	AAA	9	The highest quality. Ratings of this level are assigned only if the ability to repay financial obligations is exceptionally high.
Aa1 Aa2 Aa3	AA+ AA AA-	8	Very low expectations of default risk. Very high ability to repay financial obligations. The exposure to negative conditions is low.
A1 A2 A3	A+ A A-	7	Low expectations of default risk. The ability to repay financial obligations is high. However, this ability is more susceptible to negative economic conditions than in the case of higher ratings.
Baa1 Baa2 Baa3	BBB+ BBB BBB-	6	Expectations of default risk are low at the moment. The ability to repay financial obligations is assessed as adequate, however, there is a high probability of negative economic conditions.
Ba1 Ba2 Ba3	BB+ BB BB-	5	Vulnerability to default risk, especially in case of negative changes in economic conditions over time. However, business flexibility or financial flexibility supports the ability to service financial obligations.
B1 B2 B3	B+ B B-	4	There are significant risks of default, however, while there remains a limited margin of safety. At the moment, financial obligations are being fulfilled, but the ability to continue payments is vulnerable in the event of a deterioration in economic conditions.
Caa	CCC+ CCC CCC-	3	Low quality, high level of speculation, high risk of non-fulfillment by the issuer of its obligations.
Ca C	CC C	2	The lowest quality of the Central Bank. Very high levels of credit risk. Default in one form or another seems likely.
	D	1	Default status. Liquidation or other official termination procedures have been initiated.
Note: The ranking was carried out by the author based on the characteristics of the ratings Lyalin & Vorobyev (2011).			

As follows from Table 1, the same rank was assigned to rating categories of different agencies having the same characteristics based on work Lyalin & Vorobyev (2011). Each category usually includes three levels of ratings.

A rank of 10 was adopted for government securities, and a rank of 0 was established for securities of issuers without a rating

The "term" indicator is ranked as follows:

1. Short – term – 1;
2. Medium – term – 2;
3. Long–term – 3.

Before applying the method of multidimensional classification – cluster analysis, the interrelationships of the initial classification features were evaluated using correlation analysis. The correlation matrix is shown in Table 2.

Table 2 – Correlation matrix of classification features

	Rating	Term	Share	Profitability
Rating	1			
Term	-0,17677	1		
Share	0,317991	0,0296276	1	
Profitability	-0,56964	0,057839	-0,315029704	1
Note: Calculated by the authors				

As follows from Table 2, multicollinearity between the factors (classification features) is not observed, which makes it possible for the subsequent application of the cluster analysis method with the Euclidean metric. Further, hierarchical agglomerative methods and the "k-means" method were used to obtain options for dividing the investment structure of UAPF pension assets into model portfolios of various types.

Results

The essence of hierarchical agglomerative clustering is the sequential unification of smaller clusters into large ones, i.e. initially each object (issuer/Central bank group) is a cluster. In the following stages, the objects that are most similar in all their features are combined to form a new cluster. There are a number of rules for clustering. The Ward method was chosen for cluster construction in this work. The advantage of this method is that at each step clusters are combined that lead to a minimal increase in the objective function (intra-group sum of squares), i.e. clusters with the smallest variation in their properties are combined.

As follows from the graph, all three clusters have identical averages in terms of "term" and very similar averages in terms of "share". The results of the variance analysis are presented in Table 3.

Table 3 – Results of variance analysis

	Between	df	Within	df	F	signif.
Rating	758,04	2	266,39	104	147,97	0,00
Term	2,18	2	50,46	104	2,25	0,11
Share	22,12	2	246,66	104	4,66	0,01
Profitability	478,11	2	395,75	104	62,82	0,00
Note: Calculated by the authors in the Statistica 6.0 package						

As follows from Table 3, in terms of "term" and "share", the sum of the squares of the differences between clusters is less than the sum of the squares of the differences within the cluster, and for the "term" indicator, the tabular Fisher value F = 2.25 is less than Fcr = 3.94, based on the latter, the hypothesis of equality of averages is accepted. It follows that the split is insignificant for this indicator. The Fischer criterion for the "share" attribute shows the difference between clusters in terms of averages, but the excess of the sum of the squares of the differences between clusters over the sum of the squares within the group and the proximity of the averages for this feature on the graph allow us to conclude that this factor is of little importance. Similarly, a study of the division into five clusters based on the same classification criteria was conducted, which confirmed the insignificance of the "term" indicator for cluster differences, and the weak influence of the "share" indicator. Therefore, the indicators "urgency" and "share" should be excluded when classifying into clusters. Thus, from the considered indicators of the UAPF pension asset structure, two criteria can be used to identify model portfolios based on a multidimensional classification: rating and profitability.

The significance of the estimates obtained can be judged by the results of the analysis of variance presented in Table 4.

Table 4 – Results of the analysis of variance in clustering by two criteria

	Between	df	Within	df	F	signif.
Rating	729,35	2	304,84	104	124,41	0,00
Profitability	536,27	2	355,97	104	78,34	0,00
Note: Calculated by the authors in the Statistica 6.0 package						

Based on the multidimensional analysis method, it can be said that most of the pension assets are bonds, while there are practically no speculative fast-growing stocks. Therefore, investors under the age of 35 of the UAPF can currently be offered a moderately aggressive portfolio with an average yield of up to 8.3%. This is slightly higher than the expected inflation rate (5.5% – 6%). The probability of risk in this portfolio is quite high, and lies in the range [0.5 – 1]. For the time being, a moderately conservative investor (over 35 to 50 years old) can be recommended a model portfolio of the second type, with a yield of 5.5%, with a risk probability of 0.3 – 0.5. The yield is about slightly higher than the inflation rate in 2023 (5%) and less than projected in 2024. The conservative portfolio is the most reliable, it can be recommended to citizens of pre–retirement age (over 50). But its profitability does not cover inflation, besides, it contains most of the long-term securities, which obviously does not satisfy the older generation.

Thus, in the structure of the UAPF investment portfolio, based on the classification carried out, we can identify three clusters of assets that differ in rating and profitability, which are part of them.

Discussion

The results of the study demonstrate that multidimensional analysis makes it possible to classify pension assets in more detail and identify optimal management strategies. In particular, the clustering of UAPF assets based on rating and profitability revealed three groups that differ in terms of risk and potential profitability. This confirms that traditional asset management methods based on conservative investments may need to be reviewed to improve the efficiency of the pension system. A comparison with international practices shows that pension funds in developed countries are striving for more diversified investment strategies. According to the OECD (2023), the world's largest pension funds, such as the Canadian Pension Plan (CPP Investments) and the Norwegian State Pension Fund, are actively investing in stocks, real estate, infrastructure, and even alternative assets such as venture capital and private equity funds. In Kazakhstan, pension assets are mainly concentrated in government bonds and corporate debts, which reduces potential profitability and increases dependence on internal macroeconomic stability.

One of the challenges for the Kazakh pension system is to maintain the real purchasing power of pension savings. As shown in the analysis, in 2023, the return on pension assets was 8.3%, while inflation reached 9.8%, which led to negative real returns. In countries with developed financial markets, pension funds use more flexible strategies, including inflation-protected assets (TIPS – Treasury Inflation-Protected Securities), as well as active portfolio management with elements of dynamic rebalancing. This confirms the need to review the investment policy of the UAPF with an emphasis on long-term sustainability.

The results of the variance analysis presented in Tables 3 and 4 indicate the importance of factors such as rating and return on assets in classifying the retirement savings portfolio. The exclusion of the "urgency" and "proportion" indicators from the classification indicates that they do not have a significant impact on investment decisions. This may be explained by the high concentration of investments in long-term government bonds, which, despite their reliability, have relatively low yields. The use of cluster analysis has made it possible to identify three groups of assets that may correspond to different categories of depositors.:

1. A moderately aggressive portfolio – includes assets with a rating from "A" to "BBB", with yields in the range of 7-8.3%. Such a portfolio can be recommended to young investors (up to 35 years old) who can afford a higher level of risk in exchange for potentially greater returns. However, the risk of such investments is higher than in traditional portfolios.

2. A moderately conservative portfolio – includes assets with a rating from "AA" to "BBB+" and a yield of 5.5-6%. This portfolio is aimed at middle-aged investors (35-50 years old) who need a balance between profitability and reliability. Despite the relative stability, the profitability of such a portfolio remains at the level of inflation, which does not ensure a real increase in pension savings.

3. Conservative portfolio – represents the least risky strategy, including government bonds with a rating of "AAA" and long-term instruments with a yield of 3.5-5%. It is intended for people of pre-retirement age (over 50 years old), but its profitability does not cover inflation, which makes it less attractive for protecting retirement savings.

Based on these findings, it can be argued that the current structure of pension assets in Kazakhstan requires diversification and the introduction of new investment instruments. For example, the inclusion of shares in large international companies, investments in infrastructure projects, and the use of ESG tools (environmentally, socially, and managerially sustainable investments) can increase profitability without significantly increasing risks.

Additionally, international experience shows that pension funds are increasingly using machine learning and artificial intelligence models to predict market trends and optimize their portfolios. Such technologies are still being used to a limited extent in Kazakhstan, which may become a promising area for improving the investment strategy of the UAPF. Thus, the study confirms the need to modernize the investment policy of the Pension Fund of Kazakhstan. The use of multidimensional analysis methods makes it possible to more accurately assess the risks and profitability of assets, which can become the basis for the formation of individualized retirement savings strategies. However, the successful implementation of these recommendations requires further development of the financial market, improvement of the regulatory framework and improvement of investment literacy of the population.

Conclusion

Effective management of pension assets is a key element of the long-term sustainability of Kazakhstan's pension system. The study showed that the existing asset structure of the UAPF is characterized by a high concentration in government bonds, which limits potential profitability and reduces protection against inflationary risks. An analysis of international experience indicates the need to diversify the investment portfolio by including stocks, infrastructure projects, ESG assets and other instruments capable of providing a higher level of profitability with an acceptable level of risk.

The use of multidimensional analysis methods made it possible to classify pension assets according to the degree of risk and profitability, identifying three main categories: moderately aggressive, moderately conservative and conservative portfolios. This approach allows for a more accurate selection of investment strategies depending on the age of depositors and their risk preferences. In particular, young investors may be offered a more profitable but also more volatile portfolio, while investors of pre-retirement age should focus on less risky assets with guaranteed returns. Despite the positive trends in the development of the pension system, the study revealed a number of problems that need to be addressed. These include the limited opportunities of the Kazakh stock market, high dependence on the commodity sector, low liquidity of investment instruments and the lack of a sufficient number of high-yielding assets. To improve the efficiency of pension asset management, it is necessary to improve the regulatory framework, develop financial infrastructure and introduce modern technologies, including artificial intelligence and machine learning to predict investment risks.

The results of the study can be used to further improve the investment policy of the UAPF, increase the transparency of asset management and develop individualized strategies for depositors. In the long term, the implementation of the proposed measures will increase the profitability of pension savings, minimize risks and ensure the sustainability of Kazakhstan's pension system in a dynamically changing economic environment.

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Information about authors:

Aigul A. Zhantaeva – PhD, Associate Professor, Faculty EB&M, Eurasian Technological University, (Almaty, Kazakhstan, email: aigul_0905@mail.ru)

Assel S. Bekbossinova – PhD, candidate, University of International Business named after K.Sagadiyev, (Almaty, Kazakhstan, email: assel.bekbossinova1985@gail.ru)

Bizhamal A. Abdullayeva – Cand. Sc. (Econ.), Associate Professor, Narxoz University, (Almaty, Kazakhstan, email: bizhamal.abdullaeva@narxoz.kz)

Abzal S. Bekbossinov – Master of Technical Sciences, Inter Service LLP (Almaty, Kazakhstan, email: abzal_kerei@mail.ru)

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A.B. Luqman

Nigerian Defence Academy, Kaduna, Nigeria
e-mail: lb.ajala@nda.edu.ng

VIOLENT CONFLICTS DYNAMICS IN POST-COLD WAR AFRICA: THE HUMAN SECURITY FACTOR

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Abstract. Through studying conflict transformation in Africa since the Cold War's end, this paper looks at the dynamic nature of violent conflicts in Africa, as well as how human insecurities have impacted the conflicts. The study surveys literature on conflict trajectory in post-Cold War Africa and human security. Despite the reduction in interstate conflicts and an increase in intrastate conflicts in Africa, the character of the state cannot be seen to have displayed sensitivity to these changes. Failed state theory which explains inability to deliver political goods and services to the citizens by states is used for theoretically espousing violent conflicts dynamics and human insecurity influence on the conflicts, and attendant insecurity. Owing to state failure, human insecurities are significant contributors to post-Cold War conflicts in Africa. It is therefore suggested that African governments should prioritise welfare of their citizens, and protect them from existential threats and violence in the region.

Key words: Post-Cold War African conflict dynamics, human security, violent conflict, terrorism, failed state.

Introduction

Since the Cold War ended, Africa has experienced more violent conflicts than any other region globally. These conflicts have resulted in millions of deaths and have displaced countless individuals within their own countries. In the post-Cold War era, there has been a notable increase in internal violent conflicts involving both state and non-state actors like insurgent groups, while interstate conflicts have diminished. Palik et al. (2022) emphasize that communal conflicts, driven by communal identity differences, are the predominant form of non-state violence in Africa and tend to be of low intensity (often referred to as small wars). Notable examples of such conflicts include the civil war in northern Uganda involving the Ugandan government and the Lord's Resistance Army (LRA), clashes between the governments of Chad and the Central African Republic against eastern-border insurgencies, Ethiopia's conflict in the Ogaden region, Namibia's struggle against separatists in the Caprivi Strip, Tuareg insurgencies in Northern Mali and Niger, the Casamance conflict in Senegal, Cabinda separatists in Angola, and Boko Haram's activities in Nigeria.

Gluhbegovic (2016) in EISA occasional paper confirms the widespread occurrence of inter-political party conflicts across various African nations. For instance, Mozambique has seen violent clashes between the ruling Mozambique Liberation Front (Frelimo) and the opposition Mozambique National Resistance (Renamo). Election-related violence is a recurring problem in many African political contexts, as illustrated by the post-election unrest in Lesotho in 2007 when the opposition rejected the election results (Matlosa, 2007). These instances highlight the complex and ongoing nature of political conflicts in Africa, which stem from struggles for power, electoral disagreements, and the broader challenges associated with political transitions and democratization.

Klare (2001) notes that many of the conflicts during this period are linked to the abundance or scarcity of resources in Africa. For instance, the presence of diamond mines in the Democratic Republic of Congo (DRC) and Sierra Leone has fuelled conflict, while oil-related crises have developed in Angola, Algeria, and Nigeria's Delta region. Resource scarcity has also led to tensions between herders and farmers in Nigeria, Mali, and Kenya, as well as water-related

conflicts in various African nations. Research indicates that resource-related conflicts are particularly challenging to resolve and often have regional implications (Klare, 2001). For example, the conflict in the DRC has escalated to involve more than eight countries (Faal, 2001).

Additionally, poor leadership and incompetence have exacerbated crises, leading to state failure in countries such as Somalia, Rwanda, Burundi, Liberia, and Sierra Leone. Kieh and Klay (2009) identify bad governance as a significant factor that triggered Liberia's second civil war in 2003, following President Charles Taylor's failure to restore democracy after the initial civil war.

Literature Review

The resurgence of violence following the Cold War has sparked ongoing debates regarding the relationship between failed states and international terrorism, particularly in developing nations (Kersmo, 2021). Mary Kaldor (1998: 95-96) argues that these "new wars" predominantly occur in areas where state structures are either severely weakened or entirely collapsed. Furthermore, Kaldor (1998: 96) suggests that these conflicts are marked by a variety of fighting units, including public and private, state and non-state actors, or a combination thereof. The U.S. government has recognized that the end of the Cold War has introduced new threats, including an increase in territorial disputes, armed ethnic conflicts, and civil wars that jeopardize regional and international peace (PDD/NSC 56, 1997: 1). Consequently, the U.S. classified failed states as national security threats in its 2002 National Security Strategy (Lieber and Lieber, 2002).

In articulating U.S. foreign policy related to the NSS (2002), Rice stated that failing states provide a haven for international terrorists, allowing them to operate freely in regions with porous borders (Rice, 2003: 3). Fukuyama (2004: 92-93) argued that weak or failing states violate human rights, commit abuses, provoke humanitarian crises, drive mass migrations, and threaten neighbouring countries. Di John (2011) critiques the rationale behind the concept of state failure, arguing that there is insufficient evidence to support the economic and political performance claims of failed states in sub-Saharan Africa. The United States Institute of Peace (USIP, 2021) asserts that violent extremism and terrorism pose serious threats to national security in African states, particularly from local terrorist groups linked to international organizations.

Dempsey (2006) characterizes failed states as those where government authority has collapsed, violence is rampant, and effective governance has ceased. His research indicates that such states emerged primarily after the Cold War, especially in sub-Saharan Africa, creating opportunities for transnational terrorist groups to operate within these territories. Nuruzzaman (2013) examines how human security issues in North African countries, particularly rights abuses by authoritarian regimes, sparked social unrest in the 2010s. Akokpari (2007) argues that the high levels of human insecurity in sub-Saharan Africa have intensified conflicts and instability in the region, attributing this insecurity to a combination of internal and external factors.

Abtudu (2005) investigates the insecurity in Africa following the Cold War, linking it to the continent's economic crisis, which was exacerbated by neoliberal policies and reforms. His analysis emphasizes both internal and external factors as causes of insecurity, with a focus on the shift from traditional state-centred security to a human security paradigm. According to the Africarenewal/UNDP (2023), lack of employment opportunities is a significant driver of violent extremism in sub-Saharan Africa, with the hope of finding jobs pushing the youth towards joining Islamist militant groups in the region.

Nwizu and Cyprian (2018) explore the challenges of security governance and crises in Africa, noting that state failure and the inability of governments to provide basic necessities are primary contributors to crises. They conclude that poor leadership, corruption, and a focus on state-centred security over human security present significant security challenges in 21st-century Africa.

In summary, the human insecurity prevalent in Africa, a consequence of state failure since the end of the Cold War, is a critical factor driving conflicts and violence in the region. Research indicates that efforts by the UN, AU, and other international organizations to address the security challenges stemming from these "modern wars" in Africa have seen limited success. Therefore, the literature reviewed here will inform the ongoing research, which aims to study the dynamics of violent conflicts in the post-Cold War Africa and the impact of human insecurity on these conflicts.

Methodology

Through studying conflict transformation in Africa since the Cold War's end, this paper looks at the dynamic nature of violent conflicts in Africa, as well

as how human insecurities have influenced the conflicts. Due to this focus, this paper analyses the trajectory of violent conflicts in Africa since the end of the Cold-War and the influence of human insecurity on the conflicts. The study surveys literature on conflict trends in the post-Cold War Africa, human insecurity and subsequently apply these insights to analysing the post-Cold War African conflict scenario garnered from books, book chapters, journal articles, and newspapers. Additionally, conflict statistics were sourced from databases such as the Uppsala Conflict Data Program (UCDP)/Peace Research Institute Oslo (PRIO) Armed Conflict Database, the UCDP Battle Death Database, as well as reports from the World Bank, UNDP, Human Development Index (HDI), and other credible sources. To categorize the collected data into themes aligned with the study's objectives, thematic analysis is utilized. The main themes identified include: dynamics of violent conflicts in the post-Cold War Africa, the concept of human security, and the relationship between human insecurity and violent conflicts in the post-Cold War Africa. The next section will analyse this study within the framework of failed state theory.

In this context, the principles of failed state theory resonate with the insecurity prevalent in Africa, which arises from governments' failure to safeguard their citizens against threats and severe violence from terrorism, armed robbery, kidnapping, civil wars, ethnic and religious conflicts, and other violent crimes. This raises the question of how the inability of African governments to fulfil their core responsibilities is related to human insecurities, and how these challenges have impacted the conflicts and violence in the region.

Theoretical Framework

This study utilizes the failed state theory as its theoretical framework, which is particularly relevant considering the state fragility and violence that have plagued Africa since the Cold War's conclusion. This theory elucidates how "modern wars" contribute to insecurity in Africa and highlights the failure of African states to fulfil their essential duties of protecting their populations from existential threats. The failed state hypothesis describes a scenario in which a state cannot meet its obligations.

A central premise of this theory is that a state functions as a service provider. Eriksen (2011) supports this notion, emphasizing that a state is responsible for safeguarding its citizens' lives and property, facilitating political participation, offering health and education services, and ensuring security and the rule of law. Conversely, state failure indicates a state's inability to deliver these vital services. Englehart (2009) argues that state failure occurs when governments cannot meet their fundamental responsibilities to their citizens. In this research, state failure is defined as the incapacity of African states to provide essential services necessary for the security and safety of their populations, meaning they can no longer fulfil their obligations to their people.

In this framework, Rotberg (2003) argues that a state's primary duty is to ensure the political good of security. This includes preventing cross-border incursions, maintaining territorial integrity, addressing domestic threats, combating crime, and fostering peaceful conflict resolution among citizens without resorting to violence.

Relevance of the Theory to Study

In this current research, the discussion about the conflicts in post-Cold War Africa represents a similar connection between poverty, exclusion, unemployment, and corruption brought on by state failure as fundamental causes and catalysts of violent conflicts in Africa. Of note, the internal turmoil and structural failures faced by numerous African nations became pronounced following the Cold War's conclusion in the 1990s, significantly impacting regional security.

Violent Conflicts Dynamics in Post-Cold War Africa

The nature of conflicts in post-Cold War Africa indicates a transformation in the complexity and duration of violence. Contemporary conflicts are often prolonged, lethal, and challenging to resolve, frequently crossing national borders and shaped by both internal and external influences. The Social Science Research Council (2018) emphasizes that conflicts and widespread violence possess intricate socio-cultural, economic, and political dimensions, operating through power structures that blur traditional boundaries such as public versus private or local versus national. This perspective is supported by conflict literature from PRIO (2022) and Krause (2016), which document the shift from inter-state wars to diverse forms of intrastate violence, including insurgencies, guerrilla warfare, terrorism, organized crime, and protests. Avis (2019) also notes this transition, linking it to a decline in traditional interstate conflicts and a rise in intrastate and asymmetric warfare involving both state and non-state actors.

In this research, the Uppsala Conflict Data Program (UCDP)/PRIO Armed Conflict Database, UCDP Battle Death Database are utilized to illustrate the types and dynamics of post-Cold War violent conflicts in Africa.

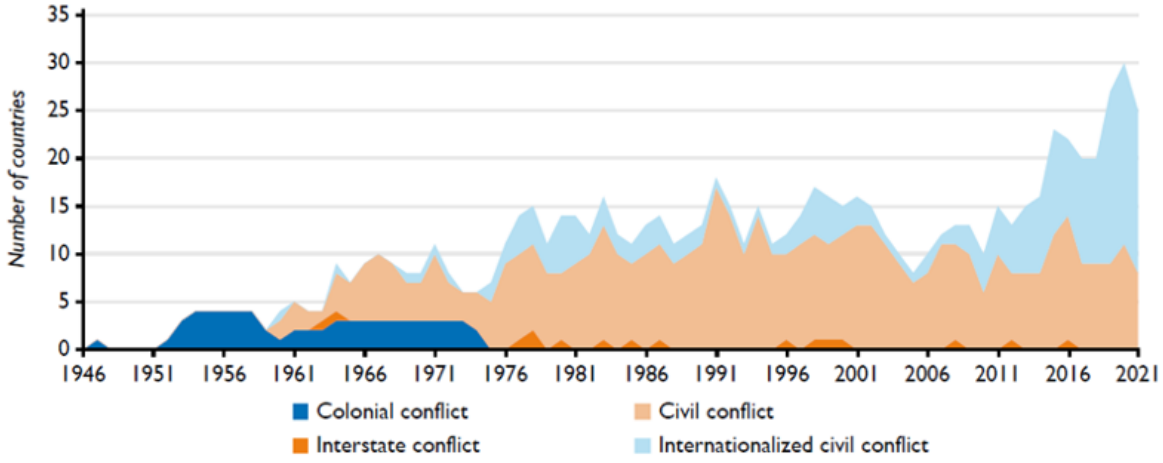

Figure 1: State-based armed conflicts in Africa by conflict type (1946-2021)

Source: UCDP/PRIO Armed Conflict Database

As depicted in Figure 1, there was a slight decrease in state-based conflicts in Africa, dropping from 30 in 2020 to 25 in 2021, although this number is higher than a decade ago. In the literature, colonial conflicts, interstate conflicts, civil conflicts, and internationalized civil conflicts are classified as state-based conflicts in Africa, with civil and internationalized civil conflicts being the most prevalent. Both types are generally characterized as low-intensity (Palik et al., 2022). In 2021, out of the 30 state-based conflicts, 11 were civil wars, while 19 were internationalized civil wars, marking the highest count of such conflicts in Africa since 1989.

This trend highlights the changing landscape of conflict in Africa, with a decline in interstate wars juxtaposed against a significant rise in civil conflicts. Study reveals that since 1990, only seven interstate wars have occurred in Africa, the latest being between Ethiopia and Eritrea in 2006. However, the emergence of terrorist groups like ISIS since 2014 has led to an increase in violence and intrastate conflicts across the continent. For instance, in 2021, seven African nations–Burkina Faso, Cameroon, DR Congo, Mali, Mozambique, Niger, and Nigeria–faced conflicts involving ISIS within their borders (Palik et al., 2022).

Reports of foreign intervention in internal conflicts across various African nations, including Burkina Faso, Burundi, Cameroon, the Central African Republic, the Democratic Republic of the Congo, Ethiopia, Kenya, Mali, Mozambique, Niger, Nigeria, and Somalia, further underscore the internationalization of civil wars in Africa. The UCDP (2021) defines internationalized conflicts as those in which the government, opposition, or both receive support from external states actively involved in the conflict. While the deployment of peacekeeping forces in a state-based conflict can be categorized as internationalized, it does not automatically confer that status. External actors can either complicate or aid in the resolution of conflicts, with research indicating that internationalized conflicts tend to be prolonged and more severe (Cunningham, 2010; Pettersson et al., 2019; Balch-Lindsay et al; and Lacina, 2006). The motivations and interests of interveners significantly influence conflict dynamics.

The rise of international involvement in African conflicts is illustrated in Figure 2. In Figure 2, it is shown that the number of internationalized conflicts has notably increased since 2009, rising from 11 in 2018 to 18 in 2019 and 19 in 2020, although it decreased to 17 in 2021. In 2022, the PRIO dataset estimated that twelve African countries experienced external involvement in their domestic conflicts, including Burkina Faso (with two internationalized civil conflicts), Burundi, Cameroon, the Central African Republic, DR Congo (two), Ethiopia, Kenya, Mali (two), Mozambique, Niger (two), Nigeria (two), and Somalia. For example, in 2020, Kenya and Somalia engaged in combat against Al-Shabaab with support from the United States and AU countries, respectively. Additionally, several African nations fought against ISIS with assistance from external governments, including the US, France, and EU countries or AU members. In another instance, the Malian government battled JNIM with French support through Operation Barkhane (Palik et al., 2022).

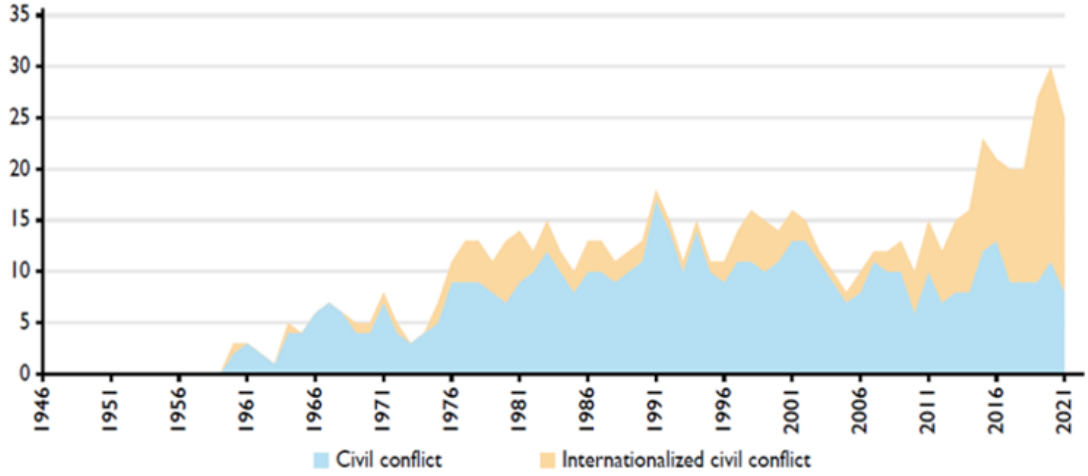

Figure 2: Number of civil conflicts with and without international involvement in Africa (1946-2021)

Source: UCDP/PRIO Armed Conflict Database

The changing nature of conflict in Africa, as noted by UNU-CPR (2014: 4-5), is partly due to the rise of organized crime, extreme violence, the internationalization of civil wars, and the growing activity of violent Islamist extremist groups. Kaldor (1998) refers to these as "new wars" or "modern" conflicts in Africa. The UNU-CPR (2014: 4) report also highlights that organized crime exacerbates state fragility, undermines state legitimacy, and complicates conflict resolution. Avis (2019: 9) concurs, noting that internal conflicts have become externalized with the involvement of outside states, leading to regional violence, as seen in the Boko Haram conflict in Nigeria, the Tuareg conflict in Northern Mali, and various intrastate conflicts in North African countries.

This study in the *Understanding Conflict Trends (*Watts, 2017), confirms that there was a decline in interstate warfare against an increase in intrastate violence. It further confirms that since the Cold War's end, there have been few high-intensity intrastate conflicts claiming over 100,000 lives in a single year. In contrast, the late Cold War period saw a peak in medium- and low-intensity intrastate conflicts, with varying battle casualties.

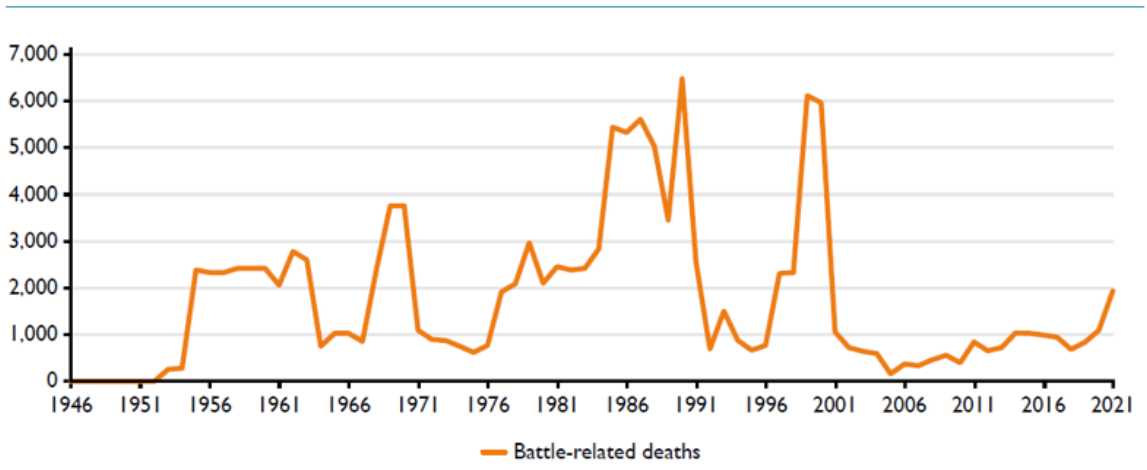

Figure 3: Battle-related deaths from state-based conflicts in Africa (1946-2021)

Source: UCDP Battle Death Database

Figure 3 illustrates the battle-related deaths from state-based conflicts in Africa from 1946 to 2021, showing a decline in fatalities during the early 1990s and 2000s, followed by a rise in 2018. In 2020, there were 10,978 battle-related deaths, compared to 19,325 in 2021, largely due to the conflict between the Ethiopian government and the Tigray People's Liberation Front (TPLF).

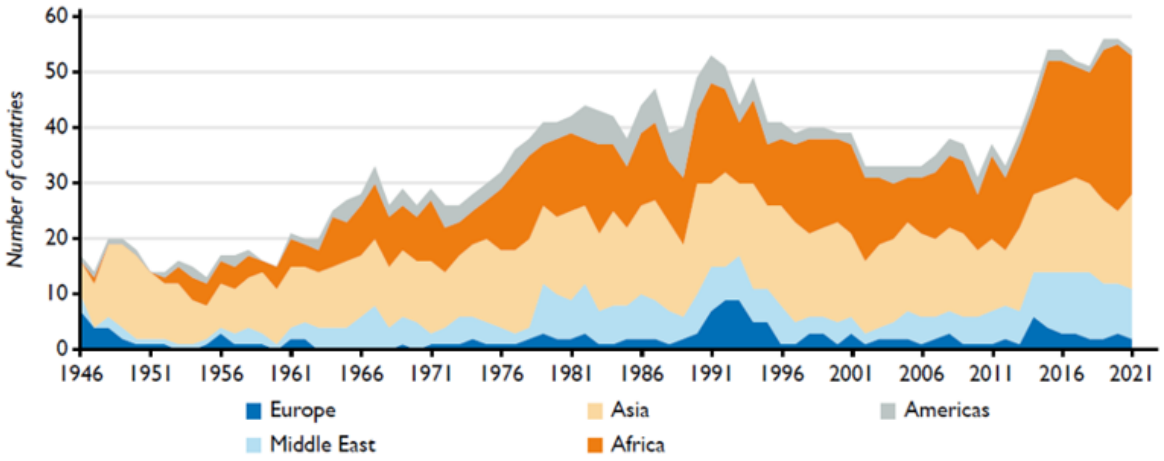

Figure 4: Number of conflicts with state-based conflicts by region (1946-2021)

Source: UCDP/PRIO Armed Conflict Database

Figure 4 indicates that the number of conflicts in Africa rose from 15 in 2011 to 25 in 2021. Compared to other regions, Africa experienced the highest number of state-based conflicts (105) between 1946 and 2021, followed by Asia (82), the Middle East (41), Europe (38), and the Americas (27) (Palik et al, 2022).

The UCDP categorizes conflicts based on severity, defining 'Conflict' as those with 25-999 battle-related deaths per year and 'War' as those with over 1,000 deaths in a single year.

Figure 5 shows that Africa had the highest number of state-based battle-related deaths in 1990, with 8 wars resulting in 63,000 fatalities and 5 conflicts accounting for 1,563 deaths. Notably, wars outnumbered conflicts in Africa in 1990, a trend that only occurred again in 1989 and 1990. The second spike in battle-related deaths occurred in 1999 and 2000, with 61,206 and 59,715 fatalities, respectively. Unlike 1990, conflicts outnumbered wars during these years. From 2000 onward, battle-related deaths from both conflicts and wars sharply declined, but in 2021, conflict-related deaths reached their highest point since 2001 (Palik et al., 2022).

It is imperative to state that since the Cold War's conclusion, non-state violent conflicts have surged, particularly due to the presence of extremist groups in Africa. However, the UCDP defines non-state conflicts as armed confrontations between organized groups, neither of which is a state government, resulting in at least 25 battle-related deaths in a year.

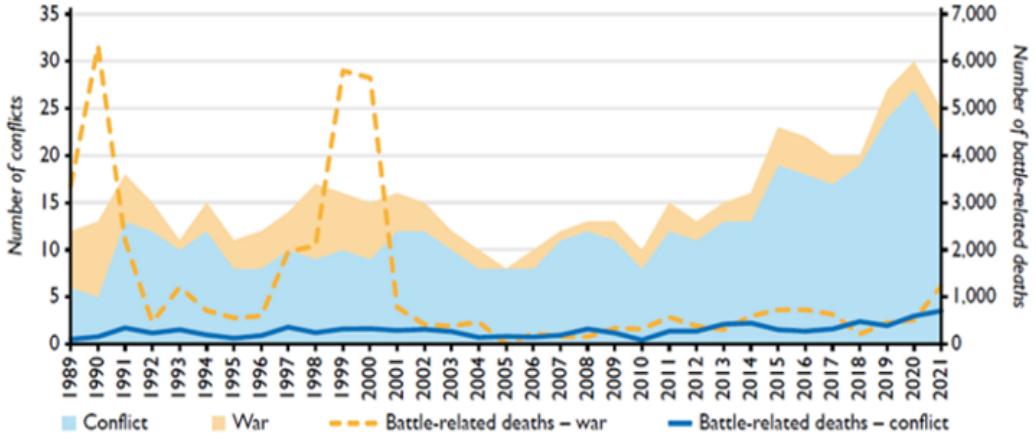

Figure 5: Number of conflicts and battle related deaths in relation to conflicts and wars in Africa (1989-2021)

Source: UCDP/PRIO Armed Conflict Database

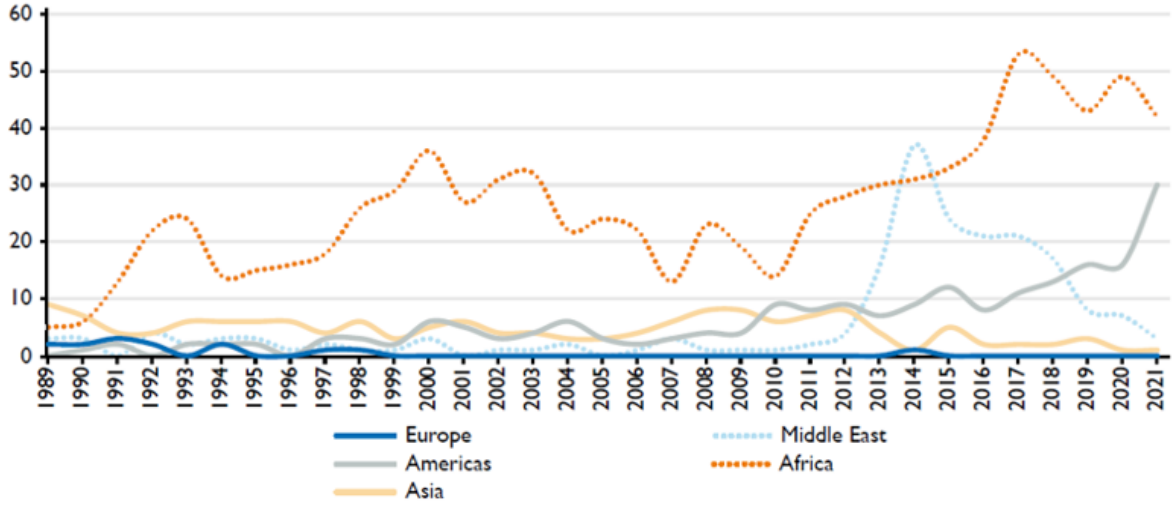

Figure 6: Total number of non-state conflicts by region (189-2021)

Source: UCDP Non-state Conflict Database

Figure 6 reveals that Africa is the most affected region by non-state conflicts globally as of 2021.

As a pointer to the evidence in Figure 6, over 35 non-international armed conflicts (NIACs) have reportedly occurred in South Sudan, Sudan, Ethiopia, the Democratic Republic of the Congo (DRC), Mozambique, Mali, Nigeria, Burkina Faso, and neighboring countries (Redealli, 2020). Long-standing hostilities in Somalia, the Central African Republic (CAR), and the Great Lakes Region are also noted in the Redealli's study. Comparably destructive intra-state conflicts have been observed in Tunisia, Egypt, Libya, Algeria, and Morocco, particularly during the Arab Spring. The Libyan crisis escalated into a civil war, with the total cost of the conflict estimated at 783.4 billion Libyan dinars from 2011 to 2021 (UN-ESCWA, 2021). These conflicts often involve non-state actors who perpetrate extreme violence against vulnerable civilians or engage in battles with government forces and each other. Traditional interventions have largely failed to resolve these issues, allowing violence to persist.

Experts in peace studies emphasize the importance of understanding African conflict dynamics and the evolving nature of warfare for effective crisis resolution. Evidence in Figure 1 indicates that contemporary wars in Africa are predominantly intrastate rather than interstate. Ajala (2022) points out that today's conflicts typically occur within state borders and encompass civil wars, guerrilla warfare, ethnic/religious strife, political violence, armed banditry, and terrorism. Straus (2012: 179) agrees, asserting that modern warfare in Africa often takes place on the peripheries of states. Boutros-Ghali (1995: 7) adds that these conflicts are frequently religious or ethnic in nature, marked by extreme violence and brutality.

These "new wars," as illustrated in Figure 1, are mainly civil conflicts where warring factions show little regard for human life or cultural institutions, deliberately targeting critical infrastructure and livelihoods for criminal gain (International Alert, 1999; Collier, 2000; DFID et al., 2003). The extreme violence in contemporary African conflicts is linked to issues such as identity conflicts (ethnic, religious, cultural), resource scarcity or abundance, state fragility, and economic underdevelopment.

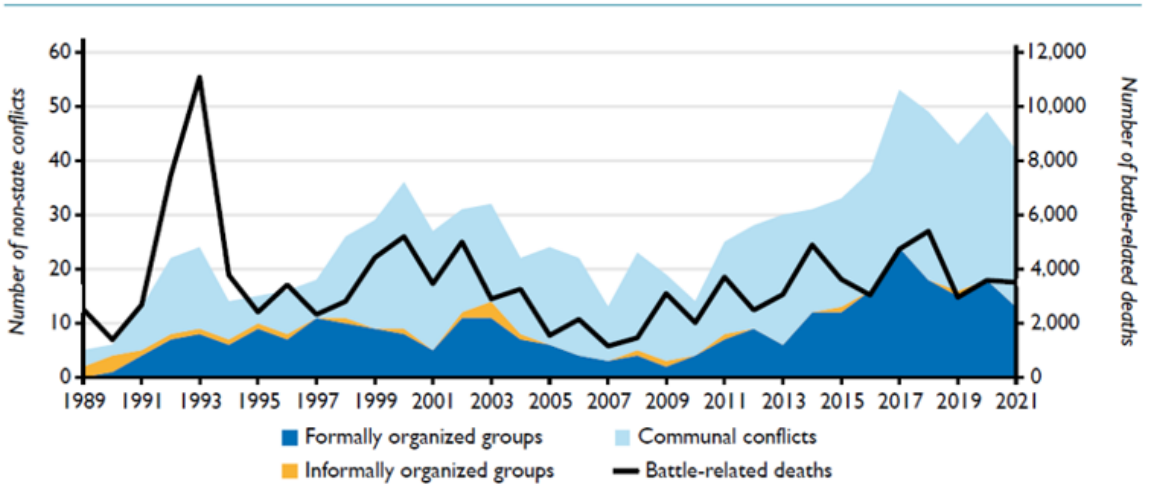

Figure 7: Non-state conflicts in Africa by types of conflicts (1989-2021)

Source: UCDP Non-state Conflict Database

Figure 7 highlights that communal conflicts are the most prevalent type in Africa. As depicted in Figure 7, it is significant to note that inter-communal ethnic violence has long fuelled tensions and undermined security in many African nations. Bacon and Warner (2021) conclude that international terrorist groups and criminal organizations exploit these local grievances to further their reign of terror.

A review of the literature indicates that global terrorist groups and criminal organizations have capitalized on local crises in African states to advance their illicit agendas. Local disputes have provided fertile ground for terrorist organizations and criminal gangs to instigate armed conflicts and violence in the Sahel, Mano River, and Lake Chad regions. For instance, local conflicts between the Fulani and Tuareg ethnic groups along the Mali-Niger border, which saw numerous attacks on Tuareg civilians in 2017 and 2018, contributed to the ongoing armed conflict in Mali. Similarly, while acting as mediators in regional disputes, ISWAP-Greater Sahara exploited long-standing tensions between these two groups (Bacon and Warner, 2021).

Supporting the evidence in Figure 2, the Boko Haram crisis, which erupted in Maiduguri, Borno State in 2012 when a local Islamic sect transformed into a terrorist organization allied with ISWAP, has fuelled ongoing armed banditry and terrorism that threaten Nigeria's national security. This alliance has further bolstered Boko Haram's violent actions and terror campaigns in Nigeria and the surrounding Lake Chad region. Islamic terrorist organizations have also exploited state failures in Africa, arising from governments' inability to provide essential services to their citizens. Consequently, these terrorist groups have emerged as alternative providers, offer-

ing locals financial support and other necessities (Bacon and Warner, 2021).

In Somalia, for example, the collapse of the state and the absence of a central authority allowed Al-Shabaab terrorists to establish themselves and create a shadow government. Scholar Mohamed Ingiriis noted that local communities often preferred Al-Shabaab's governance over the federal government, perceiving insecurity under Al-Shabaab as more favourable than under the central authority (Ingiriis, 2018). In comparison to the dynamics of state fragility and weak structures facilitating arms influx, Steinberg and Weber observe that in the spread of Islamist militancy, the local populations maintain closer ties with terrorists across border towns in Africa than with their distant governments (Steinberg and Weber, 2015).

The Concept of Human Security

Human security emerged as a significant concept in global security discourse following the Cold War's conclusion in 1991, marked by the fragmentation of the Soviet Union and the collapse of communism. This shift represented a transformation in international relations, moving from the traditional realist perspective, which viewed the state as the primary object of threats, to a more liberal approach centered on human security. This new paradigm was first articulated and advocated by the United Nations (UN) in 1994. Various events unrelated to interstate conflicts highlighted the need to focus on the security of individuals within states rather than the states themselves (Mathews, 1989). Mathews emphasizes that threats such as environmental disasters, authoritarian regimes, ethnic genocide, chronic illnesses, pandemics, and socio-economic issues position individuals as the primary referents of security, transcending national borders (Mathews, 1989). Consequently, by the mid-1990s, it became crucial for the world to adopt a human security framework, distinguishing it from the traditional state-centric and military notion of security. The UNDP's 1994 *Human Development Report* underscored non-military sources of insecurity, emphasizing the importance of individual safety over state security. Furthermore, the UN- Commission on Human Security's (2003) report defined human security as "freedom from threats of hunger, disease, crime, and repression," encompassing seven dimensions: personal, economic, food, health, political, environmental, and community security (UNDP, 1994).

Human Insecurity and Post-Cold War Conflicts in Africa

In the post-Cold War era, human insecurities have become predominant security challenges in Africa, stemming from threats to individuals' daily survival and livelihoods, including access to food, health care, employment, justice, and a sustainable environment. The failure of African governments to provide these essential safeguards has fuelled conflicts and violence across the continent. The UNDP's 1994 *human security framework* identified seven key areas: food, health, economic, political, environmental, personal, and community security. According to Kaldor's concept of "new wars," the underlying conditions in Africa have included poverty, disease, environmental degradation, food scarcity, and educational insecurity, all of which are closely linked to regional conflicts. Additionally, the socio-economic and political contexts in which African states operate–characterized by poor governance, resource inaccessibility, climate change, ethnic tensions, arms availability, and marginalization–have exacerbated these issues.

The Sahel region, like the West Africa subregion, has consistently low ratings on the UN's human development index (HDI) making it one of the world's poorest and least food secure regions with weak political and economic frameworks. In a similar vein, the Sahel region faces several health issues associated with destitution, hunger, and poor sanitation and hygiene. High rates of soil erosion, deforestation, and degradation are characteristic of the area, as are inadequate public and private sector institutions. Moreover, political insecurity, marked by threats to citizens' political participation and the freedom to make democratic choices, has led to increased violence in several African nations since the Cold War's end. This political violence has manifested in electoral disturbances, protests against long-standing rulers, and constitutional crises, affecting at least 15 countries, including Algeria, Burundi, the Central African Republic (CAR), Côte d'Ivoire, the Democratic Republic of Congo (DRC), Egypt, Ethiopia, Libya, Mali, Niger, Nigeria, South Africa, The Gambia, South Sudan, and Sudan (Gluhbegovic, 2016).

Stage-managed elections have often incited post-election tensions, escalating into full-blown conflicts in various sub-Saharan African states. This trend became particularly evident during the 1990s, as countries transitioned from single-party to multiparty

systems (e.g., Ivory Coast, Kenya, Benin), from authoritarian rule to democratic governance (e.g., Nigeria), and from conflict to peace (e.g., South Africa) (Gluhbegovic, 2016: 10). Recent post-election violence in Nigeria (Human Rights Watch, 2011), Ivory Coast (ACCORD, 2021), Togo (Tachiwou, 2013), Lesotho (Matlosa, 2007), and the DRC (Nantulya, 2024) has resulted in significant casualties and property destruction. Such undemocratic practices pose serious threats to human security and are sources of political conflict throughout Africa.

Environmental security is a critical aspect of human security, aiming to ensure a peaceful environment conducive to decent living standards without compromising future generations' needs. Environmental insecurity, characterized by degradation and a lack of protective measures, has led to violent conflicts between farmers and herders in several African nations (Akokpari, 2007: 36). The inability of African governments to enforce environmental regulations has resulted in significant harm to environmental security. Research indicates that increasing land pressure is a primary driver of farmer-herder conflicts, particularly in Nigeria, central Mali, northern Burkina Faso, and parts of the CAR. Brottem (2021) notes that crop damage caused by livestock is a common trigger for these conflicts. Climate change has intensified competition for pastoral land, forcing herders into protected areas like national parks.

Conflicts between farmers and herders have also raged in Kenya. In Sierra Leone, rebels financed their activities through the illegal extraction and trade of diamonds, which prolonged the conflict. Brottem (2021) highlights that since 2015, violence between farmers and herders in Mali has surged, resulting in nearly 700 deaths in 2020, particularly in the Mopti Region near northern Burkina Faso. Nigeria has experienced a dramatic increase in farmer-herder conflicts since the 2000s, with the highest fatalities in West and Central Africa–approximately 2,000 deaths linked to these conflicts reported in 2018. These clashes predominantly affect the North-western and Middle Belt regions, as well as some southern states (Brotttem, 2021).

In the Horn of Africa, human insecurities such as food shortages, unemployment, poverty, marginalization, environmental degradation, and limited access to resources have been key drivers of violent conflicts. The systemic marginalization which reinforced prebendal resource allocation, patronage and nepotism in the region was confirmed by the World Bank's 2014 report. The report reveals that disparities in access to state resources exacerbate tensions, particularly between communities with and without access to public goods and services.

Food insecurity, stemming from limited access to food and shortages, has heightened conflicts in sub-Saharan Africa, as violence and instability undermine agricultural activities. Recent food crises in Kenya and Nigeria, driven by unaffordable prices and shortages, have sparked national protests that turned violent, resulting in casualties and property damage. Historical accounts indicate that drought-induced food shortages in the Horn of Africa led to conflicts as early as 1997. A 1997 summary report by the UN Food and Agricultural Organisation (FAO, 1997: 5) noted that among the seven IGAD countries prone to drought, $2 billion was allocated to address conflicts and violence. Some studies suggest that high poverty levels in the Horn of Africa render the poor particularly vulnerable to terrorist attacks.

Effective legislation is crucial for states to uphold and enforce human rights laws. Unfortunately, many African governments are accused of human rights abuses and violations, often with impunity. In the *Human Rights Watch report*, Tiran Hassan (2023) indicates that several African nations have perpetrated rights abuses against civilians, often at the hands of government security forces. This situation has been evident when security forces respond violently to peaceful protests. For instance, in March 2023, Chadian forces brutally quelled protests against government transition plans. In Sudan, security forces have killed over 100 individuals and detained many others during protests against military rule since the coup in October 2021. Similar patterns of repression have been observed in Burundi, Rwanda, Uganda, and Zimbabwe, where activists and journalists face detention or torture. As further stated in the report, the government suppressed media freedom and deployed secret police to monitor political opponents ahead of the 2023 elections in the DRC.

Human insecurity in North African states ignited social upheavals in the early 2010s across Tunisia, Algeria, Morocco, Egypt, and later Libya. These uprisings were driven by poverty, high youth unemployment rates, corruption, authoritarian governance, inequality, and a widening wealth gap. The failure of dictatorial regimes in North Africa to hold one another accountable resulted in socio-political and economic mismanagement, leading to public distress and youth unemployment. For example, the 2010 UN Human Development Report ranked Tunisia and Egypt poorly on human development indicators, placing them 94th and 113th out of 188 countries, respectively. The report also revealed declining pur-

chasing power in terms of Gross National Income (GNI), with Egypt at $5,269, Tunisia at $7,281, and Libya at $12,637 (UNDP-HDR, 2010).

In these non-democratic societies, freedoms of expression and dissent were severely restricted before the Arab Spring. Citizens were unable to voice their dissatisfaction with authoritarian regimes or criticize government policies. The lack of a free press and guaranteed rights to free expression left people with few avenues to express grievances. Nonetheless, a combination of factors, including protests against marginalization and exclusion from governance, sparked the social upheavals known as the Arab Spring (Rodrik, 2011).

The state failures and human security challenges in North Africa were closely linked to the social upheavals during the Arab Spring. Prior to these events, many North African countries faced poverty, unemployment, economic mismanagement, human rights abuses, public corruption, and poor leadership. Consequently, the movement to overthrow authoritarian regimes and restore democratic governance was led by human rights organizations and pro-democracy activists (Nuruzzaman, 2013).

Results and Discussion

In the analysis on violent conflicts dynamics in the post-Cold War Africa, this study highlights that there is a connection between failed states in Africa and human insecurity which fuels conflicts and violence in the region. In the post-Cold War era, challenges related to human security brought on by state failure have emerged as significant contributors to conflict and violence in Africa. This is the major contribution to literature in this area by this study, as there is a notable absence of studies addressing the dynamics of violent conflicts in the post-Cold War Africa and how human insecurities have impacted the conflicts. Consequently, this research explores the dynamics of violent conflicts in the post-Cold War Africa, with a particular emphasis on the impact of human insecurity on the conflicts.

The findings indicate that the presence of failed states in Africa has resulted in heightened human insecurity, which in turn fuels conflicts and violence in the region. In several African countries, instability characterized by coups, countercoups, and intrastate wars reflects the fragility of state structures. Key factors driving violent conflicts in post-Cold War Africa, especially in the 21st century, include poverty, marginalization, injustice, unemployment, and corruption, brought on by bad governance. In various nations, inter-communal and ethnic violence has exacerbated tensions and threatened human security. Regions such as the Sahel, Mano River, and Lake Chad are particularly vulnerable, where terrorists and criminal groups have exploited local issues to incite armed conflicts and atrocities.

Beyond the issue of state failure, the study highlights that fundamental security challenges related to human security have not been adequately recognized by various African governments. This lack of awareness regarding African security dynamics is a significant reason why conflict resolution efforts in the region have often fallen short. Traditional, state-cantered, and military-notion of security do not reflect the realities of contemporary African conflicts concerning human security. Major obstacles to achieving human security in Africa include high unemployment rates, food insecurity, poverty, injustice, environmental degradation, corruption, weak governmental institutions, the proliferation of small arms and light weapons, and recurring droughts.

Conclusion

The research indicates that owing to state failure, human insecurities are significant contributors to conflicts and violence in the post-Cold War Africa. Such as the rise of non-state actors, youth unemployment, poverty, state fragility, social injustice, food scarcity, inflation, the impacts of climate change on land and water resources, porous borders, cross-border crimes, communal identity conflicts have all been identified as key elements fuelling violent conflicts in the region since the Cold War ended.

Since that period, the nature of conflicts in Africa has evolved, with a decline in interstate conflicts and a rise in intrastate conflicts driven by internal crises like civil wars, guerrilla warfare, identity disputes, and extremist violence. This shift is corroborated by Palik, et al findings in the PRIO 2022 data, which reveals that Africa has the highest incidence of non-state conflicts globally. The PRIO data covering conflict trends from 1989 to 2021 shows a slight decrease in state-based conflicts in 2021 compared to a decade earlier, with 30 recorded in 2020, up from 27 in 2019. Experts in peace studies argue that comprehending the dynamics of African conflicts and the evolving nature of warfare concerning human security issues is crucial for addressing these crises.

Given the interconnectedness of state security and human security, the study advises African nations to complement state security along with human security by implementing practical plans and poli-

cies aimed at improving the quality of life for their citizens. Furthermore, the study suggests that African governments should prioritise the welfare of their citizens, and protect them from the existential threats from civil wars, insurgencies, terrorism, armed banditry, and extremist violence in the region.

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Information about author:

Ajala Bamidele Luqman (corresponding author) – PhD, Department of Defence and Security Studies, Nigerian Defence Academy (Kaduna, Nigeria, e-mail: lb.ajala@nda.edu.ng)

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B. Akhmetkazy*, K. Mamyrova

Al-Farabi Kazakh National University, Almaty, Kazakhstan
*e-mail: bekzatahmetkazy@gmail.com

THE SOCIAL DYNAMICS OF MARATHON PARTICIPATION: EXAMINING COMMUNICATION, SOCIAL MEDIA ENGAGEMENT, AND WELL-BEING

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Abstract. This study investigates the impact of social media engagement on the well-being of marathon runners in Kazakhstan. Additionally, it explores the mediating role of intention to participate in this relationship, providing insights into how online interactions influence individuals' motivation and overall well-being.

A structured survey was employed to collect primary data from 252 individuals who have participated in marathon events. The study utilized a quantitative approach to analyze the relationships between key variables, ensuring the reliability and validity of the findings.

The analysis confirmed that intention to participate acts as a significant mediator between social media engagement and well-being. The results support the hypothesized model, demonstrating that increased interaction on social media fosters a stronger intention to engage in marathon activities, which in turn enhances well-being.

This research contributes to the existing literature by examining the psychological and behavioral effects of social media engagement in the context of marathon participation in Kazakhstan. The findings provide valuable insights for event organizers, policymakers, and researchers interested in promoting physical activity and well-being through digital platforms.

Key words: Social Media Engagement; Intention to Participate; Well-being; Marathon Runners; Quantitative.

Introduction

Marathon running has emerged as one of the most popular sports activities worldwide, attracting millions of participants each year (Vitti et al., 2020). Over the past few decades, the number of marathon runners has increased significantly, with participants from diverse nationalities, competitive levels, and age groups taking part in the same events (García Vallejo et al., 2020). One prominent example is the Almaty Marathon, the largest marathon in Central Asia, which had over 15,600 registered runners in 2024 (Tengrinews, 2024). Beyond being a physical challenge, marathon running has also been linked to broader social, psychological, and emotional dimensions, making it a compelling area of study in sports sociology.

The ability to perform well in a marathon is influenced by multiple factors, including biological, psychological, and environmental conditions (Sjödin & Svedenhag, 1985). Physiologically, marathon runners must develop endurance strategies to counteract exercise-induced fatigue and optimize energy expenditure through self-pacing (Sperlich, 2016). Psychologically, they must regulate their emotions to cope with the mental strain and motivational challenges associated with covering long distances (Jaenes & Caracuel, 2016). These aspects highlight the complex interplay between physical readiness, mental resilience, and external influences in marathon participation.

Beyond the physical and psychological aspects, marathon participation has been described as a social phenomenon, with its growing appeal often referred to as "marathon fever." This trend is particularly common among middle-aged, non-elite runners who perceive marathon running as a transformative challenge during life transitions, such as a midlife crisis

(Summers et al., 1982). Runners are often driven by personal development, self-awareness, and the pursuit of achievement. Completing a marathon is associated with higher self-esteem, a sense of accomplishment, and social recognition, further reinforcing motivation (Ogles, 2003).

One of the most influential external factors in modern marathon participation is social media engagement. Platforms like Facebook, Instagram, and TikTok provide runners with a space to share their experiences, connect with other athletes, and receive encouragement to participate in future races. Previous studies suggest that social media enhances offline relationships (Ellison, Steinfield & Lampe, 2007), making it a powerful tool for race organizers to engage past participants and attract new runners through digital communication strategies. The role of social media in influencing behavior, motivation, and well-being in the marathon-running community, however, remains an area that requires further investigation.

This research aims to explore the relationship between social media engagement, intention to participate, and well-being among marathon runners. Specifically, it examines intention to participate as a mediating variable, determining whether engagement with social media increases the likelihood of participation, which in turn contributes to enhanced well-being. The study is framed within the sociological context of digital engagement and sports participation, shedding light on how online interactions influence real-world athletic behaviors. By analyzing these relationships, the research seeks to contribute to a deeper understanding of the social and psychological effects of marathon participation, with implications for sports event organizers, policymakers, and public health advocates.

Literature review

Social media encompasses a wide range of digital platforms, tools, and applications that facilitate social interaction, collaboration, and creative content sharing on the Internet (Nada & Rick, 2011; Dabbagh & Kitsantas, 2012). With the increasing adoption of smartphones, social media has become an essential part of daily life, serving as a primary source of communication, news consumption, and entertainment, particularly among younger generations.

These platforms function as interactive spaces where users can create, exchange, discuss, and modify content generated by themselves or others (Kietzmann et al., 2011). As a result, social networking has emerged as one of the most prevalent online activities, with individuals using the Internet primarily to engage in social interactions (Correa et al., 2010). Social media enables people to maintain connections, communicate, and actively engage with both their real-world social circles and broader online communities (Correa et al., 2010; Ellison et al., 2011). Notably, social networking sites (SNS) such as Facebook, Instagram, and LinkedIn are among the most widely used platforms for fostering social engagement.

Engagement with social media can significantly influence behavioral intentions, including the motivation to participate in events such as marathons. When users interact with content related to running events–such as posts from friends, promotional materials from event organizers, or success stories from past participants–they are more likely to develop an interest in joining similar activities. Research suggests that digital interactions not only reinforce social belonging and peer influence but also serve as a source of inspiration and encouragement for event participation (Ellison et al., 2011). Moreover, platforms like Facebook and Instagram enable event organizers to promote marathons, share training resources, and create a sense of community, all of which may strengthen a person's intention to participate. Therefore, based on existing literature and the role of social media in shaping participation behaviors, we hypothesize that:

H1: Social Media Engagement positively affects Intention to Participate.

Existing research has consistently demonstrated a positive relationship between an individual's intention to participate in activities and their overall well-being (Meier & Stutzer, 2008; Soukiazis & Ramos, 2016). Thoits and Hewitt (2001) argue that individuals who actively engage in community-based activities tend to experience higher life satisfaction, increased self-esteem, a stronger sense of purpose, and improved mental and physical health. This suggests that participation not only fosters social connections but also contributes to an individual's emotional and psychological resilience.

Both intrinsic and extrinsic motivations behind participation can lead to greater happiness, self-efficacy, and self-worth (Jahoda, 1958). In the field of sports psychology, research has recognized that people engage in sporting activities for diverse reasons (Pauline & Pauline, 2009). Some individuals are driven by external motivations, such as a sense of duty or responsibility toward others (Piliavin &

Charng, 1990), while others participate due to self-oriented motivations, such as personal enjoyment, interest, or perceived benefits. In the context of marathon events, runners may take part either because they are genuinely passionate about the sport or because they want to share the experience with friends and peers.

The psychological and social nature of participation makes it particularly appealing to younger individuals, offering them opportunities for self-growth and positive psychological effects (Morrow-Howell, 2010). When young marathon runners participate in such events, they not only develop their physical abilities but also experience both hedonic enjoyment (pleasure and fun) and eudaimonic well-being (a sense of meaning and fulfillment) (Waterman et al., 2008). Understanding how participation influences psychological well-being can provide valuable insights for event organizers and sports organizations, particularly in terms of strategies for recruiting and retaining participants in marathons and similar endurance events. Based on the literature, the following hypothesis is proposed:

H2: Intention to Participate is Positively Associated with Well-Being.

H3: Intention to Participate can mediate the relationship between Social Media Engagement and Well-Being.

Material and Methods

We gathered primary data using the official participant list of the Almaty Marathon. To ensure diverse representation, we randomly invited over 1,000 runners to take part in an anonymous survey. Out of those contacted, 252 participants completed the questionnaire, resulting in a response rate of 23.7%. The collected data includes insights into demographic characteristics, which are summarized in Table 1. This dataset provides a comprehensive overview of the runners' backgrounds, helping to contextualize the analysis.

Table 1 – Demographic Characteristics of Participants

Demograohic	Category	N=252	Percentage
Gender	Male	140	55,6%
	Female	112	44,4%
Age	18-24	45	17,9%
	25-34	95	37,7%
	35-44	70	27,8%
	45+	42	16,6%
Education Level	Bachelor's Degree	180	71,4
	Master's Degree or Higher	72	28,6%
Previous Marathon Participation	First-time runner	98	38,9%
	2-3 marathons	85	33,7%
	More than 3 Marathons	69	27,4%

To ensure validity and reliability, all measurement items were adapted from previously validated scales, with slight modifications to align them with the context of this study. Each construct was assessed using a 7-point Likert scale, where 1 represented "strongly disagree" and 7 represented "strongly agree". This approach allowed for a nuanced understanding of participants' attitudes and behaviors.

The independent variable, Social Media Engagement, was measured using a 5-item scale adapted from Mosteller and Poddar (2017). This scale evaluates the extent and frequency of participants' engagement with social media platforms related to marathon events. Respondents indicated how often they interact with social media using a 7-point scale (1 = "never do," 7 = "always do"). Sample items included: "When I participate in a marathon, I post pictures on social media to share my experience."; "I log onto social media sites at least once per day."; "My social media profile (e.g., Facebook, Instagram) is complete and reflects my personal interests, including sports preferences." etc.

Since social media plays a crucial role in event promotion and community engagement, measuring

this variable helps assess how digital interactions influence intention to participate in marathon events.

The mediating variable, Intention to Participate, was measured based on participants' likelihood to act upon social influences and recommendations within the marathon community. This measurement was adapted from Tseng (2022), which originally examined how individuals respond to support from online health communities. Since marathon participation is often influenced by peer encouragement, online discussions, and shared experiences, this scale captures the extent to which social interactions drive participation intentions.

The dependent variable, Well-Being, was assessed using the 5-item WHO-5 Well-Being Index (Heun et al., 1999), a widely used psychological measure with strong internal reliability. This scale evaluates participants' overall emotional and physical well-being. Sample items included: "In the past two weeks, I have felt cheerful and in good spirits."; "In the past two weeks, I have felt active and vigorous." etc.

Results and Discussion

The correlation coefficients indicate significant positive relationships among the three variables. Specifically, Social Media Engagement exhibits a moderate positive correlation with Intention to Participate ($r = 0.435$) and Well-Being ($r = 0.404$). Additionally, Intention to Participate demonstrates a moderate correlation with Well-Being ($r = 0.484$). These findings suggest that increased engagement with social media is associated with a stronger intention to participate in marathon events, which in turn is linked to higher levels of well-being. The results provide initial empirical support for the hypothesized relationships within the research framework (Table 2).

Table 2 – Latent variable correlation matrix, internal consistency, and average variance extracted

Variable	Social Media Engagement	Intention to Participate	Well-Being	Composite reliability	Cronbach's coefficient	AVE
Social Media Engagement	1			0,871	0,851	0,626
Intention to Participate	0,435	1		0,806	0,784	0,607
Well-Being	0,404	0,484	1	0,967	0,965	0,878

The internal consistency of the constructs was assessed using composite reliability (CR) and Cronbach's alpha. The composite reliability values for all constructs exceed the recommended threshold of 0.70, ranging from 0.806 to 0.967. Similarly, Cronbach's alpha coefficients are well above the accepted standard of 0.70, with values between 0.784 and 0.965. These results confirm that the constructs demonstrate strong internal consistency and reliability, ensuring that the items within each construct reliably measure the intended concept.

Convergent validity was examined through AVE values, all of which surpass the acceptable threshold of 0.50, ranging from 0.607 to 0.878. These values indicate that the constructs account for a substantial proportion of variance in their respective indicators. The results confirm that the measurement model exhibits adequate convergent validity, suggesting that the items effectively capture the underlying constructs.

The analysis indicates a significant direct effect of Social Media Engagement on Intention to Participate ($\beta = 0.435$, $p = 0.000$), with a t-statistic of 6.254, confirming a strong positive association. This suggests that higher engagement with social media platforms is associated with an increased intention to participate in marathon-related activities. Similarly, the direct effect of Intention to Participate on Well-Being is statistically significant ($\beta = 0.484$, $p = 0.000$), with a t-statistic of 5.215. This finding suggests that individuals with a higher intention to participate in marathon events tend to report greater well-being (Figure 1).

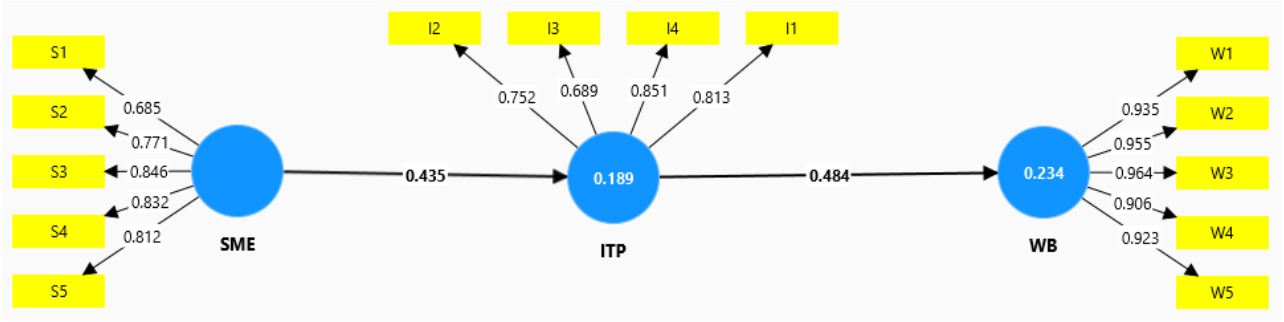

Figure 1 – Research model

Table 3 – Direct and indirect effect

Paths	Original sample	SD	T statistics	P value	Hypthesis
Social Media Engagement -> Intention to Participate	0.435	0.070	6.254	0.000	supported
Intention to Participate -> Well-Being	0.484	0.093	5.215	0.000	supported
Social Media Engagement -> Intention to Participate -> Well-Being	0.210	0.061	3.475	0.001	supported

The mediation analysis further confirms that Social Media Engagement has an indirect effect on Well-Being through Intention to Participate ($\beta = 0.210$, $p = 0.001$). The significant t-statistic (3.475) supports the mediating role of Intention to Participate, indicating that social media engagement contributes to individuals' well-being not only directly but also indirectly by fostering their participation intention (Table 3).

Conclusion

This study examined the relationship between social media engagement, intention to participate, and well-being within the context of marathon participation. The findings confirmed that social media engagement positively influences individuals' intention to participate, which, in turn, enhances their well-being. These results contribute to the growing body of literature on the role of digital communication in promoting sports engagement and psychological well-being.

This research extends the understanding of social media's influence on intention to participate and well-being by integrating concepts from digital engagement, motivation, and sports psychology. The findings support previous studies that highlight the role of online interactions in shaping offline behaviors (Mosteller & Poddar, 2017; Tseng, 2022). By establishing intention to participate as a mediating variable, this study provides new insights into how digital platforms facilitate personal motivation and long-term well-being outcomes in marathon settings. The results also align with self-determination theory, suggesting that social influence and digital engagement can serve as intrinsic motivators for participation in endurance sports.

The findings offer valuable insights for event organizers, policymakers, and digital marketers in the sports industry. Given the strong relationship between social media engagement and participation intentions, marathon organizers should leverage social media campaigns to encourage involvement. Strategies such as user-generated content, interactive challenges, and influencer partnerships can increase engagement and drive participation. Additionally, since marathon participation contributes positively to well-being, policymakers and public health officials could use sports events as a tool for promoting active lifestyles and mental health benefits. Universities, fitness communities, and sports organizations can also use these insights to design interventions that encourage digital engagement as a pathway to physical activity and well-being enhancement.

Despite its contributions, this study has several limitations. First, the sample was limited to participants of the Almaty Marathon, which may affect the generalizability of the findings to other sporting

events or geographic regions. Future research could expand the scope by including multiple marathon events or comparing different types of endurance sports. Second, the study relied on self-reported data, which may introduce social desirability bias. Incorporating objective measures, such as actual social media activity logs or physiological well-being indicators, could enhance the robustness of future studies. Lastly, while this research confirmed the positive link between social media engagement, participation intention, and well-being, future studies could explore additional psychological and social factors, such as sense of community, identity formation, or long-term behavioral changes.

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Information about authors:

Akhmetkazy Bekzat (corresponding author) – 4th year student at the Department of journalism, Al-Farabi Kazakh National University (Almaty, Kazakhstan, e-mail: *bekzatahmetkazy@gmail.com)*

Mamyrova Kulaiym – senior lecturer at the Department of journalism, Al-Farabi Kazakh National University (Almaty, Kazakhstan, e-mail: mamyrova1801@gmail.com)

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