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AI-Augmented Leadership and Employee Well-Being in the MENA Region: Mediating Effects of Fairness and Psychological Safety and the Moderating Role of Authoritarian Leadership

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Abstract. This study aims to investigate the influence of AI-enhanced leadership on employee well-being in the Middle East and North Africa (MENA). It examines the mediating role of psychological safety and perceived fairness of AI, and explores the moderating effect of authoritarian leadership styles. A quantitative study was conducted using data collected from a survey of 104 professionals in Tunisia, Egypt, and Saudi Arabia. This research applied the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique to test the proposed conceptual framework. The results show that AI-augmented leadership has a positive impact on employee well-being. This relationship is partially mediated by psychological safety and perceptions of AI fairness. Furthermore, the presence of authoritarian leadership reduces the beneficial effects of AI-augmented leadership on reducing employee stress, suggesting that cultural norms of leadership influence the effectiveness of AI deployment. This research is among the first to empirically explore the intersection between AI technologies, leader behavior, and employee well-being in the underinvestigated context of the MENA region. It proposes a regionally based, human-centered model of technology leadership, thus addressing the pressing need for ethical and inclusive AI adoption frameworks in public and private organizations undergoing digital transformation.

Keywords: AI-augmented leadership, Authoritarian leadership, Employee well-being, MENA region, Perceived fairness, Psychological safety.

1. INTRODUCTION

The evolution of artificial intelligence (AI) is absolutely changing organizational structures and leadership practices. As AI systems become integrated into strategic and operational workflows, including decision-making, performance evaluation, and human resource management, it becomes essential for leaders to understand the complexities of human-machine collaboration (Dwivedi et al., 2023; Jussupow et al., 2023). In this constantly evolving context, the conventional leadership approach must adapt and integrate the concept of AI-augmented leadership, where human leadership is reinforced, supported, or partially delegated to intelligent technologies (Dellermann et al., 2022).

Building on this emerging paradigm, which integrates human and machine intelligence in managerial decision-making, recent research in industrial–organizational psychology emphasizes that AI-driven management reshapes not only work design but also the social exchange processes between leaders and employees (Zhang & Liu, 2024; Hauff et al., 2023). These studies argue that employee well-being, trust, and motivation depend on how technology-mediated leadership aligns with psychological and cultural expectations of fairness, autonomy, and recognition.

However, the applicability of existing Western-based leadership theories remains uncertain in non-Western settings such as the Middle East and North Africa (MENA), where collectivism, high power distance, and cultural tightness fundamentally shape leader–follower interactions (Gelfand et al., 2021). Drawing from cross-cultural organizational behavior and institutional theory, this study argues that AI-augmented leadership may operate differently in MENA because the socio-cultural environment amplifies hierarchical control and constrains psychological safety—two mechanisms central to well-being outcomes (Metcalfe, 2023; Harms et al., 2022).

In the Middle East and North Africa (MENA), particularly in countries such as Tunisia, Egypt, and Saudi Arabia, governments and businesses are accelerating the adoption of AI as part of broader digital transformation programs. Projects such as the Saudi National Data and AI Strategy (2020), Tunisia's SmartGov program, and Egypt's Vision 2030 illustrate strong institutional support for AI-driven innovation, frequently targeting the public sector and state-owned enterprises (OECD, 2023). However, these implementations often occur in organizational settings characterized by centralized hierarchical structures, a lack of psychological safety, and limited employee involvement in technology creation and implementation.

These features make the MENA context theoretically distinctive: institutional pressures for digitalization coexist with traditional power structures and low participatory cultures. According to socio-technical systems theory (Trist & Bamforth, 1951), the success of technological adoption depends on the mutual adjustment between social systems (leadership, norms) and technical systems. Yet, this balance remains fragile in MENA organizations, where technology is often introduced top-down, reinforcing authoritarian leadership patterns rather than empowering employees (Olan et al., 2022; Kshetri, 2023).

At the micro-level, these dynamics raise important questions about employees' perceptions of AI-induced leadership, particularly in terms of well-being, stress, and fairness. The Job Demands–Resources (JD-R) model offers a useful perspective for analyzing how AI functions as both a resource and a demand (Bakker and Demerouti, 2017; Meijerink et al., 2022). Similarly, perceptions of psychological safety and fairness of AI may

influence how employees interpret these technologies.

Additionally, dominant leadership styles in the MENA region, such as authoritarian or transactional, may affect how AI systems are introduced and perceived. Authoritarian leadership can increase stress and reduce employee autonomy, especially when AI tools are implemented for supervisory or hierarchical control purposes (El Sawy et al., 2022; Olan et al., 2022).

Hence, this study contributes to IO and OB literature by developing a contextualized framework that integrates AI-augmented leadership into established motivational theories, while explicitly theorizing cultural moderation. By combining the JD-R model with cultural and institutional perspectives, it explains why psychological safety and fairness perceptions may function differently under authoritarian and collectivist leadership environments typical of MENA workplaces.

This research aims to develop and empirically test a model linking AI-enhanced leadership to employee well-being in organizations in the MENA region. Furthermore, this model draws on the mediating roles of psychological safety and perceived fairness of AI, as well as the moderating role of authoritarian leadership style. Data were collected from 104 professionals working in public and private organizations in Tunisia, Egypt, and Saudi Arabia, three countries where AI adoption is rapidly progressing.

2. LITERATURE REVIEW

2.1. AI-Augmented Leadership

The emergence of artificial intelligence (AI) has radically transformed the way leadership is exercised, particularly within digitally advanced organizations. AI-augmented leadership refers to the integration of intelligent technologies—such as algorithms, chatbots, predictive analytics, and decision support systems—into leadership functions, including communication, control, performance evaluation, and strategic planning (Dellermann et al., 2022; Jussupow et al., 2023). Far from replacing human leadership, AI enhances managerial capabilities by optimizing information management, coherence, and scalability. However, this growth also creates uncertainties regarding the accountability, transparency, and ethical application of automated decisions (Dwivedi et al., 2023; Raisch and Krakowski, 2021).

2.2. Employee Well-Being

From the perspective of Bakker and Oerlemans (2011); Employee Well-Being is considered as the combination of feeling well-being (hedonic) and functioning well (eudemonic) at work, while integrating life satisfaction, emotional states, whether positive or negative, autonomy, personal development and social relationships. According to the International Labour Organization, employee well-being is a state that encompasses the entire work experience: physical environment, perception of work, and organizational climate. It is increasingly emerging as a strategic organizational outcome (Brough et al., 2023; Grant, 2022). Studies by Taris and Schaufeli (2015) and Page and Vella-Brodrick (2009) add four measurable components: positive affect, negative affect, life satisfaction, and job satisfaction. Bakker and Oerlemans (2012) consider Employee Well-Being to be a multidimensional phenomenon focused on optimal functioning: job satisfaction, engagement, burnout and workaholism. Therefore, it is about two pleasant and two unpleasant forms of work experience. Diener and Ryff distinguish two main aspects. The first is subjective well-being, which is based on life satisfaction and emotional balance, and the second is eudaimonic well-being, which focuses on self-actualization, development, and personal growth. According to Grant et al. (2020), well-being combines hedonic and eudaimonic perspectives, social well-being, and the influences of culture, community, nature, and governance on employees.

The Job Demands-Resources (JDR) model presented by Bakker and Demerouti (2017) provides a solid and relevant theoretical foundation for analyzing the effect of AI on employee outcomes. This model views leadership as a resource that can help reduce negative job demands and improve professional engagement (Bakker et al., 2023). It has therefore become a key moderating factor in managing these two effects, amplifying or mitigating the impact of AI on employee well-being (Meijerink et al., 2022).

2.3. Perceived fairness of AI (Mediation 1)

Perceived fairness of AI is defined as users' judgment of the fairness of AI-assisted decisions, influenced by the level of fairness introduced into the algorithmic process and the provision of explanations detailing decision-making. Shin, D., & Park, Y. J. (2024). According to a study conducted by Huang et al. (2025), perceived fairness of AI is a multidimensional concept that reflects how individuals judge AI decision-making procedures through five aspects: perceived consistency, perceived fairness, perceived group bias, perceived manipulability, and perceived transparency. As Cremer and Narayanan (2025) state, the perceived fairness of AI is understood through organizational justice theory, which integrates: distributive fairness; procedural fairness (during decision-making processes); and informational/interpersonal fairness. In decision-making environments incorporating AI, fairness involves distributive and procedural justice, as well as transparency, explainability, and accountability of algorithms (Martin, 2023; Shank et al., 2022), which significantly influences employee trust, motivation, job satisfaction, and behavioral outcomes (Colquitt et al., 2023; Nishant et al., 2023). On the other hand, a lack of visibility into the functioning of AI tools makes employees more likely to experience technological stress, resistance, or disengagement (Paschen et al., 2023). Therefore, perceived fairness of AI constitutes a

mediating mechanism linking AI-augmented leadership to employee well-being and engagement.

2.4. Psychological Safety (Mediation 2)

Psychological safety is the shared belief that one can speak up and voice one's concerns without fear of negative consequences. Detert and Treviño (2023) demonstrated that psychological safety promotes employee learning, resilience, and speaking up. A recent study by Jussupow et al. (2023) indicated that open and transparent leaders can foster trust and emotional safety, even when AI plays a central role in decision-making.

In AI-enabled environments, psychological safety is proposed as a mediating variable through which AI-augmented leadership shapes employee well-being. The presence of AI in human resource management functions must be accompanied by transparent and inclusive leadership practices. therefore transformational leaders are positioned to mitigate these effects, by fostering trust and open communication, while authoritarian leaders may intensify employee stress (George et al., 2022).

2.5. Authoritarian Leadership (Moderation)

The authoritarian leadership style is characterized by discipline, authority, and centralized control over subordinates. It requires an environment with rigorous and high work standards. Furthermore, this style limits subordinates' autonomy and self-determination (Karakitapoğlu-Aygün et al. 2021). According to Chiang et al. (2020), authoritarian leadership places demands on subordinates, which limits their autonomy and trust.

According to Farh & Cheng (2000), authoritarian leadership refers to the behavior of an authoritarian leader who exercises absolute control over his or her subordinates and makes all important decisions. Authoritarian leadership is a leadership style based on the leader's dominance, strong centralized authority, and control over subordinates.

In the context of AI integration, authoritarian leadership often hinders innovation, autonomy, and employee well-being (Pan et al., 2023). Consequently, it can weaken the positive effects of AI-enhanced leadership on psychological safety and well-being.

According to a study by Kshetri, 2023, authoritarian leadership remains prevalent in hierarchical organizational cultures, including those in the MENA region.

2.6. The MENA Region: A Unique Context for AI and Leadership

Many countries, such as Saudi Arabia, Egypt, and Tunisia, have explored AI, but empirical research in the MENA region remains scarce.

Furthermore, organizational cultures often lean toward hierarchical leadership, meaning employees will have limited influence over technological changes (OECD, 2023). This makes the region a unique context for studying the practical operation of AI-enhanced leadership and its impact on human factors such as trust, stress, and well-being.

According to a study conducted by e and IBM (2024), 65% of CEOs in the MENA region encourage their organizations to adopt generative AI. However, despite the MENA region's innovation potential, challenges persist in AI adoption, such as a lack of data, infrastructure, national strategies, and human capital (Data & Policy, 2024). This study empirically investigates the relationships between AI-augmented leadership, psychological safety, perceived AI fairness, and employee well-being, while exploring the moderating role of authoritarian leadership style in organizations in the MENA region.

3. THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

To build a multidimensional model linking AI-augmented leadership to employee well-being; this study draws on job demands-resources (JD-R) theory (Bakker and Demerouti, 2017), equity theory (Colquitt et al., 2022), and contingency leadership perspectives (Fiedler, 2023). However, this study extends these classical frameworks through an institutional and cultural lens to explain the distinctive leadership–technology–well-being dynamics observed in the MENA region. Building on cross-cultural organizational behavior theories (Gelfand et al., 2021) and socio-technical systems thinking (Brougham et al., 2024), we argue that AI adoption interacts with leadership culture and power distance to shape how fairness and psychological safety translate into employee well-being.

3.1. Theoretical Foundation: Job Demands–Resources and Augmented Leadership

In rapidly changing digital environments, AI systems can act as both a resource and a requirement, depending on how they are deployed and perceived by employees (Meijerink et al., 2022; Dwivedi et al., 2023).

This model explains how job resources such as benevolent leadership and fair practices and job demands (e.g., AI monitoring, digital overload) influence employee outcomes such as well-being, stress, and engagement.

The JD-R framework offers a foundational but incomplete explanation when applied globally. As noted by Hauff et al. (2023), contextual variables such as national culture, power asymmetry, and institutional expectations moderate how resources (e.g., leadership support, AI tools) influence well-being. In high power-distance cultures like MENA (Hofstede, 2023), leaders often act as gatekeepers of resources, shaping whether AI is perceived as

empowering or controlling. Thus, AI-augmented leadership can become either a job resource or a job demand depending on cultural alignment and leadership behavior.

Within the framework of leadership practices, we consider perspectives from augmented leadership (Dellermann et al., 2022), which emphasize that AI technologies tend to enhance managerial decision-making rather than replace it. By leveraging AI to optimize communication, feedback, and fairness, leaders can appear more competent and transparent (Jussupow et al., 2023), contributing to a safer and more collaborative work environment.

To adapt this logic to MENA organizations, we integrate insights from socio-technical systems theory, which emphasizes the mutual adaptation between social structures (e.g., leadership, norms) and technological infrastructures (Trist & Bamforth, 1951; Brougham et al., 2024). In societies where leadership authority is centralized, such adaptation may be asymmetrical: AI serves to reinforce existing hierarchies rather than to decentralize control. This makes the MENA context theoretically significant, as it tests the boundary conditions of JD-R and leadership theories that were primarily validated in Western, low power-distance environments (Harms et al., 2022).

This study is primarily based on the Job Demands-Resources (JDR) model developed by Bakker and Demerouti in 2017. This model explores how job resources, such as benevolent leadership or fair practices, as well as demands such as artificial intelligence surveillance or digital overload, influence key aspects such as employee well-being, stress, and engagement. In the context of environments marked by digital transformation, AI systems can simultaneously play the role of a resource or constitute a requirement, depending on the modalities of their implementation and the perception that employees have of them (Meijerink et al., 2022; Dwivedi et al., 2023).

3.2. AI-Augmented Leadership and Employee Well-Being

Employee well-being in IO psychology refers to a multidimensional construct encompassing hedonic (affective) and eudaimonic (functional) well-being, including autonomy, engagement, and perceived purpose (Grant et al., 2020; Brough et al., 2023).

While AI technologies are often linked to process improvement, their influence on well-being depends heavily on how managers integrate and manage these tools (George et al., 2022). By leveraging AI, leaders can limit areas of uncertainty, enhance the quality of feedback, and encourage more inclusive communication, particularly through increased transparency in algorithms (Ransbotham et al., 2023).

The concept of AI-augmented leadership refers to practices where AI is used to strengthen decision-making, improve communication, optimize monitoring, and foster team development (Dellermann et al., 2022). Far from seeking to replace leaders, artificial intelligence enhances their cognitive abilities, enabling a more responsive and data-driven management style (Jussupow et al., 2023). However, the impact of AI-enhanced leadership on employee well-being depends not only on efficiency gains but also on how employees perceive the use of this technology, particularly in terms of fairness, transparency, and trust.

Recent research indicates that the use of technology in leadership can have a positive impact on well-being by strengthening perceptions of competence, autonomy, and fairness (Meijerink et al., 2022; Hauff et al., 2023). Consistent with JD-R theory, AI-enhanced leadership is presented as a professional resource capable of promoting psychological health, provided it is implemented inclusively and with an ethical approach.

H_1: AI-augmented leadership is positively associated with employee well-being.

3.3. Mediating Role of Psychological Safety

Psychological safety, defined as the shared belief that it is safe to take interpersonal initiative (Edmondson & Lei, 2014), is a fundamental pillar for maintaining healthy and adaptive work environments.

AI-enhanced leaders, by promoting transparency and shared understanding, can reduce the ambiguity and fear associated with algorithmic systems. This, in turn, can improve employees' psychological safety, leading to better well-being. Previous studies have highlighted that psychologically safe environments mitigate stress and improve mental health (Jiang & Probst, 2022; Mohr et al., 2024).

In AI-enabled settings, it plays a key role by enabling employees to freely share concerns about algorithm-generated decisions, communicate data-driven insights, and collaborate without fear of punishment or retaliation (Newman et al., 2023). Through the guidance of AI-assisted leaders, greater transparency and collective understanding can be established, thereby defining uncertainties and fears related to algorithmic systems. These efforts directly contribute to improving psychological safety, which benefits employee well-being overall. Furthermore, previous research has shown that environments characterized by strong psychological safety can reduce perceived stress while promoting mental health (Jiang and Probst, 2022; Mohr et al., 2024).

In short, AI adoption frequently raises concerns about surveillance, job insecurity, and reduced autonomy. However, these challenges can be addressed by fostering psychological safety, which refers to a collective understanding of interpersonal risk-taking without harm to team members (Edmondson, 1999; Newman et al., 2017). Leaders who communicate transparently about how AI tools work, actively involve employees in decision-making, and create open feedback spaces are better positioned to maintain a sense of psychological safety within

their teams (Meijerink et al., 2022).

Based on the previous analysis, we formulate the following hypothesis:

H_2. AI-augmented leadership is positively associated with psychological safety.

H_3. Psychological safety is positively associated with employee well-being.

H_4. Psychological safety mediates the relationship between AI-augmented leadership and employee well-being.

3.4. Mediating Role of Perceived AI Fairness

The fairness of AI systems, especially in terms of transparency, explainability, and perceived equity, is gaining significant attention as an essential element for technology acceptance. Leadership practices that incorporate AI and emphasize fairness, such as transparent evaluations and algorithmic accountability, have the potential to foster employee trust while alleviating stress.

H_5. AI-augmented leadership is positively associated with perceived AI fairness.

H_6. Perceived AI fairness is positively associated with employee well-being.

H_7. Perceived AI fairness mediates the relationship between AI-augmented leadership and employee well-being.

3.5. Moderating Role of Authoritarian Leadership Style

An authoritarian leadership style, often marked by centralized control, reduced upward communication, and unilateral decision-making, risks hampering the benefits of psychological safety and fairness, particularly in technological environments.

Integrating contingency and cultural leadership theories (House et al., 2024), this study conceptualizes authoritarianism as a contextual moderator that shapes the translation of AI leadership into psychological outcomes. While AI tools can enhance communication and fairness in participatory settings, they may instead strengthen control and stress in authoritarian systems. This cultural contingency is central to understanding the boundary conditions of AI leadership effectiveness in the MENA region.

In many companies located in the MENA region, the adapted leadership styles are authoritarian, marked by a high degree of control, rigid hierarchy, and limited employee involvement, and risk limiting the benefits that AI could offer. Although integrating AI into leadership can generate positive results, its effectiveness remains closely linked to the overall leadership conditions within organizations. This type of approach can intensify stress within teams and reduce perceptions of fairness (Olan et al., 2022; Kshetri, 2023). In these contexts, employees may not view AI as an opportunity for empowerment, but rather as a tool intended to strengthen control mechanisms.

According to Sarma and Braganza (2023); Employees in these regions may perceive AI tools more as surveillance than as support mechanisms. This negative perception may thus limit the positive impact that psychological safety and fairness could have on employee well-being.

In short, leadership culture, particularly in societies with significant power distance, such as those in the MENA region, exerts a decisive influence on the adoption and integration of artificial intelligence (AI) (Olan et al., 2022; Hofstede Insights, 2023).

H_8. Authoritarian leadership moderates the relationship between AI-enhanced leadership and psychological safety, such that this relationship is weaker in cases of high authoritarianism.

H_9. Authoritarian leadership moderates the relationship between perceived AI fairness and employee well-being, such that this relationship is weaker in cases of high authoritarianism.

The model of this research proposes that AI-augmented leadership enhances employee well-being through the mediating effects of psychological safety and AI fairness, and that these effects are contingent on the level of authoritarian leadership style present in the organization.

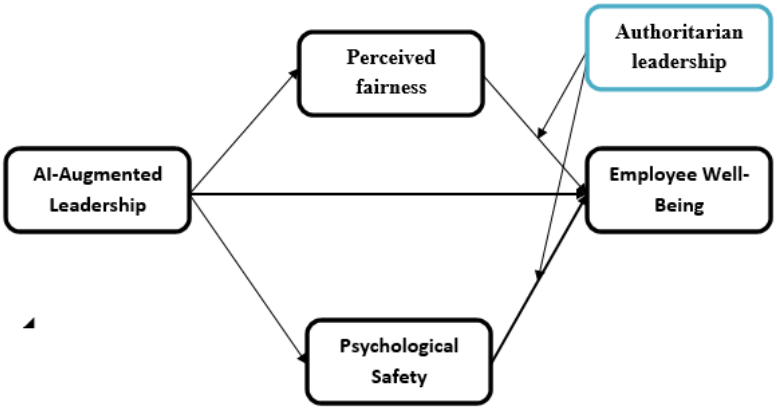

Figure 1. The research model.

4. METHODOLOGY

4.1. Research Design

Given the exploratory and predictive nature of the research design, a survey methodology was adopted to collect data from employees of several organizations in the MENA region.

A structured questionnaire was developed and distributed to professionals working in public and private sector organizations undergoing digital transformation in three MENA countries: Tunisia, Egypt, and Saudi Arabia.

4.2. Sampling and Data Collection

Data were collected via an online questionnaire addressed to employees and leaders of public and private sector organizations in Tunisia, Egypt, and Saudi Arabia. These countries were selected due to their dynamic digital transformation policies and rich cultural contexts.

To ensure the relevance of the results, a purposive sampling strategy was adopted, specifically targeting professionals involved in or affected by AI-based leadership practices. This approach aimed to provide detailed information on the impacts of AI integration in these environments. A total of 104 valid responses were retained after data cleaning.

Data were collected between December 2024 and April 2025 using a combination of online surveys and printed questionnaires distributed through professional networks, academic alumni groups, and organizational HR departments.

Purposive sampling was used to target knowledge workers, middle managers, and senior professionals with exposure to AI tools in the workplace. A total of 137 responses were received, of which 104 were deemed usable after removing incomplete and invalid submissions.

The study's sample comprised participants from diverse sectors, including finance, healthcare, education, manufacturing, and public administration. Approximately 58% were male and 42% female, with 63% employed in the private sector and 37% in the public sector. More than 70% indicated that AI-supported systems, such as chatbots, data analytics dashboards, and AI-assisted decision-making tools, formed a regular part of their daily workflows. Geographically, the respondents were distributed across Tunisia (43 individuals), Egypt (31 individuals), and Saudi Arabia (30 individuals).

4.3. Measurement Instruments

The questionnaire included validated scales adapted to the study context, all measured on a **5-point Likert scale** (1 = strongly disagree to 5 = strongly agree):

- AI-Augmented Leadership**:** Measured using a 6-item scale adapted from Dellermann et al. (2022) and Jussupow et al. (2023), capturing leader reliance on AI tools in decision-making, communication, and monitoring.
- Psychological Safety**:** Measured using a 7-item scale adapted from Edmondson (1999) and Newman et al. (2017), capturing employees' perceptions of interpersonal risk and openness.
- Perceived Organizational Fairness**:** Measured using a 6-item scale adapted from Colquitt et al. (2023), capturing perceptions of procedural and distributive fairness in AI-influenced processes.
- Authoritarian Leadership Style**:** Measured using a 5-item scale adapted from Cheng et al. (2004), capturing control and hierarchical leadership traits.
- Employee Well-Being**:** Measured using a 7-item scale adapted from Danna and Griffin (2022), capturing affective and cognitive aspects of well-being at work.

4.4. Data Analysis

The data analysis followed a two-stage approach consistent with best practices for structural equation modeling:

1. Measurement Model Assessment: 1. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to test the measurement model and structural paths using SmartPLS 4.0. This method was chosen due to its suitability for exploratory models with latent constructs, small-to-medium sample sizes, and mediation/moderation effects (Hair et al., 2023). Measurement model validity was assessed through indicator reliability, composite reliability, average variance extracted (AVE), and discriminant validity (Fornell-Larcker and HTMT criteria).
2. Structural Model Testing: Hypotheses were tested using bootstrapping with 5,000 resamples to assess path coefficients, significance, effect sizes (f^2), and predictive relevance (Q^2).

4.5. Justification for Using SmartPLS

SmartPLS, a variance-based structural equation modeling tool, was selected for several reasons:

- It performs robustly with moderate sample sizes, such as the 104 responses in this study, unlike covariance-based SEM, which typically demands larger samples (Hair et al., 2019).
- It is well-suited for analyzing complex models that incorporate mediation and moderation effects.

- It accommodates the expected data distribution in the MENA context by not requiring strict normality assumptions (Sarstedt et al., 2020).
- It includes bootstrapping procedures that enable reliable significance testing for both indirect and interaction effects (Ringle et al., 2020).

5. RESULTS

5.1. Descriptive Statistics

The study involved 104 respondents, comprising employees from public and private sector organizations across Tunisia, Egypt, and Saudi Arabia. Participants were between the ages of 25 and 55, with a gender distribution of 62% male and 38% female. Around 54% held mid-level managerial roles, while 46% worked in front-line positions. Nearly 68% indicated that AI technologies were actively integrated into their workplaces, particularly for tasks such as performance tracking, scheduling, and supporting decision-making processes.

5.2. Measurement Model Assessment

To assess construct validity and reliability, the measurement model was evaluated using SmartPLS 4.0.

Table 1. Reliability and Convergent Validity of the Constructs.

Construct	Cronbach's Alpha	Composite Reliability	AVE
AI-Augmented Leadership	0.87	0.91	0.63
Psychological Safety	0.89	0.92	0.66
Perceived AI Fairness	0.85	0.89	0.61
Authoritarian Leadership	0.83	0.87	0.59
Employee Well-Being	0.91	0.93	0.68

All loading values exceeded 0.70 and discriminant validity was confirmed using both the Fornell–Larcker criterion and HTMT ratio (<0.85).

5.3. Structural Model Results

The structural model was evaluated using bootstrapping (5,000 resamples). The path coefficients, t-values, and p-values are shown below:

Table 2. Hypotheses Testing Results.

Hypothesis	Path	β (Beta)	t-value	p-value	Result
H1	AI-Augmented Leadership → Well-Being	0.32	3.84	<0.001	Supported
H2	AI-Augmented Leadership → Psychological Safety	0.44	5.22	<0.001	Supported
H3	Psychological Safety → Well-Being	0.27	2.91	0.004	Supported
H4	Indirect (via Psych. Safety)	0.12	2.41	0.016	Supported
H5	AI-Augmented Leadership → AI Fairness	0.51	6.03	<0.001	Supported
H6	AI Fairness → Well-Being	0.29	3.37	0.001	Supported
H7	Indirect (via AI Fairness)	0.15	2.73	0.007	Supported
H8	Authoritarian × Psych. Safety	−0.22	2.15	0.032	Supported
H9	Authoritarian × AI Fairness	−0.19	2.04	0.041	Supported

5.4. Mediation and Moderation Effects

Psychological safety and perceived AI fairness were identified as partial mediators in the relationship between AI-augmented leadership and employee well-being. This implies that leadership incorporating AI impacts well-being primarily via mechanisms related to psychological safety and perceptions of fairness. Moderation analyses revealed that an authoritarian leadership style negatively influenced the following relationships: - AI fairness and its effect on well-being - AI-augmented leadership and its impact on psychological safety These results suggest that in environments characterized by authoritarian leadership, the beneficial effects of AI-augmented leadership are diminished.

6. DISCUSSION

This research aimed to examine the impact of AI-augmented leadership on employee well-being, highlighting the mediating role of psychological safety and perceived perceived AI fairness, as well as the moderating role of authoritarian leadership style in MENA-based organizations. The findings provide robust empirical support for a majority of hypotheses and provide valuable insights into the implications of human-centered implications of AI leadership in developing digital economies.

6.1. Main Findings

First, consistent with previous research (Dellermann et al., 2022; Dwivedi et al., 2023), the results confirm that AI-enhanced leadership positively influences employee well-being, both directly and indirectly. Leaders who integrate AI to improve decision-making, transparency, and communication report higher job satisfaction,

reduced stress, and a fairer perception of their management. These observations support the idea that AI, when deployed ethically and strategically, can serve as a valuable resource in the workplace (Meijerink et al., 2022; Bakker and Demerouti, 2017).

Second, psychological safety emerges as a key factor mediating the relationship between AI-augmented leadership and employee well-being. This observation is consistent with previous work by Newman et al. (2017) and Edmondson (1999), who demonstrated that open environments based on transparency and trust foster greater employee engagement while reducing the risk of burnout. In contexts where AI plays a central role, psychological safety appears to help employees understand algorithmic decisions, while avoiding feelings of fear or resistance that might otherwise arise.

Third, the perceived fairness of AI plays a key role in the effects of leadership on employee well-being. This reflects recent studies that identify fairness, explainability, and transparency as key factors in trust in AI systems (Kroll et al., 2021; Ransbotham et al., 2023). When employees perceive AI tools as fair—and not biased, opaque, or punitive—they are more likely to accept them and experience positive psychological outcomes.

Finally, authoritarian leadership style was shown to moderate key relationships. In highly authoritarian environments, the positive impacts of AI-augmented leadership on psychological safety and perceived fairness were attenuated, consistent with the findings of Olan et al. (2022) and Kshetri (2023). These findings highlight the need to consider contextual leadership culture, particularly in hierarchical or paternalistic systems typical of many organizations in the MENA region.

Short, this study confirms and expands on the findings established in the Global North on several key points:

- Similar to the work of Jussupow et al. (2023), it highlights that human-AI collaboration in leadership can generate positive results, but only if it is based on ethical leadership behavior.
- Unlike in Western contexts, where transformational leadership predominates, this research reveals that authoritarian leadership can reduce or even reverse the benefits provided by AI, particularly in cultures marked by high power distance (El Sawy et al., 2022).
- While the majority of studies on AI-leadership focus primarily on productivity, decision accuracy, or innovation (Paschen et al., 2023), this research highlights often-neglected themes such as well-being, fairness, and safety.

6.2. Practical and Theoretical Implications

This study contributes to the growing body of literature at the intersection of artificial intelligence, leadership, and employee well-being, with several notable theoretical implications. It contributes to a context-sensitive understanding of AI leadership. In the MENA region, characterized by centralized leadership, unequal access to digital technologies, and limited employee participation, AI tools risk consolidating dominant power relations if not deployed wisely. The findings indicate that, without a shift toward more inclusive and transparent leadership, the ethical and psychological implications of AI could outweigh efficiency gains.

First, the findings extend the Job Demands–Resources (JD-R) model by integrating AI- augmented leadership as an innovative organizational resource. This type of leadership not only reduces uncertainty and stress, but also helps strengthen fairness and psychological safety within teams. Unlike previous research, such as that of Bakker and Demerouti (2017) or Brough et al. (2023), which focused on traditional resources such as autonomy or social support, this study offers a modern vision where digitally augmented leadership, when used ethically, becomes a valuable asset for organizations.

Second, the dual mediation by perceived fairness and psychological safety enriches the theoretical understanding of the mechanisms through which AI- integrated leadership exerts its influence. While previous research has studied these mediators individually (e.g., Martin 2023 or Edmondson and Lei 2022), few have examined their simultaneous role in AI-related leadership models. This integrative approach allows for a more comprehensive analysis of how and why AI- supported leadership can contribute to employee well-being.

Third, the moderating role of authoritarian leadership highlights the importance of contextual and cultural variables in leadership and AI research. This observation supports the arguments of researchers such as Metcalfe (2023) and Kshetri (2023) for a more localized and culturally adapted understanding of digital transformation in non-Western contexts. In particular, the identified negative moderating effects indicate that distance and hierarchical rigidity can neutralize the developmental benefits of AI, if not intentionally addressed.

6.3. Managerial Implications

The findings offer several practical insights for organizational leaders, HR professionals, and policymakers in the MENA region and similar emerging economies.

First, organizations should treat AI-augmented leadership not as a technical solution but as a strategic capability that requires ethical training, change management, and human-centered implementation. Leaders should be trained to use AI tools in ways that promote transparency, reduce ambiguity, and invite employee participation.

Second, it is important to design organizational systems that emphasize fairness and psychological safety. To this end, leaders must establish transparent communication about the decision-making processes of AI tools,

ensure the impartiality of data-driven results, and foster a team culture where everyone feels free to share their concerns and adapt to change. This is particularly important in contexts where fear of automation or algorithmic control can lead to resistance.

Third, in some industries in the MENA region, authoritarian leadership styles often remain deeply entrenched. It is crucial for senior leadership teams to evaluate these practices and move toward more inclusive and participatory leadership. This transition will not only increase the effectiveness of AI tools but also strengthen organizational resilience and employee well-being.

Finally, policymakers in nations aspiring to digital transformation must establish regulatory frameworks and promote educ literacy initiatives aimed at ethical AI adoption. Partnerships between governments and industry sectors can help develop ethical standards for the use of AI in leadership and human resources, ensuring that this innovation brings tangible benefits to human development.

7. CONCLUSION

The study aimed to explore the impact of AI-augmented leadership on employee well-being in the MENA region, emphasizing the mediating roles of perceived organizational fairness and psychological safety, along with the moderating effect of authoritarian leadership. Utilizing the Job Demands–Resources (JD-R) framework and insights from recent studies on AI-human collaboration, a conceptual model was created and tested empirically using data collected from 104 professionals based in Tunisia, Egypt, and Saudi Arabia.

This research offers several significant contributions. Firstly, it presents AI-augmented leadership as an innovative and influential concept within the fields of organizational behavior and digital transformation. Secondly, it underscores the importance of fairness and psychological safety as key psychological processes through which AI- supported leadership enhances employee well-being. Lastly, it emphasizes the moderating influence of authoritarian leadership in determining the effectiveness of AI adoption, especially within hierarchical and culturally intricate contexts like those in the MENA region.

7.1. Future Research and Practice

This study opens promising avenues for future research. It would be worthwhile for researchers to further analyze the interactions between AI technologies and leadership styles, taking into account various cultural contexts and organizational levels. Long-term approaches and experimental studies could provide a better understanding of how these dynamics evolve over time. Additionally, further research could examine the impact of other contextual factors, such as trust in AI, digital maturity, or transparency within organizations.

From a practical perspective, the findings highlight that successfully integrating AI is not only a technical challenge, but also a leadership imperative. Companies wishing to maximize the benefits of AI will need to invest in strengthening leadership skills, employee engagement, and fairness-centered system design.. In regions such as MENA, where authoritarian leadership styles are sometimes still dominant, it would be essential to promote more participatory and inclusive management practices, while firmly committing to digital transformation initiatives.

In conclusion, the human impact of AI in organizations depends as much on the technology itself as on how it is implemented, managed, and understood. Human-centered AI leadership guided by ethical principles and cultural awareness, is crucial to converting innovation into a source of well-being.

7.2. Limitations and Future Research

Despite this study provides valuable insights, it is important to recognize certain limitations, all of which open up promising avenues for future research.

First, this research employed a cross-sectional design, which inherently constrains causal inference in moderated mediation models (Stone-Romero & Rosopa, 2008). While this limitation is acknowledged, it is important to clarify that the study's objective was exploratory and theory-building rather than confirmatory. Following methodological best practices for partial least squares structural equation modeling (PLS-SEM), cross-sectional data are appropriate for testing early-stage models and generating empirical foundations for future longitudinal validation (Hair et al., 2023; Ringle et al., 2024).

Moreover, PLS-SEM is particularly suitable when theoretical models involve complex mediating and moderating interactions and when the research context—such as the MENA region—makes random sampling and longitudinal data collection difficult (Sarstedt et al., 2024). Accordingly, the findings should be interpreted as preliminary but theoretically informative evidence of how AI-augmented leadership mechanisms function in culturally specific environments.

While structural equation modeling provides reliable estimates of associations, it fails to account for temporal changes.

Future research should thus prioritize longitudinal, multi-wave, or experimental approaches that allow the observation of temporal effects—particularly to examine whether perceptions of AI fairness and psychological safety evolve as employees adapt to AI technologies. This would provide stronger evidence of mediation causality and test the stability of cultural moderation effects over time (Ployhart & Vandenberg, 2023).

Second, although the MENA region provides a theoretically rich and underexamined context, it cannot be treated as culturally homogeneous. Cross-national variations in power distance, institutional trust, and digital maturity are likely to shape leadership–AI interactions differently across countries (Metcalfe, 2023; Kshetri, 2023). Comparative and multi-level designs could therefore clarify how national culture and organizational climate jointly moderate AI-leadership outcomes.

The countries that make up this region display marked disparities in economic development, institutional structures, digital maturity, and leadership traditions. These disparities may play a determining role in how AI is adopted and perceived by employees. Thus, future work could benefit from comparative studies between different countries in the region, integrating cultural aspects such as power distance, collectivism, or trust in institutions to examine them as influential or moderating contextual factors.

Third, while the quantitative approach adopted in this study allowed for hypothesis testing and model validation, it may have limitations when it comes to capturing the subjective and emotional dimensions related to employees' perceptions of AI in leadership contexts. In this case, qualitative methods, such as in-depth interviews, focus groups, or ethnographic research, could offer richer insights into the relational and ethical complexities surrounding AI integration, particularly in sensitive or high-stakes environments.

Finally, *future models could extend this work by examining other psychological mechanisms such as perceived empowerment, algorithmic transparency, and trust in AI (Glikson & Woolley, 2023) to better capture the multifaceted impact of AI-augmented leadership on employee well-being.*

In summary, this study contributes theoretically by situating AI-augmented leadership within cross-cultural and institutional contexts, and methodologically by demonstrating the exploratory validity of PLS-SEM in emerging regions. Future research adopting longitudinal or experimental designs will be essential to establish causal pathways and refine the boundary conditions of AI-driven leadership effectiveness.

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