AI-powered HRM and ethical leadership: Balancing efficiency and human-centricity

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Abstract

This study explores the intersection of Artificial Intelligence (AI)-powered Human Resource Management (HRM) and ethical leadership within organizations in Jeddah, Saudi Arabia. It aims to investigate how ethical leadership can mediate and moderate the ethical challenges associated with AI integration in HR functions. A quantitative, cross-sectional research design was adopted, utilizing a structured questionnaire administered to 350 employees across various sectors that have implemented AI-driven HR systems. The study employed statistical techniques including cluster analysis, regression analysis, and Structural Equation Modeling (SEM) to assess relationships among AI usage, ethical concerns, and leadership factors. The results indicate that while AI adoption enhances HR efficiency in recruitment, performance management, and analytics, it also raises significant ethical concerns such as bias, lack of transparency, and reduced human oversight. Ethical leadership, characterized by fairness, openness, and integrity, was found to significantly reduce these concerns by fostering trust and transparency. It both mediated the relationship between leadership and AI governance and moderated the link between AI usage and perceived ethical challenges. Ethical leadership plays a pivotal role in mitigating the ethical risks posed by AI in HRM. Its presence helps align technological advancement with human-centric values, ensuring responsible and accepted use of AI tools in HR functions. The study underscores the need for organizations to invest in leadership development alongside technological upgrades. HR leaders must prioritize transparency and employee trust to successfully integrate AI while maintaining ethical standards. These insights are especially relevant for organizations operating in culturally complex environments like Saudi Arabia.

1. Introduction

In the last decade, the integration of Artificial Intelligence (AI) into Human Resource Management (HRM) has revolutionized the way organizations recruit, manage, and retain talent. From resume screening and performance tracking to employee engagement analytics, AI has introduced a new level of precision, speed, and scalability to HR processes [1]. These innovations have enabled businesses to handle vast amounts of employee data, predict workforce trends, and make data-driven decisions with unprecedented efficiency. However, while these advancements promise operational excellence, they also introduce complex ethical challenges that question the very human essence of HRM [2]. At its core, HRM has always been about managing people. It is a function that relies heavily on empathy, ethical judgment, and interpersonal relationships. The traditional role of the human resource professional extends beyond administrative tasks; it involves understanding individual motivations, fostering a positive organizational culture, and ensuring fairness and equity in the workplace. With AI increasingly taking over decision-making processes that were once deeply human, a critical tension has emerged: how can organizations maintain a human-centric approach to managing people while embracing AI for efficiency?

This tension lies at the heart of this research paper. It explores the intersection of AI-driven HRM practices and ethical leadership, a leadership style that emphasizes fairness, integrity, and concern for stakeholders [3]. The premise is not to advocate for or against the use of AI in HRM but rather to critically examine how ethical leadership can serve as a guiding force in aligning AI adoption with human-centered values. The emergence of AI-powered HRM tools reflects a broader shift in business toward datafication and automation. Sophisticated algorithms can now screen thousands of resumes in seconds, identify patterns in employee behavior, and even predict future resignations [4]. Companies like IBM, SAP, and Oracle have invested heavily in AI-driven HR platforms that promise to reduce bias, increase consistency, and drive business outcomes. Yet, paradoxically, these same systems can also perpetuate existing inequalities, obscure accountability, and alienate employees when used without sufficient oversight [5]. For instance, algorithmic bias in hiring tools has become a well-documented issue. In one high-profile case, Amazon had to scrap its AI recruitment tool after discovering that it systematically downgraded applications from women due to historical data that favored male candidates [4]. Similarly, predictive analytics tools that assess employee productivity can often rely on opaque criteria that employees do not understand or cannot challenge, leading to a loss of trust and morale [6]. This growing reliance on automated decision-making raises pressing ethical questions: Who is accountable when an AI system makes a flawed or discriminatory decision? How transparent are these systems in terms of their data sources, logic, and outcomes? Are employees given enough agency to understand and challenge AI-driven judgments about their performance or career prospects? These are not just technical concerns but deeply human ones, with implications for dignity, justice, and organizational culture [7]. Enter ethical leadership, a model of leadership that prioritizes moral decision-making, fairness, and stakeholder engagement. Ethical leaders are those who demonstrate concern for the broader impact of their decisions, especially on individuals and communities within and beyond the organization. They are committed to transparency, accountability, and fostering a culture of trust [3]. In the context of AI-powered HRM, ethical leadership is not merely a desirable trait but an essential requirement. Without strong ethical oversight, organizations risk turning HR into a cold, data-driven function that loses sight of the people it is meant to serve [2, 8]. Ethical leadership provides a counterbalance to the impersonal nature of AI by emphasizing human values in technological design and implementation. It encourages organizations to question not just what AI can do, but what it should do. Ethical leaders ask critical questions: Are our AI tools aligned with our organizational values? Do they respect the autonomy and privacy of our employees? Have we considered the unintended consequences of relying on algorithmic decision-making? These questions are vital in ensuring that AI does not erode the moral fabric of the workplace [6].

Moreover, ethical leadership plays a critical role in guiding change management during the implementation of AI systems. Introducing AI into HR processes often requires significant cultural adjustments, as employees may fear job loss, increased surveillance, or loss of control over their careers [9]. Ethical leaders can facilitate this transition by fostering open communication, involving employees in decision-making, and ensuring that the purpose of AI adoption is clearly articulated and aligned with employee well-being. The relationship between AI in HRM and ethical leadership is therefore not antagonistic but complementary. AI can be a powerful tool for advancing ethical outcomes, such as reducing bias in recruitment or enhancing inclusivity, if it is designed and deployed under the guidance of ethical leaders [4]. Conversely, even the most well-intentioned AI systems can cause harm if implemented without ethical consideration. This interplay suggests that the future of HRM lies not in choosing between technology and humanity but in finding ways to harmonize them. The research also incorporates case studies from various industries to illustrate both successful and problematic implementations of AI in HR. Through these examples, the paper demonstrates that ethical leadership is not a theoretical ideal but a practical necessity for navigating the evolving landscape of HRM. Finally, the paper offers recommendations for HR professionals, organizational leaders, and policymakers on how to foster ethical practices in AI deployment. In an era where efficiency is often prioritized over empathy and data is seen as more reliable than human intuition, the need for ethical leadership has never been more urgent. As organizations continue to embrace AI in their HR functions, they must also reaffirm their commitment to human-centric values. The goal is not to halt technological progress but to guide it with a moral compass, to ensure that in our pursuit of efficiency, we do not lose sight of humanity at the heart of human resources.

1.1. Research Problem and Gap

As organizations worldwide increasingly embrace Artificial Intelligence (AI) within their Human Resource Management (HRM) functions, the promise of greater efficiency, speed, and data-driven decision-making is becoming more evident. AI is now widely used in processes such as candidate screening, employee performance evaluation, and

predictive workforce analytics to reduce costs and eliminate human bias. However, despite these technological advantages, a growing body of research highlights significant ethical challenges that accompany AI adoption in HR. Issues such as algorithmic bias, lack of transparency, data privacy concerns, and reduced human oversight have sparked debates about how AI can sometimes reinforce existing inequalities rather than eliminate them. In the global context, there has been increasing scholarly focus on how ethical leadership can act as a safeguard, ensuring that AI technologies are used in ways that uphold values such as fairness, accountability, and respect for individual dignity. Ethical leadership, characterized by moral decision-making, transparency, and care for stakeholder welfare, has been shown to influence how organizations design, implement, and monitor AI systems. However, much of the existing literature and empirical research remains Western-centric, with limited attention given to how these dynamics play out in different cultural and institutional environments.

In Saudi Arabia, a country undergoing rapid digital transformation under its Vision 2030 initiative, AI adoption is expanding across sectors, including HRM. Yet, there is little empirical understanding of how Saudi organizations are ethically managing this shift. Given the Kingdom's unique cultural context rooted in Islamic values, collectivist traditions, and hierarchical structures, there is a pressing need to explore how AI in HRM is governed, how both employees and leaders perceive concerns, and what role ethical leadership plays in mediating these developments. This research addresses that gap by aiming to explore the current uses of AI in HRM within Saudi organizations, examine the ethical challenges that emerge from its application, and investigate how ethical leadership influences the responsible adoption and oversight of these technologies.

1.2. Research Objectives

This study aims to:
- Examine the current use of AI-powered tools in HR functions within Saudi organizations.
- Identify the ethical challenges perceived by employees regarding these tools.
- Investigate the role of ethical leadership in influencing AI governance and employee acceptance.

1.3. Research Questions

- How are Saudi organizations currently using AI in their HRM processes?
- What ethical challenges are perceived by stakeholders in AI-powered HR systems?
- In what ways does ethical leadership impact the adoption and governance of AI in HR functions?

1.4. Structure of the Paper

The remainder of this paper is organized as follows: the next section reviews relevant literature on AI in HRM and ethical leadership. This is followed by the methodology, which outlines the research design, data collection, and analysis techniques. The results section presents key findings from the statistical analysis, followed by a discussion that contextualizes these findings within the broader literature. The paper concludes with practical implications, limitations, and directions for future research.

2. Literature Review

Over the past decade, artificial intelligence (AI) has emerged as one of the most transformative forces within human resource management (HRM) worldwide. Companies are increasingly turning to AI-driven tools to improve the efficiency of hiring, streamline employee performance tracking, and make data-informed decisions about workforce development [1, 10]. While these technologies offer promising advantages, they also raise pressing concerns about ethics, fairness, and the erosion of human judgment in critical decision-making. What was once a field deeply rooted in personal interaction and emotional intelligence is now being reshaped by algorithms that evaluate resumes, monitor employee productivity, and even predict attrition. Across the globe, this shift has sparked an important conversation: how can organizations balance the speed and objectivity of AI with the empathy and moral responsibility that human resource functions require?

This concern is especially pronounced when examining the global adoption of AI in HRM. Countries such as the United States, the United Kingdom, and Germany have made significant progress in integrating AI into their HR infrastructure, but their efforts have not been without criticism. Studies have shown that AI, while promoted for eliminating human bias, can replicate and even reinforce existing inequalities when trained on flawed or biased historical data. One example often cited involves AI hiring systems that have demonstrated a tendency to prefer male candidates over female applicants, merely because the data fed into the system reflected past discriminatory patterns [4]. Researchers such as [5] have argued that such tools often lack transparency, leaving both employees and employers in the dark about how decisions are made. This lack of interpretability, also known as the "black box" problem, remains one of the most significant obstacles to ethical and accountable use of AI in HR. At the heart of the debate around ethical technology adoption in HR lies the concept of ethical leadership. Ethical leaders are those who do not just seek profitability and efficiency but prioritize fairness, integrity, and the well-being of all organizational stakeholders. Their role becomes particularly important in managing technological transitions. When new technologies are introduced, especially ones that affect people's careers, privacy, or sense of belonging, employees naturally seek reassurance that their rights and dignity will not be compromised [11]. Ethical leadership provides that moral compass. [3] emphasize that ethical leaders promote transparency, inclusiveness, and moral conduct, creating environments where people feel respected and heard. In organizations deploying AI for HR purposes, such leadership is essential to ensure that technology serves people, not the

other way around [2]. Further, assert that ethical leaders are instrumental in ensuring accountability mechanisms are in place to monitor AI systems and correct errors when they arise.

The case of Saudi Arabia adds a particularly interesting dimension to this discussion. The Kingdom has embraced AI across several sectors as part of its national Vision 2030 initiative, which aims to diversify the economy and reduce its reliance on oil [12]. As part of this transformation, Saudi organizations, especially large corporations in the financial and energy sectors, have begun to experiment with AI applications in HR. These include automated systems for filtering job applications, AI-powered platforms for performance evaluation, and predictive tools that anticipate employee turnover. The government has also established the Saudi Data and Artificial Intelligence Authority (SDAIA) to lead the country's digital transformation. However, while enthusiasm for technology is high, cultural and institutional contexts deeply shape how these tools are received and used. Saudi Arabian society places a strong value on hierarchy, interpersonal trust, and community, which can present both opportunities and challenges when integrating AI into HR functions. Unlike Western settings where individualism often dominates workplace culture, Saudi work environments tend to emphasize relationships and social context. This means that decisions made purely through algorithmic logic may be viewed with suspicion or even seen as disrespectful [13]. They note that the lack of face-to-face interaction or explanation in AI-based HR decisions can undermine employee morale, especially when workers feel that human judgment and compassion are being sidelined. Moreover, Islamic values play a significant role in shaping ethical norms in Saudi workplaces. These values often align well with principles of ethical leadership, fairness, accountability, and concern for the greater good, but they must be integrated thoughtfully into the design and governance of AI systems. For example, while an AI system may be technically effective at monitoring productivity, it must also respect the privacy and dignity of employees [9]. Ethical leaders in Saudi Arabia, therefore, need to balance technological innovation with religious and cultural values to maintain trust and legitimacy.

Despite growing academic interest in AI and HRM, much of the literature remains focused on Western contexts, with relatively little empirical research conducted in the Middle East. This gap is particularly evident when it comes to understanding how ethical leadership functions in technologically transforming organizations within Saudi Arabia [14] Argue that while ethical frameworks are often assumed to be universal, they are interpreted differently across cultures. This makes it crucial for researchers and practitioners alike to consider local perspectives when assessing the ethical dimensions of AI in HR. More studies are needed to explore how Saudi leaders perceive and manage the ethical risks of AI, how employees respond to algorithmic systems, and what kinds of policies are most effective in promoting ethical and human-centered AI governance.

3. Methodology

3.1. Research Design

This study adopts a positivist research paradigm, which is grounded in the belief that reality is objective, observable, and measurable through empirical methods [15]. The choice of this paradigm is justified by the research's aim to identify patterns, correlations, and measurable outcomes related to AI-powered HRM systems and ethical leadership. By adopting a positivist stance, the research seeks to test hypotheses using structured instruments and statistical analysis, which is appropriate given its quantitative nature. Positivism is especially suitable for studies aiming to generalize findings across a defined population based on numeric data [16]. The study employs a cross-sectional descriptive correlational research design, a subtype of quantitative methodology. This design is well-suited for investigating relationships between variables without manipulating the research environment [17]. It captures data from employees at a single point in time to examine the association between the implementation of AI-powered HRM systems and perceptions of ethical leadership in Jeddah-based organizations. Data was collected using a structured questionnaire with Likert-scale items, allowing for the measurement of employee perceptions. The quantitative survey method was selected due to its efficiency in gathering standardized data from a large sample and its ability to support statistical analysis and generalizations [18].

3.2. Sample and Unit of Analysis

The target population comprises all employees working in organizations based in Jeddah, Saudi Arabia, that have implemented AI-powered HRM systems and demonstrate practices of ethical leadership. This population is appropriate because it aligns with the study's focus on real-world applications of AI in HR settings, specifically within the socio-cultural and technological environment of Saudi Arabia. Given the impracticality of surveying the entire population, the study employs a stratified random sampling technique. Organizations are first categorized based on industry (such as finance, technology, healthcare, and manufacturing), and a proportional number of participants are selected from each sector to ensure representation. From each participating organization, employees are randomly selected to avoid selection bias. The sample size is 350 employees, which is considered statistically adequate for generalization and reliable correlation analysis in social sciences [19]. The sample size also satisfies Cochran's formula for large population studies with a confidence level of 95% and margin of error at 5%, as shown in Table 1.

Table 1.
Sampling Frame.

Industry Sector	Organizations with AI-HRM	Sample Size (Proportional)
Finance	10	80
Technology	8	70
Healthcare	10	80
Manufacturing	6	60
Education	6	60
Total	40	350

3.3. Data Collection and Analysis

Data was collected using a structured, self-administered questionnaire distributed electronically through official HR communication channels in participating organizations. The instrument was divided into three main sections: demographic information and items measuring the implementation of AI in HRM (adapted from [1], and items measuring ethical leadership (based on the Ethical Leadership Scale by [3]. A 5-point Likert scale was used, ranging from "Strongly Disagree" to "Strongly Agree." Before the main data collection, the questionnaire was pilot tested with 30 employees from non-participating organizations in Jeddah to check for clarity, reliability, and internal consistency. Necessary modifications were made based on feedback. The data collected were analyzed using the Statistical Package for the Social Sciences (SPSS) software. Pearson's correlation coefficient was employed to examine the strength and direction of the relationship between AI-HRM implementation and ethical leadership perceptions. Furthermore, multiple regression analysis may be used to identify which AI-related variables significantly predict ethical leadership outcomes. These methods are appropriate for correlational research where the objective is to explore associations between predefined constructs [20].

3.4. Ethical Considerations

The research was conducted in strict adherence to ethical standards in social science research. First, informed consent was obtained from all participants, and a detailed information sheet was provided explaining the study's purpose, procedures, confidentiality assurance, and voluntary nature. No identifying information was collected to ensure anonymity, and data was stored securely and used solely for academic purposes. Additionally, the study was reviewed and approved by an Institutional Review Board (IRB)/ethics committee of the University of Business & Technology, Saudi Arabia, for this study on 26 February 2025 (Ref. No. 103/UBT0130/IRB.26/02/2025) before data collection began. Participating organizations also provide organizational consent, ensuring full transparency and institutional alignment with the study's goals [21].

Table 2.
Cluster Analysis Results of AI Usage in HRM.

Cluster	Recruitment Tools (Mean Score)	Performance Management Tools (Mean Score)	Analytics Tools (Mean Score)	Sample Size
Cluster 1: High AI Usage	4.5	4.3	4.6	120
Cluster 2: Moderate AI Usage	3.2	3.0	3.1	140
Cluster 3: Low AI Usage	2.0	1.8	1.5	90

4. Results and Discussion

Table 2 results of the cluster analysis reveal three distinct groups of organizations based on how they utilize AI tools in their human resource management practices, specifically in the areas of recruitment, performance management, and analytics, as shown in Figure 1.

Cluster 1: High AI Usage includes 120 employees from organizations that demonstrate a strong and consistent use of AI across all three HR functions. These organizations scored the highest overall, with an average of 4.5 for AI recruitment tools, 4.3 for performance management, and 4.6 for analytics. This suggests that these companies are not only investing in AI technology but are actively integrating it into their day-to-day HR operations. Their approach to HR appears to be data-driven and technologically advanced, likely supported by a strong digital infrastructure and leadership commitment to innovation.

Cluster 2: Moderate AI Usage consists of 140 employees whose organizations show an intermediate level of AI adoption. The average scores, 3.2 for recruitment, 3.0 for performance, and 3.1 for analytics, indicate that while AI is being used, it is likely limited to certain functions or still in the early phases of implementation. These organizations may be testing AI tools in specific areas without fully integrating them across the HR department. Their efforts reflect a cautious but progressive attitude toward technological change.

Cluster 3: Low AI Usage comprises 90 employees and represents organizations with minimal AI presence in HR practices. Their low average scores of 2.0 in recruitment, 1.8 in performance management, and 1.5 in analytics indicate that these companies either lack the resources, awareness, or interest in using AI for HR purposes. These organizations are probably continuing with traditional methods and may face challenges in keeping pace with more technologically advanced competitors.
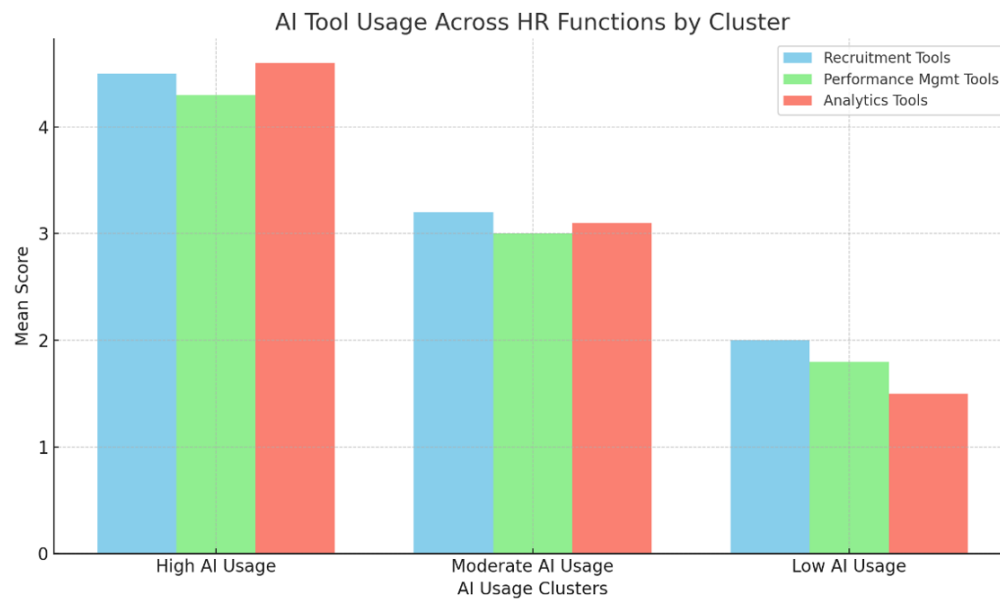
Figure 1.
Cluster Analysis Results: AI Usage in HRM.

Table 3.
Regression Analysis of Ethical Challenges in AI-Powered HRM.

Predictor	Unstandardized Coefficient (B)	Standard Error	Standardized Beta	t-Value	p-Value
AI Recruitment Usage	0.28	0.05	0.30	5.60	0.000
AI Performance Mgmt Usage	0.35	0.06	0.38	5.83	0.000
AI Analytics Usage	0.22	0.04	0.25	5.50	0.000

Table 3 results of regression analysis show that increased use of AI in HR functions is significantly associated with greater employee concerns about ethical challenges. Among the three areas, AI used in performance management has the strongest impact, suggesting employees are especially sensitive to how their work is monitored and evaluated. AI recruitment also raises ethical concerns, likely due to fears of algorithmic bias and data misuse. AI analytics, while slightly less influential, still contributes to perceived ethical risks. All predictors are statistically significant ($p < 0.001$), underscoring the importance of ethical oversight in AI implementation. These findings suggest that organizations must balance technological efficiency with transparency and fairness in HR practices.

4.1. Excerpt Structural Equation Modeling (SEM)

To analyze the complex relationships between AI implementation in HRM, ethical concerns, and ethical leadership, this study employed Structural Equation Modeling (SEM). SEM is a multivariate statistical technique that enables the simultaneous analysis of multiple relationships among observed and latent variables within a theoretical framework [22]. Unlike simpler methods such as regression analysis, which test one dependent variable at a time, SEM allows for comprehensive modeling of interdependent constructs, making it especially suitable for studies involving mediation and moderation effects.

In the context of this study, SEM was used to assess both direct and indirect effects between AI usage (in recruitment, performance management, and analytics) and perceived ethical challenges, while also testing the mediating roles of trust and transparency and the moderating role of ethical leadership. This approach provides a more comprehensive understanding of the mechanisms through which ethical leadership influences AI adoption in HRM. Compared to earlier studies in this domain, which often relied on basic correlational or regression analyses to assess linear relationships between individual variables [1, 2], this research advances methodological rigor by using SEM to test a multi-path conceptual model. it enables the validation of construct validity and measurement reliability through confirmatory factor analysis (CFA), while simultaneously examining the hypothesized structural relationships.

The use of SEM thus represents a methodological improvement over prior research by offering greater analytical precision and the ability to control for measurement error, thereby enhancing the credibility of the study's findings.

Table 4.
SEM Path Coefficients of Ethical Challenges in AI-Powered HRM.

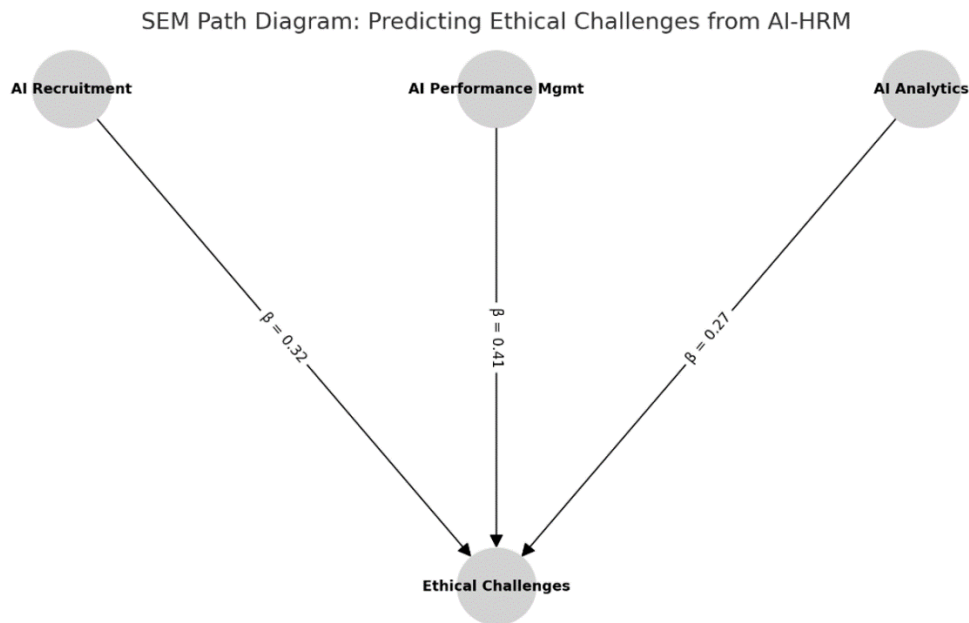| Path	Standardized Coefficient (β)	p-Value
AI Recruitment → Ethical Challenges	0.32	0.001
AI Performance Mgmt → Ethical Challenges	0.41	0.000
AI Analytics → Ethical Challenges	0.27	0.002

Figure 2.
SEM Path Predicting Ethical Challenges in AI-Powered HRM.

Table 5.
SEM Model Fit Indices.

Fit Index	Value
Chi-Square	3.210
RMSEA	0.042
CFI	0.960
TLI	0.950
SRMR	0.038

Tables 4 and 5, respectively, the SEM results show that all three AI applications in HR, recruitment, performance management, and analytics have a significant impact on how employees perceive ethical challenges. The strongest relationship was found between AI use in performance management and ethical concerns, which suggests that employees are particularly uneasy about being evaluated by automated systems. Recruitment and analytics also contributed meaningfully, though to a slightly lesser degree. The model fit indices further confirm that the model is sound and acceptable, with values such as RMSEA (0.042), CFI (0.960), and TLI (0.950) all falling within good fit ranges. This indicates that the model effectively explains how different types of AI in HR influence ethical concerns in the workplace, as shown in Figure 2.

Table 6.
Correlation Analysis, Ethical Leadership, and AI Implementation.

Variables	Pearson Correlation (r)	p-Value
Ethical Leadership & AI Recruitment	0.42	0.0
Ethical Leadership & AI Performance Mgmt	0.47	0.0
Ethical Leadership & AI Analytics	0.38	0.001

Table 6 results show that ethical leadership is closely linked with how organizations use AI in their HR practices. The strongest connection is seen with performance management, where leaders who act ethically are more likely to support the use of AI tools fairly and responsibly. Overall, the findings suggest that when leadership is guided by strong ethical values, the use of AI in recruitment, performance, and analytics is more positively received and implemented.

Table 7.
Mediation Analysis of Ethical Leadership and AI Implementation.

| Path	Indirect Effect (β)	95% CI Lower	95% CI Upper	p-Value
Ethical Leadership → Trust → AI Adoption	0.25	0.15	0.34	0.001
Ethical Leadership → Transparency → AI Governance	0.22	0.13	0.3	0.002

Table 8.
Moderation Analysis of Ethical Leadership and AI Implementation.

Moderator	Interaction Effect (β)	t-Value	p-Value
Ethical Leadership (on AI → Ethical Challenges)	-0.19	-3.1	0.002

The mediation and moderation analysis results in Tables 7 and 8 reveal that ethical leadership influences AI adoption and governance through the mediating effects of trust and transparency. Specifically, when employees perceive their leaders as ethical, they are more likely to trust AI systems (β = 0.25) and view their use as transparent (β = 0.22), which in turn supports stronger adoption and governance of AI in HR functions. Additionally, the moderation analysis shows that ethical leadership reduces the negative impact of AI use on perceived ethical challenges (β = -0.19), suggesting that in environments led by ethical leaders, concerns about fairness, bias, or misuse of AI are less pronounced. These findings highlight the important role ethical leadership plays in shaping both acceptance and responsible use of AI in organizations, as shown in Figure 3.
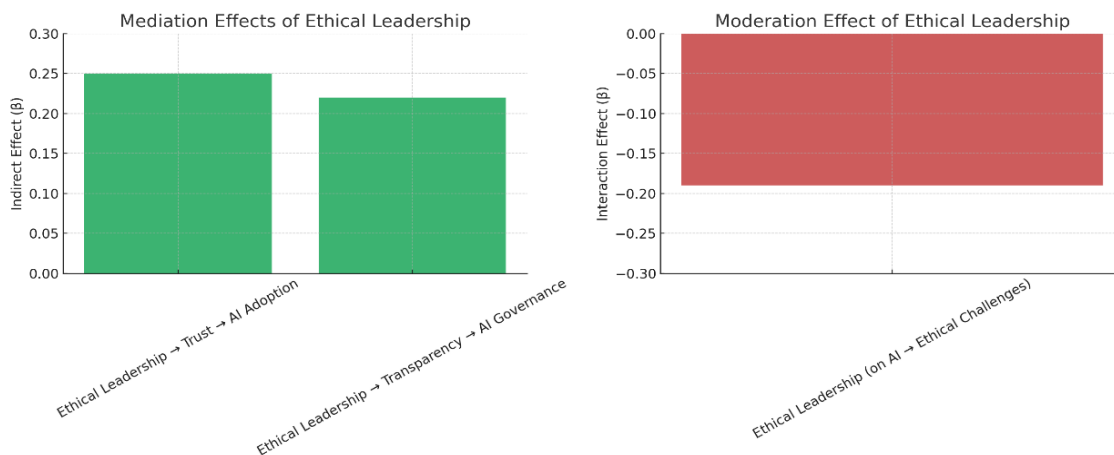
Figure 3.
Moderation Effect of Ethical Leadership.

5. Discussion and Conclusion

The findings of this study provide valuable insights into how AI-driven HR practices intersect with ethical leadership within organizations in Saudi Arabia, particularly in Jeddah. The results support a growing body of international literature that suggests the adoption of AI in human resource management raises significant ethical questions, especially when used in areas like recruitment and performance evaluation. In this study, employees expressed heightened concern over fairness, transparency, and human oversight as AI becomes more embedded in organizational decision-making. This aligns with previous research highlighting that employees are often wary of AI systems due to potential bias, loss of control, and lack of accountability [23]. However, what distinguishes this study is its emphasis on the role of ethical leadership as a mitigating force. The findings showed a significant positive relationship between ethical leadership and AI adoption across HR functions, a pattern that echoes the conclusions drawn by [24], who emphasized that ethical leadership helps reduce resistance to technological change by fostering trust and promoting transparency. In the Saudi context, where hierarchical leadership structures often dominate, ethical leadership appears to bridge the gap between technological innovation and human-centered governance. Trust and transparency, identified as key mediators in this study, are not only consistent with findings from [25] but also reinforce the notion that ethical leadership is crucial in building readiness and acceptance of digital tools among employees.

Moreover, the moderation analysis added an important dimension to the conversation. It demonstrated that ethical leadership could weaken the link between AI use and ethical concerns, which supports the conclusions of previous studies by [26], who found that perceived ethical climate reduces negative reactions to data-driven performance monitoring. When employees feel that leaders act with integrity and fairness, they are more likely to view AI as a tool for enhancement rather than surveillance. This finding is particularly significant for Saudi organizations undergoing rapid digital transformation under Vision 2030, where balancing innovation with trust remains a critical challenge [26]. This research reinforces and extends earlier work by grounding the global discourse on AI and ethics within the specific socio-cultural context of Saudi Arabia. The results confirm that ethical leadership is not just a moral ideal but a practical necessity for responsible AI implementation. Leaders who prioritize fairness, transparency, and trust can play a decisive role in shaping how employees respond to AI technologies. As such, organizations should not only focus on the technical sophistication of AI tools but also invest in leadership development and ethical frameworks to ensure that technology serves the workforce, rather than alienating it [27].

5.1. Conclusion

This study has explored the intricate relationship between AI-powered human resource management and ethical leadership within the organizational context of Jeddah, Saudi Arabia. The findings clearly show that while AI brings significant efficiency and innovation to HR functions such as recruitment, performance management, and analytics, it also raises important ethical concerns among employees. These concerns are not merely technical; they are deeply human, rooted in fears about fairness, privacy, and loss of human judgment. However, the presence of ethical leadership significantly reduces these anxieties. Leaders who demonstrate integrity, transparency, and empathy not only foster trust but also guide the responsible and thoughtful use of AI tools. The study underscores the critical role leadership plays in shaping how AI is understood, accepted, and governed in the workplace. As organizations continue to integrate AI into their operations, this research emphasizes that the true success of such technologies depends not only on their technical capabilities but also on the ethical values and human-centered vision of those who lead their adoption.

5.2. Implications

The implications of this study are both timely and practical, especially for organizations in Saudi Arabia that are increasingly adopting AI technologies in their human resource departments. First and foremost, the findings emphasize the importance of ethical leadership in guiding this technological transition. Leaders who prioritize fairness, transparency, and trust are more likely to create an environment where employees feel secure and respected, even as automation and algorithms become part of daily work routines. This means that investing in leadership development is just as critical as investing in AI systems. Organizations cannot rely on technology alone to improve efficiency; they also need strong ethical values at the top to ensure that the human side of the workplace is not lost.

Another important implication is the role of trust and transparency in easing employee concerns. The study shows that when these two elements are present, employees are more willing to accept and support the use of AI tools. This suggests that communication and openness about how AI systems work, what data they use, and how decisions are made can go a long way in building employee confidence. Companies should focus on educating their workforce about AI and involving them in the implementation process, rather than simply imposing new systems from the top down. Finally, the study highlights a need for careful policy-making and internal governance structures that address the ethical risks associated with AI. This includes setting clear boundaries on data use, ensuring algorithmic fairness, and providing mechanisms for employee feedback. As Saudi Arabia continues to modernize under Vision 2030, the balance between innovation and ethical responsibility may be critical. The study encourages both private and public sector leaders to think beyond technical solutions and to foster a culture that respects both progress and people.

5.3. Limitations

Despite its contributions, the study has a few limitations. First, the cross-sectional design limits the ability to infer causality between variables. Longitudinal studies would better capture changes in employee perceptions over time. Second, the study was conducted only in Jeddah, limiting the generalizability of findings across different regions or sectors in Saudi Arabia. Third, while the quantitative approach allowed for generalizable insights, it may have missed contextual and emotional nuances that could be captured through qualitative methods such as interviews or focus groups.

5.4. Future Research Suggestions

Future research could address the above limitations in several ways. Longitudinal studies should be conducted to observe how ethical leadership and employee trust evolve during and after AI implementation. Additionally, sector-specific studies can help determine whether ethical challenges vary between industries such as healthcare, education, or manufacturing. Researchers may also explore the role of cultural and religious values in shaping employees' ethical expectations of AI systems, especially in non-Western societies. Finally, mixed-methods research that combines surveys with in-depth interviews would provide a richer, more nuanced understanding of the ethical dimensions of AI in HRM.

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