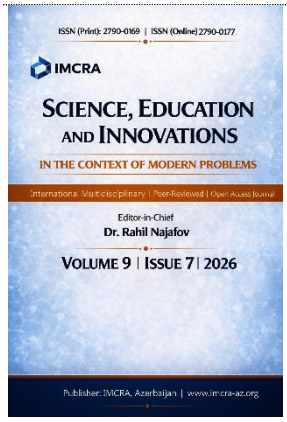

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RESEARCH ARTICLE

Digital Leadership and Psychological Burnout among Healthcare Human Resources: Examining the Mediating Role of Digital Communication, Support, and Decision-Making in Algerian Community Health Institutions

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Abstract

The accelerating pace of digital transformation within healthcare institutions has fundamentally reshaped organizational leadership practices, communication systems, and decision-making processes. While digital leadership has increasingly emerged as a strategic managerial approach for enhancing organizational efficiency and healthcare service delivery, its implications for the psychological well-being of healthcare employees remain insufficiently explored, particularly in developing healthcare systems. This study investigates the impact of digital leadership and its three core dimensions—digital communication, digital support, and digital decision-making—on the psychological burnout of human resources within a public community healthcare institution in Algeria. The study adopts a quantitative descriptive-analytical design and relies on primary data collected through a structured questionnaire administered to healthcare personnel working at the Multi-Service Clinic of Sidi Mohamed Ben Ali in Relizane Province, Algeria. A total of 62 valid questionnaires were analyzed using SPSS Version 25. Reliability and internal consistency were assessed using Cronbach's alpha and Pearson correlation tests, while simple and multiple linear regression models were employed to test the proposed hypotheses. The findings reveal that digital leadership practices within the studied institution remain at a moderate level, whereas psychological burnout among employees appears relatively low. Statistical analysis demonstrates a weak relationship between digital leadership and psychological burnout, with digital leadership explaining only a limited proportion of variance in employee burnout levels. Furthermore, the three dimensions of digital leadership did not exhibit statistically significant effects on psychological burnout at the significance level of $\alpha \leq 0.05$. These findings suggest that psychological burnout in healthcare environments is shaped by broader organizational, psychological, and socio-professional factors that extend beyond digital managerial practices alone. The study contributes to the growing literature on digital governance and organizational psychology in healthcare institutions by providing empirical evidence from the Algerian healthcare context. It further highlights the necessity of adopting integrated managerial and psychosocial strategies to strengthen digital transformation while preserving employee well-being and organizational resilience.

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INTRODUCTION

The contemporary healthcare sector is undergoing unprecedented structural and technological transformation driven by rapid digitalization, the expansion of health information systems, and the growing integration of intelligent technologies into administrative and clinical operations. Within this evolving environment, digital leadership has emerged as a critical organizational capability that enables healthcare institutions to manage technological change, optimize operational performance, and enhance strategic responsiveness in increasingly complex healthcare ecosystems. Unlike traditional leadership models, digital leadership emphasizes technological adaptability, data-driven governance, digital communication, organizational flexibility, and the strategic management of innovation within digitally mediated work environments.

The transition toward digitally integrated healthcare systems has significantly transformed managerial practices across public and private healthcare institutions worldwide. Healthcare administrators are increasingly required to coordinate organizational processes through electronic communication systems, digital decision-support tools, cloud-based information platforms, and smart administrative technologies. These transformations have improved institutional efficiency, accelerated access to information, strengthened organizational coordination, and enhanced the quality of healthcare delivery. Nevertheless, the rapid pace of digital transformation has simultaneously generated new organizational and psychological challenges for healthcare personnel, particularly in relation to occupational stress, cognitive overload, technological adaptation, and psychological burnout.

Psychological burnout represents one of the most critical organizational and occupational health concerns affecting healthcare workers in contemporary institutional environments. It is generally characterized by emotional exhaustion, reduced professional motivation, psychological fatigue, depersonalization, and diminished work engagement resulting from prolonged exposure to occupational pressures and stressful working conditions. Healthcare professionals are particularly vulnerable to burnout due to the emotionally demanding nature of healthcare work, continuous performance pressures, high professional responsibility, and the increasing complexity associated with digital transformation processes. Consequently, burnout not only affects employees' psychological and physical well-being but also negatively influences organizational productivity, job satisfaction, institutional commitment, and the overall quality of healthcare services delivered to patients.

Recent scholarly discussions have increasingly emphasized the potential role of digital leadership in mitigating workplace stress and supporting employee well-being within digitally transformed organizations. Effective digital leadership can facilitate transparent communication, accelerate information exchange, strengthen organizational support mechanisms, and improve participatory decision-making processes. Through digital communication systems, healthcare leaders may reduce ambiguity, enhance coordination, and foster collaborative organizational cultures capable of alleviating professional stressors. Similarly, digital support mechanisms—including technological assistance, continuous training, and digital skill development—can improve employees' adaptive capacity and reduce resistance toward technological change. In addition, digital decision-making based on real-time organizational data may contribute to procedural clarity, organizational fairness, and more efficient management practices.

However, despite the growing importance of digital leadership within healthcare administration, empirical findings concerning its influence on employee psychological well-being remain inconclusive and underdeveloped, particularly in developing countries and public healthcare institutions. Existing literature has predominantly focused on the operational and technological dimensions of digital transformation while paying comparatively limited attention to its psychosocial implications for healthcare human resources. Furthermore, empirical studies examining the relationship between digital leadership and psychological burnout within the Algerian healthcare sector remain scarce.

Against this background, the present study seeks to examine the impact of digital leadership on the psychological burnout of healthcare human resources within the Multi-Service Clinic of Sidi Mohamed Ben Ali in Relizane Province, Algeria. Specifically, the study investigates the influence of three major dimensions of digital leadership—digital communication, digital support, and digital decision-making—on employee burnout levels. By addressing this relationship, the study contributes to the emerging interdisciplinary literature linking digital governance, organizational behavior, healthcare management, and occupational psychology in digitally transforming public institutions.

The significance of this study lies in its attempt to provide empirical evidence regarding the effectiveness of digital leadership practices in promoting healthier organizational environments within healthcare institutions. The study also aims to support

policymakers and healthcare administrators in designing balanced digital transformation strategies capable of improving organizational efficiency while simultaneously preserving employee psychological well-being and institutional sustainability.

LITERATURE REVIEW

The accelerating digital transformation of organizational environments has fundamentally reshaped leadership paradigms, institutional communication systems, and employee management practices across both public and private sectors. Within this context, digital leadership has emerged as a contemporary managerial approach characterized by the strategic integration of digital technologies, virtual communication systems, data-driven decision-making, and organizational coordination through digital systems. Recent scholarly discourse increasingly emphasizes that digital leadership extends beyond technical competence and encompasses organizational adaptability, innovation management, employee engagement, and institutional resilience in digitally evolving work environments (Cortellazzo et al., 2019; Van Wart et al., 2019).

The theoretical foundations of digital leadership are closely connected to transformational leadership theory, which emphasizes the ability of leaders to inspire organizational change, foster innovation, and enhance employee motivation under conditions of environmental uncertainty (Bass & Riggio, 2006; Yukl, 2013). However, the expansion of digital infrastructures and virtual organizational systems has contributed to the emergence of e-leadership models specifically designed to manage mediated interactions and digitally connected organizational networks (Avolio et al., 2014; Zaccaro & Bader, 2003). According to Roman et al. (2019), digital leadership involves the effective use of information and communication technologies to coordinate institutional activities, facilitate communication processes, and strengthen collaborative decision-making within organizations.

Several empirical studies have highlighted the growing organizational significance of digital leadership during periods of institutional disruption and rapid technological transformation. Kane et al. (2019) argued that digitally mature organizations are more capable of accelerating innovation, enhancing organizational flexibility, and maintaining operational continuity under uncertain conditions. Similarly, Nouiouat et al. (2025) emphasized that digital leadership contributes substantially to organizational crisis management by improving institutional responsiveness and strengthening strategic coordination mechanisms. Mahibel and Haqa (2023) further demonstrated that digital leadership constitutes a key determinant of organizational resilience due to its capacity to integrate technological adaptation with managerial effectiveness.

Within healthcare institutions, digital leadership has become increasingly important due to the growing integration of health information systems, telemedicine technologies, electronic communication platforms, and data-driven healthcare administration. Healthcare organizations are required to operate within highly dynamic environments characterized by operational complexity, continuous performance pressures, and rapidly evolving technological systems. Consequently, healthcare leaders must simultaneously manage organizational transformation, technological adaptation, and employee well-being. Carillo et al. (2021) and Wang et al. (2021) demonstrated that digital organizational systems significantly influence employee adaptability, communication effectiveness, and work-related stress within digitally transformed environments. Similarly, Gilson et al. (2015) emphasized that virtual coordination systems and digital communication platforms increasingly shape organizational behavior and professional collaboration in technologically mediated workplaces.

A major component of the digital leadership literature focuses on the role of digital communication in strengthening institutional coordination and reducing organizational ambiguity. Digital communication systems facilitate rapid information exchange, improve transparency, enhance collaboration, and support organizational integration among employees (Bouchnafa & Wessar, 2023). Effective digital communication has also been associated with increased organizational trust and improved employee engagement, particularly within institutions experiencing rapid technological transformation. However, excessive dependence on digital communication technologies may simultaneously contribute to information overload, cognitive fatigue, and technostress among employees (Bawden & Robinson, 2020; Tarafdar et al., 2019). This dual impact suggests that digital communication practices may either enhance or undermine employee psychological well-being depending on the quality of organizational implementation.

The literature additionally highlights the importance of digital support as a critical dimension of digital leadership. Digital support includes technological assistance, employee training, access to digital resources, and managerial facilitation of technological adaptation processes. Fangfang and Guangxing (2025) found that digital support significantly enhances digital resilience and employee confidence within technologically mediated learning environments. Similarly, Busaili (2022) emphasized that organizational support mechanisms constitute an essential prerequisite for the successful implementation of digital leadership practices. Employees who perceive adequate digital support are generally more capable of adapting to technological change and demonstrate lower levels of organizational stress and resistance toward digital transformation initiatives.

Another central dimension of digital leadership concerns digital decision-making, which refers to the use of digital data, analytical systems, and evidence-based governance mechanisms in organizational decision processes. Darbash (2025) demonstrated that digital transformation programs substantially improve the quality and effectiveness of managerial decision-making within public institutions by enhancing data accessibility and institutional responsiveness. Digital decision-making systems also contribute to organizational transparency, procedural fairness, and strategic planning capabilities. Nevertheless, limited technological infrastructure, inadequate digital competencies, and organizational resistance may constrain the effectiveness of digitally supported governance mechanisms, particularly within developing institutional contexts.

Parallel to the evolution of digital leadership literature, psychological burnout has emerged as one of the most extensively studied phenomena in organizational psychology and occupational health research. Freudenberger (1974) initially conceptualized burnout as a condition of emotional exhaustion and reduced professional commitment resulting from prolonged occupational stress. Subsequently, Maslach and Jackson (1981) operationalized burnout through three major dimensions: emotional exhaustion, depersonalization, and reduced personal accomplishment. Maslach et al. (2001) further expanded this framework by emphasizing that burnout represents a multidimensional psychological response to chronic occupational pressures and emotionally demanding work environments.

Healthcare employees are widely recognized as one of the professional groups most vulnerable to psychological burnout due to the emotionally intensive nature of healthcare work, continuous exposure to stress, and high professional responsibility. Studies conducted within healthcare institutions consistently demonstrate that occupational burnout negatively affects employee well-being, organizational commitment, professional performance, and healthcare service quality. Ben Fardi and Fadhal (2023) identified high levels of psychological burnout among nurses working night shifts in healthcare institutions, while Suleiman Masoud (2020) reported severe occupational stress and burnout among healthcare workers during the COVID-19 pandemic in Algeria. Similarly, the World Health Organization (2022) highlighted the growing psychological burden experienced by healthcare professionals worldwide as a result of increased workload, organizational uncertainty, and prolonged exposure to stressful healthcare environments.

Recent studies increasingly examine the relationship between digital transformation and employee psychological well-being. Molino et al. (2020) found that intensive reliance on digital technologies during remote working environments generated significant psychological costs, including stress, exhaustion, and work-life imbalance. Haar et al. (2022) similarly demonstrated that digital transformation processes can intensify burnout and psychological strain when organizational adaptation mechanisms remain insufficient. These findings align with the Job Demands–Resources Model proposed by Schaufeli (2017), which suggests that excessive technological demands combined with inadequate organizational resources contribute substantially to occupational stress and psychological exhaustion.

Despite the growing body of literature on digital leadership and burnout, important research gaps remain evident. Existing studies predominantly focus on corporate environments, educational institutions, or technologically advanced organizational systems, whereas empirical investigations within public healthcare institutions—particularly in developing countries—remain comparatively limited. Furthermore, relatively few studies have simultaneously examined the multidimensional effects of digital communication, digital support, and digital decision-making on employee psychological burnout within healthcare organizations.

Accordingly, the present study seeks to contribute to the existing literature by empirically examining the relationship between digital leadership and psychological burnout among healthcare human resources within an Algerian public healthcare institution. By integrating organizational leadership theory, digital transformation literature, and occupational psychology perspectives, the study aims to provide a more comprehensive understanding of how digitally mediated leadership practices influence employee psychological well-being in healthcare environments undergoing technological transformation.

1. RESEARCH PROBLEM

Despite the accelerating adoption of digital transformation strategies within healthcare institutions, the organizational and psychological implications of digital leadership for healthcare employees remain insufficiently explored, particularly within public healthcare systems in developing countries. Although digital leadership is increasingly associated with organizational efficiency, technological adaptability, and institutional innovation, its potential influence on employees' psychological well-being and occupational burnout continues to generate contradictory empirical findings.

Healthcare institutions are characterized by high professional pressure, emotional labor, and continuous operational demands, making healthcare personnel particularly vulnerable to psychological burnout. Within this context, the integration of digital communication systems, data-driven decision-making mechanisms, and technologically mediated managerial practices may either alleviate or intensify occupational stress depending on the effectiveness of digital leadership implementation.

Accordingly, this study seeks to address the following central research question:

To what extent does digital leadership influence the psychological burnout of healthcare human resources within public community healthcare institutions?

More specifically, the study investigates this relationship within the Multi-Service Clinic of Sidi Mohamed Ben Ali affiliated with the Public Institution for Neighborhood Health in Relizane Province, Algeria.

1.1 Research Sub-Questions

To comprehensively examine the dimensions of the research problem, the study addresses the following sub-questions:

- Does digital communication significantly influence the psychological burnout of healthcare human resources?
- Does digital support significantly affect the psychological burnout of healthcare employees?
- Does digital decision-making contribute to reducing psychological burnout within healthcare institutions?

- To what extent do the combined dimensions of digital leadership explain variations in employee psychological burnout?

1.2 Research Hypotheses

Based on the theoretical foundations and empirical assumptions underpinning this study, the following main hypothesis was formulated:

Main Hypothesis (H1)

Digital leadership has a statistically significant effect on the psychological burnout of healthcare human resources within the studied healthcare institution.

1.2.1 Sub-Hypotheses

The main hypothesis is further decomposed into the following sub-hypotheses:

- H1a: Digital communication significantly affects the psychological burnout of healthcare employees.
- H1b: Digital support significantly affects the psychological burnout of healthcare employees.
- H1c: Digital decision-making significantly affects the psychological burnout of healthcare employees.

1.3 Research Objectives

This study aims to empirically investigate the relationship between digital leadership practices and the psychological burnout of healthcare human resources within a public healthcare institution undergoing digital transformation. Specifically, the study seeks to:

- Examine the overall impact of digital leadership on employee psychological burnout;
- Analyze the influence of the three principal dimensions of digital leadership—digital communication, digital support, and digital decision-making—on healthcare personnel;
- Assess the extent to which digital leadership practices contribute to improving organizational well-being and reducing occupational stress;
- Explore the organizational readiness of healthcare institutions for digitally mediated leadership systems;
- Provide evidence-based recommendations capable of supporting healthcare administrators in designing balanced digital transformation strategies that simultaneously enhance institutional efficiency and employee psychological well-being.

The study additionally aims to contribute to the emerging interdisciplinary literature linking digital governance, organizational behavior, healthcare management, and occupational psychology in developing healthcare systems.

2. CONCEPTUAL FRAMEWORK

2.1 Digital Leadership

Digital leadership refers to a contemporary leadership paradigm centered on the strategic integration of digital technologies into organizational management, communication, and decision-making processes. It encompasses the capacity of leaders to utilize digital tools, technological infrastructures, and data-driven systems to enhance organizational coordination, innovation, adaptability, and institutional performance.

Within digitally transforming organizations, digital leadership extends beyond technological competence and includes the ability to foster organizational collaboration, facilitate digital communication, support employee technological adaptation, and create flexible work environments capable of responding to rapid institutional change. In healthcare institutions, digital leadership plays an increasingly strategic role in optimizing service delivery, improving administrative efficiency, and supporting sustainable organizational transformation.

2.2 Dimensions of Digital Leadership

2.2.1 Digital Communication

Digital communication refers to the use of electronic platforms, digital technologies, and virtual communication systems to facilitate the exchange of information, organizational coordination, and collaborative interaction within institutional environments. Effective digital communication enhances transparency, accelerates information accessibility, reduces ambiguity, and strengthens organizational integration among employees.

Within healthcare organizations, digital communication systems contribute to improving coordination between administrative and medical staff while simultaneously supporting operational efficiency and institutional responsiveness.

2.2.2 Digital Support

Digital support represents the organizational mechanisms and technological resources provided to employees in order to facilitate digital adaptation, technological integration, and professional performance. It includes technical assistance, digital training, access to technological infrastructure, and managerial support for employees navigating digitally transformed work environments.

Adequate digital support is essential for reducing technological anxiety, strengthening employee confidence, and enhancing institutional readiness for digital transformation processes.

2.2.3 Digital Decision-Making

Digital decision-making refers to the utilization of digital data, analytical systems, and technological intelligence in organizational decision processes. It involves evidence-based managerial practices that rely on real-time information, digital analytics, and data-driven governance mechanisms to improve institutional efficiency and strategic planning.

In healthcare institutions, digital decision-making contributes to procedural clarity, organizational fairness, and operational coordination while supporting more responsive and informed managerial practices.

3. RESEARCH METHODOLOGY

This study adopts a quantitative descriptive-analytical research design to examine the relationship between digital leadership and psychological burnout among healthcare human resources. The descriptive-analytical approach was considered appropriate due to its capacity to systematically analyze organizational phenomena, interpret employee perceptions, and statistically evaluate relationships between study variables.

Primary data were collected through a structured questionnaire distributed to healthcare employees working within the Multi-Service Clinic of Sidi Mohamed Ben Ali in Relizane Province, Algeria. The questionnaire was designed to measure the dimensions of digital leadership and the level of psychological burnout among respondents using a five-point Likert scale.

The collected data were processed and analyzed using SPSS Version 25. Several statistical techniques were employed, including descriptive statistics, Cronbach's alpha reliability analysis, Pearson correlation coefficients, and simple and multiple linear regression models to test the proposed hypotheses and evaluate the explanatory relationships between variables.

3.1 Study Population and Sampling Procedure

The target population of this study consisted of all healthcare employees working at the Multi-Service Clinic of Sidi Mohamed Ben Ali affiliated with the Public Institution for Neighborhood Health in Relizane Province, Algeria. The institution includes a diverse range of healthcare professionals and administrative personnel operating within a modern evolving organizational environment.

The total study population was estimated at approximately 120 employees representing different occupational categories, including administrators, physicians, paramedical staff, laboratory technicians, and medical imaging operators. In order to ensure adequate representation of the various professional groups, a random sampling technique was employed.

A total of 75 questionnaires were distributed to employees within the institution, of which 67 questionnaires were returned. After the data screening process, 62 questionnaires were deemed valid for statistical analysis, representing a response rate considered statistically acceptable for quantitative organizational research.

The diversity of the sample contributed to enhancing the representativeness of the collected data and provided a broader understanding of employee perceptions regarding digital leadership practices and psychological burnout within the healthcare institution.

3.2 Research Instrument

The study relied on a structured questionnaire as the principal data collection instrument. The questionnaire was developed based on the theoretical foundations of digital leadership and occupational burnout literature and adapted to the organizational context of public healthcare institutions.

The instrument was divided into three major sections:

Section I: Demographic and Professional Characteristics

This section collected demographic and occupational information about respondents, including:

- gender,
- age,
- marital status,
- professional experience,

- and job position.

These variables were incorporated to provide a comprehensive profile of the study participants and facilitate contextual interpretation of the findings.

Section II: Digital Leadership Dimensions

This section measured the independent variable, digital leadership, through its three principal dimensions:

- digital communication,
- digital support,
- and digital decision-making.

Each dimension contained five measurement items evaluated using a five-point Likert scale ranging from:
1 = Strongly Disagree
to
5 = Strongly Agree.

The items were designed to assess employees' perceptions regarding the extent of digital leadership implementation within the healthcare institution.

Section III: Psychological Burnout

The third section assessed the dependent variable, psychological burnout of healthcare human resources. It consisted of five statements examining employees' psychological exhaustion, work-related stress, emotional fatigue, motivational decline, and occupational pressure.

Responses were measured using the same five-point Likert scale to ensure methodological consistency across the study instrument.

3.3 Reliability and Validity of the Instrument

To ensure the methodological rigor of the study instrument, reliability and validity tests were conducted prior to hypothesis testing.

Internal consistency reliability was assessed using Cronbach's Alpha coefficients. The results demonstrated high levels of reliability across all dimensions of the study variables, with coefficients exceeding the commonly accepted threshold of 0.70. This indicates strong internal consistency and confirms the suitability of the instrument for statistical analysis.

Construct validity and internal consistency validity were further examined using Pearson correlation coefficients between individual items and their corresponding dimensions. The results revealed statistically significant positive correlations between all questionnaire items and their associated constructs, confirming the validity and coherence of the measurement model.

These findings indicate that the research instrument possesses satisfactory psychometric properties and can reliably measure the relationship between digital leadership and psychological burnout within the organizational context under investigation.

3.4 Statistical Analysis Techniques

The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS Version 25). Several descriptive and inferential statistical methods were employed in order to address the research objectives and test the proposed hypotheses.

The statistical procedures included:

- Frequencies and percentages for demographic analysis;
- Arithmetic means and standard deviations to evaluate respondent perceptions;
- Cronbach's Alpha coefficients for reliability assessment;
- Pearson correlation coefficients to test internal consistency and relationships between variables;
- Simple linear regression analysis to examine the overall effect of digital leadership on psychological burnout;
- Multiple linear regression analysis to investigate the individual effects of digital communication, digital support, and digital decision-making on psychological burnout.

The significance level for hypothesis testing was established at $\alpha \leq 0.05$.

4. RESULTS AND DISCUSSION

4.1 Descriptive Analysis of Digital Leadership

The descriptive findings indicate that the implementation of digital leadership practices within the studied healthcare institution remains at a moderate level. Employees acknowledged the existence of digital communication channels, technological tools, and digitally supported administrative practices; however, respondents simultaneously reported limitations regarding institutional digital integration, technological responsiveness, and managerial support.

Among the three dimensions of digital leadership, digital communication demonstrated relatively higher mean values compared to digital support and digital decision-making. This finding suggests that communication technologies are more visibly integrated into daily organizational operations than strategic data-driven decision processes.

Conversely, digital decision-making recorded comparatively weaker evaluations, indicating limited institutional reliance on analytical systems and evidence-based digital governance mechanisms within the healthcare institution.

4.2 Descriptive Analysis of Psychological Burnout

The statistical findings reveal that healthcare employees reported relatively low levels of psychological burnout overall. Most respondents did not perceive themselves as experiencing severe emotional exhaustion, motivational decline, or excessive occupational stress.

Nevertheless, moderate levels of concern emerged regarding work pressure, psychological fatigue, and professional stress associated with organizational responsibilities. These findings suggest that although burnout was not critically widespread among employees, healthcare personnel remain exposed to psychologically demanding work environments that may increase vulnerability to future occupational stress.

The relatively moderate burnout levels may also reflect the existence of adaptive coping mechanisms among healthcare employees or organizational conditions that partially mitigate severe psychological exhaustion.

4.3 Hypothesis Testing

The results of simple linear regression analysis demonstrated that digital leadership did not exert a statistically significant effect on psychological burnout among healthcare employees at the significance level of $\alpha \leq 0.05$.

The explanatory power of the regression model remained weak, indicating that digital leadership accounted for only a limited proportion of variance in employee burnout levels. Similarly, multiple regression analysis revealed that none of the three dimensions of digital leadership—digital communication, digital support, and digital decision-making—produced statistically significant effects on psychological burnout.

These findings suggest that psychological burnout within healthcare institutions represents a multidimensional organizational phenomenon influenced by broader psychological, institutional, professional, and social determinants extending beyond digital managerial practices alone.

Sample Characteristics and Data Collection

The study population consisted of all employees working within the Multi-Service Clinic of Sidi Mohamed Ben Ali affiliated with the Public Institution for Neighborhood Health in Relizane Province, Algeria. The total population was estimated at approximately 120 healthcare employees representing multiple professional categories, including physicians, administrative personnel, paramedical staff, laboratory technicians, and medical imaging operators.

A random sampling technique was employed to ensure representative participation across occupational groups. A total of 75 questionnaires were distributed, of which 67 were returned. Following data screening and validation procedures, 62 questionnaires were retained for final statistical analysis.

Table 1. Sample Distribution and Questionnaire Response Rate

Item	Frequency
Total study population	120
Distributed questionnaires	75
Retrieved questionnaires	67
Missing questionnaires	8
Invalid questionnaires	5
Valid questionnaires used for analysis	62

Source: Authors' calculations based on SPSS Version 25 outputs.

Statistical Analysis Procedures

The collected data were coded, processed, and statistically analyzed using the Statistical Package for the Social Sciences (SPSS Version 25). Both descriptive and inferential statistical methods were employed to examine the relationships between study variables and test the proposed hypotheses.

Descriptive statistical techniques—including frequencies, percentages, arithmetic means, and standard deviations—were used to analyze respondents' demographic characteristics and evaluate employee perceptions toward digital leadership and psychological burnout.

Inferential statistical procedures included:

- Cronbach's Alpha reliability analysis,
- Pearson correlation analysis,
- simple linear regression,
- and multiple linear regression models.

These techniques enabled the study to evaluate internal consistency, determine the strength of relationships between variables, and assess the explanatory impact of digital leadership dimensions on psychological burnout.

5. Reliability and Validity Analysis

The reliability of the measurement instrument was assessed using Cronbach's Alpha coefficients to evaluate the internal consistency of the study dimensions.

The findings presented in Table 2 demonstrate that all reliability coefficients exceeded the recommended threshold of 0.70, indicating strong internal consistency and satisfactory reliability across all study constructs.

Table 2. Reliability Analysis of Study Variables

Code	Construct	Cronbach's Alpha
X	Digital Leadership	0.871
X1	Digital Communication	0.841
X2	Digital Support	0.908
X3	Digital Decision-Making	0.834
Y	Psychological Burnout	0.834
–	Overall Instrument Reliability	0.853

Source: Authors' calculations using SPSS Version 25.

The highest reliability coefficient was observed for the dimension of digital support ($\alpha = 0.908$), indicating excellent internal consistency. The remaining dimensions also demonstrated high reliability levels, confirming the methodological robustness of the research instrument.

The overall reliability coefficient of the questionnaire reached 0.853, which further supports the appropriateness of the instrument for empirical analysis and hypothesis testing.

To evaluate construct validity and internal consistency, Pearson correlation coefficients were calculated between individual measurement items and their corresponding dimensions. The results indicate statistically significant positive correlations across all items at the 0.01 significance level.

These findings confirm the coherence and consistency of the measurement model and demonstrate that the questionnaire items effectively capture the theoretical dimensions of digital leadership and psychological burnout.

Table 3. Pearson Correlation Analysis for Internal Consistency

Construct	Item	Pearson Correlation
Digital Communication	X11	0.687**
	X12	0.792**
	X13	0.787**
	X14	0.823**

	X15	0.827**
Digital Support	X21	0.849**
	X22	0.821**
	X23	0.893**
	X24	0.900**
	X25	0.816**
Digital Decision-Making	X31	0.750**
	X32	0.783**
	X33	0.711**
	X34	0.845**
	X35	0.793**
Psychological Burnout	Y1	0.710**
	Y2	0.759**
	Y3	0.747**
	Y4	0.832**
	Y5	0.833**

Note: $p < 0.01$

Source: Authors' calculations using SPSS Version 25.

The correlation coefficients ranged between 0.687 and 0.900, indicating moderate to strong positive relationships between measurement items and their corresponding dimensions. These findings confirm the adequacy of the questionnaire structure and demonstrate that the instrument possesses strong construct validity.

Particularly strong correlations were identified within the digital support dimension, suggesting that employees consistently perceived institutional technological assistance and managerial support as coherent organizational practices.

Similarly, the psychological burnout construct exhibited high internal consistency, indicating that the measurement items effectively captured different manifestations of occupational psychological exhaustion among healthcare employees.

The reliability and validity analyses collectively demonstrate that the study instrument possesses satisfactory psychometric properties suitable for organizational and behavioral research within healthcare environments.

The high Cronbach's Alpha coefficients indicate that the questionnaire items consistently measure the intended constructs, while the statistically significant Pearson correlations confirm conceptual coherence between dimensions and individual indicators.

These findings strengthen the credibility of the subsequent regression analyses and provide methodological support for interpreting the empirical relationship between digital leadership and psychological burnout within the studied healthcare institution.

The Pearson correlation analysis demonstrated that all measurement items associated with the dimensions of digital leadership and psychological burnout were positively and statistically significantly correlated with their respective constructs at the 0.01 significance level. These findings confirm a high degree of internal consistency and indicate that the measurement instrument possesses strong construct validity suitable for organizational and behavioral research within healthcare institutions.

With regard to the first dimension, digital communication, the correlation coefficients ranged from 0.687 to 0.827, reflecting moderate to strong positive relationships between the questionnaire items and the overall construct. These coefficients indicate substantial conceptual coherence among the measurement items and suggest that respondents demonstrated relatively consistent perceptions regarding digital communication practices within the healthcare institution. The statistically significant correlation values further confirm that the selected indicators effectively capture the organizational characteristics associated with digitally mediated communication systems.

Similarly, the second dimension, digital support, exhibited particularly strong internal consistency. The Pearson correlation coefficients ranged between 0.816 and 0.900, representing the highest correlations among all study dimensions. These findings suggest that employees perceived technological support, managerial assistance, and digital facilitation mechanisms as highly

integrated organizational practices. The strength of these correlations also indicates that digital support constitutes a central component of digital leadership within the institutional environment under investigation.

The third dimension, digital decision-making, also demonstrated statistically significant positive correlations, with coefficients ranging from 0.711 to 0.845. These results confirm that the measurement items consistently reflect employees' perceptions regarding the use of digital data, analytical systems, and technologically supported managerial decision processes. Although the correlations remained strong overall, the relatively lower values compared to digital support may indicate varying levels of institutional maturity regarding data-driven governance practices within the healthcare organization.

The dependent variable, psychological burnout, likewise displayed strong internal consistency across all measurement items. Pearson correlation coefficients ranged from 0.710 to 0.833, confirming that the indicators collectively represent the multidimensional characteristics of occupational psychological exhaustion, emotional fatigue, and work-related stress experienced by healthcare personnel. The statistical significance of all burnout-related items reinforces the validity of the instrument in measuring psychological burnout within healthcare work environments.

Table 4. Correlation Analysis between Digital Leadership Dimensions and the Overall Construct

Dimension	Pearson Correlation with Digital Leadership
Digital Communication	0.921**
Digital Support	0.943**
Digital Decision-Making	0.809**

Note: $p < 0.01$

Source: Authors' calculations using SPSS Version 25.

The findings presented in Table 4 further indicate that all dimensions of digital leadership were strongly and positively associated with the overall digital leadership construct. Digital support recorded the highest correlation coefficient ($r = 0.943$), highlighting its dominant role in shaping employees' perceptions of digital leadership practices within the healthcare institution. This finding suggests that technological facilitation, organizational support mechanisms, and managerial responsiveness constitute the most influential aspects of digital leadership in digitally evolving healthcare environments.

Digital communication also demonstrated a particularly strong relationship with the overall construct ($r = 0.921$), emphasizing the strategic importance of communication technologies in strengthening organizational coordination, transparency, and institutional integration. In contrast, digital decision-making recorded a comparatively lower—though still substantial—correlation coefficient ($r = 0.809$), which may reflect the relatively limited integration of advanced analytical systems and evidence-based digital governance practices within the studied institution.

Collectively, these findings confirm the conceptual coherence of the digital leadership model adopted in this study and support the multidimensional nature of digital leadership within healthcare organizations.

Table 5. Demographic and Professional Characteristics of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	19	30.6
	Female	43	69.4
Age	18–29 years	20	32.3
	30–39 years	25	40.3
	40–49 years	14	22.6
	50 years and above	3	4.8
Marital Status	Single	23	37.1
	Married	39	62.9
Professional Experience	1–5 years	17	27.4
	6–8 years	17	27.4
	9–15 years	11	17.7
	More than 15 years	17	27.4

Job Position	Administrative Staff	12	19.4
	Physicians	6	9.7
	Paramedical Staff	38	61.3
	Technicians	6	9.7

Source: Authors' calculations using SPSS Version 25.

The demographic profile of respondents reveals that female employees constituted the majority of the study sample, accounting for 69.4% of participants, whereas male employees represented 30.6%. This distribution reflects the occupational structure commonly observed within healthcare institutions, particularly in paramedical and nursing professions where female participation tends to be substantially higher.

Regarding age distribution, the largest proportion of respondents belonged to the 30–39-year age category (40.3%), followed by employees aged 18–29 years (32.3%). This indicates that the institution's workforce is predominantly composed of relatively young and professionally active healthcare personnel, which may positively influence organizational adaptability toward digital transformation initiatives.

The marital status analysis demonstrates that married employees represented the majority of participants (62.9%). This characteristic may hold organizational significance, as married healthcare professionals are frequently exposed to overlapping occupational and family-related responsibilities that can influence psychological stress and work-life balance.

The analysis of professional experience indicates a relatively balanced distribution across experience categories, with employees possessing 1–5 years, 6–8 years, and more than 15 years of professional experience each representing 27.4% of the study sample. This balanced distribution enhances the representativeness of employee perceptions regarding digital leadership practices across different levels of organizational experience and institutional familiarity.

Concerning occupational categories, paramedical staff represented the dominant professional group within the study sample, accounting for 61.3% of respondents. Administrative personnel constituted 19.4%, while physicians and technical staff each represented 9.7% of participants. This distribution reflects the operational structure of healthcare institutions in which paramedical personnel form the primary workforce responsible for direct healthcare delivery and patient interaction.

Overall, the demographic diversity of the sample strengthens the empirical relevance of the study and provides a comprehensive organizational perspective regarding the relationship between digital leadership and psychological burnout within public healthcare institutions.

Demographic Characteristics of Respondents

The demographic analysis reveals several important characteristics regarding the composition of the study sample and the organizational structure of the healthcare institution under investigation. Female employees constituted the majority of respondents, accounting for 69.4% of the total sample, whereas male employees represented 30.6%. This distribution reflects the dominant participation of women within healthcare environments, particularly in paramedical and nursing professions, which traditionally exhibit higher levels of female representation. The predominance of female employees may additionally influence perceptions of occupational stress and organizational support due to the emotional and professional demands associated with healthcare work.

The age distribution demonstrates that the workforce is relatively young and professionally active. Employees aged between 30 and 39 years represented the largest category (40.3%), followed by those aged between 18 and 29 years (32.3%). In contrast, respondents aged 50 years and above represented only 4.8% of the sample. This demographic structure suggests that the institution operates with a workforce characterized by relatively high adaptability to technological change and organizational digitalization processes. Younger employees are generally more familiar with digital technologies and virtual communication systems, which may positively influence institutional readiness for digital transformation initiatives.

The marital status analysis indicates that married employees accounted for 62.9% of respondents, whereas single employees represented 37.1%. This finding is particularly relevant within the context of psychological burnout research because married employees frequently experience overlapping professional and family-related responsibilities, potentially increasing exposure to occupational stress and work-life imbalance.

With respect to professional experience, the sample demonstrated a relatively balanced distribution across different experience categories. Employees with 1–5 years, 6–8 years, and more than 15 years of professional experience each represented 27.4% of respondents, while those with 9–15 years of experience accounted for 17.7%. This balanced distribution strengthens the representativeness of the sample and allows for a broader understanding of organizational perceptions across different levels of professional maturity and institutional familiarity.

Regarding occupational categories, paramedical staff constituted the dominant professional group within the study sample, accounting for 61.3% of participants. Administrative personnel represented 19.4%, whereas physicians and technical staff each

represented 9.7% of respondents. The predominance of paramedical employees reflects the operational realities of healthcare institutions, where nursing and paramedical personnel form the largest workforce segment directly involved in healthcare delivery and patient interaction. Consequently, their perceptions provide valuable insights into the organizational implications of digital leadership practices and workplace psychological conditions.

Table 6. Demographic and Professional Characteristics of the Study Sample

Variable	Category	Frequency	Percentage (%)
Gender	Male	19	30.6
	Female	43	69.4
Age	18–29 years	20	32.3
	30–39 years	25	40.3
	40–49 years	14	22.6
	≥ 50 years	3	4.8
Marital Status	Single	23	37.1
	Married	39	62.9
Professional Experience	1–5 years	17	27.4
	6–8 years	17	27.4
	9–15 years	11	17.7
	More than 15 years	17	27.4
Occupational Category	Administrative Staff	12	19.4
	Physicians	6	9.7
	Paramedical Staff	38	61.3
	Technical Staff	6	9.7

Source: Authors' calculations using SPSS Version 25.

Descriptive Analysis of Digital Communication

The descriptive statistical analysis indicates that employees perceived digital communication practices within the healthcare institution at a moderate level. The overall mean score for the digital communication dimension reached 3.03, accompanied by a standard deviation of 0.95, suggesting moderate organizational implementation of digitally mediated communication systems and relatively acceptable homogeneity among respondent perceptions.

The findings reveal that healthcare administrators moderately utilize digital technologies for communication and information exchange. Employees generally acknowledged the availability of digital channels for organizational interaction, although several limitations were identified regarding the effectiveness, consistency, and responsiveness of digital communication processes.

Among the evaluated items, the statement concerning the availability of digital channels for exchanging opinions and inquiries recorded the highest mean score (M = 3.21), indicating that employees perceive institutional digital communication platforms as moderately accessible for professional interaction and organizational coordination. Similarly, respondents moderately agreed that administrators utilize digital tools to communicate with employees (M = 3.16), reflecting the partial integration of digital communication technologies into routine managerial practices.

However, several indicators simultaneously reveal organizational weaknesses associated with digital communication systems. The statement related to encouraging interaction through internal digital platforms recorded the lowest mean score (M = 2.68), suggesting that digital communication remains insufficiently institutionalized within the healthcare environment. Employees also expressed concerns regarding the speed, consistency, and effectiveness of digitally mediated managerial interaction.

These findings suggest that although the institution has initiated certain aspects of digital communication implementation, the organizational integration of digital communication systems remains incomplete and requires further development. The moderate evaluation of digital communication may reflect infrastructural limitations, insufficient technological training, or organizational resistance toward fully digitized communication environments.

Table 7. Descriptive Statistics for Digital Communication Dimension

Item	Mean	Standard Deviation	Interpretation
Administrators use digital tools to communicate with employees	3.16	1.14	Moderate
Instructions are delivered through technological systems	3.08	1.28	Moderate
Digital channels facilitate exchange of opinions and inquiries	3.21	1.28	Moderate
Administrators encourage interaction through digital platforms	2.68	1.32	Moderate–Low
Administrators respond quickly through electronic communication	3.03	1.07	Moderate
Overall Digital Communication Dimension	3.03	0.95	Moderate

Source: Authors' calculations using SPSS Version 25.

The findings related to digital communication suggest that healthcare employees recognize the existence of digital communication tools within the institution; however, these technologies are not perceived as sufficiently effective in facilitating organizational interaction and professional coordination. Respondents indicated that communication through digital systems remains relatively limited, fragmented, and occasionally inefficient, particularly regarding responsiveness and interactive engagement. These findings imply that the institution has initiated partial digital transformation processes without fully establishing an integrated digital communication culture capable of supporting collaborative organizational behavior. The results further highlight the necessity of strengthening digital training programs and enhancing employees' technological competencies in order to improve institutional communication effectiveness and organizational adaptability within digitally evolving healthcare environments.

The descriptive analysis of the digital support dimension demonstrates that respondents perceived organizational digital support at a moderate and relatively insufficient level. The overall mean score for digital support reached 2.70 with a standard deviation of 1.09, indicating that employees neither fully rejected nor strongly endorsed the adequacy of digital support practices within the institution. These findings suggest that the organization has not yet achieved a level of digital maturity capable of fully supporting healthcare personnel in technologically demanding work environments.

More specifically, employees moderately acknowledged managerial encouragement regarding the use of digital tools and applications, as reflected in the highest-rated item associated with support for experimenting with new digital technologies (M = 2.93). This indicates the existence of limited institutional awareness concerning the importance of technological adaptation and digital innovation within healthcare administration. Similarly, respondents moderately agreed that administrators provide opportunities for developing digital competencies (M = 2.80), suggesting the presence of certain organizational initiatives aimed at improving employees' digital skills.

Nevertheless, several indicators simultaneously reveal structural weaknesses in institutional digital support mechanisms. Respondents expressed dissatisfaction regarding the availability of digital tools necessary for performing professional tasks efficiently, with this item recording the lowest mean score (M = 2.51). Employees additionally perceived managerial support during work-related technological difficulties as insufficient and inconsistent. These findings indicate that healthcare personnel continue to experience challenges associated with technological adaptation, limited technical assistance, and inadequate institutional facilitation of digital transformation processes.

The observed weaknesses in digital support may negatively influence employees' capacity to adapt to rapidly evolving digital work environments and may contribute indirectly to occupational stress and psychological fatigue. Existing literature consistently demonstrates that insufficient technological support and limited organizational facilitation increase employees' vulnerability to technostress, professional frustration, and work-related exhaustion (Tarafdar et al., 2019; Molino et al., 2020). Consequently, strengthening digital support systems constitutes a strategic organizational priority for healthcare institutions undergoing digital transformation.

Table 8. Descriptive Statistics for the Digital Support Dimension

Item	Mean	Standard Deviation	Interpretation
Administrators provide digital tools necessary for efficient task performance	2.51	1.23	Low–Moderate
Administrators provide support when employees face work-related difficulties	2.67	1.19	Moderate
Administrators encourage the use of digital solutions	2.61	1.20	Moderate
Administrators provide opportunities to develop digital skills	2.80	1.40	Moderate

Administrators encourage experimentation with digital tools and applications	2.93	1.34	Moderate
Overall Digital Support Dimension	2.70	1.09	Moderate

Source: Authors' calculations using SPSS Version 25.

The analysis of the digital decision-making dimension reveals comparatively weaker employee perceptions regarding the integration of data-driven governance and digitally supported managerial decision processes within the healthcare institution. The overall mean score for digital decision-making reached 2.58 with a standard deviation of 0.88, indicating a generally negative or weakly neutral organizational evaluation of digital decision-making practices.

Employees demonstrated limited confidence in the effectiveness of digitally supported managerial decisions, particularly concerning their role in improving the work environment and reducing occupational stress. The statement indicating that digital decisions help reduce stress and organize work recorded one of the lowest mean scores (M = 2.32), suggesting that employees do not perceive digital governance mechanisms as sufficiently effective in alleviating workplace pressures or enhancing organizational efficiency.

Similarly, respondents expressed skepticism regarding the contribution of digital decisions to improving professional performance and organizational conditions. These findings may reflect limited institutional integration of analytical systems, insufficient reliance on evidence-based governance practices, or inadequate transparency regarding digitally mediated administrative procedures.

Conversely, the item related to administrators' use of digital analytics to guide organizational policies recorded the highest mean score within this dimension (M = 3.04), indicating moderate recognition of the role of digital information systems in managerial planning and organizational orientation. This suggests that while digital analytics may exist at the strategic level, their practical organizational impact remains limited from the perspective of healthcare employees.

The relatively weak evaluation of digital decision-making practices may be explained by several organizational factors, including limited technological infrastructure, insufficient employee participation in decision processes, and incomplete institutional digitalization. Previous studies have emphasized that effective digital leadership requires not only technological integration but also transparent governance structures, participatory managerial practices, and continuous organizational adaptation (Cortellazzo et al., 2019; Roman et al., 2019).

Table 9

Descriptive Statistics for the Digital Decision-Making Dimension

Item	Mean	Standard Deviation	Interpretation
Administrators rely on digital data to make fair decisions	2.74	1.26	Moderate
Digital decisions help organize work and reduce stress	2.32	1.14	Low
Administrators use digital analytics to guide policies	3.04	0.96	Moderate
Digital decisions improve the work environment	2.48	1.14	Low–Moderate
Digital decisions enhance employees' professional performance	2.32	1.11	Low
Overall Digital Decision-Making Dimension	**2.58**	**0.88**	**Low–Moderate**

Source: Authors' calculations using SPSS Version 25.

Collectively, the three dimensions indicate that the overall level of digital leadership within the studied healthcare institution remains moderate, with an overall mean score of 2.77 and a standard deviation of 0.87. These findings suggest that digital transformation practices have been partially integrated into the organizational structure; however, significant limitations remain regarding technological support, digital communication effectiveness, and evidence-based digital governance mechanisms.

The moderate organizational evaluation of digital leadership reflects an institution undergoing transitional digitalization rather than a fully digitally mature healthcare environment. Although employees recognize the existence of certain digital leadership practices, these mechanisms appear insufficiently institutionalized to produce substantial organizational transformation or significantly improve employee psychological well-being.

4.1. Psychological Burnout among Healthcare Human Resources

The descriptive statistical analysis indicates that the overall level of psychological burnout among healthcare employees within the studied institution remained relatively low. The aggregate mean score for the psychological burnout construct reached 2.00 with a standard deviation of 0.89, suggesting that respondents generally did not perceive themselves as experiencing severe levels

of emotional exhaustion, psychological fatigue, or occupational distress. These findings imply the existence of a relatively stable psychological environment despite the organizational and technological challenges associated with healthcare work.

Although healthcare institutions are widely recognized as high-pressure professional environments characterized by emotional labor, continuous operational demands, and elevated occupational stress, the findings suggest that psychological burnout was not strongly prevalent among employees within the investigated healthcare clinic. The relatively low burnout levels may be associated with organizational adaptation mechanisms, professional coping strategies, or the moderate intensity of digital transformation implementation within the institution.

Among the evaluated indicators, the item associated with reduced professional motivation recorded the highest mean score (M = 2.19), indicating that a proportion of employees occasionally experience motivational decline and reduced professional engagement. Similarly, some respondents acknowledged occasional thoughts about distancing themselves from work due to occupational pressure (M = 2.16). These findings suggest that while severe burnout remains limited, moderate psychological strain and emotional fatigue continue to affect certain categories of healthcare personnel.

In contrast, the statement related to psychological exhaustion resulting from continuous work pressure recorded the lowest mean score (M = 1.65), accompanied by a relatively low standard deviation, indicating substantial agreement among respondents that they do not experience intense psychological exhaustion in their daily professional activities. Employees also reported relatively limited difficulties regarding concentration and decision-making under work pressure, suggesting that occupational stress levels remain within manageable organizational boundaries.

The observed variation in responses regarding certain burnout indicators may reflect differences in occupational responsibilities, professional experience, workload intensity, and individual coping capacities among healthcare employees. Previous studies have consistently emphasized that burnout levels within healthcare institutions are influenced not only by organizational conditions but also by personal resilience, emotional regulation, institutional support, and workplace culture (Maslach et al., 2001; Schaufeli, 2017).

Table 10. Descriptive Statistics for Psychological Burnout

Item	Mean	Standard Deviation	Interpretation
I feel psychologically exhausted due to constant work pressure	1.65	0.94	Very Low
I experience difficulty concentrating and making decisions because of work pressure	1.92	1.01	Low
I experience low motivation toward performing my work tasks	2.19	1.06	Low–Moderate
My work drains my psychological and physical energy	2.08	1.33	Low
I sometimes think about distancing myself from work because of stress	2.16	1.33	Low–Moderate
Overall Psychological Burnout	2.00	0.89	Low

Source: Authors' calculations using SPSS Version 25.

The relatively low level of burnout identified in the present study contrasts with findings from several international studies conducted within healthcare institutions during periods of organizational instability and technological disruption. Previous research has demonstrated that healthcare employees frequently experience elevated levels of emotional exhaustion, psychological fatigue, and occupational stress, particularly within environments characterized by excessive workload, insufficient organizational support, and rapid digital transformation (Haar et al., 2022; World Health Organization, 2022). However, the current findings suggest that the studied healthcare institution may still be operating within a partially digitalized organizational environment that has not yet generated severe technostress or substantial psychological overload among employees.

At the same time, the findings indicate that certain indicators associated with emotional fatigue and reduced professional motivation remain moderately present among healthcare personnel. These outcomes are consistent with the Job Demands–Resources framework, which argues that occupational stress emerges when organizational demands exceed the availability of institutional and psychological resources (Schaufeli, 2017). Consequently, although severe burnout was not strongly evident, the institution remains potentially vulnerable to future increases in occupational stress if digital transformation processes intensify without adequate organizational support mechanisms.

4.2 Hypothesis Testing

The relationship between digital leadership and psychological burnout was examined using simple linear regression analysis after confirming the statistical assumptions associated with the regression model. The analysis aimed to evaluate the explanatory effect of digital leadership practices on the psychological burnout of healthcare employees within the investigated institution.

The regression analysis revealed a weak relationship between digital leadership and psychological burnout. The coefficient of determination (R^2) reached 0.050, indicating that digital leadership explained only 5% of the variance observed in employees' psychological burnout levels. This finding demonstrates that the explanatory power of the model remains limited and suggests that psychological burnout within healthcare environments is influenced primarily by broader organizational, psychological, social, and occupational factors beyond digital leadership practices alone.

Similarly, the correlation coefficient (r = 0.223) indicates a weak direct relationship between the independent and dependent variables. Although the relationship appears negative in direction—suggesting that stronger digital leadership may contribute to lower burnout levels—the statistical effect remained insufficiently strong to establish significant explanatory influence.

The calculated F-value reached 3.152 with a significance level of 0.081, exceeding the accepted threshold of 0.05. Consequently, the regression model was not statistically significant, indicating that digital leadership did not exert a statistically significant effect on psychological burnout among healthcare employees within the studied institution.

Table 11. ANOVA Results for Simple Linear Regression Model

Source of Variance	Sum of Squares	df	Mean Square	F-value	Sig.	R^2	r	Durbin–Watson
Regression	2.420	1	2.420	3.152	0.081	0.050	0.223	1.679
Residual	46.060	60	0.768	—	—	—	—	—
Total	48.480	61	—	—	—	—	—	—

Source: Authors' calculations using SPSS Version 25.

Table 12. Simple Linear Regression Coefficients

Variable	B	Standard Error	Beta	t-value	Sig.
Constant	2.633	0.373	—	7.053	0.000
Digital Leadership	-0.228	0.128	-0.223	-1.755	0.081

Dependent Variable: Psychological Burnout

Source**:** Authors' calculations using SPSS Version 25.

The regression coefficient for digital leadership was negative (β = -0.223), suggesting that improvements in digital leadership practices may contribute to reducing psychological burnout levels. However, because the significance value exceeded the accepted threshold, this effect cannot be considered statistically significant within the context of the present study.

These findings indicate that the implementation of digital leadership practices within the investigated healthcare institution remains insufficiently developed to produce measurable psychological effects on employees. The absence of a statistically significant relationship may additionally reflect limited digital maturity, inadequate organizational support systems, and incomplete integration of digital governance mechanisms within the institutional environment.

The findings further suggest that psychological burnout among healthcare employees represents a multidimensional phenomenon shaped by numerous organizational and socio-professional determinants, including workload intensity, staffing conditions, emotional labor, institutional culture, professional recognition, and work-life balance. Consequently, digital leadership alone cannot adequately explain variations in employee psychological well-being without considering broader organizational dynamics.

The partial hypotheses of the study were examined using multiple linear regression analysis in order to evaluate the individual and combined effects of digital communication, digital support, and digital decision-making on the psychological burnout of healthcare human resources. Prior to conducting the regression analysis, the necessary statistical assumptions associated with multivariate regression modeling were verified, including the absence of multicollinearity and the independence of residual errors.

The results indicate that the explanatory capacity of the overall regression model remained limited. The coefficient of determination reached $R^2 = 0.069$, indicating that the three dimensions of digital leadership collectively explained only 6.9% of the variance in psychological burnout levels among healthcare employees. This relatively weak explanatory power suggests that psychological burnout within healthcare institutions is influenced primarily by broader organizational, psychological, and socio-professional determinants that extend beyond digitally mediated leadership practices alone.

Similarly, the correlation coefficient (r = 0.264) demonstrated a weak positive relationship between digital leadership dimensions and psychological burnout. Although the relationship direction suggests some degree of association between digitally oriented

managerial practices and employee psychological conditions, the magnitude of this relationship remained statistically weak and organizationally limited.

The overall regression model was not statistically significant, as reflected by the calculated F-value (F = 1.444) and the associated significance level (Sig. = 0.239), which exceeded the accepted threshold of 0.05. Consequently, the combined dimensions of digital leadership did not exert a statistically significant effect on psychological burnout within the studied healthcare institution. These findings indicate that digital communication, digital support, and digital decision-making have not yet reached sufficient levels of institutional maturity capable of generating measurable psychological outcomes among healthcare personnel.

The Durbin–Watson statistic reached 1.744, confirming the independence of residuals and indicating the absence of autocorrelation problems within the regression model. In addition, multicollinearity diagnostics demonstrated acceptable statistical values, with Variance Inflation Factor (VIF) scores ranging between 1.667 and 4.344 and tolerance values remaining above the minimum accepted threshold of 0.10. These findings confirm the statistical adequacy of the regression model and indicate that the independent variables maintained acceptable levels of relative independence.

Table 13. ANOVA Results for Multiple Linear Regression Model

Source of Variance	Sum of Squares	df	Mean Square	F-value	Sig.	R^2	r	Durbin–Watson
Regression	3.368	3	1.123	1.444	0.239	0.069	0.264	1.744
Residual	45.112	58	0.778	—	—	—	—	—
Total	48.480	61	—	—	—	—	—	—

Source: Authors' calculations using SPSS Version 25.

The regression coefficients further demonstrate that none of the individual dimensions of digital leadership produced statistically significant effects on psychological burnout. Digital communication exhibited a negative regression coefficient (β = -0.248), suggesting that improvements in digital communication practices may contribute to lower burnout levels; however, the relationship was statistically insignificant (Sig. = 0.330).

Digital support demonstrated a weak positive coefficient (β = 0.173), indicating a limited and statistically insignificant relationship with psychological burnout (Sig. = 0.516). This finding may reflect the relatively underdeveloped nature of institutional digital support mechanisms, which appear insufficiently robust to influence employee psychological well-being in a meaningful manner.

Similarly, digital decision-making exhibited a negative but statistically insignificant relationship with psychological burnout (β = -0.195; Sig. = 0.238). Although digitally supported governance systems may theoretically reduce occupational ambiguity and improve organizational fairness, the findings suggest that such mechanisms remain only partially integrated within the investigated healthcare institution.

Table 14. Multiple Linear Regression Coefficients

Predictor Variable	B	Standard Error	Beta	t-value	Sig.	Tolerance	VIF
Constant	2.832	0.419	—	6.752	0.000	—	—
Digital Communication	-0.231	0.235	-0.248	-0.982	0.330	0.251	3.985
Digital Support	0.141	0.215	0.173	0.654	0.516	0.230	4.344
Digital Decision-Making	-0.198	0.167	-0.195	-1.191	0.238	0.600	1.667

Dependent Variable: Psychological Burnout

Source: Authors' calculations using SPSS Version 25.

The regression equation generated by the model can be expressed as follows:

$$PBHR = 2.832 - 0.231DC + 0.141DS - 0.198DDM$$

Where:

- PBHR = Psychological Burnout of Human Resources
- DC = Digital Communication
- DS = Digital Support
- DDM = Digital Decision-Making

The findings collectively demonstrate that digital leadership practices within the investigated healthcare institution remain insufficiently institutionalized to exert substantial influence on employee psychological conditions. The absence of statistically significant relationships may reflect limited digital maturity, inadequate technological integration, insufficient employee participation in digitally supported governance systems, and restricted organizational investment in technological adaptation processes.

These results are consistent with several previous studies emphasizing that psychological burnout represents a multidimensional phenomenon influenced by a broad range of determinants, including workload intensity, emotional labor, staffing conditions, organizational climate, institutional justice, social support, and work-life balance (Maslach et al., 2001; Haar et al., 2022). Consequently, digital leadership alone cannot adequately explain variations in burnout levels without considering the broader organizational ecosystem within which healthcare employees operate.

The findings additionally suggest that digital transformation processes within healthcare institutions do not automatically generate improvements in employee psychological well-being unless accompanied by comprehensive organizational support strategies, technological readiness, participatory leadership practices, and sustainable institutional adaptation mechanisms. Similar conclusions were reached by Molino et al. (2020) and Tarafdar et al. (2019), who argued that technological integration may simultaneously produce both organizational benefits and psychological pressures depending on the quality of institutional implementation and employee support systems.

Overall, the study contributes to the growing literature examining the organizational consequences of digital transformation in healthcare environments and highlights the importance of adopting integrated managerial approaches that simultaneously address technological modernization and employee psychological well-being.

CONCLUSION

The present study examined the relationship between digital leadership and the psychological burnout of healthcare human resources within the Multi-Service Clinic of Sidi Mohamed Ben Ali affiliated with the Public Institution for Neighborhood Health in Relizane Province, Algeria. The study specifically investigated the influence of three principal dimensions of digital leadership—digital communication, digital support, and digital decision-making—on employee psychological burnout within a healthcare environment undergoing gradual digital transformation.

The findings revealed that the implementation of digital leadership practices within the investigated healthcare institution remains moderate and relatively underdeveloped. Although employees acknowledged the existence of certain digital communication systems, technological support mechanisms, and digitally oriented managerial practices, the overall level of digital integration was not perceived as sufficiently advanced to generate substantial organizational transformation. The results particularly highlighted weaknesses related to technological infrastructure, organizational digital support, participatory digital governance, and the effective utilization of digital communication platforms within daily institutional operations.

The empirical analysis additionally demonstrated that healthcare employees reported relatively low levels of psychological burnout overall. Most respondents did not perceive themselves as experiencing severe emotional exhaustion, psychological fatigue, or occupational distress. Nevertheless, moderate indicators associated with reduced professional motivation, emotional strain, and work-related pressure remained observable among certain categories of employees, suggesting the continued existence of organizational stressors within the healthcare work environment.

The regression analyses revealed that neither digital leadership as a general construct nor its individual dimensions exerted statistically significant effects on psychological burnout among healthcare employees. Both the simple and multiple linear regression models demonstrated weak explanatory power, indicating that digital leadership accounted for only a very limited proportion of variance in employee psychological burnout levels. These findings suggest that psychological burnout within healthcare institutions constitutes a multidimensional organizational phenomenon shaped by broader psychological, organizational, social, and professional determinants extending beyond digitally mediated managerial practices alone.

The absence of statistically significant relationships may be explained by several organizational realities associated with the investigated healthcare institution. First, the relatively moderate level of digital maturity suggests that digital leadership practices have not yet reached a stage of institutional integration capable of substantially influencing employee psychological well-being. Second, limitations related to technological infrastructure, insufficient digital training, and restricted organizational support may reduce the effectiveness of digitally oriented managerial systems. Third, healthcare employees remain exposed to numerous occupational stressors unrelated to digital leadership, including workload intensity, emotional labor, staffing conditions, organizational pressure, and professional responsibility.

The findings of this study contribute to the growing interdisciplinary literature linking digital transformation, organizational leadership, healthcare administration, and occupational psychology. The study further highlights that technological modernization alone is insufficient to improve employee well-being unless accompanied by integrated organizational strategies capable of balancing digital transformation objectives with human-centered managerial practices.

From a practical perspective, healthcare institutions should prioritize the development of comprehensive digital transformation strategies that integrate technological innovation with organizational support systems, employee participation, and continuous

professional development. Strengthening digital infrastructure, expanding digital training programs, enhancing organizational communication systems, and improving participatory digital governance mechanisms may contribute to more sustainable organizational transformation processes while simultaneously protecting employee psychological well-being.

The study additionally emphasizes the necessity of addressing psychological burnout through multidimensional institutional interventions that extend beyond technological considerations alone. Future organizational strategies should incorporate psychosocial support systems, workload management policies, organizational justice mechanisms, and employee well-being initiatives in order to strengthen institutional resilience within digitally evolving healthcare environments.

Despite its contributions, the study remains subject to several limitations. The research was conducted within a single healthcare institution and relied on a relatively limited sample size, which may constrain the generalizability of the findings. Furthermore, the study focused exclusively on three dimensions of digital leadership without incorporating additional organizational or psychological variables that may influence burnout levels. Future research may therefore benefit from examining larger healthcare populations, incorporating longitudinal research designs, and integrating additional explanatory variables such as organizational culture, technostress, emotional intelligence, job satisfaction, and employee resilience.

Overall, the study concludes that digital leadership within the investigated healthcare institution remains in a transitional developmental stage and does not yet constitute a sufficiently influential organizational mechanism for reducing psychological burnout among healthcare human resources. Consequently, successful digital transformation within healthcare environments requires a balanced organizational approach that simultaneously advances technological modernization and prioritizes the psychological, professional, and social well-being of healthcare employees.

DECLARATIONS

Ethical Approval and Consent to Participate

The study was conducted in accordance with the ethical principles governing scientific research involving human participants. Participation in the survey was voluntary, and respondents were informed about the academic purpose of the study prior to data collection. All participants provided informed consent before completing the questionnaire. Confidentiality and anonymity of the collected data were fully maintained throughout the research process.

Consent for Publication

Not applicable.

Availability of Data and Materials

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable academic request.

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Competing Interests

The authors declare that they have no competing interests, financial conflicts, or personal relationships that could have influenced the work reported in this study.

Authors' Contributions

- Dr. Benzaoucha Fethi contributed to the conceptualization of the study, methodology design, statistical analysis, and manuscript drafting.
- Dr. Aissaoui Salah contributed to literature review development, data interpretation, and theoretical framing.
- Dr. Mecherfi Ameur participated in questionnaire design, data collection, and empirical analysis.
- Prof. Bouroumana Abdelkader supervised the research process, reviewed the manuscript critically, and contributed to the final scientific revision of the article.

All authors read and approved the final version of the manuscript.

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Artificial Intelligence (AI) Declaration

During the preparation of this manuscript, artificial intelligence–assisted language tools were used exclusively to improve academic language clarity, grammar, structure, and readability. The authors carefully reviewed, edited, and validated all generated content and take full responsibility for the accuracy, originality, scientific interpretation, and integrity of the final manuscript.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request and in accordance with institutional ethical considerations.

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