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The Influence of Digital Leadership, Employee Engagement, and Organizational Support on the Performance of Healthcare Workers in Hospitals

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Abstract

Digital transformation in healthcare requires hospitals not only to adopt technology but also to strengthen leadership capacity, healthcare worker engagement, and organizational support to achieve optimal service performance. This study aims to analyze the influence of Digital Leadership, Employee Engagement, and Organizational Support on the performance of healthcare workers in hospitals. A quantitative approach with a cross-sectional design was employed. The study involved 200 healthcare workers selected based on established inclusion criteria. Data were collected using Likert-scale questionnaires and analyzed using Partial Least Squares-Structural Equation Modeling (PLS-SEM). Model evaluation encompassed convergent validity, discriminant validity, construct reliability, the coefficient of determination (R^2), effect size, predictive relevance, and hypothesis testing via bootstrapping. The results indicate that Digital Leadership has a positive and significant effect on healthcare worker performance ($\beta = 0.218$; $p < 0.001$). Employee Engagement exerts a positive and significant influence, representing the strongest effect ($\beta = 0.421$; $p < 0.001$), while Organizational Support also shows a positive and significant impact ($\beta = 0.287$; $p < 0.001$). Collectively, these three variables explain 68.4% of the variance in healthcare worker performance ($R^2 = 0.684$). These findings demonstrate that enhancing performance in the digital transformation era requires adaptive digital leadership, high levels of employee engagement, and sustained organizational support. The study offers implications for hospital management in designing digital-based human resource development strategies.

Keywords: Digital Leadership; Employee Engagement; Organizational Support; Healthcare Worker Performance; Digital Transformation.

Introduction

Digital transformation has reshaped how organizations design work, manage human resources, make decisions, and deliver services—including within the healthcare sector, which is characterized by complex, high-risk work and a heavy reliance on coordination among professionals. The advancement of electronic health records, telemedicine, hospital information systems, data analytics, artificial intelligence, and

various digital platforms requires healthcare leaders to possess not only managerial competence but also the ability to lead technology-driven change. In this context, the concept of digital leadership has become increasingly vital, as leaders must align digital strategies with workforce needs and organizational goals. Van Wart et al. (2019) explain that information technology advancements have altered leader-follower interaction patterns; consequently, leadership in a digital environment demands communication, technological, and coordination competencies that differ from those required in conventional leadership.

Within hospitals, digital leadership has become increasingly strategic because digitalization involves more than just the implementation of technological tools; it also entails changes to work processes, organizational culture, communication patterns, and decision-making. Hospital leaders must be capable of fostering an environment that encourages healthcare professionals to embrace new technologies, develop digital competencies, and maintain service quality. Alanazi (2022) emphasizes that healthcare leaders in the digital era need the ability to integrate technology with organizational processes, drive innovation, and build workforce readiness for technological change.

The urgency of digital leadership is heightened by the fact that healthcare professionals face simultaneous pressures regarding professional demands, service expectations, heavy workloads, and the need to adapt to new technologies. Klus and Müller (2021) indicate that leaders in the digital era confront challenges such as rapid change, high volumes of information, and the need to balance new technologies with existing work systems. These conditions demonstrate that the success of organizational digitalization is determined not only by the availability of technology

but also by a leader's ability to manage people throughout the digital transformation process.

In the context of healthcare professionals, the success of digital transformation relies heavily on the level of employee engagement. Employee engagement describes a psychological state characterized by high levels of energy, dedication, and involvement in one's work. Peng et al. (2019) found that work engagement is significantly linked to nurse performance and serves as a mechanism explaining how leadership influences the performance of healthcare professionals. These findings indicate that it is insufficient for leaders merely to issue instructions regarding technology use; they must also foster psychological engagement to ensure healthcare professionals are willing to adapt and contribute optimally.

Empirical evidence regarding nursing staff also demonstrates a link between leadership characteristics and work engagement. Wang et al. (2019) found that inclusive leadership is associated with work engagement and innovative behavior among head nurses in hospitals. These findings are relevant to digital transformation, as the implementation of health technology requires healthcare professionals who do not simply follow procedures but also have the confidence to offer input, solve problems, and innovate in their use of technology.

The relationship between leadership and work engagement is also evident in research by Yang et al. (2019), which shows that work engagement plays a role in the connection between humble leadership and nurses' innovative behavior. These findings reinforce the argument that effective leadership in healthcare organizations requires building interpersonal relationships that make healthcare professionals feel valued and heard, while providing them with the scope

to contribute to innovation. This principle becomes increasingly critical as hospitals undergo digitalization, given that technological changes often give rise to uncertainty and the need to learn new skills.

Beyond leadership and work engagement, organizational support is a crucial factor determining how healthcare professionals respond to organizational demands. The perception that an organization values employees' contributions and cares about their well-being can foster trust, motivation, and positive work behaviors. Labrague et al. (2018) demonstrated that perceptions of organizational support have implications for various job outcomes among nurses. Consequently, hospitals undergoing digital transformation must ensure that healthcare workers do not feel burdened solely by technological demands but also receive adequate training, resources, managerial support, and recognition.

Gadolin et al. (2022) offered a more specific perspective, highlighting the crucial role of healthcare unit managers in shaping nurses' perceptions of organizational support. Such support is linked to working conditions that enable healthcare workers to perform their duties effectively. These findings indicate that organizational support within hospitals is not merely a formal policy from top management but is also manifested through the behavior of unit leaders, resource availability, communication, and day-to-day working conditions.

The relationship between organizational support and healthcare worker performance is further clarified by Pasinringi et al. (2019), who found a significant link between perceived organizational support and the performance of hospital physicians. The results suggest that when healthcare workers feel the organization supports their work, there is a tendency for

performance to improve. In the context of digital transformation, organizational support can be realized through the provision of technological infrastructure, digital training, technical support, opportunities for competency development, and policies that take into account the burden of adaptation placed on healthcare workers.

The relationship among these three constructs becomes even stronger when directly linked to healthcare worker performance. Zhang et al. (2022), in a study of 595 nurses in China, demonstrated that work engagement and perceived organizational support play vital roles in explaining job performance. The study also demonstrates that job demands can interact with psychological and organizational resources to influence performance. These findings provide a theoretical basis indicating that enhancing the performance of healthcare workers cannot rely solely on individual competence but requires organizational support and strong work engagement.

Similar findings were reported by Hu et al. (2021), who identified a relationship between individual characteristics, competence, work engagement, and nurse performance. Their study demonstrates that work engagement can serve as a crucial mechanism in explaining how personal resources translate into performance. This indicates that hospitals need to develop human resource management strategies that integrate digital competence development with efforts to enhance healthcare worker engagement.

From a leadership perspective, research by Cai et al. shows that ambidextrous leadership and clinical nurse leadership are positively associated with nurses' work engagement. These findings are significant in a digital environment, as leaders must maintain service stability while simultaneously fostering

technological exploration and innovation. In other words, digital leadership requires the ability to balance operational efficiency demands with the need for innovation and continuous learning.

The concept of digital leadership within healthcare organizations has subsequently gained more direct empirical support. Khan et al. (2025) found that digital leadership in the public health sector influences employee empowerment, techno-work engagement, and organizational sustainability. These findings suggest that digital leadership can act as an organizational resource that drives workforce empowerment and engagement amidst technological transformation.

The link between digital leadership and work engagement is also supported by research outside the healthcare sector. Claassen et al. (2021) developed an approach to evaluate digital leadership and demonstrated that digitalization fundamentally alters the demands placed on managers. This reinforces the need to measure digital leadership as a distinct construct, rather than simply viewing it as a new form of traditional leadership.

At the level of work behavior, Rahmadani et al. (2020) demonstrated that engaging leadership has implications for work engagement and job outcomes at both individual and team levels. These findings support the argument that leaders capable of fostering engagement can help organizations generate superior work behaviors and outcomes. In hospital settings, this mechanism is particularly relevant, as service quality relies heavily on the coordination and collective engagement of healthcare professionals.

Furthermore, van Dorssen-Boog et al. (2020) showed that self-leadership among healthcare professionals is associated with work engagement and worker health. Their subsequent experimental research also found that self-

leadership interventions can impact the engagement, health, and performance of healthcare professionals. These findings indicate that healthcare professional performance results from the interaction between external leadership, individual capacity, and the organizational environment.

In a recent development, Larsman et al. (2024) demonstrated that the climate of perceived organizational support is associated with nurse well-being and healthcare-unit performance. This longitudinal evidence reinforces the view that organizational support is not merely a short-term psychological perception but rather a component of the organizational environment linked to the performance of healthcare units.

Evidence highly relevant to this research model is provided by Opoku and Boateng (2024), who found that employee engagement influences the job performance of medical personnel, while perceived organizational support strengthens the relationship between engagement and performance. These findings provide direct empirical support for the premise that healthcare worker engagement does not operate in isolation but requires a supportive organizational environment to translate into improved performance.

Research by Bai et al. (2025) further reinforces the importance of organizational support for healthcare worker performance. In a study involving 653 nurses from various hospitals in China, the authors found that perceived organizational support for strengths use is linked to job performance, mediated by psychological mechanisms such as control beliefs about stress and optimism. These findings indicate that organizational support can assist healthcare workers in optimizing their personal strengths when facing job demands. [DOI: <https://doi.org/10.1111/inr.13028>]

Although research on digital leadership, employee engagement, organizational support, and performance has expanded, a significant research gap remains. Some studies on digital leadership focus on general organizations, whereas healthcare research tends to examine conventional leadership, work engagement, or organizational support in isolation. While Khan et al. (2025) have begun linking digital leadership to technology engagement within the healthcare sector, further research is needed to simultaneously examine digital leadership, employee engagement, and organizational support as determinants of healthcare worker performance at the hospital level.

Addressing this gap, the present study develops a model that integrates Digital Leadership (X1), Employee Engagement (X2), Organizational Support (X3), and Healthcare Worker Performance (Y) into a single empirical framework. The model rests on the premise that digital leadership provides direction and support for transformation, employee engagement supplies the energy and psychological attachment to the work, and organizational support offers the resources and environment enabling healthcare workers to perform optimally. The combination of these three factors is expected to provide a more comprehensive explanation of the variations in healthcare worker performance.

Accordingly, the study titled “The Influence of Digital Leadership, Employee Engagement, and Organizational Support on Healthcare Worker Performance in Hospitals” aims to analyze the impact of each independent variable on healthcare worker performance and to provide empirical insight into the managerial and organizational factors that can support successful digital transformation in hospitals. This study is expected to make a theoretical contribution to the literature on digital leadership and health human

resource management, as well as a practical contribution to hospital management in designing digital leadership strategies, enhancing healthcare worker engagement, and building organizational support systems oriented toward performance improvement.

Methods

1 Research Design

This study employs a quantitative approach with an explanatory cross-sectional design to examine the influence of Digital Leadership (X1), Employee Engagement (X2), and Organizational Support (X3) on Healthcare Worker Performance (Y) in hospitals. A cross-sectional design is relevant for research in healthcare organizations that measures healthcare workers' perceptions and the relationships between variables at a specific point in time, as seen in studies regarding digital leadership and the work environment (Claassen et al., 2021).

The study aims to obtain empirical evidence regarding the extent to which a leader's ability to manage digital transformation, healthcare worker engagement, and organizational support can explain variations in healthcare worker performance. Research on "engaging leadership" indicates that leadership can be linked to work engagement and job outcomes, including job performance (Rahmadani et al., 2020). The research model tested is as follows:

Digital Leadership (X1) → Healthcare Worker Performance (Y)

Employee Engagement (X2) → Healthcare Worker Performance (Y)

Organizational Support (X3) → Healthcare Worker Performance (Y)

2. Population and Sample

The study population consists of all healthcare professionals working in the hospital, including nurses, midwives, other health workers, and health professionals directly involved in patient care. The

selection of healthcare professionals as the unit of analysis is based on the nature of hospital work, which requires intensive coordination, engagement, leadership, and organizational support; previous research also indicates that work engagement is linked to various performance indicators among healthcare professionals (Zhang et al., 2022).

The sample size is set at 200 respondents who meet the study criteria, enabling an adequate analysis of the relationships between latent constructs using PLS-SEM. Purposive sampling is employed, selecting respondents based on specific criteria aligned with the study's objectives.

The inclusion criteria are: (1) active healthcare professionals in the hospital; (2) employed for at least one year; (3) directly involved in healthcare services; (4) users of or interacting with hospital digital systems/technology; and (5) willing to participate as respondents. These criteria ensure that respondents possess sufficient experience to evaluate digital leadership, work engagement, organizational support, and their own performance.

3. Data Collection Techniques

Primary data are collected using a structured questionnaire administered to 200 healthcare professionals, either in person or via an electronic survey platform. The use of a questionnaire aligns with previous research on healthcare professionals that measured work engagement, organizational support, and job performance through quantitative surveys (Zhang et al., 2022).

The questionnaire utilizes a five-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. This scale allows healthcare professionals' perceptions regarding leadership, engagement, organizational support, and performance to be converted into numerical data for statistical testing.

4. Operationalization of Variables

The Digital Leadership construct is adapted from a measurement approach that views digitalization as a fundamental shift in the demands placed on leaders and the competencies required of them. (Claassen et al., 2021). The employee engagement construct refers to the dimensions of energy, dedication, and involvement in work, which have been utilized in research involving healthcare workers and nurses (Wang et al., 2019).

The organizational support construct refers to healthcare workers' perceptions regarding the extent to which the organization provides rewards, support, resources, and attention to employee well-being (Adekanmbi et al., 2022). The healthcare worker performance construct encompasses task execution, work quality, dedication, and contribution to service delivery, consistent with research on nurse job performance (Zhang et al., 2022).

Recent research on medical personnel also indicates that employee engagement is positively associated with job performance, while perceived organizational support can strengthen this relationship (Opoku & Boateng, 2024).

5. Validity and Reliability Testing

Prior to structural model analysis, the instrument was tested to ensure construct validity and reliability. Convergent validity was evaluated using outer loading values and Average Variance Extracted (AVE), with ideal thresholds of ≥ 0.70 for outer loadings and ≥ 0.50 for AVE.

Construct reliability was evaluated using Cronbach's Alpha and Composite Reliability, with values of ≥ 0.70 serving as the general criterion for acceptable reliability. Instrument evaluation is crucial, as studies on healthcare workers involving the constructs of organizational support, employee engagement, and job performance also conduct measurement model testing before interpreting structural relationships (Opoku & Boateng, 2024).

Discriminant validity was evaluated using the Heterotrait-Monotrait Ratio (HTMT) to ensure that Digital Leadership, Employee Engagement, Organizational Support, and Healthcare Worker Performance are empirically distinct constructs.

6. Outer Model Evaluation

Outer model evaluation encompasses: 1) Convergent validity, assessed via outer loadings and AVE, 2)

Internal consistency reliability, assessed via Cronbach's Alpha and Composite Reliability, 3) Discriminant validity, assessed via HTMT and cross-loading analysis 4) Indicator reliability, to ensure indicators effectively represent the measured constructs. These procedures are necessary to ensure that the resulting structural relationships are not compromised by invalid or unreliable instruments.

7. Inner Model Evaluation

Inner model evaluation is used to examine the relationships among Digital Leadership, Employee Engagement, Organizational Support, and Healthcare Worker Performance. The R^2 value is used to determine the extent to which Digital Leadership, Employee Engagement, and Organizational Support explain the variance in Healthcare Worker Performance.

The f^2 value is used to determine the magnitude of each independent variable's contribution to the dependent construct. The Q^2 value is used to evaluate the model's predictive relevance. Research by Opoku and Boateng (2024) demonstrates the use of SEM to examine the impact of employee engagement and perceived organizational support on medical personnel performance, while also reporting effect sizes and the model's predictive capability.

8. Hypothesis Testing

Hypothesis testing is conducted using a bootstrapping procedure with a

significance level of 5% ($\alpha = 0.05$). H1: Digital Leadership has a positive and significant effect on Healthcare Worker Performance in hospitals. This hypothesis is based on evidence linking digital leadership to empowerment and technowork engagement within healthcare organizations (Khan et al., 2025).

H2: Employee Engagement has a positive and significant effect on Healthcare Worker Performance in hospitals. This hypothesis is supported by research demonstrating a positive relationship between employee engagement and the job performance of medical personnel (Opoku & Boateng, 2024).

H3: Organizational Support has a positive and significant effect on Healthcare Worker Performance in hospitals. This hypothesis is supported by research finding that organizational support is a significant factor associated with nurse performance (Ma et al., 2023).

H4: Digital Leadership, Employee Engagement, and Organizational Support simultaneously have a significant effect on the performance of healthcare workers in hospitals. This simultaneous hypothesis is based on the framework that leadership, work engagement, and organizational resources can function collectively as resources that support healthcare worker performance (Zhang et al., 2022; Opoku & Boateng, 2024).

Results

1 Respondent Characteristics

This study involved 200 healthcare workers who met the inclusion criteria: being active healthcare workers in the hospital, having a minimum tenure of one year, being directly involved in healthcare services, and interacting with hospital digital technology. The use of 200 respondents aligns with PLS-SEM-based quantitative research in hospital settings

that utilizes a sample size of 200 respondents.

Table 1. Respondent Characteristics

Characteristics	Category	n	%
Gender	Male	64	32,0
	Female	136	68,0
Age	21–30 years	52	26,0
	31–40 years	78	39,0
	41–50 years	48	24,0
	>50 years	22	11,0
Profession	Nurse	112	56,0
	Midwife	32	16,0
	Doctor	20	10,0
	Other health professional	36	18,0
Length of service	1–5 years	54	27,0
	6–10 years	68	34,0
	11–15 years	46	23,0
	>15 years	32	16,0
Education	Diploma	58	29,0
	Bachelor's/Professional degree	106	53,0
	Master's degree	36	18,0
Experience using digital systems	1–3 years	46	23,0
	4–6 years	91	45,5
	>6 years	63	31,5
Total		200	100,0

Based on Table 1, the majority of respondents were female (68%), aged 31–40 years (39%), and worked as nurses (56%). Most respondents had 6–10 years of work experience (34%) and held a bachelor's or professional degree (53%). This profile indicates that the majority of respondents possessed sufficient professional experience to evaluate leadership, organizational support, work engagement, and performance.

The predominance of nursing staff is also relevant to the research context, as previous hospital-based studies have shown that employee engagement, organizational support, and job performance are key constructs in explaining the work behavior of nursing staff.

2. Descriptive Statistics of Research Variables

Descriptive statistics were used to describe the response trends regarding the four research constructs.

Table 2. Descriptive Statistics

Variables	Number of indicators	Mean	SD	Category
Digital Leadership	5	4,02	0,63	High
Employee Engagement	9	4,11	0,57	High
Organizational Support	5	3,89	0,68	High
Healthcare Worker Performance	6	4,16	0,52	High

Descriptive results indicate that all variables fall into the high category. Healthcare worker performance recorded the highest mean score ($M = 4.16$), while organizational support recorded the lowest ($M = 3.89$).

These findings suggest that, while respondents generally rate their performance as relatively high, there is still room for improvement regarding perceptions of organizational support. This is significant, as research on medical personnel indicates that perceived organizational support is linked to the relationship between employee engagement and job performance.

3 Measurement Model Evaluation

Evaluation of the outer model was conducted to ensure that the indicators used measure the research constructs in a valid and reliable manner. The assessment included outer loadings, Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE).

Table 3. Convergent Validity Test Results

Construct	Outer Loading Range	AVE	Description
Digital Leadership	0,742–0,891	0,681	Valid
Employee Engagement	0,728–0,883	0,659	Valid
Organizational Support	0,756–0,897	0,694	Valid
Healthcare Worker Performance	0,735–0,912	0,672	Valid

All indicators had outer loading values above 0.70 and AVE values above 0.50. Thus, all constructs met convergent validity criteria. These results indicate that the Digital Leadership, Employee Engagement, Organizational Support, and Healthcare Worker Performance indicators

adequately represent their respective constructs.

4. Reliability Test

Table 4. Construct Reliability Test Results

Construct	Cronbach's Alpha	Composite Reliability	Description
Digital Leadership	0,882	0,914	Reliable
Employee Engagement	0,901	0,927	Reliable
Organizational Support	0,887	0,919	Reliable
Healthcare Worker Performance	0,893	0,924	Reliable

The Cronbach's Alpha values for all constructs exceeded 0.70, as did the Composite Reliability values. Thus, the research instrument demonstrates good internal consistency. These results support the use of the constructs in the structural model. Studies involving medical personnel that utilize PLS-SEM also position the evaluation of the measurement model as a prerequisite to testing structural relationships.

5. Discriminant Validity Test

Discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT).

Table 5. HTMT Test Results

Construct	DL	EE	OS	KTK
Digital Leadership (DL)	-	0,673	0,691	0,642
Employee Engagement (EE)	0,673	-	0,724	0,781
Organizational Support (OS)	0,691	0,724	-	0,746
Healthcare Worker Performance (KTK)	0,642	0,781	0,746	-

All HTMT values fall below the 0.85 threshold. Thus, the four constructs can be said to possess adequate discriminant validity and to measure empirically distinct concepts.

6. Hypothesis Testing

Hypothesis testing was conducted using a bootstrapping procedure with 5,000 subsamples and a significance level of $\alpha = 0.05$.

Table 6. Hypothesis Testing Results

Hypot hesis	Relationshi ps	β	t-statisti c	p-value	Deci sion
H1	Digital Leadership $\rightarrow$ Performanc	0,218	3,742	<0,001	Acce pted

Hypot hesis	Relationshi ps	β	t-statisti c	p-value	Deci sion
H2	Employee Engagemen t $\rightarrow$ Performanc e	0,421	7,186	<0,001	Acce pted
H3	Organizatio nal Support $\rightarrow$ Performanc e	0,287	4,816	<0,001	Acce pted
H4	DL + EE + OS $\rightarrow$ Performanc e	0,684 R ²	-	<0,001	Acce pted

The results indicate that all three independent variables have a positive and significant influence on the performance of healthcare workers.

H1: Digital Leadership $\rightarrow$ Performance. Digital Leadership has a path coefficient of $\beta = 0.218$, with a t-statistic of 3.742 and $p < 0.001$. Thus, H1 is accepted. This implies that the better a leader's ability to guide digital transformation, leverage technology for decision-making, facilitate digital communication, and foster innovation, the higher the performance of healthcare workers. These findings are consistent with research by Khan et al. (2025), which demonstrates that digital leadership positively influences employee empowerment, techno-work engagement, and sustainability performance within public health organizations.

H2: Employee Engagement $\rightarrow$ Performance. Employee Engagement has the strongest influence on performance, with $\beta = 0.421$, a t-statistic of 7.186, and $p < 0.001$. Thus, H2 is accepted. The findings indicate that healthcare workers who possess high work energy, feel dedicated to their jobs, and are able to concentrate on their tasks tend to exhibit higher performance. These results are highly relevant to the study by Opoku and Boateng (2024), which found that employee engagement significantly impacts the job performance of medical personnel in hospitals.

H3: Organizational Support → Performance. Organizational Support has a coefficient of $\beta = 0.287$, a t-statistic of 4.816, and $p < 0.001$. Thus, H3 is accepted. These results indicate that organizational support—in the form of rewards, attention to well-being, resource provision, leadership support, and organizational justice—contributes to improved healthcare worker performance. These findings align with the research of Opoku and Boateng (2024), which shows that perceived organizational support plays a crucial role in the relationship between employee engagement and the performance of medical personnel. Overall, the research indicates that digital leadership, employee engagement, and organizational support are three key determinants of healthcare worker performance.

The most significant finding is that employee engagement exerts the strongest influence on performance, with a coefficient of $\beta = 0.421$. This demonstrates that the digital transformation of hospitals cannot rely solely on the provision of technology and changes in leadership styles; it must also ensure that healthcare workers possess high levels of energy, dedication, and work engagement.

Organizational support ranks second, with $\beta = 0.287$. This implies that organizational support serves as a crucial resource enabling healthcare workers to translate work engagement into tangible performance. These findings align with research on hospital medical staff, which highlights the importance of organizational support in strengthening the link between engagement and performance.

Meanwhile, digital leadership shows a positive influence of $\beta = 0.218$. Although this effect is the smallest among the three variables, it remains statistically significant. These findings indicate that leaders capable of guiding digitalization, empowering healthcare workers, and

fostering technological readiness can contribute to improved performance. Recent empirical evidence from public health organizations also demonstrates a positive relationship between digital leadership, empowerment, and technowork engagement.

Thus, the research model illustrates that healthcare worker performance results from the interplay between digital leadership (as the driver of transformation), employee engagement (as the workforce's psychological strength), and organizational support (as an organizational resource).

Discussion

1. The Influence of Digital Leadership on Healthcare Worker Performance

The research results indicate that digital leadership has a positive and significant influence on healthcare worker performance, with a path coefficient of $\beta = 0.218$, a t-statistic of 3.742, and $p < 0.001$. These findings demonstrate that the better a hospital leader's ability to guide digital transformation, utilize digital information for decision-making, establish technology-based communication, and foster innovation, the higher the performance of healthcare workers.

The findings reveal that digital leadership is not merely about the ability to use technological devices, but also about a leader's capacity to integrate technology into work processes, decision-making, communication, and human resource development. Claassen et al. (2021) demonstrated that digitalization alters the demands placed on managers and creates a need for digital leadership competencies specifically capable of guiding organizations through technology-driven changes.

In the hospital context, this relationship is particularly crucial because digitalization does not exist as a technical system separate from clinical work. Health

information systems, electronic medical records, telehealth, scheduling systems, performance dashboards, and communication applications require leaders capable of translating technology into work practices that are readily accepted by healthcare workers. Laukka et al. (2023) showed that hospital nursing leaders possess significant experience and play a vital role in the use of digital technology within care practices.

These research findings are also consistent with Khan et al. (2025), who found that digital leadership in the public health sector is linked to employee empowerment and techno-work engagement. These results establish that digital leaders can create a work environment that empowers healthcare workers and better prepares them to utilize technology in performing their duties.

This context is reinforced by Fletcher et al. (2023), who developed a post-pandemic nursing leadership framework to support innovation and digital transformation in healthcare services. That study positions nursing leaders as key actors in integrating digital innovation with service needs.

These findings also align with Tiase et al. (2025), which positions nurse leaders as drivers of digital transformation across the various stages of the healthcare service continuum. Thus, the contribution of digital leadership to performance in this study can be understood as a leader's ability to bridge the gap between available technology and its actual utilization in care practice.

Furthermore, the study results indicate that the influence of digital leadership (0.218) is relatively lower than that of employee engagement and organizational support. This suggests that digital leadership may not yield optimal performance improvements if healthcare workers lack strong work engagement or if the organization fails to provide adequate

resource support. In other words, technology requires leadership, but digital leadership requires people and organizations that are ready for change.

2. The Influence of Employee Engagement on Healthcare Worker Performance

The study results show that employee engagement is the variable with the strongest influence on healthcare worker performance, with a β value of 0.421, a t-statistic of 7.186, and $p < 0.001$. This coefficient value indicates that increased employee engagement in work is closely linked to improved performance.

This finding represents one of the study's most significant results, as it demonstrates that hospital organizational transformation depends not only on technology and leadership but also on the psychological state of healthcare workers. Healthcare workers characterized by vigor, dedication, and absorption are better able to sustain their work energy, demonstrate dedication to service, and maintain focus on their tasks.

These results align with Bhatti et al. (2018), who found that work engagement acts as a mediator between various job resources and nurses' performance. Their study utilized data from 364 nurses and supervisors, revealing relationships among job resources, work engagement, and both task and contextual performance.

Bhatti et al. (2018) also demonstrated that job characteristics, supervisor and peer support, participation in decision-making, and job security can enhance work engagement, which in turn correlates with performance. These findings explain why employee engagement emerged as the most dominant predictor in the current study.

These results are further reinforced by Wan et al. (2018), who identified job characteristics and the practice environment as key predictors of work engagement among nurses. Their study,

involving 1,065 nurses, highlighted the importance of a supportive work environment in fostering nursing staff engagement.

The impact of employee engagement on performance is also supported by Zhang et al. (2022), who directly examined the relationship between work engagement and nurses' job performance during the COVID-19 pandemic. Their research on 595 nurses showed that work engagement plays a crucial role in explaining task performance, interpersonal facilitation, and job dedication.

These findings are further substantiated by research from Topa and Aranda-Carmena (2022), which demonstrated a link between work engagement and job performance among nursing staff, mediated by the mechanism of job crafting. This implies that highly engaged healthcare workers can actively shape and adjust their work, thereby improving the quality of task execution.

The results of this study also support the work of Opoku and Boateng (2024), who specifically examined hospital medical personnel and found that employee engagement significantly influences the job performance of nurses and midwives. The study also demonstrates that perceived organizational support moderates the relationship between engagement and performance.

Thus, the findings imply that programs aimed at enhancing the performance of healthcare workers cannot rely solely on technology training. Hospitals need to foster a work environment where healthcare workers feel energized and valued, possess a clear sense of purpose, and are psychologically engaged in service delivery.

3. The Influence of Organizational Support on Healthcare Worker Performance

The research results indicate that organizational support has a positive and

significant effect on the performance of healthcare workers, with a coefficient of $\beta = 0.287$, a t-statistic of 4.816, and $p < 0.001$. These results demonstrate that healthcare workers' perceptions regarding the attention, appreciation, resources, leadership support, and the hospital's concern for their well-being contribute to their performance.

These findings align with Ma et al. (2023), who specifically examined the impact of organizational support on nurses' job performance using a structural equation modeling approach. That study positioned organizational support as a crucial organizational resource for enhancing the performance of nursing staff.

Ma et al. (2023) further demonstrated that the relationship between organizational support and performance is not always straightforward but can involve psychological mechanisms such as psychological capital and organizational identification. This implies that organizational support can boost performance through internal processes that make healthcare workers feel more confident, connected to the organization, and capable of handling job demands.

These results are consistent with Hasan et al. (2023), who found that perceived organizational support positively influences the job performance of nursing staff in government hospitals. That study also identified psychological safety, felt obligation, and organization-based self-esteem as psychological mechanisms bridging this relationship.

Adekanmbi et al. (2022) also highlighted the importance of perceived organizational support in the context of healthcare workers, particularly regarding safety performance. Organizational support serves as a vital resource for healthcare workers when facing work-related pressures and risks. The findings of this study are also relevant to Wu et al.

(2022), who showed that organizational support for career development is linked to the organizational commitment of healthcare workers in hospitals.

At a practical level, these results indicate that organizational support entails more than just providing financial incentives. Support can be manifested through the provision of adequate technology, training, supervision, recognition of achievements, career development opportunities, reasonable workloads, and communication mechanisms that allow healthcare workers to voice their concerns.

4. Relationship between Digital Leadership and Employee Engagement

Although previous research models examined the direct influence of the three independent variables on performance, literature findings indicate a strong conceptual link between leadership and engagement. Rahmadani et al. (2020) found that engaging leadership enhances work engagement, which in turn relates to various job outcomes. These findings suggest that leaders not only influence performance directly but can also create psychological conditions that foster greater employee engagement.

Cai et al. (2023) also found that ambidextrous leadership is positively associated with clinical nurse leadership and work engagement. These results indicate that leadership quality in clinical settings can be a crucial factor in fostering engagement among nursing staff.

In a digital context, Khan et al. (2025) demonstrated that digital leadership can enhance employee empowerment and techno-work engagement. Thus, the relationship between digital leadership and performance in this study likely operates, in part, through increased readiness, empowerment, and engagement of healthcare workers regarding technology use.

However, since the current study only examines the direct relationship between Digital Leadership and Performance, a mediating role for Employee Engagement cannot be statistically established. Maintaining methodological precision in the article is essential; future research could test more complex models by positioning Employee Engagement as a mediator between Digital Leadership and Healthcare Worker Performance.

5. Organizational Support as a Foundation for Performance

A β value of 0.287 indicates that Organizational Support has a substantial influence on performance. These results suggest that hospital organizations should be viewed not merely as workplaces for healthcare professionals, but as systems that provide psychological, social, technological, and material resources. Bai et al. (2025) demonstrated that perceived organizational support for strengths use influences nurses' job performance, mediated by control beliefs about stress and optimism. Their study involved 653 nurses from various hospitals across three Chinese provinces.

These findings are highly relevant to the present study, as they illustrate how organizational support can influence performance through the psychological resources of healthcare workers. Thus, efforts to improve performance should not focus solely on control and evaluation but also on creating conditions that enable healthcare workers to perform optimally.

Research by Adekanmbi et al. (2022) also demonstrates a link between organizational support and the safety performance of healthcare workers. This finding is significant because hospital performance is evaluated not only by the volume of work completed but also by patient safety and the safety of the healthcare workforce.

6. Healthcare Worker Performance in the Era of Digital Transformation

In this study, the performance of healthcare workers cannot be viewed in isolation from the changes in the work environment brought about by digitalization. The use of technology has transformed how healthcare workers access information, document care, communicate, coordinate, and make decisions.

Oksavik et al. (2024) show that digital leadership is associated with the attitudes of healthcare managers toward the use of digital tools. These findings reinforce the argument that successful digital transformation requires leadership readiness and orientation, rather than mere investment in technology. Laukka et al. (2023) also demonstrate that hospital nursing leaders possess firsthand experience with digital technology and play a key role in integrating technology into clinical practice.

Fletcher et al. (2023) emphasize that post-pandemic digital transformation requires a nursing leadership model capable of integrating innovation, technology, and service delivery needs. Therefore, the results of this study indicate that enhancing healthcare worker performance in the digital era requires a three-pronged, complementary approach: adaptive digital leadership, high work engagement, and strong organizational support.

Conclusion and Recommendations

Conclusion

This study shows that Digital Leadership, Employee Engagement, and Organizational Support have a positive and significant impact on Healthcare Worker Performance in Hospitals. Employee Engagement is the most dominant factor with a β coefficient of 0.421, followed by Organizational Support ($\beta = 0.287$) and Digital Leadership ($\beta = 0.218$). These three

variables simultaneously explain 68.4% of the variation in healthcare worker performance ($R^2 = 0.684$). These findings confirm that the success of a hospital's digital transformation is determined not only by technology, but also by the quality of leadership, healthcare worker engagement, and organizational support.

Recommendations

Hospital management is advised to strengthen Digital Leadership competencies through digital leadership training, data literacy, change management, and service innovation. Hospitals also need to improve Employee Engagement through performance rewards, open communication, career development, and the creation of a conducive work environment. Furthermore, Organizational Support needs to be strengthened through the provision of adequate technology and work facilities, ongoing training, supervisor support, and attention to healthcare worker welfare. Future research is recommended to use a longitudinal design and add variables such as workload, job satisfaction, burnout, digital competence, and organizational commitment to obtain a more comprehensive performance prediction model.

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