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THE EFFECT OF PERFORMANCE EXPECTATIONS AND EFFORT EXPECTATIONS ON TELEMEDICINE ADOPTION THROUGH WORKLOAD AND SELF-EFFICACY

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ABSTRACT
This study aims to analyze the factors influencing healthcare workers' intention to adopt Telemedicine, emphasizing the roles of performance expectancy, effort expectancy, social Influence, facilitating conditions, self-efficacy, and Workload. The development of digital health technology has made Telemedicine a crucial solution for increasing the accessibility and efficiency of healthcare services. Therefore, understanding the factors influencing healthcare workers' readiness and intention to use Telemedicine is crucial for optimal implementation of this technology. This study employed a quantitative, cross-sectional survey design. Data were collected through a structured questionnaire distributed to 320 healthcare workers. Data analysis was conducted using the Structural Equation Modeling–Partial Least Squares (SEM-PLS) method to examine the relationships between the variables. The analysis included measurement model evaluation, structural model testing, and an Importance–Performance Map Analysis (IPMA) to identify the constructs with the highest importance for increasing telemedicine adoption. This study found that Workload was the most dominant factor influencing intention to adopt Telemedicine, followed by self-efficacy. Effort expectancy, performance expectancy, and facilitating conditions significantly influenced both variables, while social Influence was insignificant. These results confirm that workload management, ease of use of the system, and increased confidence among healthcare workers are key factors in driving successful telemedicine adoption and increasing adoption intentions.

KEYWORDS: telemedicine adoption, self-efficacy, Workload, SEM-PLS, digital health technology.

INTRODUCTION

Developments in information and communication technology have driven significant transformations in global healthcare services, including the use of Telemedicine. Internationally, telemedicine use has increased sharply. The Global Telemedicine Market Report by Fortune Business Insights (2023) indicates that the number of global telemedicine service users has reached 1.2 billion people, with a projected market growth of USD 286.22 billion by 2030, up from USD 87.41 billion in 2022. This growth is driven by the need for faster, more efficient, and more accessible healthcare services (Fortune Business Insights, 2023).

At the national level, Indonesia is also experiencing a rapid increase in the use of digital healthcare services. The Ministry of Health reported that more than 21 million people used telemedicine services in 2023 through various digital platforms (Kemenkes RI, 2023). This data illustrates a shift in patient preferences for accessing healthcare, from face-to-face visits to more flexible, efficient digital services. A similar phenomenon was seen at Hospital X, where the number of patients utilizing online consultation services increased from 3,200 (2022) to 5,870 (2024). This indicates increased patient awareness and internal hospital support for transitioning some services to digital systems to reduce the density of face-to-face services. Hospital X also records an average of 750 outpatient visits per day, underscoring the need for Telemedicine to optimize service flow and reduce the physical burden on service units.

Although the benefits of Telemedicine have been widely recognized, adoption rates by healthcare workers still vary and are influenced by technical, social, and psychosocial factors. Research by Cobelli, Cassia, and Donvito (2023) shows that perceived benefits of technology (performance expectancy), ease of use (effort expectancy), and social Influence play important roles in shaping healthcare workers' intentions to adopt Telemedicine. However, this study did not include psychosocial variables such as Workload and self-efficacy, both of which significantly influence healthcare workers' readiness to use new technology (Rouidi et al., 2022). Previous research has also identified that high Workload can reduce healthcare workers' motivation to adopt new systems, while self-efficacy increases confidence in optimally using Telemedicine (Hartono et al., 2021; Rahi et al., 2021). Furthermore, findings by Du et al. (2022), Shi et al. (2021), and Zobair et al. (2021) confirm that telemedicine acceptance is influenced by the social context, supporting facilities, and the competency level of healthcare workers. These varying results indicate the need for a more comprehensive research model.

Various studies have explained the factors influencing telemedicine adoption. Cobelli et al. (2023) showed that performance expectancy, effort expectancy, and social influence shape telemedicine adoption intentions, but did not comprehensively incorporate psychosocial factors. Du et al. (2022), Shi et al. (2021), and Zobair et al. (2021) also highlighted the Influence of social context, facilities, and user competence. Still, they did not examine how Workload and self-efficacy mediate these relationships. Other studies reinforce the importance of psychological factors, such as those by Hartono et al. (2021), Rahi et al. (2021), and Rouidi et al. (2022), which emphasize the role of self-efficacy and Workload in increasing acceptance of health technology.

Recent research has provided additional insights but still leaves important gaps. Yin et al. (2024) found that consumer telehealth adoption in Malaysia was influenced by technological usefulness, accessibility, and trust. However, this study focused on the patient's perspective rather than the healthcare provider's, and therefore failed to address the internal mechanisms within healthcare organizations. Meanwhile, Mensah et al. (2022) confirmed that mobile self-efficacy moderates intention to use m-health services. However, their study focused primarily on mobile services and did not integrate relevant workload factors in a hospital context. Shiferaw et al.'s (2021) study developed an extended UTAUT model to explain telemedicine acceptance among providers in low-resource settings. However, it focused solely on pandemic conditions and failed to address how Workload and self-efficacy operate as mediating mechanisms in the context of long-term system adoption.

Based on these gaps, this study develops a telemedicine adoption model by incorporating Workload and self-efficacy as mediators between performance expectancy, effort expectancy, social Influence, and facilitating conditions on healthcare providers' intention to adopt Telemedicine. This model provides a theoretical contribution by presenting a psychosocial perspective that has not been explored in depth in previous research, while also offering practical implications for Hospital X to improve the digital readiness of its healthcare workforce. By understanding how perceived benefits, ease of use, social support, facility conditions, Workload, and self-efficacy interact, the hospital can design a more effective telemedicine implementation strategy in the era of digital healthcare transformation. Therefore, this study modifies the model of Cobelli et al. (2023) by adding workload and self-efficacy variables as mediators that bridge the Influence of performance expectancy and effort expectancy on telemedicine adoption intention. This model is expected to make theoretical and practical contributions to Hospital X by developing effective telemedicine implementation strategies grounded in healthcare workers' psychosocial readiness in the era of digital transformation.

LITERATURE REVIEW

Performance Expectancy

Performance Expectancy (PE) is the extent to which individuals believe that using a particular technology will improve their job performance (Cobelli et al., 2023). In the context of Telemedicine, PE reflects healthcare workers' perceptions of the technology's ability to improve service efficiency, the quality of patient interactions, and diagnostic accuracy (Rahi et al., 2021; Du et al., 2022). A study by Cobelli et al. (2023) found that PE significantly influences telemedicine adoption intentions, as individuals who believe technology will improve their performance are more motivated to use it. PE is also believed to influence workload perception and self-efficacy, as individuals who perceive clear benefits from technology tend to be better able to manage tasks and feel more confident in using it (Rouidi et al., 2022).

Effort Expectancy

Effort Expectancy (EE) refers to an individual's perceived ease of use of technology (Cobelli et al., 2023). The easier a technology is to use, the more likely an individual is to adopt it. In Telemedicine, EE influences healthcare workers' motivation to utilize technology, especially in busy work environments (Rahi et al., 2021). Ease of use of technology also impacts perceived Workload and self-efficacy; user-friendly technology can reduce cognitive load and increase confidence in using the system (Shi et al., 2021; Hartono et al., 2021).

Social Influence

Social Influence (SI) is the extent to which individuals perceive that significant others around them support their use of technology (Cobelli et al., 2023). In Telemedicine, SI can come from colleagues, superiors, or hospital policies that encourage technology adoption (Zobair et al., 2021). SI influences perceived Workload and self-efficacy; social support can increase motivation to adapt to technology and strengthen confidence in its use (Rouidi et al., 2022).

Facilitating Condition

Facilitating Condition (FC) refers to the extent to which individuals perceive they have organizational support and resources to use technology, including devices, infrastructure, and training (Cobelli et al., 2023; Shi et al., 2021). Good FC can facilitate healthcare workers' integration of Telemedicine into daily practice and reduce technical barriers. FC is also believed to influence perceived Workload and self-efficacy, as healthcare workers who receive full support tend to be better able to manage work demands and are more confident in using technology (Hartono et al., 2021).

Workload

Workload is an individual's perception of the amount, complexity, and demands of work that must be completed within a given period (Rouidi et al., 2022). In the context of Telemedicine, Workload can increase or decrease depending on the ease of use of the technology, perceived benefits, and organizational support (Du et al., 2022).

A manageable workload allows healthcare workers to remain productive and motivated to adopt technology (Rahi et al., 2021).

Self-Efficacy

Self-Efficacy is an individual's belief in their ability to perform tasks or use technology effectively (Hartono et al., 2021). A high level of self-efficacy enables healthcare workers to overcome barriers to telemedicine use, improve performance, and adapt to digital systems (Zobair et al., 2021). Self-efficacy also often acts as a mediator between technology perception and adoption intention (Cobelli et al., 2023; Rouidi et al., 2022).

Intention to Adopt Telemedicine

Intention to Adopt Telemedicine refers to healthcare workers' intentions to use Telemedicine in their professional practice (Cobelli et al., 2023; Du et al., 2022). This intention is influenced by perceived performance, ease of use, social support, facilitative conditions, Workload, and self-efficacy. A combination of technical and psychosocial factors determines healthcare workers' readiness and motivation to adopt Telemedicine sustainably (Rahi et al., 2021).

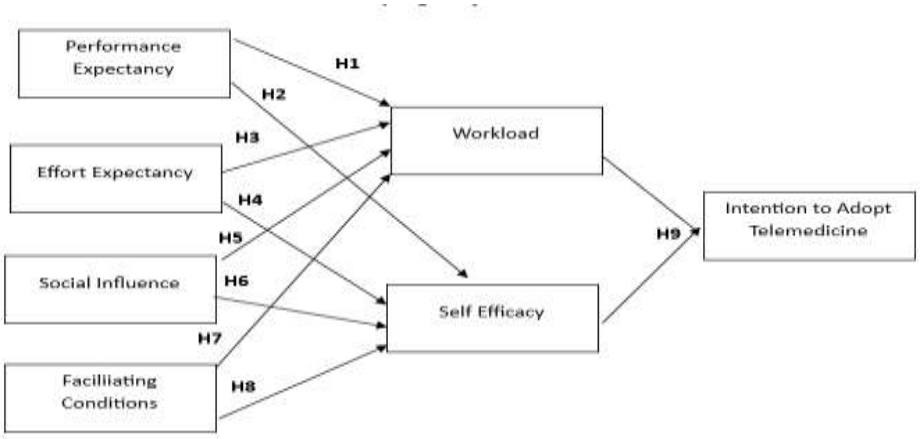

Figure 1. Conceptual Framework

Hypothesis Development

H1: Performance Expectancy has a positive impact on Workload

Performance expectancy is predicted to influence perceived Workload because when healthcare workers perceive Telemedicine as improving effectiveness, service speed, and the accuracy of clinical decisions, they tend to perceive a decrease in operational Workload. Research by Cobelli et al. (2023) confirmed that the perceived usefulness of technology is a key driver of telemedicine acceptance, while a study by Du et al. (2022) showed that healthcare workers perceive Telemedicine as effective in reducing administrative activities and unnecessary travel. Furthermore, a meta-analysis by Wang et al. (2024) found that perceived improvements in digital technology can reduce task overload. Therefore, the higher the performance expectancy, the lower the perceived Workload of healthcare workers in operating Telemedicine.

H2: Performance Expectancy has a positive impact on Self-Efficacy

Performance expectancy is also expected to increase self-efficacy, as healthcare workers who view Telemedicine as a useful, performance-enhancing technology will feel more confident in its use. The findings of Shiferaw et al. (2021) showed that perceived benefits of Telemedicine increased service providers' confidence in their competence in using the technology. Research by Wu et al. (2021), based on Social Cognitive Theory, found that perceived self-efficacy increases when individuals perceive that technology produces positive outcomes. Furthermore, Mensah et al. (2022) found that perceived benefits significantly strengthened users' confidence in their digital capabilities. Therefore, the greater the perceived benefits of Telemedicine, the higher the healthcare workers' self-efficacy.

H3: Effort Expectancy has a positive impact on Workload

Effort expectancy is thought to influence Workload because perceived ease of use of technology reduces cognitive and physical effort required during work. Cobelli et al. (2021) found that perceived ease of use of technology reduced healthcare workers' resistance to digital innovation. Rahi et al. (2021) also explained that user-friendly technology can reduce the perception of additional burden during the service process. Research by Diel et al. (2023) on physicians showed that a simple telemedicine interface significantly reduced work fatigue. Therefore, the higher the effort expectancy, the lower the perceived Workload of healthcare workers.

H4: Effort Expectancy has a positive impact on Self-Efficacy

Effort expectancy is also expected to increase self-efficacy because easy-to-understand, easy-to-use technology will increase users' confidence in adopting it. Shi et al. (2021) stated that ease of use contributes to increased perceptual competence of telemedicine users. Yin et al.'s (2024) study of telehealth consumers in Malaysia showed that perceived ease of use directly increased digital self-efficacy. This finding is supported by Mensah et al. (2022), who found that perceived ease of use is closely related to mobile self-efficacy among digital healthcare users. Therefore, the easier Telemedicine is to use, the stronger the healthcare workers' self-efficacy.

H5: Social Influence has a positive impact on Workload
Social Influence is predicted to influence Workload because support from colleagues, leaders, and the organizational environment can reduce work pressure when using new technology. Du et al. (2022) found that healthcare workers in rural areas perceived a lighter workload when they received social support for using Telemedicine. Shiferaw et al. (2021) also showed that social norms and organizational support helped reduce the stress of technology adaptation. Furthermore, Wu et al. (2021) stated that social support increases perceived affordability of services, thereby indirectly reducing Workload. Therefore, the stronger the social Influence, the lower the perceived Workload of healthcare workers.
H6: Social Influence has a positive impact on Self-Efficacy
Social Influence is thought to increase self-efficacy because social support serves as psychological reinforcement, boosting confidence in the use of Telemedicine. Rahi et al. (2021) emphasized that social encouragement strengthens healthcare workers' psychological readiness to accept new technology. Furthermore, research by Wu et al. (2021) showed that social Influence is a key determinant of self-efficacy development in the context of Telemedicine. A study by Yin et al. (2024) also found that support from family and community increases consumers' confidence in using telehealth. Therefore, the greater the social Influence, the higher the healthcare workers' self-efficacy.
H7: Facilitating Conditions have a positive impact on Workload
Facilitating conditions influence Workload by reducing the Workload that arises during telemedicine use through the availability of infrastructure, training, and technical support. Shi et al. (2021) showed that adequate supporting facilities reduce healthcare workers' adaptation stress. Wang et al. (2024) also found that a lack of technical support contributed to increased Workload in digital technology implementation in developing countries. Research by Rouidi et al. (2022) confirmed that optimal supporting conditions minimize Workload during the technology adoption stage. Therefore, the better the facilitating conditions, the lower the Workload for healthcare workers.
H8: Facilitating Conditions has a positive impact on Self-Efficacy
Facilitating conditions are expected to increase self-efficacy because good infrastructure, training systems, and technical support build healthcare workers' confidence in their ability to operate Telemedicine. A study by Hartono et al. (2021) showed that technological support and training increased user confidence in telemedicine services. Shiferaw et al. (2021) also confirmed that supporting facilities strengthen perceived behavioral control, which is related to self-efficacy. Furthermore, a meta-analysis by Wang et al. (2024) found that the availability of technical resources is a key factor in improving digital competence. Therefore, the better the facilitating conditions, the higher the healthcare workers' self-efficacy.
H9: Workload & Self-Efficacy have a positive impact on Intention to Adopt Telemedicine
Workload and self-efficacy are expected to influence intention to adopt Telemedicine by affecting workers' psychological readiness to adopt technology. Rahi et al. (2021) showed that high Workload decreases adoption intention, while self-efficacy increases interest in using health technology. Mensah et al. (2022) confirmed that self-efficacy is a strong predictor of intention to adopt digital healthcare services. Conversely, Du et al. (2022) found that excessive Workload is a major barrier to telemedicine adoption in rural areas. Therefore, low Workload and high self-efficacy will increase intention to adopt Telemedicine.

METHOD

This study used a quantitative, cross-sectional design, collecting data at a single point in time to simultaneously measure relationships among variables. This approach was chosen because it captures healthcare workers' perceptions and experiences of Telemedicine use over a specific period, without the need for long-term observation, making it suitable for evaluating factors influencing the intention to adopt digital systems in hospitals. The study population included all healthcare workers, particularly doctors and nurses directly involved in telemedicine-based services at Hospital X. This group was selected because doctors and nurses are the primary users of telemedicine systems and have relevant operational experience in daily clinical implementation.
Sampling was conducted using a purposive sampling technique, selecting respondents based on criteria such as at least 6 months of service and active involvement in telemedicine services. This technique is commonly used in research on organizational behavior and technology adoption because it enables researchers to select individuals most relevant to the phenomenon under study. The sample size was determined according to the multivariate analysis guidelines recommended by Hair et al. (2021), namely, a minimum of 5–10 respondents per indicator in the model. With 30 indicators in the research instrument, the minimum sample size required is 150–300 respondents. Therefore, this study set a target of 320 healthcare workers to ensure adequate analytical power and model feasibility.
The research instrument used a five-point Likert-scale questionnaire adapted from the UTAUT construct and psychosocial variables such as Workload and self-efficacy. Validity and reliability were assessed using Confirmatory Factor Analysis (CFA), as recommended by Hair et al. (2021), to ensure that factor loadings, average variance extracted (AVE), and composite reliability met the criteria for a suitable measurement model. Data analysis was conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM), which is considered appropriate for exploratory research and complex models with mediation relationships. This technique allows testing both direct and indirect relationships between variables, thereby capturing the mechanisms by which workload and self-efficacy influence telemedicine adoption intentions. This study, using this design and

analysis, provides a robust empirical picture of the factors influencing telemedicine adoption among doctors and nurses at Hospital X.

RESULT
OUTER MODEL

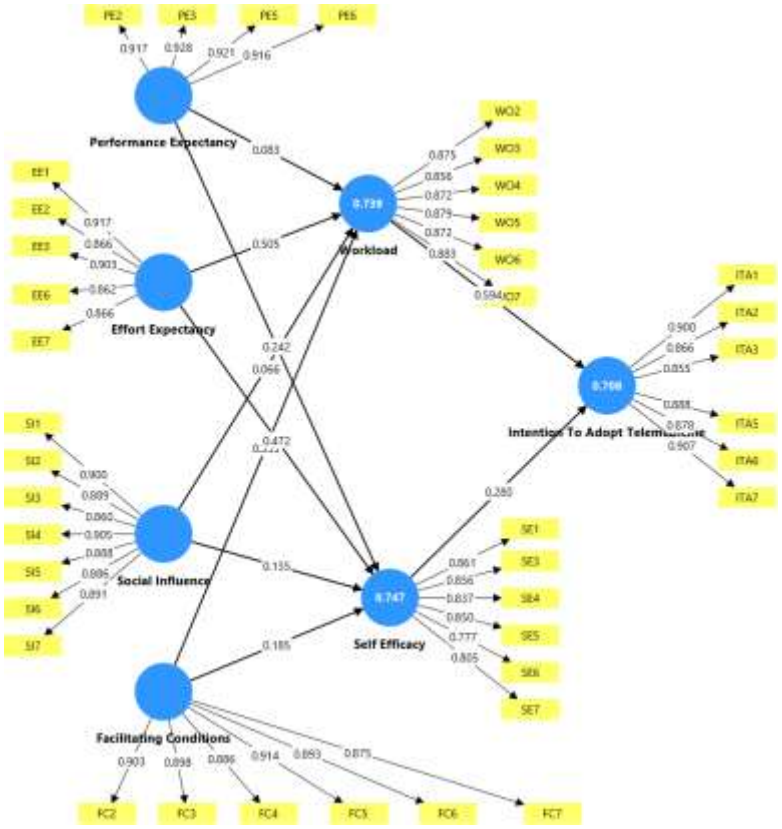

Figure 2. Outer Model

Table 1. Outer Loadings

	Outer loadings
EE1 <- Effort Expectancy	0,917
EE2 <- Effort Expectancy	0,866
EE3 <- Effort Expectancy	0,903
EE6 <- Effort Expectancy	0,862
EE7 <- Effort Expectancy	0,866
FC2 <- Facilitating Conditions	0,903
FC3 <- Facilitating Conditions	0,898
FC4 <- Facilitating Conditions	0,886
FC5 <- Facilitating Conditions	0,914
FC6 <- Facilitating Conditions	0,893
FC7 <- Facilitating Conditions	0,875
ITA1 <- Intention To Adopt Telemedicine	0,900
ITA2 <- Intention To Adopt Telemedicine	0,866
ITA3 <- Intention To Adopt Telemedicine	0,855
ITA5 <- Intention To Adopt Telemedicine	0,888
ITA6 <- Intention To Adopt Telemedicine	0,878
ITA7 <- Intention To Adopt Telemedicine	0,907
PE2 <- Performance Expectancy	0,917
PE3 <- Performance Expectancy	0,928
PE5 <- Performance Expectancy	0,921
PE6 <- Performance Expectancy	0,916
SE1 <- Self Efficacy	0,861
SE3 <- Self Efficacy	0,856
SE4 <- Self Efficacy	0,837
SE5 <- Self Efficacy	0,850
SE6 <- Self-efficacy	0,777

SE7 <- Self Efficacy	0,805
SI1 <- Social Influence	0,900
SI2 <- Social Influence	0,889
SI3 <- Social Influence	0,860
SI4 <- Social Influence	0,905
SI5 <- Social Influence	0,888
SI6 <- Social Influence	0,886
SI7 <- Social Influence	0,891
WO2 <- Workload	0,875
WO3 <- Workload	0,856
WO4 <- Workload	0,872
WO5 <- Workload	0,879
WO6 <- Workload	0,872
WO7 <- Workload	0,883

The outer loading values of all indicators are above the recommended threshold of 0.70. This indicates that all indicators strongly represent their respective latent constructs and demonstrate good convergent validity. Therefore, no indicators need to be removed from the measurement model.

Table 2. HTMT

	Effort Expectancy	Facilitating Conditions	Intention To Adopt Telemedicine	Performance Expectancy	Self Efficacy	Social Influence	Workload
Effort Expectancy							
Facilitating Conditions	0,663						
Intention To Adopt Telemedicine	0,808	0,750					
Performance Expectancy	0,367	0,652	0,528				
Self Efficacy	0,820	0,790	0,823	0,656			
Social Influence	0,711	0,894	0,760	0,687	0,813		
Workload	0,841	0,799	0,878	0,537	0,886	0,783	

The HTMT results show values below 1.00, indicating a low correlation between constructs. This suggests that the constructs are not conceptually closely related.

Table 3. Validity and Reliability

	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Effort Expectancy	0,929	0,931	0,780
Facilitating Conditions	0,950	0,952	0,801
Intention To Adopt Telemedicine	0,943	0,944	0,779
Performance Expectancy	0,940	0,941	0,847
Self Efficacy	0,911	0,912	0,692
Social Influence	0,956	0,956	0,790
Workload	0,937	0,938	0,762

The results show that Cronbach's Alpha, Composite Reliability, and AVE all exceed the recommended thresholds of 0.70 for reliability and 0.50 for AVE. These findings indicate that all constructs demonstrate high internal consistency reliability and strong convergent validity.

Table 4. VIF

	VIF
EE1	4,434
EE2	2,972
EE3	3,874

EE6	2,987
EE7	3,068
FC2	3,900
FC3	3,621
FC4	3,522
FC5	4,262
FC6	3,655
FC7	3,270
ITA1	4,138
ITA2	2,948
ITA3	3,241
ITA5	3,419
ITA6	3,304
ITA7	4,016
PE2	3,490
PE3	4,220
PE5	3,953
PE6	3,588
SE1	3,592
SE3	3,332
SE4	2,770
SE5	3,086
SE6	2,381
SE7	2,614
SI1	4,098
SI2	4,059
SI3	2,935
SI4	4,375
SI5	3,759
SI6	3,797
SI7	3,843
WO2	3,200
WO3	2,734
WO4	3,110
WO5	3,256
WO6	3,012
WO7	3,319

The VIF are below the maximum threshold of 5.0. This indicates that no multicollinearity problem exists among the indicators, and the structural relationships in the model can be estimated reliably.

INNER MODEL

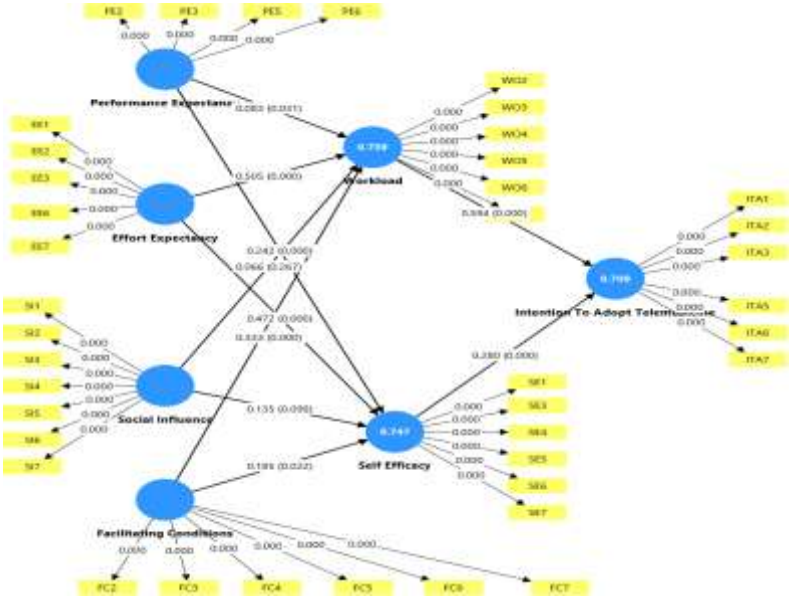

Figure 3. Inner Model

Table 5. R-Square

	R-square
Intention To Adopt Telemedicine	0,708
Self Efficacy	0,747
Workload	0,739

The R-square values show that Self-Efficacy (0.747), Workload (0.739), and Intention to Adopt Telemedicine (0.708) are explained at a strong level. This means that the independent variables in the model explain more than 70% of the variance in the endogenous variables, indicating strong explanatory power.

Table 6. F- Square

	f-square
Effort Expectancy -> Self-Efficacy	0,459
Effort Expectancy -> Workload	0,509
Facilitating Conditions -> Self-efficacy	0,035
Facilitating Conditions -> Workload	0,111
Performance Expectancy -> Self-Efficacy	0,125
Performance Expectancy -> Workload	0,014
Self-efficacy -> Intention To Adopt Telemedicine	0,083
Social Influence -> Self-Efficacy	0,015
Social Influence -> Workload	0,004
Workload -> Intention To Adopt Telemedicine	0,372

Based on the f-square (f^2) value, it can be concluded that Effort Expectancy and Workload dominate the Influence between variables in the model. Effort Expectancy has a strong effect on Workload (0.509) and a quite large effect on Self-Efficacy (0.459), indicating that the perception of technology's ease of use plays a significant role in reducing Workload while increasing user self-confidence. In addition, Workload significantly influences Intention to Adopt Telemedicine (0.372), making it an important driver of intention. Meanwhile, other variables such as Facilitating Conditions, Performance Expectancy, Social Influence, and Self-Efficacy show small to very small f^2 values, indicating relatively weak and less significant contributions to explaining intention to adopt Telemedicine.

Table 7. Hypothesis Testing

Code	Path	Coefficient	T-statistic	P-value	Result
H1	Performance Expectancy → Workload	0.083	1.866	0.031	Supported
H2	Performance Expectancy → Self-Efficacy	0.242	4.727	0.000	Supported
H3	Effort Expectancy → Workload	0.505	7.442	0.000	Supported
H4	Effort Expectancy → Self-Efficacy	0.472	8.024	0.000	Supported
H5	Social Influence → Workload	0.066	0.623	0.267	Not Supported
H6	Social Influence → Self-Efficacy	0.135	1.286	0.099	Not Supported
H7	Facilitating Conditions → Workload	0.333	3.608	0.000	Supported
H8	Facilitating Conditions → Self-Efficacy	0.185	2.005	0.022	Supported
H9	Workload → Intention to Adopt Telemedicine	0.594	7.738	0.000	Supported
H10	Self-Efficacy → Intention to Adopt Telemedicine	0.280	3.853	0.000	Supported

1. H1: Performance expectancy has a significant positive effect on Workload ($\beta = 0.083$, $p < 0.05$). This indicates that higher expectations of telemedicine performance slightly increase perceived Workload.
2. H2: Performance expectancy significantly influences self-efficacy ($\beta = 0.242$, $p < 0.001$). This suggests that when healthcare workers perceive Telemedicine as useful, their confidence in using it increases.
3. H3: Effort expectancy significantly affects Workload ($\beta = 0.505$, $p < 0.001$). This means that the perceived ease of using Telemedicine strongly influences the Workload experienced by healthcare professionals.
4. H4: Effort expectancy also has a significant positive effect on self-efficacy ($\beta = 0.472$, $p < 0.001$), indicating that systems perceived as easy to use greatly enhance users' confidence.
5. H5: Social Influence does not significantly affect Workload ($\beta = 0.066$, $p > 0.05$), suggesting that encouragement from colleagues or organizations does not directly increase perceived Workload.

6. H6: Social Influence does not significantly affect self-efficacy (β = 0.135, p > 0.05), meaning that social support is not a strong determinant of users' confidence in adopting Telemedicine.
7. H7: Facilitating conditions significantly affect Workload (β = 0.333, p < 0.001), indicating that the availability of resources and infrastructure contributes to perceived Workload.
8. H8: Facilitating conditions significantly influence self-efficacy (β = 0.185, p < 0.05), suggesting that adequate technical support and infrastructure improve users' confidence.
9. H9-H10: Both Workload (β = 0.594, p < 0.001) and self-efficacy (β = 0.280, p < 0.001) significantly influence the intention to adopt Telemedicine. Among them, Workload has the strongest effect, indicating that perceived Workload plays a more dominant role in driving adoption intention compared to self-efficacy.

IPMA

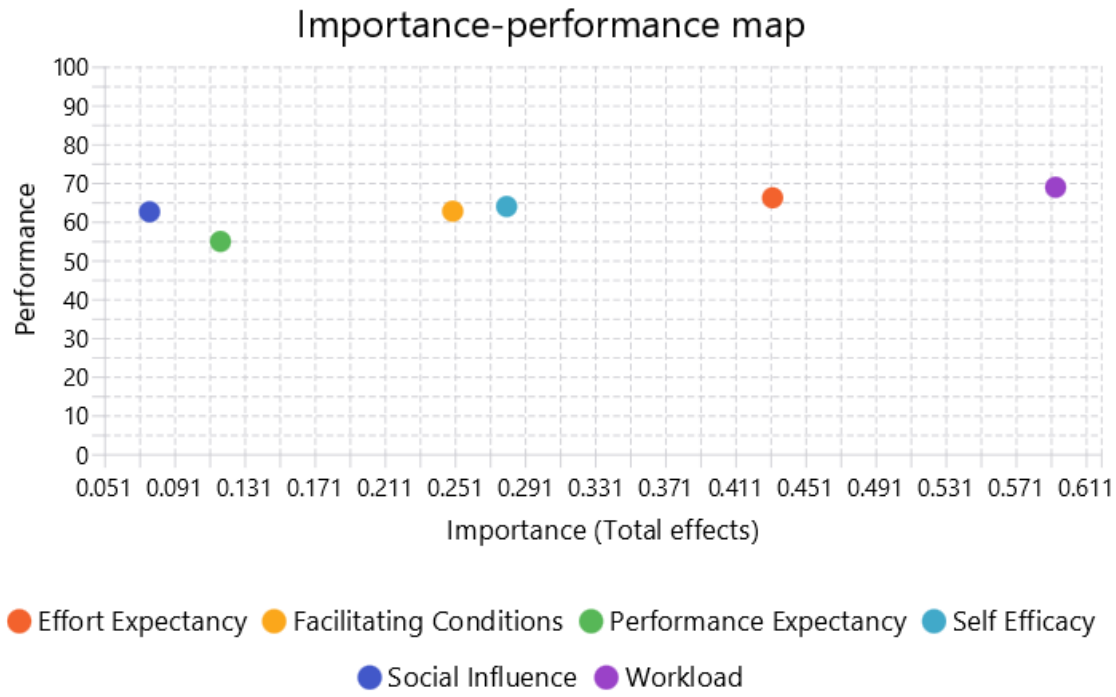

Figure 4. IPMA Construct

Based on the total effects value, it can be seen that the variable that has the greatest Influence on Intention to Adopt Telemedicine is Workload (0.594), followed by Effort Expectancy (0.432), Self-Efficacy (0.280), Facilitating Conditions (0.250), Performance Expectancy (0.117), and Social Influence (0.077). This shows that the perception of Workload is the main determinant of the intention to adopt Telemedicine, while ease of use also plays an important role, both directly and indirectly. On the other hand, the construct performance value shows that Workload has the highest performance (68.853), followed by Effort Expectancy (66.133), Self-Efficacy (63.889), Facilitating Conditions (62.670), Social Influence (62.518), and Performance Expectancy (54.864). These findings indicate that, in addition to having the greatest Influence, Workload is also the construct with the highest optimal performance in the model, making it a key factor to consider in increasing telemedicine adoption, followed by ease of use and user confidence as the main supporting factors.

DISSCUSION

Recent research shows that Workload and self-efficacy are the main factors influencing intention to adopt Telemedicine. However, unlike previous findings, Workload had the most dominant Influence (β = 0.594), followed by self-efficacy (β = 0.280). This indicates that the perceived Workload arising from telemedicine use is a key driver of adoption intention, while healthcare worker self-confidence remains important, though not as strong as Workload. These findings demonstrate that in the context of telemedicine implementation, efficiency and workload management are crucial aspects, in line with the rapid development of telemedicine services globally and nationally, which demands adaptation of healthcare worker work systems (Fortune Business Insights, 2023; Ministry of Health of the Republic of Indonesia, 2023). Furthermore, self-efficacy remains a relevant psychological factor supporting individuals' readiness to adopt digital health technologies (Mensah et al., 2022; Wang et al., 2024).

Furthermore, the study results showed that Effort Expectancy had the strongest Influence on Workload (β = 0.505) and Self-Efficacy (β = 0.472). This indicates that the perceived ease of use of telemedicine technology is a key determinant of workload perceptions and user confidence. The easier the system is to use, the more likely healthcare workers are to feel capable of operating it and adjusting to their Workload. This finding is consistent with previous research emphasizing that ease of use is a key factor in increasing acceptance of telemedicine technology (Rahi et al., 2021; Shi et al., 2021; Hartono et al., 2021).

Contrary to previous findings, Social Influence did not have a significant influence on either Workload (β = 0.066, p > 0.05) or Self-Efficacy (β = 0.135, p > 0.05). This indicates that social support from colleagues or the organization does not directly influence healthcare workers' workload or confidence levels in context. These findings suggest that post-adoptive post-medicine decisions are more individual and based on direct experience than social pressure, although several other studies have found social Influence to be significant in shaping technology adoption behavior (Wu et al., 2021; Zobair et al., 2021).

Furthermore, Performance Expectancy was shown to have a significant positive effect on Self-Efficacy (β = 0.242) and Workload (β = 0.083), although its effect on Workload was relatively small. This suggests that perceived benefits of Telemedicine can increase healthcare workers' confidence in using the technology and slightly influence perceptions of Workload. These findings align with research suggesting that perceived benefits are an important factor in increasing the adoption of digital health technologies (Diel et al., 2023; Yin et al., 2024; Rouidi et al., 2022).

Furthermore, Facilitating Conditions were found to have significant effects on Workload (β = 0.333) and Self-Efficacy (β = 0.185). This suggests that the availability of infrastructure, technical support, and organizational resources not only increases user confidence but also shapes perceptions of Workload. In other words, an adequate support system can help healthcare professionals manage their Workload when using Telemedicine. These findings are consistent with previous studies that emphasize the importance of organizational support and infrastructure in enhancing user readiness and ability to adopt Telemedicine (Du et al., 2022; Cobelli et al., 2021; Cobelli et al., 2023). Overall, these results confirm that technical factors (ease of use and facilities) and individual factors (self-efficacy) are more dominant than social factors in driving telemedicine adoption.

The results of the Importance-Performance Map Analysis (IPMA) indicate that Workload is the variable with the highest importance (total effect = 0.594) and performance (68.853) in influencing Intention to Adopt Telemedicine. This confirms that perceived Workload is the most crucial factor in driving telemedicine adoption. Therefore, organizations need to ensure that implementing this technology does not excessively increase the Workload but rather improves the efficiency of healthcare workers. This finding aligns with the increasingly widespread development of telemedicine services, where operational effectiveness is key to the successful adoption of digital health technology (Fortune Business Insights, 2023; Ministry of Health of the Republic of Indonesia, 2023). Furthermore, previous studies have emphasized that operational factors and Workload play a crucial role in determining healthcare workers' acceptance of Telemedicine (Diel et al., 2023; Du et al., 2022).

Furthermore, Effort Expectancy ranked second in importance (0.432) and had a relatively high performance (66.133), indicating that the ease of use of the telemedicine system is a strategic factor that needs to be maintained and continuously improved. Ease of use not only directly impacts adoption intention but also indirectly through increased self-efficacy and workload management. This is consistent with previous research suggesting that perceived ease of use is a key determinant of increased acceptance of telemedicine technology (Rahi et al., 2021; Shi et al., 2021; Hartono et al., 2021). Therefore, simplifying the system interface and improving the user experience are crucial steps in telemedicine implementation strategies.

Meanwhile, Self-Efficacy had a relatively high level of importance (0.280) with a similarly strong performance (63.889), indicating that healthcare workers' confidence in using digital technology remains a crucial factor in driving adoption. Individuals with high self-efficacy tend to be better prepared to face technological change and more open to digital innovation. These findings are supported by various studies showing that self-efficacy is a key psychological factor in increasing the acceptance of health technology (Mensah et al., 2022; Wang et al., 2024; Rouidi et al., 2022). Therefore, training and improving digital competencies are important strategies for strengthening healthcare worker readiness.

On the other hand, Facilitating Conditions showed a moderate level of importance (0.250) with a fairly good performance (62.670), indicating that infrastructure and technical support still play a significant role in driving telemedicine adoption. Stable system availability, adequate network access, and technical support from the organization can help reduce barriers to use and increase user confidence. This aligns with research confirming the importance of organizational and infrastructure support in increasing the adoption of digital health technology (Cobelli et al., 2021; Cobelli et al., 2023; Du et al., 2022).

In contrast, Performance Expectancy and Social Influence had relatively low levels of importance (0.117 and 0.077, respectively), although their performance was moderate (54.864 and 62.518, respectively). This suggests that while perceived benefits and social Influence remain relevant, they are not the primary factors driving telemedicine adoption in this study. This finding suggests that healthcare professionals prioritize practical aspects such as Workload and ease of use over social pressure or solely expected benefits. Nevertheless, several previous studies have highlighted the importance of both factors in different contexts (Wu et al., 2021; Zobair et al., 2021; Yin et al., 2024).

Overall, the IPMA results confirm that optimizing Workload and Effort Expectancy, followed by strengthening Self-Efficacy and Facilitating Conditions, are the primary priorities for increasing telemedicine adoption. Implementation strategies that focus on work efficiency, ease of use, and user competency improvement will be more effective than approaches that solely emphasize technology benefits or social Influence. Thus, a technical and user experience-oriented approach is key to driving successful adoption of Telemedicine in healthcare environments.

CONCLUSION

This study concludes that psychological factors and perceptions of technology play a significant role in driving the intention to adopt Telemedicine among healthcare workers. Based on the latest analysis, Workload is the most dominant factor influencing telemedicine adoption intention, followed by self-efficacy. This indicates that perceptions of the Workload resulting from telemedicine use are a primary consideration, while healthcare workers' self-confidence remains a crucial factor supporting adoption. Furthermore, effort expectancy, performance expectancy, and facilitating conditions were shown to significantly influence self-efficacy and/or Workload, which ultimately impacted intention to use Telemedicine. Conversely, social Influence did not significantly influence either variable. The Importance–Performance Map Analysis (IPMA) results also corroborate these findings, with Workload having the highest importance and performance, followed by effort expectancy. At the same time, self-efficacy plays an important role, though not the most dominant one. This indicates that workload management and the system's ease of use are strategic factors in increasing telemedicine adoption.

While this study contributes to understanding the factors influencing telemedicine adoption, it has several limitations. First, this study used a cross-sectional design, so it cannot capture long-term changes in telemedicine usage behavior. Second, the research data were obtained through a self-reported questionnaire, which could introduce subjective bias among respondents. Third, this study was conducted within a specific healthcare institution, so the results cannot necessarily be generalized to all healthcare facilities, which differ in their characteristics.

Given these limitations, future research is recommended to adopt a longitudinal approach to obtain a more comprehensive picture of the dynamics of telemedicine adoption over time. Furthermore, future research could expand the research object to various types of healthcare facilities and consider other variables such as digital literacy, organizational support, and technological readiness. In practice, the results of this study imply that hospitals and healthcare institutions need to focus on workload management, simplifying system use, and improving healthcare workers' digital competence through technology training and mentoring. Thus, increased work efficiency and user confidence are expected to strengthen telemedicine implementation and support the sustainable transformation of digital healthcare services.

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