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Analysis of the Quality of Teleconsultation Services and the Role of Digital Literacy in Improving Patient Satisfaction

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Abstract

Patient satisfaction is an important factor in determining the success and sustainability of teleconsultation services. The ongoing digital transformation in healthcare, along with the increasing use of telemedicine after the COVID-19 pandemic, particularly at *Puskesmas* Pancoran, highlights that patient satisfaction is a key element in maintaining the continuity of technology-based services. This study aims to examine the effect of teleconsultation service quality on patient satisfaction and to assess the role of digital literacy as a moderating variable. This research adopted a quantitative approach using a survey method involving 123 respondents from a total population of 494 teleconsultation patients, with data analyzed using SmartPLS. The results indicate that teleconsultation service quality has a positive and significant effect on patient satisfaction. However, digital literacy does not function as a moderating variable in this relationship. Nevertheless, digital literacy has a positive and significant direct effect on patient satisfaction. These findings also suggest that service quality plays a more dominant role than digital literacy in determining patient satisfaction. This study has several limitations, including its focus on a single location with relatively homogeneous respondent characteristics and the use of a cross-sectional design, which cannot fully capture changes in patient satisfaction over time. Theoretically, the findings support Social Presence Theory, showing that service quality and digital literacy contribute to shaping patient satisfaction through perceived presence in teleconsultation. Practically, improving service quality, particularly in communication, responsiveness of healthcare providers, system simplification, and strengthening digital literacy are essential to enhance patient satisfaction.

INTRODUCTION

In the past decade, the healthcare sector in Indonesia has undergone significant changes, from the conventional face-to-face service system (*Offline*) towards services that leverage digital platforms *(online*). One of the most important innovations in this transformation is teleconsultation, which allows patients to obtain medical examinations, diagnoses, and education without having to be present in person at a healthcare facility. The COVID-19 pandemic accelerated this process when physical interactions were restricted, but people's need for health services increased rapidly. Data shows that the number of consultations *telemedicine* in Indonesia, which in 2020 was still below one million, jumped to more than five million in 2023 and is projected to continue to increase. In fact, the market *telemedicine* expected to reach USD 5–8 billion by 2030, reflecting the growth of consumer demand, changes in societal behavior, and sustainable policy reforms (Indonesia, 2025).

The same phenomenon is also seen at the Pancoran Health Center, which has provided

teleconsultation services to facilitate public access to health services. In recent years, the use of teleconsultation services at *Puskesmas* has shown a significant increase in line with patients' needs for fast, practical, and safe services, especially after the pandemic when people are increasingly accustomed to using digital-based health services. In 2024, the use of teleconsultation services will be 521 times, while in 2025 (January-November 2025), the number of teleconsultations uses will increase 3 times to 1,761 times. This increase reflects changing public preferences for how to access health services and the increasing role of technology in the service process in primary health facilities.

Teleconsultation itself is a form of information and communication technology-based health service innovation. Abdulwahab and Zedan (2021) explained that from the perspective of medical science and public health, teleconsultation is included in the realm of *telemedicine*, which is a medical service practice that utilizes electronic means for diagnosis, consultation, treatment, and distance health education. Technically, Lu *et al.* (2021) Explain teleconsultation using audio, video, and electronic data processing systems to connect patients with health workers, or between health workers themselves. These services can improve efficiency and convenience and expand access to healthcare, especially in areas with limited medical personnel and infrastructure facilities.

However, the effectiveness of teleconsultation is not only measured from technical aspects or the availability of technology, but also from patient satisfaction as the main indicator of successful implementation and sustainability of its use. The level of satisfaction will determine the extent to which patients are willing to accept, reuse, and recommend teleconsultation as an alternative to health services (Hantem et al., 2024). With teleconsultation, patient satisfaction can be maintained continuously because health services can be accessed at any time without being bound by distance and time. The sustainability of this service makes patients feel assured in getting regular medical consultations, both for follow-up treatment and monitoring of health conditions.

Patient satisfaction cannot be separated from the quality of service received, so the quality of service is a crucial factor that affects this satisfaction. Gavurova et al. (2021) Distinguishing service quality into two main forms, namely technical quality (related to medical competence, accuracy of diagnosis, and effectiveness of medical measures) and functional quality (related to non-medical aspects such as communication, empathy, comfort, and ease of access). In the context of teleconsultation, functional quality has greater significance because the interaction between health workers and patients takes place through digital media that can affect patient perception. Based on initial observations at the Pancoran Health Center, it shows that although teleconsultation has increased access to services, there are still obstacles from patients related to the clarity of medical communication, network disruptions, response speed, and ease of use of the platform. This indicates a gap between patient expectations and the quality of service received, while emphasizing the need for a more comprehensive evaluation of factors that affect patient satisfaction levels.

A number of previous studies have examined the relationship between service quality and patient satisfaction. Research of Saputra and Dewi (2022) found that service quality correlated significantly with the satisfaction level of Halodoc users, which shows that service quality is an important factor in increasing satisfaction. Similar findings were obtained by Ariani and Phang (2022) which shows that teleconsultation services have a significant effect

on patient satisfaction with a contribution of 72%, while the rest are influenced by other factors. Overall, the findings indicate that service quality is the main determinant in shaping patient satisfaction in teleconsultation services.

Although both studies indicate that the quality of teleconsultation services has a significant effect on patient satisfaction on commercial platforms such as Halodoc and private clinics, studies that examine similar things in the context of health centers are still not widely found, including Pancoran Health Centers, which have very different service characteristics, technology systems, and patient profiles. Teleconsultations at health centers generally run with limited digital facilities, health workers who have to divide their time between offline and online services, and patients with varying levels of digital literacy. This difference in context raises a research gap related to whether the pattern of service quality and patient satisfaction found in commercial services also applies to the Pancoran Health Center teleconsultation service. In addition, until now the Pancoran Health Center has not conducted an evaluation regarding the extent to which the quality of the teleconsultation services provided has an impact on patient satisfaction levels.

Furthermore, this study places digital literacy as a moderation variable that strengthens the relationship between service quality and patient satisfaction, although this aspect is still relatively rarely discussed in previous studies. Digital literacy is an important ability that determines the extent to which patients are able to access, understand, and utilize teleconsultation services. In this context, patients tend to compare the experience of conventional services with digital services based on their level of digital literacy. Patients with higher digital literacy relatively have greater expectations for the convenience, speed, and effectiveness of services, so their level of involvement in the use of technology also affects perceived satisfaction.

Digital literacy is not positioned as a mediating variable because it is not influenced by the quality of teleconsultation services, but is the initial competency that patients already have before using the service. Thus, digital literacy is more appropriately positioned as a moderation variable that affects the strong relationship between service quality and patient satisfaction, where the level of satisfaction felt can vary according to the level of digital literacy of each patient.

Furthermore, McKinley et al. (2022) emphasizing that digital health literacy increases patients' self-efficacy in understanding medical information, following instructions, and making health decisions. Then, Xu *et al.* (2021) adding that digital literacy is now an essential skill in modern life, including a person's ability to acquire and use information and web-based communication technologies to make informed health decisions. Meanwhile, König et al. (2024) emphasizing that low digital health literacy can increase the risk of misinformation and errors in health-related decision-making. It can be concluded that digital literacy plays a role as a supporting competency and moderation variable that strengthens the relationship between the quality of teleconsultation services and patient satisfaction.

The novelty of this research lies in its focus on teleconsultation service quality and patient satisfaction in a primary healthcare (*Puskesmas*) context unlike previous studies on commercial platforms as well as its positioning of digital literacy as a moderating variable, which remains rarely explored in Indonesian telemedicine literature. Additionally, by targeting the Pancoran Health Center, which has never formally evaluated its teleconsultation services, this study

provides empirical evidence from a real-world primary care setting with unique characteristics such as limited digital infrastructure and diverse patient literacy levels, thereby extending Social Presence Theory to the teleconsultation context.

The study conducted by the researcher aims to examine the influence of the quality of teleconsultation services on patient satisfaction at primary health facilities, namely the Pancoran Health Center, and assess the role of digital literacy as a moderation variable that strengthens the relationship between service quality and patient satisfaction levels. This study is expected to be able to produce empirical findings that enrich the literature on digital health services while presenting a more comprehensive conceptual model for the development of teleconsultation services in health centers.

RESEARCH METHOD

Types of Research

This study was conducted using a quantitative approach method with an explanatory design to find and explain the cause-and-effect relationship between variables. In addition, this study also aims to examine how the role of moderation variables in strengthening the relationship between the variables studied.

Variables and Measurements

Table 1. Variables and Measurements

Variabel	Indicator	Scale
Quality of Teleconsultation Service (X) (Suhail & Srinivasulu, 2021)	1. *Tangibility* 2. *Reliability* 3. *Responsiveness* 4. *Insurance* 5. *Empathy*	Ordinal
Digital Literacy (M) (Destrity et al., 2025)	1. *Operational Skills* 2. *Information Searching Skills* 3. *Evaluating Reliability* 4. *Determining Relevance* 5. *Navigation Skills* 6. *Adding Self-Generated Content* 7. *Protecting and Respecting Privacy*	Ordinal
Patient Satisfaction (Y) (Haxhihamza et al., 2021)	1. *General Satisfaction* 2. *Technical Quality* 3. *Interpersonal Manner* 4. *Communication* 5. *Financial Aspects* 6. *Time Spent with Doctor* 7. *Accessibility and Convenience*	Ordinal

Source: Processed from various sources, 2026

Population and Sample

The population in this study consists of all patients who use teleconsultation services at the Pancoran Health Center which totals 494 people. The sampling techniques used are *non-probability sampling* with the *purposive sampling*, so that 123 respondents were obtained. This method is carried out by selecting samples based on certain criteria or considerations that have been set. The criteria used are:

1. Have used teleconsultation services at the Pancoran Health Center in the last 3 months and are currently receiving services.
2. At least 18 years old, because at that age the respondents are considered to have been able to independently assess the quality of service and have an adequate level of digital literacy.
3. Have access and basic digital skills, for example being able to use *smartphones* or teleconsultation applications.

The number of samples used in this study was calculated based on the formula suggested by Hair *et al*. (2017) is 5-10 times the number of indicators and variables in the model. With a total of 19 indicators from 3 variables, the minimum number of respondents used is 110 respondents with the following calculations:

Number of respondents = 5 – 10 x number of indicators and variables
= 5 x (19 + 3)
= 110 responds

Data Collection Techniques

The data in this study is primary data collected through the distribution of online questionnaires using *Google Form*. The questionnaire was distributed through the platform *WhatsApp* to respondents who have used or are using teleconsultation services. The information collection process will be carried out for one month, in February 2026 to be precise. The questionnaire was compiled following the relevant indicators for each variable studied. The measurement was carried out using the Likert scale, which has a value from 1 (strongly disagree) to 5 (strongly agree) to assess respondents' perception of each statement.

Before the main data collection, it is carried out pilot *study* with 32 respondents to test the validity and reliability of the instrument. From the results of this test, it is known that All statements in the questionnaire are valid and reliable with a significance value of 0.00 and *Cronbach's Alpha* of each instrument > 0.60.

Data Analysis Techniques

In this study, data processing was carried out with the help of software *SmartPLS version 4.* The analysis method used is *Partial Least Squares* (PLS), which is included in the *Structural Equation Modeling* (SEM) based on variance. This approach was chosen because of its ability to analyze relationships between complex latent variables, although the sample size is relatively small and does not meet the assumption of normality. In addition, PLS-SEM is considered relevant for the context of digital health services that are still developing, so that it can be used both for model testing and strengthening theoretical understanding related to teleconsultation service quality and patient satisfaction. In its implementation, PLS analysis is carried out through two main stages. The first stage is evaluation *measurement model* or *outer model* which aims to assess the validity and reliability of the construct. The second stage is testing *structural model* or *inner model* which is used to analyze the relationships between variables as well as test hypotheses within the framework of causal models.

Measurement model It is used to describe the relationship between indicators and latent constructs, as well as assess the validity and reliability of research instruments. The convergent validity is declared to be fulfilled if *outer loading* exceeds 0.70 and *Average Variance Extracted* (AVE) exceeds 0.50 (Hair et al., 2017). Then, the validity of the discriminant is stated to be fulfilled if the root value of the AVE of each construct is greater than the correlation

value of the other construct. Furthermore, the reliability of the construct is considered good if the value of *Composite Reliability* and *Cronbach's Alpha* above 0.70 (Ghozali & Latan, 2020).

After *measurement model* met, the next stage is to evaluate *structural model* to test the causal relationships between constructs. The test is carried out through the R-Square value (R^2) to determine the predictive power of the model, Q^2 *Predictive Relevance* which is stated to be good if it is >0, F2 which measures the strength of the influence of independent variables on the dependent has criteria that are strong if ≥0.35, medium if ≥0.15, and small if ≥ 0.02. In addition, hypothesis testing is carried out using *bootstrapping*. A hypothesis is stated to be supported if the value *P-values* is below 0.05 and the T-Statistic value exceeds the T-table, which indicates the significant influence of independent variables on dependent variables.

RESULTS AND DISCUSSION

Respondent Characteristics

Based on data collected from 123 teleconsultation service users at the Pancoran Health Center, an overview of respondent characteristics was obtained to provide a demographic picture in analyzing the quality of teleconsultation services and the role of digital literacy in influencing patient satisfaction levels.

Table 2. Respondent Characteristics

Respondent Characteristics	Quantity	%
Gender		
Male - Male	86	69,9
Women	37	30,1
Age (Years)		
<=20	3	2,4
21-30	47	38,2
31-40	38	30,9
41=50	19	15,4
>=51	16	13,0
Final Education		
SMP	15	12,2
SMA	63	51,2
College	45	36,6
Jobs		
Housewives	18	14,6
Private Employees	50	40,7
PNS	8	6,5
Entrepreneurship	22	17,9
Others	25	20,3
Total	123	100,0

Source: Processed by Researcher, 2026

In general, respondents were dominated by men (69.9%) and were in the age range of 21 – 30 years (38.2%). The majority of respondents had a high school education (51.2%) and worked as private employees (40.7%). The composition shows that the majority of teleconsultation users at the Pancoran Health Center are classified as productive age with a

secondary education level, who tend to have good digital literacy in utilizing teleconsultation services.

Measurement Model

The evaluation of the measurement model in this study is based on three main criteria. First, the convergent validity measured through *loading factor and* Average *Variance Extracted* (AVE), provided that *loading factor* exceeds 0.7 and AVE is as low as 0.5. This criterion shows that the construct is capable of adequately explaining the variation of indicators that represent it. (Hair et al., 2017).

Table 3. Convergent Validity Test Results

Construct	Item	*Convergent Validity*	
		Loading Factor	**AVE**
Rule of Thumb		**> 0,7**	**> 0,5**
Quality of Teleconsultation Service (X)	KPT. 1	0.817	0,735
	KPT. 2	0.823	
	KPT. 3	0.832	
	KPT. 4	0.883	
	KPT. 5	0.927	
Digital Literacy (M)	LD. 1	0.857	0,806
	LD. 2	0.882	
	LD. 3	0.909	
	LD. 4	0.921	
	LD. 5	0.922	
	LD. 6	0.914	
	LD. 7	0.876	
Patient Satisfaction (Y)	KP. 1	0.883	0,757
	KP. 2	0.905	
	KP. 3	0.843	
	KP. 4	0.893	
	KP. 5	0.841	
	KP. 6	0.840	
	KP. 7	0.883	

Source: Processed by Researcher, 2026

The above findings explain that all indicators in each construct have met the criteria of convergent validity, which can be seen from the *loading factor* which is above 0.70, so that the indicator is able to represent the construct well. In addition, *Average Variance Extracted* (AVE) in each variable has also exceeded the minimum limit of 0.50 (X = 0.735; M = 0.806; Y = 0.757). This shows that each construct has adequate ability to explain the variation of its indicators. The results of the convergent validity test using SmartPLS software can be seen in the following figure:

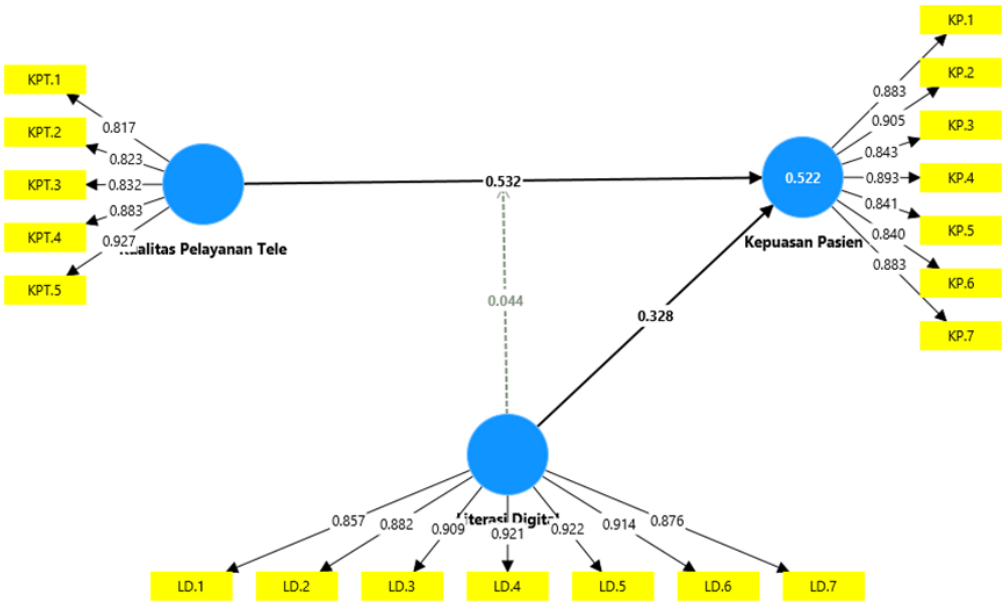

Figure 1. SmartPLS Output

Source: *SmartPLS,* 2026

The next step is to perform a discriminant validity test to ensure that each construct can be clearly distinguished from the others, so that it truly represents different aspects. According to Hair *et al.* (2018), the discriminant validity is fulfilled if the result of the square root of AVE in a construct is higher than its correlation value with another construct.

Table 4. Results of the Discriminant Validity Test (Fornell–Larcker)

	Y	X	M
Patient Satisfaction (Y)	**0.870**		
Quality of Teleconsultation Service (X)	0.661	**0.857**	
Digital Literacy (M)	0.564	0.470	**0.898**

Source: Processed by Researcher, 2026

Based on the discriminant validity test with the Fornell–Larcker approach, the root value *Average Variance Extracted* (AVE) in each construct is higher than its correlation with the other constructs. These findings suggest that each construct can be clearly distinguished from the other constructs in the model. Thus, all variables in this study have met the criteria for discriminant validity.

The next step is a reliability test using Composite Reliability and Cronbach's Alpha. The construct is considered reliable if both values exceed 0.70 each. (Ghozali & Latan, 2020).

Table 5. Reliability Test Results

Construct	*Composite Reliability*	*Cronbach's Alpha*
Quality of Teleconsultation Service (X)	0.915	0.909
Digital Literacy (M)	0.963	0.960
Patient Satisfaction (Y)	0.947	0.946

Source: Processed by Researcher, 2026

From Table 5 above, the reliability test shows the entire value *Composite Reliability* (X = 0.915; M = 0.963; Y = 0.947) give *Cronbach's Alpha* (X = 0.909; M = 0.960; Y = 0.946) has exceeded the set minimum limit. This condition shows that the indicators on each variable have excellent consistency. Thus, *measurement model* has met the criteria, so that the analysis can

be extended to the *structural model*.

Structural Model

After *measurement model* Meet all the specified criteria, the next step is to conduct an evaluation *structural model* to test the causal relationships between constructs. Evaluation is carried out through the R-Square value (R^2) to assess the predictive power of the model, Q^2 *Predictive Relevance* which is well stated if it is > value 0, F2 which measures the strength of the influence of independent variables on the dependent has criteria that are strong if ≥0.35, while if ≥0.15, and small if ≥ 0.02, and hypothesis test using the *bootstrapping*. The hypothesis is considered acceptable if the results *P-Values* smaller than 0.05 and the T-statistic exceeds the T-table, which indicates a significant influence between independent variables on dependent variables.

Table 6. R2 and Q 2 Test Results

	R2	Q2
Patient Satisfaction (Y)	0.522	0.385

Source: Processed by Researcher, 2026

Table 7. F 2 Test Results

	Patient Satisfaction (Y)
Quality of Teleconsultation Service (X)	0.390
Digital Literacy (M)	0.175
Quality of Teleconsultation Services x Digital Literacy (X x M)	0.005

Source: Processed by Researcher, 2026

The R^2 value indicated that 52.2% of the variation in patient satisfaction could be explained by independent variables, while the remaining 47.8% were influenced by other factors outside the study. According to Hair criteria *et al*. (2017), the findings are in the medium category, which means that the model has sufficient ability to explain dependent variables. Furthermore, a Q^2 value of 0.385 indicates that the model is able to predict well the Y variable ($Q^2 > 0$). The F^2 value for the influence of the variable X on Y of 0.390 belongs to the strong category. In contrast, the interaction between the variables X and M with respect to Y only results in a value of F^2 with a value of 0.006, which is very small. This indicates that the main role in explaining variable Y comes from variable X, while the moderation effect of the interaction of X and M is relatively insignificant.

The next step is to conduct a hypothesis test to evaluate whether the influence between variables is significant. The value used is obtained through the procedure *bootstrapping*. The assessment is carried out by looking at the magnitude of the coefficient that reflects the direction and strength of the relationship between variables, as well as the value *P-values* to determine its significance. The hypothesis is stated to be supported if *P-values* less than 0.05 and T-statistics exceed the T-table, which indicates a significant influence of independent variables on dependent variables.

Table 8. Hypothesis Test

	Coefficient	T-statistics	*P-values*
X -> Y	0.532	5.768	0.000
M -> Y	0.328	2.922	0.003
X x M -> Y	0.044	0.586	0.558

Source: Processed by Researcher, 2026

Based on the table, the effect of teleconsultation service quality (X) on patient satisfaction (Y) shows a coefficient of 0.532, *P-values* 0.000 (< 0.05) and a T-Statistics value of 5.768 which means it is greater than the T-table value of 1.658. These findings indicate that the quality of teleconsultation services has a positive and significant influence on patient satisfaction. Therefore, hypothesis 1 (H1) is declared accepted.

On the other hand, the effect of interaction between digital literacy (M) and the quality of teleconsultation services (X) on patient satisfaction (Y) showed a coefficient with a value of 0.044, *P-values* by 0.558 (> 0.05) and t-statistics 0.586 which is smaller than the t-table (1.658). These results indicate that digital literacy does not play a role as a moderation variable in the relationship between the quality of teleconsultation services and patient satisfaction. Thus, the level of digital literacy does not significantly strengthen the relationship, so hypothesis 2 (H2) is declared rejected.

In addition, the effect of digital literacy (M) on patient satisfaction (Y) showed a coefficient of 0.328, with *P-values* 0.003 (< 0.05) and t-statistics 2,922 (> 1,658). These findings indicate that digital literacy has a positive and significant influence on patient satisfaction. In other words, the higher the patient's ability to understand and use digital technology, the greater the level of satisfaction felt in utilizing teleconsultation services. Therefore, digital literacy does not act as a moderation variable, but rather acts as an independent variable that directly affects patient satisfaction.

The Effect of Teleconsultation Service Quality on Patient Satisfaction

Based on the results of the hypothesis test that has been carried out, the first hypothesis in this study is acceptable. The quality of teleconsultation services (X) has been proven to have a positive and significant effect on patient satisfaction (Y) at the Pancoran Health Center. These results indicate that the quality of services provided during the teleconsultation process is crucial in improving patient satisfaction. These findings are in line with previous research by Saputra and Dewi (2022) and Ariani and Phang (2022), which states that the quality of teleconsultation services has a positive and significant effect on patient satisfaction. This finding is also in line with the results of the Pancoran Health Center's 4th Quarter Period 2025 Community Satisfaction Survey which stated that the Community Satisfaction Index at the Pancoran Health Center is classified as very good (predicate A). This value reflects the success of the institution in implementing excellent and quality public service standards.

If associated with *Social Presence Theory* presented by Kreijns *et al*. (2022), These findings show that the quality of service in teleconsultation is not only measured from the technical side, but also from the extent to which patients feel the real presence of health workers in digital interactions. Dimensions such as *Empathy*, *responsiveness*, and *Insurance* plays an important role in building the perception of social presence. When healthcare workers are able

to provide quick responses, clear communication, and show concern, patients will feel more cared for even if the interaction is virtual. This reinforces the perception that the services received remain personal and humane, thus contributing to increased patient satisfaction. Therefore, these findings indirectly strengthen the theory *Social Presence*, which explains that the higher the perception of social presence in teleconsultation, the more patient experience and satisfaction with the services received.

The Effect of Teleconsultation Service Quality on Patient Satisfaction with Digital Literacy as a Moderation

The findings in this study suggest that the second hypothesis is not accepted, meaning that the interaction between digital literacy and the quality of teleconsultation services on patient satisfaction does not have a significant influence. These findings indicate that digital literacy does not function as a moderation variable in the relationship. In other words, the level of digital literacy of patients does not strengthen the influence of service quality on patient satisfaction. In this context, digital literacy functions more as a basic ability that helps patients access and follow teleconsultation services, rather than as a factor that changes the power of the influence of the quality of the service itself. Therefore, even though patients have good digital literacy, the level of satisfaction remains more dominant determined by the quality of services provided, such as the clarity of communication between health workers, the accuracy of diagnosis, and the responsiveness of services.

Health digital literacy refers to a person's ability to search, understand, and use health information accessed through various media or digital platforms (Estrela et al., 2023). The insignificance of the role of digital literacy moderation in this study can be explained by the characteristics of the teleconsultation service system which is relatively simple and *user-friendly*. In these conditions, the difference in the level of digital literacy between patients has less effect on the service experience. Patients with high digital capabilities can indeed operate the system more smoothly, but patients with lower capabilities can still follow the flow of services without significant hindrance. As a result, the quality of service perceived by patients is determined more by substantial aspects such as the clarity of communication between health workers, the speed of response, and the accuracy of medical solutions, rather than by the patient's digital capabilities (Lelyana, 2024).

In addition, the characteristics of the respondents also influenced the results of this study. The majority of respondents have a secondary to high level of education, which reflects a relatively good and homogeneous level of digital literacy. This condition causes the variation of digital literacy to be limited, so that its role as a moderator variable cannot be detected significantly in the research model. As explained by Kunnati *et al* (2025), socio-economic factors such as education and income have an influence on the adoption of services *telemedicine*. Individuals with higher educational backgrounds and economic conditions generally have better digital skills. However, when the majority of respondents are at a relatively homogeneous level of digital literacy, this variable is no longer a significant differentiating factor in influencing the relationship between service quality and patient satisfaction.

Nevertheless, this study shows that digital literacy has a positive and significant

influence on patient satisfaction at the Pancoran Health Center. This indicates that the patient's ability to understand and utilize digital technology is an important factor in determining satisfaction. The higher the digital literacy, the higher the satisfaction felt. Therefore, in this study, digital literacy is more appropriately treated as an independent variable that has a direct effect on patient satisfaction, not as a moderation variable.

These results are consistent with some previous studies. Coca *et al.* (2025) It also found that digital literacy has a positive impact on the satisfaction of technology-based health service users. With good literacy, patients are more adaptable to *platform* teleconsultation, so that the service process becomes more effective and efficient. This condition ultimately increases the positive perception of the services received and encourages a higher level of satisfaction. In addition, Kim's study *et al.* (2025) indicates that individuals with higher digital literacy generally have better perceptions of health as well as higher levels of life satisfaction. These findings confirm that the ability to access, understand, and utilize digital technology has an impact on technical aspects and contributes to the overall quality of life. Digital literacy allows individuals to obtain more accurate health information, make optimal use of technology-based health services, and make more informed decisions regarding their health conditions.

Other research was conducted by Ghaleb (2026) which shows that electronic health literacy (*electronic health literacy*) has an important role in improving patient satisfaction in use *telemedicine*. This is reflected in his findings that a person with higher digital literacy is generally better able to understand health information, operate the system *telemedicine*, as well as assessing the quality of the services received, resulting in a higher level of satisfaction. The findings were reinforced through a study by Hamasaki (2022) that shows that success *telemedicine* In improving patient satisfaction does not solely depend on technology, but also on the patient's ability to interact and utilize the system effectively. Factors such as ease of use, communication, and patient experience remain key determinants of satisfaction. In this context, digital literacy is a key factor that makes patients better prepared to utilize telemedicine services, so that it can improve the quality of the user experience and ultimately have an impact on patient satisfaction.

Research Implications

Theoretical Implications

The results of this study show that the quality of teleconsultation services and digital literacy play a role in increasing patient satisfaction. These findings are also in line with *Social Presence Theory* which emphasizes the importance of presence perception in interactions, including in digital-based services. Even though teleconsultations are carried out without face-to-face, patients can still feel the quality of interaction through clear communication, quick response, and ease of using technology.

Furthermore, this study provides an implication that the perception of social presence in teleconsultation services is influenced by the quality of service and the ability of users to utilize technology. In this case, digital literacy plays a role as a factor that helps patients understand and interpret the interactions that occur, thereby supporting the formation of a better service experience and ultimately contributing to increased patient satisfaction.

In addition, the findings of the study show that digital literacy does not function as a moderation variable, but rather has a direct effect on patient satisfaction. This indicates that

digital literacy plays a role more as a basic supporting factor, rather than as an element that strengthens the relationship between service quality and satisfaction. Thus, this study expands the understanding *of Social Presence Theory* by showing that in the context of digital healthcare, the perception of social presence is not only determined by the quality of services and communication carried out with patients, but also by the digital readiness and ability of users to interpret these interactions.

Practical Implications

Based on the results of the analysis of *the loading factor* value, there are several indicators that have relatively lower values than other indicators, so it needs to be considered in efforts to improve service quality. In the variable quality of teleconsultation services, the indicators that need to be improved are KPT.1, namely *tangibility* (*loading factor* value 0.817) and KPT.2, namely *reliability* (*loading factor* value 0.823). The *tangibility indicator* shows that the facilities and appearance of digital services still need to be improved. The health center needs to make improvements to the quality of the application's display, such as adding instructions for use (*step-by-step*), clarifying service flow information, and providing a simpler and more informative display so that it is easy for patients to understand. Then, the *reliability indicator* (KPT.2) shows that the reliability of services still needs to be improved, especially in ensuring the consistency and accuracy of the information provided to patients. Therefore, health centers need to ensure that health workers can provide clear, accurate, and easy-to-understand information during the teleconsultation process.

Furthermore, in the digital literacy variable, the indicators that need to be improved are LD.1, which *is operational skills* (*loading factor* value 0.857) and LD.2, which is *information searching skills* (loading *factor* value 0.882). From the results of the study, the *operational skills indicator* (LD.1) indicates that the patient's basic ability to use technology is still an obstacle. The implication is that educational efforts are needed such as guidelines for using the application, socialization, or assistance for patients to make it easier and more accustomed to using teleconsultation services. Then, the *information searching skills* indicator (LD.2) shows that patients' ability to search and understand health information through digital media still needs to be improved. This indicates that the patient is not fully able to utilize the information source optimally. Therefore, health centers need to provide additional education, such as providing simpler, clearer, and easy-to-understand information through the digital platforms used.

In the patient satisfaction variable, the indicators that need to be improved are KP.6, namely *time spent with doctor* (*loading factor* value 0.840) and KP.5, namely *financial aspect* (*loading factor* value 0.841). The time *spent with doctor* indicator (KP.6) shows that the duration of the interaction still needs to be considered. Therefore, health workers are advised to provide sufficient consultation time, not rush, and ensure that patients get clear and thorough explanations. Then, the *financial aspect* indicator (KP.5) shows that the cost aspect is still a concern for patients. Although teleconsultation services at health centers are generally free of charge, in practice there are conditions where medicines are not available, so patients have to buy their own outside. This can lead to the perception of the possibility of additional costs after teleconsultation. Therefore, health centers need to provide more transparent information regarding the availability of drugs and possible costs so that patients have a clearer picture. Doctors can also provide other drug alternatives for patients when the drugs that should be

taken are not available.

CONCLUSION

The findings of this study show that the quality of teleconsultation services has a positive and significant effect on patient satisfaction. This means that the improvement in service quality will be followed by an increase in the level of satisfaction felt. In addition, digital literacy has also been proven to have a positive and significant effect on patient satisfaction, which indicates that patients' ability to understand and utilize digital technology also contributes to increasing satisfaction with teleconsultation services. However, digital literacy does not play a role as a variable that moderates service quality and patient satisfaction. This means that the variation in the level of digital literacy does not strengthen the influence of service quality on patient satisfaction. These findings suggest that digital literacy is more appropriately positioned as a factor that directly affects patient satisfaction, rather than as a variable that strengthens the relationship between service quality and satisfaction. Referring to these findings, the Pancoran Health Center is advised to improve the quality of teleconsultation services in a more targeted manner. Healthcare workers need to use simple language, provide clear explanations, and convey a summary of the results of the consultation so that it is easy for patients to understand. In addition, the information provided should be consistent and not confusing. From a system perspective, it is necessary to provide a simple service usage guide such as a video or infographic, as well as a service flow that is easy to follow. Education to patients also needs to be carried out periodically so that they are more accustomed to using teleconsultation services. Healthcare workers also need to build more personalized interactions, such as showing empathy, giving opportunities to ask questions, and if possible, doing *follow-up* short, so that patients still feel cared for even though services are carried out digitally. This study has limitations because it was only carried out in one location with relatively homogeneous respondent characteristics, so the findings obtained cannot be generalized widely. In addition, the data used is sourced from respondents' perceptions at the time of data collection, so it has the potential to contain subjectivity influenced by momentary conditions, personal experiences, and emotional factors. Therefore, the next study is recommended to use a wider scope of study objects and add other variables so that the results obtained are more comprehensive. In addition, the use of longitudinal design can also be considered to monitor changes in patient perception and satisfaction levels over a period of time, resulting in a more in-depth and accurate picture.

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