

The Role of Satisfaction in Mediating the Effect of Multi-Channel Service Quality on Behavioral Intention

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Abstract

This study aims to examine the influence of multi-channel service quality, including efficiency, reliability, physical environment, personnel quality, and technical quality, as well as the influence of satisfaction on behavioral intentions. This study used 384 outpatients at Siloam Hospital Makassar as respondents, with the criteria being patients who used self-pay, company-funded, or insurance and used the MySiloam application to obtain digital health services. The data for this study were collected using a questionnaire with a Likert scale. The collected data were then analyzed descriptively and using PLS analysis. The results of this study revealed that the aspects forming multi-channel service quality, consisting of efficiency, reliability, physical environment, personnel quality, and technical quality, as a whole, had a positive and significant influence on patient satisfaction. Furthermore, satisfaction in this study was also found to have a positive and significant influence on behavioral intentions.

Keywords: Efficiency, Reliability, Physical Environment, Personnel Quality, Technical Quality, Satisfaction, and Behavioral Intention

Introduction

The development of technology and information has increased public knowledge, making them more selective in choosing the service facilities they will use. The selection of these service facilities is usually made by the public by utilizing various media, which are then used as considerations in making decisions about which service to use. Satisfaction with the facilities offered is an important aspect for every service user. Hospitals are organizations that focus on providing services to the community, where currently, technological adaptation is one of the best ways to maximize services provided to reach more consumers and provide better quality and satisfaction to their customers. Hospitals are an inseparable part of comprehensive health services. Hospitals provide basic, specialist, and subspecialist health services, with the mission of providing quality and

affordable services to the community in order to improve public health. One of the tasks carried out by hospitals is to implement health efforts in an efficient and effective manner, prioritizing healing and recovery efforts that are implemented harmoniously and integrated with improvement and prevention efforts.

The development of digital technology in the healthcare sector has encouraged hospitals to provide services through various channels, both face-to-face and technology-based. Siloam Hospital Makassar, one of the largest private hospitals in Indonesia, has implemented a multi-channel service system, including direct registration at the counter, call center services, the Siloam mobile app, the official website, and social media. This multi-channel approach allows patients to choose the channel they prefer, for example, to make doctor appointments, obtain medical information, or provide administrative services. However, with increasing patient expectations for healthcare, the quality of service across channels, as well as integration between channels, has become a crucial factor influencing patient satisfaction. According to Zeithaml, Bitner, & Gremler (2018), good service quality is a key determinant of customer satisfaction, including in healthcare.

Service quality in a multi-channel context encompasses not only the performance of each individual channel but also the quality of cross-channel integration. The SERVQUAL model (Parasuraman, Zeithaml, & Berry, 1988) emphasizes the dimensions of reliability, responsiveness, assurance, empathy, and tangibles in assessing service quality. Meanwhile, in electronic services, the E-S-QUAL scale (Parasuraman, Zeithaml, & Malhotra, 2005) adds the dimensions of efficiency, system availability, fulfillment, and privacy. In multi-channel services, research by Sousa & Voss (2006) emphasizes the importance of information consistency, process integration, and continuity of experience across channels. For Siloam Hospital Makassar, this means patients must receive a consistent experience when moving from the online application for registration to the in-person confirmation process at the hospital, without encountering obstacles or information inconsistencies.

Patient satisfaction is a crucial outcome in the context of healthcare. Based on the Expectancy-Disconfirmation theory (Oliver, 1980), satisfaction is achieved when service performance meets or exceeds patient expectations. In hospital settings, patient satisfaction is shaped not only by the quality of medical services but also by the administrative experience and ease of access through various service channels. If Siloam's online registration system is well integrated with on-site services, patients will experience efficiency and convenience, ultimately increasing their satisfaction. Conversely, if there is a misalignment between online and offline services, patients could potentially be dissatisfied, even if the core medical services remain high-quality.

Patient satisfaction is closely related to behavioral intentions. Ajzen (1991) in his Theory of Planned Behavior explains that intentions are the primary factor influencing a person's actual behavior. In the context of healthcare, behavioral intentions can include a patient's desire to return to the same hospital for treatment, a willingness to recommend the service to others, or loyalty to the healthcare services provided. Research by Zeithaml, Berry, & Parasuraman (1996) confirms that high levels of satisfaction encourage positive behaviors, such as loyalty and word-of-mouth. For Siloam Hospital Makassar, maintaining patient satisfaction means encouraging patients to continue using the available healthcare services and recommending the service to family and friends.

Based on the above description, it is understandable that multi-channel service quality is a fundamental factor in creating patient satisfaction, and this satisfaction ultimately influences behavioral intentions. However, studies that specifically examine the relationship between multi-channel service quality and satisfaction and its impact on behavioral intentions in the context of hospitals in Indonesia, particularly Siloam Hospital Makassar, are still limited. Therefore, this study is important to conduct as it provides an academic contribution in strengthening the literature on multi-channel service quality in the healthcare sector, as well as a practical contribution for hospital management in improving patient experience and strengthening their loyalty.

Literature Review

Relationship Marketing

The concept of relationship marketing emerged in the fields of service marketing and industrial marketing. The relationship marketing approach is based on establishing and maintaining relationships between sellers and buyers and other groups in the marketplace. Gronroos (2000) describes relationship marketing as the activity of establishing, maintaining, and strengthening relationships with consumers and other partners, profitably, so that the goals of the groups involved can be met. Berry (2002) defines relationship marketing as efforts to attract, maintain, and overall organizational services in maintaining relationships with customers. Meanwhile, according to Kotler and Armstrong (2008), relationship marketing is the process of creating, maintaining, and transferring superior, value-laden relationships between customers and other stakeholders. Berry (2002) describes relationship marketing as a term used to cover various activities with distinctions in philosophical, operational, and strategic dimensions.

Multi-Channel Service Quality

In general, multi-channel service quality is defined as a service consisting of physical and virtual components delivered through two or more channels whose service offerings are arranged in such a way that all services will be able to reach consumers (Patten, 2017). Cassab & Maclachlan (2009) define multi-channel service as the use of alternative contact modes by customers to interact and obtain services from an organization. For example, customer contact with an airline may be done face-to-face through front office employees who use technology to assist customers, and can also be done remotely through back-office representatives (call centers) or without the presence of human representatives (websites and self-service kiosks).

Parasuraman, et al. (2005) revealed that the efficiency aspect is one of the determining factors for consumers to decide to use a service and get satisfaction in the end. Cristobal, et al. (2007) also explained that efficiency in using a service can make it easier for consumers to find the desired information, this can lead to online satisfaction. The ServQual model (Parasuraman, et al, 1988) revealed that there are five main aspects of service quality, one of which is tangibles which refers to the appearance of physical facilities, equipment, and personnel.

Zeithaml et al. (2002) stated that reliability is the most powerful aspect in creating online customer satisfaction. Ittamalla and Kunamneni (2019) stated that the physical environment, including the service environment, including design, style, layout, and equipment, greatly influences the quality and overall level of patient satisfaction. Mowen and Minor (2012) revealed that the physical environment of a service provider can contribute to perceived customer satisfaction because with a good physical environment, consumers can feel comfortable in receiving services and will feel more satisfied.

Expectation-confirmation theory (Oliver, 1980), where this theory explains that satisfaction arises if the actual results of the service exceed or match customer expectations. Jasfar (2005) revealed that technical quality is closely related to the perception of the quality of service output, where this perception can be positive or negative depending on the customer's evaluation after consuming the service, where when technical quality aspects are met and perceived as appropriate by the customer, the perception of quality will also increase and ultimately affect the level of satisfaction. In multi-channel services, research by Sousa & Voss (2006) emphasizes the importance of information consistency, process integration, and continuity of experience between channels. Zeithaml, Bitner, & Gremler (2018), good service quality is a major determining factor in the formation of customer satisfaction, including in healthcare services.

Satisfaction

Expectation Confirmation Theory (Oliver, 1980) explains that satisfaction results from comparing initial expectations with perceptions of actual performance. Oliver (1980) suggests that customer satisfaction is a surprising assessment of product acquisition and consumer experience. Westbrook (1980) suggests that customers' subjective preferences for different outcomes and experiences during the product usage period are called customer satisfaction, which primarily emphasizes experience and outcomes. Day (1984) defines customer satisfaction as an evaluative response to the perceived difference between expectations and actual product performance. Fornell (1992) suggests that customer satisfaction is a consumer's overall evaluation after consumption. Oliver (1993) considers satisfaction as the result of consumers' perceived response to a product and can further determine how satisfied consumers are with the product, attributes, or service and the product itself. He also points out that customer satisfaction does not exist independently, but coexists with other consumer emotions, which is one of the main attributes of customer satisfaction. Customer satisfaction is a term often used in marketing, usually to measure how products and services offered by a company satisfy or exceed customer expectations. In a competitive market where companies compete for customers, customer satisfaction is seen as a key differentiating factor and is increasingly becoming a key element of corporate strategy (Gitman & McDaniel, 2005).

Donbedian (1996) suggested that patient satisfaction is one of the outcomes of nursing care, but it has not been clearly defined. Risser (1975) defined patient satisfaction as the extent to which a patient's perceived ideal state is consistent with their actual experience. Ware, Davies-Avery, and Stewart (1978) argued that patient satisfaction is designed to measure patient satisfaction with medical care facilities and various healthcare professionals. Wood (1977) suggested that patient satisfaction studies be called patient satisfaction and experience research, meaning that managers should not only determine whether patients are satisfied but also explore why patients are satisfied.

Behavioral Intention

Ajzen and Fishbein (1980) explain intention as a cognitive and cognitive representation of an individual's readiness to perform a behavior. Intention is a determinant of the existence and disposition of behavior, so that individuals have the opportunity and the right time to actually perform the behavior. Ajzen and Fishbein (1980) in the Theory of Reasoned Action (TRA) suggest that both attitudes and subjective norms can influence human behavioral intentions. According to this theory, attitudes consist of beliefs about the consequences of performing a behavior weighed by a person's assessment of those consequences (Ajzen & Fishbein, 1980). Meanwhile,

subjective norms are defined as a person's perception that most people who are important to him think that he should or should not perform the intended behavior.

Zeithaml, et al. (1996) stated that behavioral intention is an indication of whether a customer will stay or leave an organization. Positive behavioral intention will spread positive things about the company to others, recommend the company or service to others, pay a premium price to the company, and remain loyal to the company (Tsaur et al., 2005). Behavioral intention is a person's desire (intention) to perform a certain behavior. A person will perform a behavior if they have the desire or intention to do so (Taylor and Todd (1995). Yi and Hwang (2003) stated that behavioral intention is a view of the extent to which a person has the intention to perform a specific behavior. According to Peter and Olson (2008:311) that behavioral intention is a proposition that connects oneself with future actions. The action in question is the action of whether consumers will buy or use a product or service or behave not to buy or use a product or service. This action is a form of the consumer's perception process of what consumers see regarding existing products or services.

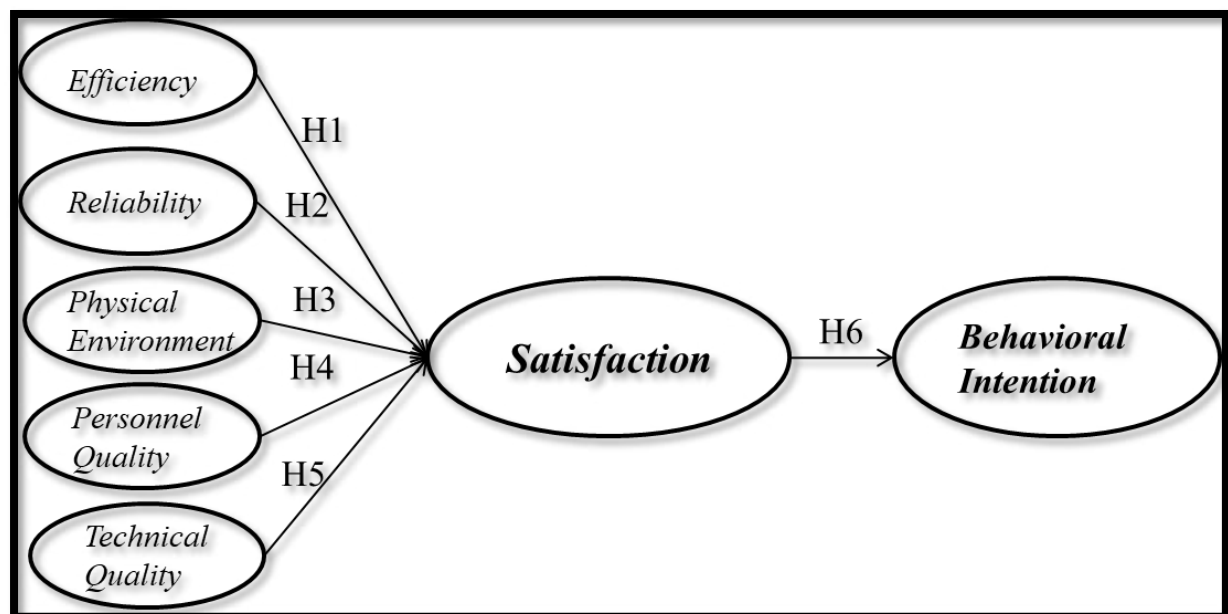


Figure 1. Conceptual Framework

Research Hypothesis

- H1. Efficiency has a positive and significant effect on satisfaction.
- H2. Reliability has a positive and significant effect on satisfaction.
- H3. Physical environment has a positive and significant effect on satisfaction.
- H4. Personnel quality has a positive and significant effect on satisfaction.
- H5. Technical quality has a positive and significant effect on satisfaction.

H6. Satisfaction has a positive and significant effect on behavioral intentions

Research Methods

This research will be conducted within the scope of Siloam Hospital Makassar by taking patients as the research object. The population of this research is all outpatients of Siloam Hospital Makassar other than BPJS patients with a population size that cannot be identified. The research sample is part of the number and characteristics of the population. Because the population size in this study cannot be identified, the determination of the number of samples for this study will use the Cochran formula, which is stated by Sugiyono (2017:18) that when the population size in the study is not known for certain, then to calculate the number of samples can use the Cochran formula to produce a sample of 284 people. Meanwhile, the research approach used is SmartPLS. The SmartPLS approach is a development of PLS (Partial Least Square) analysis.

Operational Definition of Variables

Efficiency is the patient's perception of the ease and speed of using the MySiloam application to find and address their healthcare needs.

Reliability is the patient's perception of the MySiloam application's ability to provide appropriate services, providing useful, accurate, and up-to-date information for its users.

Physical Environment is the patient's perception of Siloam Hospital Makassar's physical facilities, including modern equipment, the ability to increase service capacity, an attractive physical appearance, and a clean service environment.

Personnel Quality is the patient's perception of the quality of the available medical staff, including the adequacy of medical personnel, adequate level of competence, medical staff attitudes, and good coordination between medical staff in providing healthcare services.

Technical Quality is the patient's perception of the quality of care according to established protocols, both in terms of diagnostic accuracy and timely service delivery.

Satisfaction is a patient's evaluative perception related to their satisfaction with the overall medical services they receive from Siloam Hospital Makassar.

Behavioral Intention is a patient's evaluative perception related to their desire to behave in a certain way in order to obtain or use healthcare services from Siloam Hospital Makassar.

Result

Discriminant Validity

Discriminant validity aims to test the extent to which a latent construct is truly different from other constructs. Discriminant validity can be determined by comparing the AVE value of each variable with the correlation between the variables. If the AVE value is greater than the correlation, the variable has good discriminant validity. The following is a presentation of data related to the AVE value, AVE root, and correlation between variables:

Table 1 AVE Values and AVE Roots

Research Variables	Average variance extracted (AVE)	AVE Root
Efficiency	0,923	0,961
Reliability	0,919	0,959
Physical_Environment	0,869	0,932
Personnel_Quality	0,930	0,964
Technical_Quality	0,918	0,958
Satisfaction	0,970	0,985
Behavioral Intention	0,955	0,977

Source: Processed Primary Data, 2025

R-Kuadrat (R²)

The structural model is evaluated by considering the Q2 predictive relevance model, which measures how well the observed values are generated by the model. Q2 is based on the coefficient of determination of all endogenous variables. The Q2 value ranges from $0 < Q2 < 1$, with the closer it is to 1, the better the model. The coefficient of determination (R²) for the two endogenous variables is presented in Table 2 below.

Table 2 R-Square Values

Structural Model	Variables	R-square
1	Satisfaction (Y1)	0,946
2	Behavioral Intention (Y2)	0,938

Source: Processed Primary Data, 2025

$$Q^2 = 1 - (1 - R^2_1) - (1 - R^2_2) = 1 - \{(1 - 0,946) + (1 - 0,938)\} = 0,996$$

Based on the calculation results above, it can be seen that the predictive-relevance value (Q2) = 0.996 or 99.9 percent means that the accuracy or precision of this research model of employee behavioral intentions can be explained by the variables of efficiency, reliability, physical environment, personnel quality, technical quality, and satisfaction of 99.9

percent, while the rest is explained by variables not included in the research, thus it can be said that the model that has been built has an accurate predictive relevance value because it has a value close to 1.

Hypothesis Testing

In the direct effect test, six hypotheses are used. These hypotheses will be tested using the structural equation method PLS version 4. The PLS approach is used to test complex hypotheses by calculating the influence of independent (exogenous) variables on a dependent (endogenous) variable. Therefore, to conclude whether the research hypothesis is proven, a significance value of p-value is used with a cut-off value of $\alpha \leq 0.05$. Thus, if the p-value on the tested path is ≤ 0.05 , then the research hypothesis is proven.

Table 3 Hypothesis Testing

Kode	Pengaruh Variabel			Path Coefficient	P Values	Ket
H1	Efficiency	→	Satisfaction	0,117	0,039	Sig.
H2	Reliability	→	Satisfaction	0,172	0,041	Sig.
H3	Physical Environment	→	Satisfaction	0,147	0,046	Sig.
H4	Personnel Quality	→	Satisfaction	0,156	0,049	Sig.
H5	Technical Quality	→	Satisfaction	0,159	0,035	Sig.
H6	Satisfaction	→	Behavioral Intention	0,209	0,047	Sig.

Sumber: Data primer olahan, 2025

Discussion

Efficiency on Satisfaction

Based on the results of the test conducted on the hypothesis of the influence of efficiency on patient satisfaction, it was found that efficiency has a positive and significant effect on patient satisfaction in using the MySiloam application. Statistically, these results indicate that the higher the patient's perception of efficiency towards the service system, particularly through the MySiloam application, the greater the level of perceived satisfaction. This influence indicates that the aspect of efficiency has a real contribution in encouraging the formation of a positive service experience for patients, thus creating greater satisfaction. These findings also indicate that in the context of digital healthcare, efficiency plays a fundamental role. When patients feel they can access information easily, complete administrative processes quickly, and do not experience technical difficulties when using the application, a sense of comfort and satisfaction begins to

develop. Efficiency reduces the psychological burden on patients, who generally come to the hospital in an unstable physical or mental condition.

These findings reveal that efficiency has a positive correlation with patient satisfaction in perceiving e-service quality. These findings align with those of Parasuraman et al. (2005), who stated that efficiency is a determining factor for consumers in deciding to use a service and ultimately achieving satisfaction. Similarly, Cristobal et al. (2007) also explained that efficiency in using a service can make it easier for consumers to find the information they need, which can lead to online satisfaction. In addition to theoretical confirmation and expert opinion, these findings also align with previous research, including that conducted by Nigatu et al. (2023).

Reliability towards Satisfaction

Based on the results of the hypothesis testing on the effect of reliability on patient satisfaction among MySiloam app users, it shows that the reliability aspect has a positive and significant correlation with patient satisfaction levels. MySiloam's success in providing reliable services strengthens the hospital's position in maintaining patient satisfaction through digital channels. When patients feel that the app is always reliable, whether for scheduling appointments, obtaining service information, or accessing laboratory results, satisfaction naturally grows. This demonstrates that reliability is a crucial foundation in app-based services, which must be continuously maintained and improved to achieve optimal levels of satisfaction.

In healthcare, the reliability of the MySiloam application is clear evidence that Siloam Hospital Makassar is serious about maintaining relationships with patients. System reliability ultimately increases trust and contributes to patient satisfaction. Furthermore, Zeithaml et al.'s (2002) findings align with these findings, stating that reliability is the most powerful factor in creating online customer satisfaction. Furthermore, these findings confirm those of previous studies conducted by Nigatu et al. (2023).

Physical Environment towards Satisfaction

Based on the results of hypothesis testing on the influence of the physical environment on patient satisfaction at Siloam Hospital Makassar, it was found that the physical environment has a positive and significant influence on patient satisfaction at Siloam Hospital Makassar. This finding means that the better the patient's perception of the physical environment of the hospital, the higher the level of satisfaction felt. Good physical conditions of the hospital not only have a psychological impact that makes patients feel safe and comfortable, but also influence confidence in the hospital's capability in providing professional and high-quality care. Therefore, the existence of a representative physical environment is an important foundation in building patient satisfaction holistically.

The influence of the physical environment on patient satisfaction found in this study is in line with the ServQual model (Parasuraman, et al, 1988) which states that there are five main aspects of service quality, one of which is tangibles which refers to the appearance of physical facilities, equipment, and personnel. According to this theory, although tangibles are not the only factor, a good physical appearance creates an initial perception of quality, builds trust, and encourages satisfaction, especially for new patients who are strongly influenced by first impressions. In addition, according to Ittamalla and Kunamneni (2019), the physical environment includes the service environment, including design, style, layout, and equipment, which greatly influences the quality and overall level of patient satisfaction. In line with this, this finding also confirms the opinion of Mowen and Minor (2011) who stated that the physical environment of a service provider can contribute to perceived consumer satisfaction because with a good physical environment, consumers can feel comfortable in receiving services and will feel more satisfied. The findings of this study are also in line with the results of previous studies revealed by several researchers, including George and Shadevan (2023), Gul, et al. (2023), Ratnawati, et al. (2020), and Agyeiwaah, et al. (2021).

Personnel Quality towards Satisfaction

From the results of the hypothesis testing on the influence of personnel quality on patient satisfaction perceived at Siloam Hospital Makassar services, it was found that personnel quality has a positive and significant influence on patient satisfaction. This finding indicates that the quality of human resources, particularly medical personnel and support staff at Siloam Hospital Makassar, plays a crucial role in creating a pleasant service experience for patients.

These findings also align with several expert opinions, including those of Parasuraman et al. (1988), the founders of the SERVQUAL model, who emphasized that the assurance and empathy dimensions are key indicators of personnel quality. Parasuraman et al. (1988) stated that customers will be more satisfied when they believe that service personnel understand their needs, are polite, and demonstrate competence in their duties. In the context of healthcare, this refers to the ability of medical personnel and support staff to provide professional and attentive service, which significantly determines patient satisfaction levels. Similarly, Bitner et al. (1994) stated that human interaction in intensive services, such as healthcare, significantly determines perceptions of quality and customer satisfaction. The findings of this study also confirm several previous research findings expressed by several researchers, including research conducted by George and Shadevan (2023) and Agyeiwaah et al. (2021).

Technical Quality towards Satisfaction

Based on the results of the analysis and testing conducted on the influence of technical quality on patient satisfaction at Siloam Hospital Makassar, it was found that technical quality has a positive and significant influence on perceived patient satisfaction. This finding indicates that when patients assess the medical services they receive as timely, accurate, in accordance with procedures, and supported by complete modern medical equipment, they tend to feel satisfied with the overall service provided by Siloam Hospital Makassar. Patient satisfaction is the outcome of a series of service processes, and one of its main pillars is the technical aspect.

The results of this study also confirmed the Expectation-Confirmation Theory (Oliver, 1980), which explains that satisfaction arises if the actual results of the service exceed or meet customer expectations. Jafsar (2005) revealed that technical quality is closely related to the perception of the quality of service output, where this perception can be positive or negative depending on the customer's evaluation after consuming the service. When technical quality aspects are met and perceived as appropriate by the customer, the perception of quality will also increase and ultimately affect the level of satisfaction. In addition to theoretical confirmation and expert opinion, the findings of this study also confirm the findings of previous studies conducted by, among others, George and Shadevan (2023), Gul, et al. (2023), Suhail and Srinivasulu (2021).

Satisfaction with Behavioral Intentions

Based on the results of the analysis and testing conducted on the hypothesis of the influence of satisfaction on behavioral intentions of patients at Siloam Hospital Makassar, it was found that patient satisfaction has a positive and significant influence on behavioral intentions at Siloam Hospital Makassar. This finding means that patients who feel satisfied with the overall service experience provided by Siloam Hospital Makassar tend to develop a more loyal attitude, showing the intention to return to visit, recommend to others, and are willing to pay more for the same health service.

Theoretically, these findings confirm Expectation Confirmation Theory (Oliver, 1980), which explains that satisfaction results from comparing initial expectations with perceptions of actual performance. If the service provided exceeds patient expectations, satisfaction occurs, and this satisfaction is the primary predictor of positive behavioral intentions. These findings reveal that satisfaction is correlated with changes in behavioral intentions, which aligns with previous research, including those conducted by George and Shadevan (2023), Suhail and Srinivasulu (2021), Agyeiwaah et al. (2021), and Abdou et al. (2022).

Conclusion

Based on the results of the analysis, testing and discussion that have been described previously, the findings of this study can be concluded as follows:

Efficiency has a positive and significant effect on patient satisfaction at Siloam Hospital Makassar. This finding indicates that the higher the efficiency of the MySiloam application used by patients to access healthcare services at Siloam Hospital Makassar, the higher their perceived level of satisfaction. Reliability has a positive and significant effect on patient satisfaction at Siloam Hospital Makassar. This finding indicates that the higher the level of reliability perceived by patients when using the MySiloam application to access the healthcare services they need, the higher their perceived level of satisfaction.

The physical environment has a positive and significant effect on patient satisfaction at Siloam Hospital Makassar. This finding indicates that the better the physical environment at Siloam Hospital Makassar in supporting the provision of health services to patients, the greater the level of satisfaction felt by patients. Personnel Quality has a positive and significant effect on patient satisfaction at Siloam Hospital Makassar. This finding indicates that the better the quality of the existing health workers in providing maximum service to patients who seek health care at Siloam Hospital Makassar, the higher the level of satisfaction they feel. Technical quality has a positive and significant effect on patient satisfaction at Siloam Hospital Makassar. This finding indicates that the better the technical quality of services at Siloam Hospital Makassar provided to patients, the better the level of satisfaction they feel. Satisfaction has a positive and significant effect on patient behavioral intentions at Siloam Hospital Makassar. This finding indicates that the better the level of satisfaction felt from the health services received at Siloam Hospital Makassar, the more positive the patient's behavioral intentions will be.

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