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Research paper

The Influence of Multi-Channel Service Quality on Patient Satisfaction and Its Impact on Trust, Commitment, and The Behavioral Intention of Outpatients At Siloam Hospital, Makassar

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Abstract

This study aims to develop the concept of multi-channel service quality by examining the role of two aspects: e-servqual, encompassing efficiency, privacy, reliability, emotional benefit, and customer service; and servqual, encompassing physical environment, personnel quality, and technical quality, in influencing patient satisfaction. This study also examined the effect of satisfaction on patients' behavioral intentions, mediated by trust and commitment. The study recruited 384 outpatients from Siloam Hospital Makassar, with respondents defined as patients with self-pay, company-funded, or insurance coverage who used the MySiloam app for digital healthcare services. Data were collected using a Likert-based questionnaire. The collected data were then analyzed descriptively and using PLS analysis. The results revealed that the aspects constituting multi-channel service quality, e-servqual and servqual, encompassing efficiency, privacy, reliability, emotional benefit, customer service, physical environment, personnel quality, and technical quality, had a positive and significant influence on patient satisfaction. Furthermore, satisfaction was found to have a positive and significant influence on trust, commitment, and behavioral intentions. Furthermore, trust and commitment partially mediated the influence of satisfaction on behavioral intentions.

Keywords: *Behavioral Intention; Commitment; Multi-Channel Service Quality; Satisfaction; Trust.*

1. Introduction

Social changes and the development of information technology have revolutionized almost every aspect of human life, including the healthcare sector. Modern society has become increasingly accustomed to fast, practical, and integrated services, which have significantly raised its expectations of healthcare institutions. Hospitals, once perceived merely as treatment centers, must now adapt to the demands of more critical patients, emphasizing comprehensive service quality not only in the medical dimension but also in the overall patient experience. According to (Tjiptono, 2012)Tt, service quality is the main determinant in building customer satisfaction. In the healthcare context, this implies that hospitals are expected not only to provide adequate medical services but also to ensure a holistic patient experience encompassing accessibility, comfort, and transparency of information. The advancement of digitalization, including application-based services, has reinforced this paradigm shift by offering more efficient and accessible service options.

Patient satisfaction has become a key indicator of hospital success. (Jaipaul & Rosenthal, 2003) Emphasize that patient satisfaction serves not only as a measure of service quality but also as a primary driver of patient loyalty. Satisfied patients tend to return for the same services and provide positive recommendations to others. In the long term, this contributes to hospital sustainability through the acquisition of new patients and the retention of existing ones. Research by (Choi et al., 2004) Shows that satisfied patients are more likely to comply with treatments and medical recommendations, thereby strengthening the effectiveness of healthcare services. Conversely, dissatisfaction may have serious implications, such as declining trust, weakened commitment, and patients switching to other healthcare providers. (Abdou et al., 2022). This highlights that patient satisfaction is not merely an operational issue but also a competitive strategy for ensuring hospital sustainability. (do Paço & Raposo, 2009).

In the Indonesian context, particularly at Siloam Hospitals Makassar, data indicate a downward trend in new patient acquisition. This decline occurs across various service units, including outpatient, inpatient, and emergency care. Although patient retention shows improvement, the decrease in new patients signals issues in the public perception of hospital service quality. Factors identified include long waiting times, limited facility capacity, and uncertainty in scheduling appointments with doctors. This phenomenon aligns with the findings of, (George & Sahadevan, 2023; Nyagadza et al., 2022)Who assert that poor patient experiences, especially regarding comfort and service efficiency, can reduce satisfaction and weaken patients' behavioral intention to return. Therefore, hospitals must develop innovative strategies to enhance service quality and restore public trust.

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Indonesia's healthcare context presents several distinctive factors that influence both the outcomes of this study and the extent to which they can be generalized internationally. First, Indonesia's healthcare system operates within a mixed public–private framework where disparities in access, service standards, and digital infrastructure are pronounced between major urban centers and rural areas. This uneven digital readiness affects how patients interact with multi-channel systems like MySiloam, potentially limiting adoption and satisfaction compared to countries with more uniform infrastructure. Second, cultural characteristics—such as collectivist social values, high power distance, and strong interpersonal expectations—shape patient perceptions of service quality. Indonesian patients often place greater emphasis on empathy, face-to-face reassurance, and relational warmth from healthcare staff, making interpersonal dimensions more influential than in Western contexts. Third, regulatory frameworks and health insurance mechanisms, such as the BPJS national insurance scheme, affect service efficiency and patient expectations differently than in privatized systems abroad. Consequently, while the findings demonstrate the effectiveness of multi-channel service quality in improving satisfaction, trust, and commitment, their generalizability is bounded by Indonesia's socio-cultural, economic, and infrastructural conditions. Cross-country applications should therefore consider these contextual nuances when adapting the model to other healthcare environments.

One emerging approach is multi-channel service quality, which integrates physical and digital services. This concept emphasizes that patients are no longer served solely through direct interactions at hospital facilities but also through digital channels such as mobile applications, telemedicine, and patient portals. (A. Parasuraman et al., 2005) Introduced the concept of Electronic Service Quality (E-SQ) as a framework for understanding how technology-based services can improve customer experiences. In hospitals, the application of E-SQ through MySiloam allows patients to register online, consult with doctors virtually, and access medical records without being physically present. This is expected to reduce the burden on conventional services while improving efficiency and patient convenience.

Despite its promising potential, previous studies on multi-channel service quality have yielded inconsistent findings. (George & Sahadevan, 2023; A. Parasuraman et al., 2005; Suhail & Srinivasulu, 2021) Found that multi-channel service quality positively affects patient satisfaction. However, other studies such as (Agyeiwaah et al., 2021; Ratnawati et al., 2020) Reported insignificant effects. Similarly, the relationship between patient satisfaction and trust, commitment, and behavioral intention remains debated. While (Abdou et al., 2022; Dhagarra et al., 2020; Rather et al., 2019) Found positive and significant associations, (Juwaini et al., 2022; Liu et al., 2021; Nyagadza et al., 2022) Discovered no significant relationships. These inconsistencies highlight the existence of contextual factors that require further exploration, particularly in Indonesia's healthcare environment.

From the above discussion, it is evident that there is a research gap in the literature on multi-channel service quality in healthcare. First, most previous studies focused on online retail and digital service sectors. (Al-dweeri et al., 2019), leaving healthcare applications relatively underexplored. Second, the inconsistent findings regarding the relationship between multi-channel service quality and satisfaction, as well as the link between satisfaction, trust, commitment, and behavioral intention, underscore the need for more context-specific research. This condition presents an opportunity to conduct a more comprehensive empirical study, especially in private hospitals in Indonesia that are facing competitive challenges and rising patient expectations. This research contributes novelty by incorporating dimensions of electronic service quality (e-servqual) into the multi-channel service quality framework in healthcare. The dimensions include efficiency, privacy, reliability, emotional benefit, customer service, physical environment, personnel quality, and technical quality. This model provides a more comprehensive approach to assessing hospital service quality.

Beyond academic contribution, these findings have significant economic implications. Enhancing multi-channel service quality can directly strengthen hospital financial performance by improving patient retention, reducing churn, and increasing revenue stability. Digitalized service systems—such as automated scheduling and online consultations—lower operational costs, streamline administrative workloads, and optimize resource allocation.(Sjachriatin et al., 2023). Hospitals that effectively integrate physical and digital channels can achieve higher occupancy rates, improved patient flow, and greater cost efficiency. Ultimately, service quality improvement not only elevates the patient experience but also contributes to measurable economic outcomes, including profitability, productivity, and long-term sustainability within the competitive healthcare market.

In addition, this research carries strong policy relevance. Policymakers and healthcare authorities should introduce structured incentives for hospitals to accelerate digital transformation. Such measures may include tax relief for digital infrastructure investment, public–private partnerships for telemedicine expansion, and the establishment of national interoperability standards for digital health data. Furthermore, the Ministry of Health could develop a national digital literacy program to train healthcare professionals in multi-channel service delivery, ensuring equitable and effective adoption of technology. These interventions would not only enhance service integration across institutions but also position Indonesia's healthcare system as a key driver of the digital economy, contributing to the broader goals of sustainable and inclusive national development.

Therefore, this study is expected to provide theoretical contributions by expanding the literature on multi-channel healthcare service quality while offering practical implications for hospitals in designing service strategies that integrate physical and digital channels. Thus, this research is not only academically relevant in addressing literature gaps but also practically significant in helping private hospitals, particularly Siloam Hospitals Makassar, improve patient satisfaction and maintain competitiveness. The central research question is to what extent multi-channel service quality influences patient satisfaction, and how such satisfaction can shape patients' trust, commitment, and behavioral intention in the long run.

2. Literature Review

2.1. Multi-channel service quality

In general, multi-channel service quality is defined as a service consisting of both physical and virtual components delivered through two or more channels, with service offerings organized in such a way that all services can reach consumers. (Patten, 2017). (Cassab & Maclachlan, 2009) Define multi-channel service as the use of alternative contact modes by customers to interact with and receive services from an organization. For example, customer interactions with airlines may occur face-to-face through front-office employees who use technology to assist customers, or remotely through back-office representatives, or even without human representatives at all (via websites and self-service kiosks). (Fitzsimmons, 2013) States that to generate value, many organizations have become providers of multi-channel service quality by increasing the number of service channels available to customers, thereby improving efficiency, cost-effectiveness, and operational consistency.

Furthermore, the quality of multi-channel integration refers to the ability of online and offline channels to communicate with one another and collaborate in various marketing initiatives (Alzaydi, 2023). Multi-channel service quality is defined as channels through which customers can enjoy the same high-quality and coordinated services across all touchpoints, both offline and online (Yong-zhi, 2014).

(Montoya-Weiss et al., 2003; Payne & Frow, 2005) explain that multi-channel service quality acts as a contact medium that enables service providers to build stronger relationships with customers, offering greater satisfaction and thereby enhancing retention. In this context of multi-channel interaction, organizations observe changes in customer behavior driven by the combined use of multiple channels offered by a single service provider. (Sousa & Voss, 2006) Underline that multi-channel arrangements introduce a set of complexities that require a broader conceptualization of service quality, recognizing that customer experiences are shaped across all touchpoints with a company through multiple channels.

The concept of multi-channel service quality consists of two aspects: service quality and electronic service quality. Service quality refers to a series of perceived judgments resulting from an evaluation process in which customers compare their expectations with the services they believe they have received. (Grönroos, 1993). (Roest & Pieters, 1997) Provide a similar definition, noting that service quality represents a relativistic and cognitive gap between experience-based norms and performance regarding service benefits. (A. P. Parasuraman et al., 1988) Conducted empirical studies across several industries to develop and refine SERVQUAL, a multi-item instrument designed to measure customers' global (as opposed to transaction-specific) assessments of a company's service quality. Further studies (George & Sahadevan, 2023) Suggest three dimensions of service quality applicable to service marketing contexts: Physical Environment, Personnel Quality, and Technical Quality. The physical environment refers to equipment, layout, and atmosphere. The behavior and competence of service staff reflect personnel quality, while the delivery of services in terms of accuracy and timeliness is described as technical quality. (Chen et al., 2011; Grönroos, 1993).

Regarding electronic service quality (E-SQ), this concept initially emerged as an extension of service quality applied to electronic media. (A. Parasuraman et al., 2005) Broadly define electronic service quality as encompassing all stages of customer interaction through a website, namely, the extent to which the website facilitates efficient and effective shopping, purchasing, and delivery. (Chase & Aquilano, 2005) Describe electronic service quality as the expansion of a website's ability to facilitate shopping, purchasing, and distribution effectively and efficiently. Furthermore, (Scullion & Nicholas, 2001) Describe electronic service quality as web-based or electronic services that offer customers many benefits, such as greater control, ease of use, and reduced transaction costs.

According to (A. Parasuraman et al., 2005)The measurement of E-SQ dimensions can be carried out using four core dimensions: Efficiency, Fulfillment, System Availability, and Privacy, along with three recovery dimensions: Responsiveness, Compensation, and Contact, which are used by customers to evaluate service recovery when they encounter problems or have inquiries. Al-dweeri et al(2019) Further developed a scale to measure electronic service quality through a review of the existing literature. The measurement of electronic service quality was constructed from four of the most recognized models: E-S-QUAL. (A. Parasuraman et al., 2005), WebQual (Loiacono et al., 2007), eTransQual (Bauer et al., 2006), and eTailQ (Wolfinbarger & Gilly, 2003). (Al-dweeri et al., 2019) Conducted a detailed review of these models' dimensions and consolidated them into five dimensions: Efficiency, Privacy, Reliability, Emotional Benefit, and Customer Service. These dimensions were selected for two main reasons. First, they represent the most widely studied and influential factors in the electronic service quality literature. (Loiacono et al., 2007; A. Parasuraman et al., 2005). Second, they encompass a wide range of factors related to electronic service quality. (Loiacono et al., 2007; Wolfinbarger & Gilly, 2003; Zeithaml et al., 2002).

2.2. Satisfaction

In the theoretical study of patient satisfaction, many scholars have put forward diverse perspectives on the concept of patient satisfaction based on different experiences and conceptual frameworks. (Pascoe, 1983) Argued that patient satisfaction is a reflection of their medical experience in relation to their subjective feelings, where the experiential values shape the level of service that patients believe should be achieved by medical care. (Jung et al., 1998), through a study on patients' priorities in basic medical services, found that patients place the highest importance on medical skills, communication between doctors and patients, patient rights, and similar aspects. (Johansson et al., 2002) Viewed patient satisfaction as the subjective evaluation and cognitive as well as situational responses of patients after comparing their expectations with their actual perceptions of medical services. (Copeland et al., 2004) Suggested that patient satisfaction is the perception and evaluation carried out by patients by comparing their initial impressions with actual conditions, particularly in relation to communication between medical staff and patients.

In the theory of patient satisfaction evaluation, several scholars have identified a wide range of factors related to patient satisfaction and its associations. (Linder-Pelz, 1982) Showed through research showed that a person's desire for health affects patient satisfaction. (Antil, 1984) Found that patient satisfaction is associated with involvement in a service, and enhancing patient interaction is an effective way to improve patient satisfaction. (Roter & Hall, 1989) Further demonstrated that patient satisfaction is linked to the amount of information patients receive from doctors (with general information being more important than technical information). (Dozier et al., 2001) Argued that patients need to compare their experiences with their expectations to form satisfaction judgments. (Urden, 2002) Stated that patient satisfaction can objectively reflect the quality of medical services and represents the best standard for measuring quality management in modern hospitals.

2.3. Trust

Trust is the foundation of business. (Yousafzai et al., 2003). Trust plays an important role in service marketing. The dynamic and rapidly changing business environment forces companies to find more creative and flexible ways to adapt. To survive in such a situation, companies will seek creative approaches by forming collaborative relationships with customers. (Lau & Lee, 1999). The concept of trust is one of the most crucial elements leading to the creation of long-term relationships with customers, especially in maintaining the confidentiality of client-related information and committing to always providing the best services/products. Trust generally develops between organizations and their customers through efficiency or competence in delivering services and attention to the interests of each client. (Singh & Sirdeshmukh, 2000).

Trust involves one person's expectation that another person will behave in a certain way. (Deutsch, 1958; P. H. Schurr & Ozanne, 1985). (Moorman et al., 1992) Defined trust as the willingness to rely on an exchange partner in whom one has confidence. (P. Schurr & Ozanne, 1985) Characterized trust as a person's assurance regarding the capacity of the exchange partner and the willingness to establish business compliance with relational standards and uphold commitments. (Ba & Pavlou, 2002) Also argued that trust is a person's belief that an exchange will take place in a predictable manner aligned with one's expectations. Therefore, trust is a feeling of confidence, referring to the belief that one can rely on the promises made by others and that others, under unexpected circumstances, will act humanely and in a considerate manner.

Deng et al., (2025) examines the causal impact of social trust on fertility intentions in China using nationally representative survey data. The key findings are:

- Higher levels of social trust significantly increase the ideal number of children, particularly with respect to daughter preference and in high-trust environments. 1
- The effect of trust is stronger among middle and low-income groups, women, urban residents, and individuals of childbearing age. 23
- Social trust influences fertility intentions by improving subjective well-being and perceptions of social fairness. 45

The article develops a dynamic theoretical model to explain the reinforcing feedback between trust and fertility, and employs an instrumental variable approach to establish the causal relationship. The findings highlight the importance of social capital in shaping reproductive behavior and suggest that trust-building policies may complement conventional fertility support programs.

2.4. Commitment

Commitment is one of the oldest and most frequently studied variables in relational marketing. (LaRiviere et al., 2014). The concept of commitment originates from industrial and organizational psychology. (Moorman et al., 1992) and implies the intention to continue an action, such as maintaining a relationship with a service provider (Mubarik et al., 2016). Furthermore, (Morgan & Hunt, 1994) Explained that commitment implies that customers maintain relationships by cooperating with product or service providers, avoiding short-term gains for the sake of long-term mutual benefits, and taking calculated risks with the belief that suppliers will not exploit opportunities for personal interest through opportunism. (LaRiviere et al., 2014) Argued that commitment is a situation in which companies properly fulfill the terms and conditions agreed upon in their partnerships.

(Moorman et al., 1992) Defined commitment as an enduring desire to maintain a valued relationship. The enduring aspect indicates that customers and service providers desire a continuous relationship and are willing to take actions to fulfill agreed-upon terms and conditions to sustain the relationship. (Mubarik et al., 2016). In other words, commitment is long-term in nature and does not frequently change. (Dwyer et al., 1987) Described commitment as implicit and explicit promises regarding relational continuity between exchange partners. (Gundlach & Murphy, 1993) Characterized the attributes of commitment as short-term sacrifice, stability, and loyalty. Moreover, (Anderson & Weitz, 1992) Emphasized that the core of commitment in relationships is stability and sacrifice. (James G. Barnes, 2003) Stated that commitment is a psychological state that broadly represents the experience of dependence on a relationship; it summarizes previous dependency experiences and guides reactions to new situations. Commitment reflects a long-term orientation in a relationship, including the desire to sustain that relationship.

2.5. Behavior intention

(Ajzen & Fishbein, 1980) Explained intention as the cognitive representation of an individual's readiness to perform a particular behavior. Intention is the determinant and disposition of behavior, meaning that individuals, when given the right opportunity and time, are likely to display the actual behavior. Specifically, in the Theory of Planned Behavior, intention to perform a behavior is described as an indication of an individual's tendency to engage in that behavior and serves as the direct antecedent of the behavior itself. In general, when individuals have the intention to perform a behavior, they are more likely to carry out that behavior; conversely, if individuals lack such intention, they are unlikely to perform it.

Behavioral intention refers to consumer behavior that demonstrates loyalty to a company, such that consumers are willing to recommend it to others because they have received good service from the company. (Namkung & Jang, 2007; Susanto & Rachbini, 2024). This aligns with (Kotler & Keller, 2016) View that behavioral intention reflects a customer's condition of being loyal to a brand, product, or company, and their willingness to share its advantages with others. (Saha & Theingi, 2009) Defined behavioral intention as the likelihood that a consumer will engage in specific behaviors, such as spreading positive word-of-mouth about a service provider, repurchasing intentions, and loyalty toward the service provider. If a product has good quality, the company will be able to survive and win the competition. One of the beneficial forms of behavioral intention is a positive attitude toward the product or service provider. This positive attitude can manifest as favorable word-of-mouth. Positive behavioral intention also brings many benefits to companies, one of which is consumers becoming loyal to the products or services they use.

Cheng et al., (2025) Examined how teachers' Technological Pedagogical Content Knowledge (TPACK) influenced intentions toward online teaching. The study found that TPACK significantly enhanced teachers' online teaching self-efficacy and behavioral intentions, with partial mediation effects from online teaching self-efficacy and attitudes. Sequential mediation analysis further clarified the roles of online teaching self-efficacy and attitudes in strengthening the relationship between TPACK and behavioral intentions. The results underscore the critical role of TPACK in fostering self-efficacy, cultivating positive attitudes, and shaping behavioral intentions for online teaching. The findings highlight the necessity of specialized TPACK training and technological support to enhance teachers' online instructional capabilities.

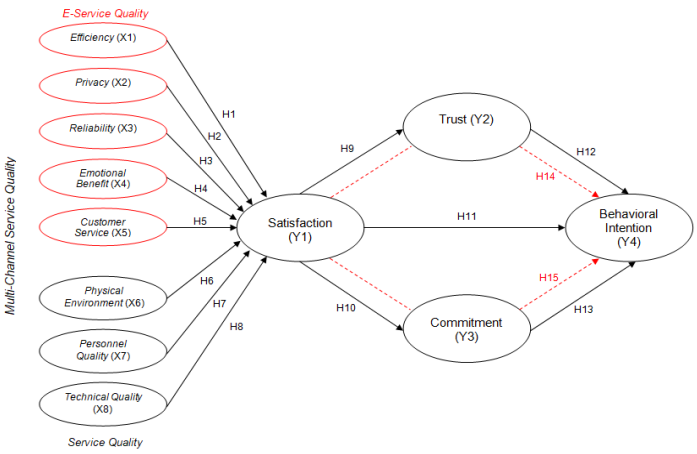

Fig. 1: Conceptual Framework Model.

2.6. Hypothesis

2.6.1. Multi-channel service quality on satisfaction

Multi-channel service quality is related to the conceptualization of service quality delivered both physically and virtually. A study conducted by (Al-dweeri et al., 2019) Revealed that electronic service quality has several dimensions that determine whether the service is positively received by consumers and can enhance perceived satisfaction. These dimensions include efficiency, privacy, reliability, emotional benefit, and customer service. In addition, within the concept of multi-channel service quality, physical service quality is also considered an important aspect in maximizing multi-channel service quality to influence satisfaction. (Patten, 2017) (Patten, 2017). The dimensions shaping physical service quality include physical environment, personnel quality, and technical quality (George & Sahadevan, 2023).

The first dimension is efficiency, which refers to the ease and speed of accessing and using electronic services provided by service providers. (Al-dweeri et al., 2019). (A. Parasuraman et al., 2005) Stated that efficiency is a determining factor in the decision to purchase and ultimately achieve satisfaction. (Cristobal et al., 2007) Explained that efficiency in using services helps consumers find the information they need, which leads to online satisfaction. (Swaid & Wigand, 2009) Also emphasized that efficiency in online services, particularly in providing information, can positively affect satisfaction. Previous studies by (Alzaydi, 2023; Ashiq & Hussain, 2023; Nigatu et al., 2023) Revealed that efficiency, which allows users to easily find what they are looking for, along with good design and ease of use of electronic services, can positively enhance consumer satisfaction. Next, electronic service quality also heavily depends on consumer privacy. Privacy in electronic service quality is developed as a guarantee that service providers ensure consumer security, both in terms of data and rights that could potentially harm consumers. Research conducted by (Nigatu et al., 2023) Revealed that good service quality is service that can provide security and privacy protection to consumers. Since online services pose greater privacy risks, providers that are able to ensure good privacy will enhance consumer satisfaction. However, findings by (Ashiq & Hussain, 2023; Hien & Nhu, 2022) Indicated that in online services, privacy does not significantly influence online satisfaction, as privacy is fundamentally expected to be present in every online service.

The next dimension is reliability. Previous findings by (Nigatu et al., 2023) Indicated that reliability has a significant impact on creating online satisfaction among consumers. (Gül et al., 2023) Also emphasized that accuracy in service delivery affects perceived satisfaction, which in turn fosters loyalty. (Ashiq & Hussain, 2023) as well as (Ratnawati et al., 2020) Highlighted that reliability in maintaining optimal service quality results in high levels of consumer satisfaction. In electronic service quality, creating positive emotions in the use of electronic services is important. Emotional benefit may refer to visual appeal, innovation, emotional attraction, and image. (Loiacono et al., 2007), or simply whether something is engaging (Cao et al., 2005). (Raihan et al., 2005) Stated that emotional benefits influence electronic service quality and online satisfaction. (Ashiq & Hussain, 2023) Found that emotional comfort perceived by consumers when using electronic services has a significant effect on satisfaction with online services. (Thanh Thao et al., 2023) Also noted that emotional aspects derived from design and problem-solving ability have a significant impact on consumer satisfaction. To maintain the use of online services, adequate customer service is required. (Gould et al., 2015; Gounaris & Dimitriadis, 2003) Emphasized that customer service is a key factor in measuring electronic service quality and significantly determines consumer satisfaction, particularly in terms of how easily customers can communicate with service staff and how quickly they receive responses. (Gül et al., 2023) Reported that communication and attitudes displayed by service providers strongly affect consumer satisfaction when providers can address customer complaints effectively.

The physical environment can also drive consumer satisfaction. A good physical environment allows consumers to feel comfortable while receiving services, leading to satisfaction. (Mowen & Minor, 2012). (Gül et al., 2023) Revealed that an adequate physical environment generates positive perceptions, ultimately creating satisfaction and loyalty. (George & Sahadevan, 2023) Similarly noted that the physical environment is an important factor for consumers, particularly in healthcare services, where comfort strongly affects satisfaction. The next dimension is personnel quality, which directly influences customer satisfaction as it represents the physical condition, attitude, behavior, experience, and skills of employees in delivering services. (Suhail & Srinivasulu, 2021). (George & Sahadevan, 2023) Found that personnel quality in providing good services leads to consumer satisfaction. Service personnel are the first determinants of perceived service quality, where professional and competent service personnel create a positive impression and satisfaction. (Agyeiwaah et al., 2021) Argued that satisfaction derived from service quality is largely determined by interpersonal interactions, and the better these interactions are, the higher consumer satisfaction will be. Finally, regarding technical quality in service delivery, (Tjiptono, 2012) Explained that technical quality relates to the accuracy of service output in line with consumer perceptions, and achieving this can generate satisfaction. (George & Sahadevan, 2023) Also revealed that technical quality influences positive consumer satisfaction. Similarly, (Gül et al., 2023) Argued that the technical quality delivered by service providers can generate satisfaction among service users. (Suhail & Srinivasulu, 2021) Suggested that overall, the dimensions of service quality play a crucial role in driving consumer satisfaction. Based on the overall discussion, the following research hypotheses can be formulated:

Hypothesis 1: Efficiency has a positive and significant effect on satisfaction.
Hypothesis 2: Privacy has a positive and significant effect on satisfaction.
Hypothesis 3: Reliability has a positive and significant effect on satisfaction.
Hypothesis 4: Emotional benefit has a positive and significant effect on satisfaction.
Hypothesis 5: Customer service has a positive and significant effect on satisfaction.
Hypothesis 6: Physical Environment has a positive and significant effect on satisfaction.
Hypothesis 7: Personnel Quality has a positive and significant effect on satisfaction.
Hypothesis 8: Technical Quality has a positive and significant effect on satisfaction.

2.6.2. The influence of satisfaction

Consumers will feel satisfied with the services they receive during their interactions with service providers, and when these services provide accurate and reliable information, such services can build and maintain consumer trust. (Uula & Mohd Kassim, 2025). (George & Sahadevan, 2023) Stated that satisfaction is an antecedent of trust, where individuals will develop higher levels of trust when they feel satisfied with the services received. (Durmuş & Akbolat, 2020) Also revealed that patient satisfaction can provide long-term resilience, where patients are willing to reuse the health services they previously received. This willingness is based on the high level of trust that patients develop, and their study further demonstrated that patient satisfaction significantly influences trust. (Haron et al., 2020) Found that customers' trust depends on how satisfied they are with the banking services provided. Similarly, (Liu et al., 2021; Tijjang et al., 2023) Revealed that consumer satisfaction has a significant impact on building consumer trust.

Satisfaction can also influence the development of commitment. (George & Sahadevan, 2023) explained that patient satisfaction with hospital services can trigger the formation of commitment; the greater the satisfaction, the stronger the desire of patients to commit to the hospital. (Durmuş & Akbolat, 2020) Also found that patient satisfaction acts as a positive driver of long-term commitment to health services. (Shimeall & Spring, 2014), In their study of the hospitality sector, they found that commitment is driven by consumers' satisfaction with the services they received at hotels.

Finally, satisfaction can shape consumers' behavioral intention, where satisfaction makes them more loyal to services. (Suhail & Srinivasulu, 2021) Found that consumer satisfaction has a significant effect on behavioral intention. Consistent with this, (Abdou et al., 2022) Stated that satisfaction is an important predictor of behavioral intention, as satisfied consumers are more likely to engage in positive behaviors toward service providers. (Rather et al., 2019) Also revealed that consumer satisfaction significantly influences behavioral intention. Based on this discussion, the following hypotheses are formulated:

Hypothesis 9: Satisfaction has a positive and significant effect on trust.

Hypothesis 10: Satisfaction has a positive and significant effect on commitment.

Hypothesis 11: Satisfaction has a positive and significant effect on behavioral intention.

2.6.3. The influence of trust and commitment on behavioral intention

From the perspective of user perception and rationality, Gefen et al. (2003) noted that the greater the user's trust in the service provider, the greater the value they perceive. When users trust a service provider, mechanisms that strengthen perceived value can create deeper dependence and transform this reliance and trust into positive purchasing and usage behaviors, ultimately influencing behavioral intention (Ryu et al., 2008). (George & Sahadevan, 2023) Found that patient trust in healthcare providers leads to positive behavioral intention. (Krishna et al., 2024) Indicated that users' trust in reliable mobile medical platforms encourages behavioral intention to continue using such platforms.

In addition to trust, commitment also plays an important role in enhancing behavioral intention. (Rather et al., 2019) Noted that commitment is a crucial foundation for behavioral intention in marketing, where individuals with strong commitment are more likely to show positive intentions, such as delivering positive impressions and demonstrating high loyalty. (Ahn & Kwon, 2020) Also revealed that commitment has a positive and significant effect on behavioral intention. Based on this explanation, the following hypotheses are formulated:

Hypothesis 12: Trust has a positive and significant effect on behavioral intention.

Hypothesis 13: Commitment has a positive and significant effect on behavioral intention.

2.6.4. The mediating role

Trust can influence social values between service providers and consumers within the service context, ultimately shaping and strengthening the attachment between providers and their clients. Osman and Sentosa (2013) highlighted that trust serves as a strong mediator between satisfaction and behavioral intention, particularly repurchase behavior. Behavioral intention becomes more positive when satisfied consumers develop trust in a company (Kassim & Abdullah, 2010). (George & Sahadevan, 2023) Revealed that trust acts as a mediator linking satisfaction to behavioral intention, showing that satisfied consumers, when supported by trust, are more likely to form positive behavioral intentions. Similarly, (Haron et al., 2020) Found that trust enables satisfied consumers to develop more loyal behaviors toward products or services.

For long-term relationships, commitment is a crucial component. (Morgan & Hunt, 1994). Commitment is viewed as a psychological attachment that fosters positive behavioral intentions. Consumer satisfaction provides signals that they are willing to maintain long-term relationships to continue enjoying that satisfaction. (Morgan & Hunt, 1994). (George & Sahadevan, 2023) Further revealed that positive satisfaction encourages patients to commit more strongly to healthcare providers, supporting positive behavioral intention toward healthcare services. (Tijjang et al., 2023) Also found that commitment serves as a positive mediator in linking satisfaction and behavioral intention. Based on this explanation, the following hypotheses are formulated:

Hypothesis 14: Trust mediates the effect of satisfaction on behavioral intention.

Hypothesis 15: Commitment mediates the effect of satisfaction on behavioral intention.

3. Research Method

This research will be conducted within the scope of Siloam Hospital Makassar by taking patients as the object of study. The study applies a quantitative approach with a positivist paradigm and uses an explanatory research design, with data collection carried out through a cross-sectional method. The population of this study consists of all outpatients at Siloam Hospital Makassar, excluding patients who are participants of government health insurance programs. The research sample was determined using Cochran's formula, resulting in a total of 384 outpatient respondents at Siloam Hospital Makassar. Data collection was conducted by distributing questionnaires to respondents who met the specified criteria. In the analysis process, each variable was measured using a Likert scale, and the collected data were analyzed using descriptive analysis and partial least squares (PLS) analysis.

This study examines several variables, each measured by adopting established measurement scales. For multi-channel service quality, particularly the electronic service quality dimensions efficiency, privacy, reliability, emotional benefit, and customer service, items were adopted from (Al-dweeri et al., 2019). For service quality dimensions, physical environment, personnel quality, and technical quality, items were adopted from (George & Sahadevan, 2023). Furthermore, the measurement of satisfaction was adopted from (George & Sahadevan, 2023), while the measurement of trust was adopted from (Mayer & Salovey, 1995). Finally, the variables of commitment and behavioral intention were measured using items adopted from (George & Sahadevan, 2023).

4. Results and Discussion

From the total number of questionnaires distributed to police personnel, 137 valid questionnaires were obtained and could be used. Descriptive analysis was applied to examine and identify the characteristics of the research respondents. This descriptive analysis covered several aspects of characteristics, including gender, last educational background, age, and length of service. Table 1 presents the descriptive results.

Table 1: General Characteristics of Research Respondents

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	164	42,7
	Female	220	57,3
Age	≤ 20 years	21	5,5
	21-30 years	112	29,2
	31-40 years	120	31,3
	41-50 years	78	20,3
	≥ 51 years	53	13,8
Status	Unmarried	111	28,9
	Married	246	64,1
	Widowed/Widower	27	7,0
Employment	Civil Servants/Military/Police	60	15,6
	Private Employee	160	41,7
	Self-Employed	96	25,0
	Housewife	29	7,6
	College Student	28	7,3
	Retiree	11	2,9
Education	High School	130	33,9
	Diploma	68	17,7
	Bachelor's Degree	150	39,1
	Master's Degree	29	7,6
	Doctoral Degree	7	1,8
Monthly Income	≤ 5 million	137	35,7
	> 5 million - 10 million	188	49,0
	≥ 10 million	59	15,4
Frequency of Treatment	1 - 2 times	158	41,1
	≥ 3 times	226	58,9
Cost Bearer	Self	108	28,1
	Company/Agency	104	27,1
	Insurance	172	44,8

Based on Table 1, it can be seen that the majority of outpatients at Siloam Hospital Makassar are female, with a total of 220 individuals (57.3%) compared to 164 males (42.7%). The respondents are also dominated by the age groups of 31–40 years (31.3%) and 21–30 years (29.2%). Referring to marital status, the majority of patients are married (64.1%). This reflects that patients who are already married tend to access healthcare services more routinely, not only for themselves but also for their family members. Regarding patients' occupations, the data show that the majority of patients work as private employees (41.7%) and entrepreneurs (25%), with the highest educational levels being Bachelor's degree (39.1%) and Senior High School/Vocational High School (33.9%). In terms of monthly income, most patients at Siloam Hospital Makassar fall within the income range of > IDR 5 million – 10 million (49%). This indicates that the patients belong to the middle-income group with relatively high purchasing power and a preference for quality healthcare services. For the frequency of visits, the majority of patients had visited the hospital ≥ 3 times (58.9%). Finally, regarding the characteristics of healthcare cost coverage, the data show that the majority of patients' medical expenses are covered by insurance (44.8%), followed by self-payment (28.1%). This indicates that most outpatients at Siloam Hospital Makassar are active participants of health insurance, either from private insurance companies or employee benefit providers.

4.1. Statistical result

4.1.1. Convergent validity & composite reliability

This test was conducted to assess the level of validity and reliability of the measurement instruments used in the study variables. Based on the results of the analysis, the values of each test in this research model are presented in Table 2 below.

Table 2: Convergent Validity & Composite Reliability Testing

Item	Outer Loading	T statistics	P values	Composite Reliability
X1.1 <- Efficiency (X1)	0,962	109,362	0,000	0,980
X1.2 <- Efficiency (X1)	0,973	200,740	0,000	
X1.3 <- Efficiency (X1)	0,939	44,142	0,000	
X1.4 <- Efficiency (X1)	0,969	170,759	0,000	
X2.1 <- Privacy (X2)	0,921	56,146	0,000	0,979
X2.2 <- Privacy (X2)	0,953	74,205	0,000	
X2.3 <- Privacy (X2)	0,958	97,538	0,000	
X2.4 <- Privacy (X2)	0,964	91,429	0,000	
X2.5 <- Privacy (X2)	0,960	99,517	0,000	
X3.1 <- Reliability (X3)	0,962	88,537	0,000	0,983
X3.2 <- Reliability (X3)	0,960	102,996	0,000	
X3.3 <- Reliability (X3)	0,954	96,868	0,000	
X3.4 <- Reliability (X3)	0,959	110,961	0,000	
X3.5 <- Reliability (X3)	0,958	111,236	0,000	
X4.1 <- Emotional Benefit (X4)	0,974	152,544	0,000	0,987
X4.2 <- Emotional Benefit (X4)	0,978	199,135	0,000	
X4.3 <- Emotional Benefit (X4)	0,975	100,900	0,000	
X4.4 <- Emotional Benefit (X4)	0,974	173,582	0,000	
X5.1 <- Customer Service (X5)	0,954	104,180	0,000	0,977
X5.2 <- Customer Service (X5)	0,931	37,239	0,000	
X5.3 <- Customer Service (X5)	0,970	156,278	0,000	
X5.4 <- Customer Service (X5)	0,968	173,806	0,000	
X6.1 <- Physical Environment (X6)	0,942	86,279	0,000	0,964

Item	Outer Loading	T statistics	P values	Composite Reliability
X6.2 <- Physical Environment (X6)	0,926	53,008	0,000	
X6.3 <- Physical Environment (X6)	0,917	47,170	0,000	
X6.4 <- Physical Environment (X6)	0,943	91,388	0,000	
X7.1 <- Personnel Quality (X7)	0,967	114,668	0,000	
X7.2 <- Personnel Quality (X7)	0,968	138,252	0,000	
X7.3 <- Personnel Quality (X7)	0,968	133,150	0,000	0,985
X7.4 <- Personnel Quality (X7)	0,949	71,291	0,000	
X7.5 <- Personnel Quality (X7)	0,971	181,618	0,000	
X8.1 <- Technical Quality (X8)	0,960	101,574	0,000	
X8.2 <- Technical Quality (X8)	0,974	180,278	0,000	0,978
X8.3 <- Technical Quality (X8)	0,931	48,496	0,000	
X8.4 <- Technical Quality (X8)	0,968	124,685	0,000	
Y1.1 <- Satisfaction (Y1)	0,981	192,820	0,000	
Y1.2 <- Satisfaction (Y1)	0,986	308,321	0,000	0,992
Y1.3 <- Satisfaction (Y1)	0,986	305,209	0,000	
Y1.4 <- Satisfaction (Y1)	0,985	286,021	0,000	
Y2.1 <- Trust (Y2)	0,966	101,337	0,000	
Y2.2 <- Trust (Y2)	0,984	280,097	0,000	0,984
Y2.3 <- Trust (Y2)	0,980	224,568	0,000	
Y3.1 <- Commitment (Y3)	0,985	239,555	0,000	
Y3.2 <- Commitment (Y3)	0,988	354,105	0,000	0,990
Y3.3 <- Commitment (Y3)	0,984	193,426	0,000	
Y4.1 <- Behavioral Intention (Y4)	0,969	145,810	0,000	
Y4.2 <- Behavioral Intention (Y4)	0,985	270,960	0,000	
Y4.3 <- Behavioral Intention (Y4)	0,983	220,917	0,000	0,991
Y4.4 <- Behavioral Intention (Y4)	0,983	233,384	0,000	
Y4.5 <- Behavioral Intention (Y4)	0,966	82,407	0,000	

Based on the test results presented in Table 2, the findings of the convergent validity and composite reliability tests show that each indicator of the variables has values above the predetermined thresholds, both in terms of validity and reliability. Therefore, it can be stated that the indicators of the variables meet the requirements of these tests. The next step is to test the structural model. The structural model test is used to determine whether the relationships between latent variables, namely exogenous and endogenous constructs, are able to provide answers regarding the hypothesized relationships among the latent variables. The structural model testing was conducted by examining the coefficient of determination using the R-square values as well as predictive relevance (Q-square) in the research model.

Table 3: R-Square

Variable	R-square
Satisfaction (Y1)	0,946
Trust (Y2)	0,929
Commitment (Y3)	0,896
Behavioral Intention (Y4)	0,938

Based on the R-square test results in Table 3, to examine the model's feasibility, the total coefficient of determination is assessed using the Q-square test. A Q-square value greater than zero (0) indicates that the model has predictive relevance, whereas a Q-square value less than zero (0) indicates that the model lacks predictive relevance. To determine the Q-square value, the following formula is used:

$Q^2 = 1 - (1-R_1^2) * (1-R_2^2) * (1-R_n^2)$

$Q^2 = 1 - \{(1 - 0{,}946^2) * (1 - 0{,}929^2) * (1 - 0{,}896^2) * (1 - 0{,}938^2)\} \rightarrow Q^2 = 0{,}99$

Based on the Q-square (Q^2) calculation, the obtained Q-square value is 0.99. This figure can be interpreted to mean that the research model is able to explain the contribution of the influence of efficiency, privacy, reliability, emotional benefit, customer service, physical environment, personnel quality, and technical quality on satisfaction, as well as the influence of satisfaction on trust, commitment, and behavioral intention by 99%. Thus, the constructed model has predictive relevance or a very high level of predictive accuracy.

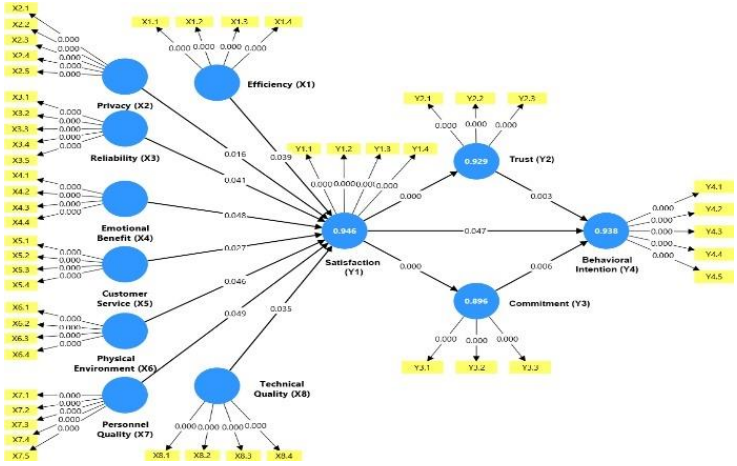

Fig. 2: Inner Model Testing.

Table 4: Results of Direct Effect Test

Hypothesis				Path Coefficient	P Values
H1	Efficiency	→	Satisfaction	0,117	0,039
H2	Privacy	→	Satisfaction	0,189	0,016
H3	Reliability	→	Satisfaction	0,172	0,041
H4	Emotional Benefit	→	Satisfaction	0,226	0,048
H5	Customer Service	→	Satisfaction	0,214	0,027
H6	Physical Environment	→	Satisfaction	0,147	0,046
H7	Personnel Quality	→	Satisfaction	0,156	0,049
H8	Technical Quality	→	Satisfaction	0,159	0,035
H9	Kepuasan	→	Trust	0,964	0,000
H10	Kepuasan	→	Commitment	0,947	0,000
H11	Kepuasan	→	Behavioral Intention	0,209	0,047
H12	Kepercayaan	→	Behavioral Intention	0,413	0,003
H13	Komitmen	→	Behavioral Intention	0,357	0,006

From the hypothesis testing results presented in Table 4, it can be explained that the dimensions of multi-channel service quality overall have a positive and significant effect. The test results show that efficiency has a path coefficient of 0.117 with a significance p-value of 0.039 in its effect on satisfaction. Furthermore, privacy has a path coefficient of 0.189 with a significance p-value of 0.016. The positive direction of the path coefficient indicates that the relationship between privacy and satisfaction is aligned. Moreover, reliability was also found to have a path coefficient of 0.172 with a significance p-value of 0.041 in its effect on satisfaction. For emotional benefit, the path coefficient was 0.226 with a p-value of 0.048. Meanwhile, customer service was found to have a path coefficient of 0.214 and a p-value of 0.027 (< 0.05). Based on these results, all aspects of electronic service quality were found to have a significant influence on changes in perceived satisfaction. Furthermore, the dimension of physical environment was also found to have a positive and significant effect on satisfaction, with a coefficient value of 0.147 and a p-value of 0.046. Personnel quality was found to have a coefficient value of 0.156 and a p-value of 0.049 (< 0.05), while technical quality was also found to have a positive and significant effect on satisfaction with a coefficient value of 0.159 and a p-value of 0.035 (< 0.05). Based on these findings, it can be stated that H1 through H8 are accepted.

Next, regarding the role of satisfaction on trust, commitment, and behavioral intention, the results show that satisfaction has a positive and significant effect on trust with a coefficient value of 0.964 and a significance of 0.000. Similarly, satisfaction was also found to positively and significantly affect commitment, with a coefficient value of 0.947 and a significance of 0.000. Regarding behavioral intention, satisfaction had a path coefficient of 0.209 with a significance of 0.047, indicating that satisfaction positively and significantly affects behavioral intention. Thus, it can be concluded that H9, H10, and H11 are accepted. Likewise, the effects of trust and commitment on behavioral intention were both found to be positive and significant, with coefficients of 0.413 (p-value 0.003) for trust and 0.357 (p-value 0.006) for commitment. Therefore, H12 and H13 are accepted.

Furthermore, this study also tested the mediating effects of trust and commitment, where each mediates the influence of satisfaction on behavioral intention. The results of these tests are presented in Table 5 below.

Table 5: Results of Indirect Effect Testing

Indirect Effect						Path Coefficient	P Values
H14	Satisfaction	→	Trust	→	Behavior Intention	0,398	0.003
H15	Satisfaction	→	Commitment	→	Behavior Intention	0,338	0.006

The results of the mediation hypothesis testing presented in Table 5 show that H14 has a path coefficient value of 0.398 with a p-value of 0.003. Thus, it can be concluded that trust mediates the effect of satisfaction on behavioral intention. Therefore, H14 is accepted. This finding implies that the greater the satisfaction felt by patients, accompanied by a high level of trust in the healthcare services provided, the stronger their positive behavioral intention will be, both in terms of recommending the service to others and in continuing to use the same healthcare service in the future. Furthermore, the mediating effect of commitment in H15 shows a path coefficient value of 0.338 with a p-value of 0.006. Thus, it can be concluded that commitment mediates the effect of satisfaction on behavioral intention, which means that higher levels of satisfaction accompanied by stronger commitment to healthcare services can create more positive behavioral intentions. Therefore, H15 is also accepted.

4.2. Discussion

In general, the concept of multi-channel service quality—which encompasses both electronic service quality (efficiency, privacy, reliability, emotional benefit, and customer service) and physical service quality (physical environment, personnel quality, and technical quality)—has a significant overall impact on enhancing patient satisfaction. This finding confirms that within hospital operations, multi-channel service quality is a strategic framework that must be implemented comprehensively to optimize satisfaction outcomes. Furthermore, the results reveal that patient satisfaction serves as a pivotal antecedent that influences trust, commitment, and ultimately behavioral intention, both directly and indirectly through these mediators. This highlights the centrality of satisfaction as the core mechanism linking service quality to long-term patient behavioral outcomes.

The findings of this study align with the Expectation Confirmation Theory (ECT), which posits that satisfaction arises when perceived performance meets or exceeds expectations, thereby fostering trust in the service provider. In parallel, the results extend Relationship Marketing Theory (RMT) by demonstrating that enduring hospital–patient relationships are built not merely through satisfaction but through the conversion of satisfaction into relational trust and sustained commitment. Both trust and commitment act as psychological bridges between satisfaction and behavioral intention; however, their mediating roles operate through distinct pathways and temporal dynamics, which this study helps to clarify.

Trust functions primarily as a cognitive mediator, representing patients' belief in the hospital's reliability, integrity, and competence. When digital and physical services operate consistently—through secure systems, transparent communication, and dependable care—patients develop confidence that their needs will be reliably met. This cognitive assurance reduces perceived risk and enhances willingness to reuse services or recommend the hospital to others. In this sense, trust translates satisfaction into short-term behavioral intentions, such as repeat visits and positive word-of-mouth, by minimizing uncertainty and reinforcing the perception of service credibility.

By contrast, commitment acts as an affective and long-term mediator, reflecting a deeper emotional attachment and desire to maintain a lasting relationship with the hospital. Once trust has been established, commitment evolves through continued positive experiences,

personalized interactions, and emotional engagement. This mediator sustains loyalty over time, even in the face of service alternatives or minor service failures. Commitment, therefore, transforms satisfaction into long-term loyalty behaviors, such as continued patronage, advocacy, and resistance to switching providers. This distinction emphasizes that while trust facilitates transactional continuity, commitment sustains relational continuity.

From a managerial perspective, these insights underscore that both mediators—though interrelated—require different strategic emphases. Trust is strengthened through efficiency, reliability, and data security, which assure patients of operational excellence and safety in using digital platforms like MySiloam. Hence, system upgrades, cybersecurity audits, and interface optimization are crucial investments. Commitment, on the other hand, is nurtured through emotional benefit, personnel quality, and empathetic communication, requiring continuous training in service empathy and patient experience management. Hospitals should therefore move beyond functional excellence toward affective engagement, where relational communication and emotional connection reinforce patients' sense of belonging and identity with the institution.

Finally, the findings demonstrate that reliability, technical quality, and physical environment remain essential for maintaining satisfaction, showing that technology alone cannot guarantee service success. A seamless integration between physical and digital service channels must be prioritized to ensure a coherent and non-fragmented patient journey. In strengthening trust, hospitals should implement transparent service processes, secure information systems, and consistent performance delivery. In enhancing commitment, relational programs such as patient loyalty initiatives, health education communities, and personalized follow-up services can sustain emotional bonds and long-term loyalty. Ultimately, positioning trust and commitment as strategic relational assets will transform patient satisfaction from a momentary response into enduring hospital–patient partnerships that support both clinical excellence and economic sustainability.

5. Conclusion

Overall, this study reveals that each aspect of multi-channel service quality plays an important role in enhancing patient satisfaction in accessing healthcare services, both online and offline. The study also highlights that one critical aspect to consider within the scope of multi-channel service quality is the emotional benefit perceived by users when accessing online services through an application. In terms of its impact, satisfaction derived from good service quality can generate more positive downstream effects, particularly by increasing patients' trust, commitment, and behavioral intention. Therefore, creating patient satisfaction is a crucial step for healthcare providers to establish consumer loyalty, both in terms of trust and in strengthening long-term commitment.

This study is not without limitations, which can serve as references for future research and development. First, the study was conducted in a single hospital, which limits generalizability. Therefore, future research can be carried out in multiple hospitals across different regions, or in government-owned hospitals, to achieve greater generalization and cross-context comparison. Second, the respondents were limited to patients who use the MySiloam application and hospital services, meaning the results may not reflect the experiences of patients who only use conventional channels. Hence, future research should expand the scope of respondents to capture broader experiences. Third, the data were collected using a cross-sectional design, which does not capture the dynamics of relationships among variables over time. Future research could apply a longitudinal design to better capture changes in patient perceptions and behaviors, especially related to behavioral intention and commitment. Finally, the study can be further developed by adding additional aspects, such as risk perception related to privacy, or by incorporating moderating variables such as age or education level to examine how these variables strengthen or weaken the relationships among the main variables.

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