

Analysis of service waiting time and its impact on patient satisfaction at siloam hospitals Makassar

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ABSTRACT

Introduction: Hospital service efficiency plays a crucial role in shaping patient satisfaction, which is widely regarded as a key indicator of healthcare quality. Waiting time is one of the most frequently cited factors influencing patients' perceptions of service performance. However, satisfaction is also affected by interpersonal aspects, such as professionalism and friendliness of healthcare staff. This study examines the relationship between service waiting time and patient satisfaction at Siloam Hospitals Makassar, focusing on registration, doctor, pharmacy, and cashier services.

Methods: A quantitative research design was used, employing secondary data obtained from the MySiloam application. The study included 360 outpatients selected through purposive sampling. Independent variables consisted of waiting times for registration, doctor consultation, pharmacy services, and cashier processing, while patient satisfaction served as the dependent variable. Data were analyzed using the Chi-Squared Test to determine the relationship between waiting time categories and satisfaction levels.

Results: The analysis showed no significant difference in registration waiting time between self-check-in users and those assisted by staff ($p = 0.720$). However, registration waiting time demonstrated a significant relationship with patient satisfaction ($p = 0.009$). In contrast, no significant associations were found between patient satisfaction and waiting times for doctor consultation ($p = 0.202$), pharmacy ($p = 0.558$), or cashier services ($p = 0.831$). Findings indicate that patients remain satisfied despite longer waits when services are delivered professionally and accurately.

Conclusion: The study concludes that reducing registration waiting time may improve overall satisfaction, yet the interpersonal quality of healthcare services remains the most influential factor shaping patient perceptions and loyalty. These findings highlight the importance of enhancing both service efficiency and interpersonal service quality to strengthen patient perceptions and loyalty toward hospital services.

Keywords: Healthcare Services, Patient Satisfaction, Waiting Time.



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INTRODUCTION

In the current era of globalization, information technology has become an essential component in the transformation of healthcare systems worldwide. The integration of technology into hospital management is not merely an innovation but a necessity to achieve efficient, effective, and patient-oriented healthcare delivery (Fitriansyah and Harris, 2018). According to the World Health Organization (WHO), hospitals serve as the backbone of public health by providing comprehensive curative, preventive, and rehabilitative care to the community (WHO, 2008). Consequently, ensuring optimal hospital performance requires maintaining high-quality services that align with both professional standards and patient expectations.

In Indonesia, the rapid growth of hospitals both public and private has significantly improved healthcare accessibility. However, this development has also been accompanied by increasing public demands for fast, affordable, and high-quality medical services. The Ministry of Health of the Republic of Indonesia, through Decree No. 129/Menkes/SK/II/2008, established minimum service standards for hospitals, including the maximum acceptable waiting time for outpatient services (Indonesia, 2008). Waiting times exceeding 60 minutes are categorized as long and may negatively impact patient satisfaction and perceptions of service efficiency. Therefore, managing and reducing waiting time has become a critical factor in improving hospital service quality and patient trust (Sukur, 2023).

Patient satisfaction is a fundamental indicator of healthcare quality and is often used to evaluate hospital performance. Parasuraman, Zeithaml and Berry, (1985) define service quality as the degree of discrepancy between customer expectations and perceptions. When the service received meets or exceeds expectations, patients are likely to report satisfaction; conversely, unmet expectations result in dissatisfaction. In healthcare, satisfaction reflects emotional responses influenced by service delivery, communication, and efficiency. Research shows that waiting time is one of the most influential factors determining patient satisfaction (Hasal and Putra, 2019). Dewi, Eravianti and Putri, (2020) found that 82.7% of patients expressed dissatisfaction due to excessive waiting times, highlighting the need for better queue management and digital innovation.

Siloam Hospitals Makassar, one of the largest private healthcare providers in Eastern Indonesia, exemplifies the operational challenges of managing patient flow efficiently. As part of the national Siloam Hospital network, it faces continuously increasing outpatient numbers, averaging 16,646 visits per month in 2024 (Maulinda, 2025). This surge in demand has contributed to longer waiting times at key service points, including registration, doctor consultation, pharmacy, and cashier. Such inefficiencies can undermine patient trust and satisfaction, even in technologically advanced healthcare institutions.

To address these challenges, Siloam Hospitals introduced My Siloam, a digital platform designed to streamline patient services through online registration, self-check-in kiosks, and real-time information systems. This innovation aims to reduce administrative bottlenecks, enhance data accuracy, and provide patients with faster, more transparent services (Kholifatun *et al.*, 2022). However, despite technological integration, delays still occur due to system overload, high patient volumes, or insufficient staff engagement. Therefore, analyzing the relationship between service waiting time and patient satisfaction is crucial to identify operational weaknesses and areas for improvement.

This study seeks to analyze the impact of waiting time on patient satisfaction at Siloam Hospitals Makassar, focusing on four main service stages: registration, doctor consultation, medication dispensing, and cashier transactions. The findings are expected to provide valuable

insights for hospital management in optimizing workflow, allocating resources effectively, and implementing strategic improvements. Furthermore, understanding how waiting times influence patient satisfaction will help hospitals align their operational standards with national benchmarks and international quality frameworks.

The significance of this research lies in its contribution to the ongoing discourse on healthcare service efficiency in Indonesia. As hospitals compete in an increasingly digital environment, patient satisfaction becomes not only a measure of service quality but also a determinant of institutional sustainability. By examining empirical data from the MySiloam application, this study provides evidence-based recommendations for enhancing hospital performance through time management and patient-centered approaches. Ultimately, improving patient satisfaction through reduced waiting times is not merely an operational goal but a reflection of a hospital's ethical and professional commitment to delivering high-quality care (Soumokil, Syafar and Yusuf, 2021).

RESEARCH METHODOLOGY

Research Design

This study employed a quantitative research design utilizing secondary data analysis derived from the MySiloam application. The focus was to analyze the effect of service waiting times covering registration, doctor consultation, medication dispensing, and cashier services—on patient satisfaction at Siloam Hospitals Makassar. Waiting time variables served as the independent variables, while patient satisfaction was the dependent variable.

Population and Sample

The study population comprised all patients using the MySiloam system at Siloam Hospitals Makassar during August 2024, totaling 3,612 outpatients. A purposive sampling technique was applied to select a sample of 360 respondents who met specific inclusion criteria. The inclusion criteria were: Outpatients who used the MySiloam application (mobile, web, or kiosk) for self-check-in. Patients who received treatment on weekdays (Monday–Friday). Patients whose data were available and complete in the MySiloam dashboard during the sampling period. This technique ensured the selection of respondents most representative of the hospital's outpatient service process and digital registration system.

Data Sources

Primary Data: Collected through a structured patient satisfaction survey distributed to outpatients using the MySiloam application. The questionnaire included indicators such as service speed, clarity of information, staff friendliness, and overall satisfaction with hospital services. **Secondary Data:** Obtained from the MySiloam Dashboard, which provided demographic details and waiting time records for outpatient services (registration, doctor consultation, pharmacy, and cashier).

Data Collection Procedures

Data were gathered using a purposive sampling approach with the following steps: Identifying patients meeting the inclusion criteria from the MySiloam dashboard. Administering patient satisfaction questionnaires through the hospital's information system. Collecting and verifying waiting time data recorded by the MySiloam system for each service point. Categorizing waiting time data into “fast” and “slow” groups based on national service standards (Ministry of Health Regulation No. 129/Menkes/SK/II/2008).

Data Analysis

Data analysis included: Descriptive statistics to summarize patient characteristics, waiting times, and satisfaction levels. Cross-tabulation to compare satisfaction scores across different

waiting time categories. Chi-Squared Tests to determine the statistical significance of relationships between waiting time variables and patient satisfaction. All analyses were performed using the JASP (Jeffrey's Amazing Statistics Program) software package. The threshold for statistical significance was set at $p < 0.05$.

Ethical Considerations

Ethical approval was obtained from the hospital management before data collection. Participation in the survey was voluntary, and respondents' identities were kept confidential. Data were used solely for academic and service improvement purposes.

RESULT

Table 1. univariate analysis of respondents' characteristics (n = 360)

Variable	Category	Frequency (n)	Percentage (%)
Age	0–10 years	47	13.1
	11–20 years	18	5.0
	21–30 years	67	18.6
	31–40 years	119	33.1
	41–50 years	49	13.6
	51–60 years	23	6.4
	61–70 years	22	6.1
	>70 years	15	4.2
Gender	Male	125	34.7
	Female	235	65.3
Patient Registration User	Self Check-In (Mobile/Web/Kiosk)	222	61.7
	Assisted by Officer	138	38.3
Registration Waiting Time	Fast (≤ 1 minute)	326	90.6
	Slow (> 1 minute)	34	9.4
Doctor Service Waiting Time	Fast (≤ 35 minutes)	255	70.8
	Slow (> 35 minutes)	105	29.2
Medication Service Waiting Time	Fast (≤ 25 minutes)	235	65.3
	Slow (> 25 minutes)	125	34.7
Cashier Service Waiting Time	Fast (≤ 15 minutes)	345	95.8
	Slow (> 15 minutes)	15	4.2
Patient Satisfaction	Quite Satisfied	305	84.7
	Less Satisfied	55	15.3

Table 1 presents the distribution of respondents based on demographic and service-related characteristics. Out of 360 respondents, the majority (33.1%) were aged 31–40 years, followed by those aged 21–30 years (18.6%), indicating that most outpatients at Siloam Hospitals Makassar are in their productive age group. The smallest proportion of respondents were aged over 70 years (4.2%), showing that elderly patients represent only a small fraction of service users.

Regarding gender, the results show that females (65.3%) dominated compared to males (34.7%), suggesting that women are more likely to use outpatient services or accompany family members for medical consultations. In terms of registration methods, most patients used self check-in systems (61.7%) through mobile, web, or kiosk, while 38.3% still preferred registration assisted by officers. This indicates a positive adaptation to digital systems within the hospital, reflecting patients' growing familiarity and trust in online registration processes. For the registration waiting time, the majority (90.6%) experienced a fast process (≤ 1 minute), indicating that the hospital's registration system is operating efficiently. Similar efficiency is seen in other service areas: doctor services were classified as fast for 70.8% of patients, medication services for 65.3%, and cashier services for 95.8%. These findings suggest that most service points in the

outpatient process meet the expected time standards. Finally, in terms of patient satisfaction, most respondents (84.7%) reported being quite satisfied with the hospital services, while only 15.3% felt less satisfied. This demonstrates that Siloam Hospitals Makassar has generally achieved a high level of patient satisfaction, likely supported by short waiting times and efficient service flow.

Table 2. Bivariate Analysis: Differences in Patient Satisfaction Based on Service Waiting Times

Independent Variable	Category	Patient Satisfaction	n (%)	p-value	Interpretation
Registration Waiting Time	Fast (≤ 1 min)	Quite Satisfied: 271 (88.9%) Less Satisfied: 55 (100%)	326 (90.6%)	0.009	Significant difference in satisfaction based on registration waiting time.
Doctor Service Waiting Time	Fast (≤ 35 min)	Quite Satisfied: 220 (72.1%) Less Satisfied: 35 (63.6%)	255 (70.8%)	0.202	No significant difference in satisfaction based on doctor waiting time.
Medication Service Waiting Time	Fast (≤ 25 min)	Quite Satisfied: 201 (65.9%) Less Satisfied: 34 (61.8%)	235 (65.3%)	0.558	No significant difference in satisfaction based on medication waiting time.
Cashier Service Waiting Time	Fast (≤ 15 min)	Quite Satisfied: 292 (95.7%) Less Satisfied: 53 (96.4%)	345 (95.8%)	0.831	No significant difference in satisfaction based on cashier waiting time.

Table 2 illustrates the results of the Chi-squared Test assessing the relationship between various service waiting times and patient satisfaction among 360 respondents at Siloam Hospitals Makassar. The analysis shows a significant relationship between registration waiting time and patient satisfaction with a p-value of 0.009 (< 0.05). This finding indicates that patients who experienced shorter registration waiting times tended to report higher satisfaction levels. The registration stage is often the first point of contact and thus creates a strong first impression of service quality. A quick and smooth registration process enhances patients' perception of hospital efficiency and professionalism, contributing positively to overall satisfaction. Conversely, there was no significant relationship between patient satisfaction and other types of service waiting times, namely: Doctor service waiting time ($p = 0.202$), Medication service waiting time ($p = 0.558$), Cashier service waiting time ($p = 0.831$).

These findings suggest that longer waiting times in these service areas did not significantly reduce patient satisfaction. This may be due to the perception that longer waits are acceptable as long as the quality of service such as professionalism, communication, and accuracy remains high. In particular, patients tend to value good interpersonal communication with doctors, clear explanations from pharmacists, and accuracy at the cashier more than the duration of the wait itself. Overall, the bivariate analysis demonstrates that registration waiting time is a key factor influencing patient satisfaction, while waiting times for doctor, pharmacy, and cashier services have a lesser impact. These results imply that improving the efficiency of the registration process should be prioritized as part of hospital service quality enhancement efforts.

DISCUSSION

The discussion of this study focuses on the relationship between waiting time and patient satisfaction in various outpatient service stages, including registration, medical consultation,

pharmaceutical services, and cashiering at Siloam Hospitals Makassar. The findings highlight that waiting time remains one of the critical determinants of patient satisfaction, although the perceived impact varies across service categories.

Registration Waiting Time and Patient Satisfaction

The analysis indicates that there was no significant difference in waiting time between patients using self-check-in systems and those assisted by registration officers. This finding suggests that both service models provide comparable efficiency levels. However, patient satisfaction was significantly associated with registration waiting time, implying that prompt service at this stage contributes positively to patients' overall perceptions of quality. This result aligns with previous studies asserting that registration is the first contact point and a vital determinant of patients' first impressions of hospital service quality (Bangun, Diaz and Hanum, 2022).

Rapid and orderly registration processes not only minimize patient stress but also enhance perceived service professionalism. Studies in various hospitals in Indonesia have confirmed that shorter registration times lead to higher patient satisfaction, as delays are often interpreted as inefficiency and poor service management (Rahmadini and Rahman, 2024). Furthermore, the integration of digital platforms such as MySiloam supports real-time registration and reduces human error, consistent with technological innovation principles in healthcare delivery (Suprpto *et al.*, 2023).

Other research supports that online queue systems significantly reduce registration congestion, enhance administrative flow, and improve patients' waiting experiences (Poerwandono *et al.*, 2024). The use of FIFO (First-In, First-Out) digital queueing applications also ensures fairness and transparency, as seen in several public healthcare facilities (Santoso and Hidayat, 2025). Therefore, digital queue management systems play an essential role in improving efficiency, especially in hospitals with high outpatient volumes like Siloam Hospitals Makassar.

Doctor Waiting Time and Patient Satisfaction

Interestingly, the study found no significant correlation between doctor waiting time and patient satisfaction. Although some patients waited longer than 35 minutes, most remained satisfied with the service quality. This outcome may reflect patients' understanding that delays in physician services are sometimes unavoidable due to emergency cases or the complexity of prior consultations (Amalia and Pratiwi, 2022). Prior studies have emphasized that while prolonged waiting can negatively affect satisfaction, communication quality and physician empathy are often more decisive in shaping patients' overall evaluations of service quality (Rendra *et al.*, 2024). Patients tend to tolerate waiting if the doctor provides comprehensive and compassionate care, underscoring the relational aspect of healthcare service delivery (Dewanto, 2014).

Similarly, studies in several Indonesian hospitals have demonstrated that patient satisfaction is not solely determined by waiting time, but also by the physician's attentiveness, clarity of explanation, and perceived competence (Agustina *et al.*, 2023). Therefore, hospital management should focus on strengthening interpersonal aspects of service delivery alongside improving scheduling efficiency.

Pharmacy Waiting Time and Patient Satisfaction

Regarding pharmacy services, results indicate that waiting time did not significantly influence patient satisfaction. Most respondents perceived waiting for medication as acceptable as long as the service quality, accuracy of prescriptions, and drug availability met their expectations. This finding aligns with the Minimum Service Standards (SPM), which stipulate a maximum waiting time of 30 minutes for non-compounded drugs and 60 minutes for compounded

drugs (RI, 2008). Studies have shown that patients value accuracy and completeness of medication over speed of service, suggesting that quality assurance in pharmacy operations is more critical than merely reducing waiting time (Arini, Y and Suwastini, 2020). Moreover, interventions aimed at improving pharmacy workflows such as implementing barcode systems and optimizing staffing have shown limited impact on perceived satisfaction unless accompanied by communication improvements (TR, Kurnia and Safianti, 2022). These findings suggest that pharmacy satisfaction is multidimensional, influenced by staff professionalism, counseling quality, and system transparency. As such, waiting time should be optimized not only by accelerating dispensing but also by improving patient interaction and medication information delivery.

Cashier Waiting Time and Patient Satisfaction

The study also found no significant relationship between cashier waiting time and patient satisfaction. Patients perceived the payment process as an administrative necessity rather than a determinant of service quality. Provided that billing was transparent, accurate, and handled courteously, minor delays did not lead to dissatisfaction. This is consistent with previous findings emphasizing that accuracy in billing and staff courtesy outweigh the influence of short waiting delays in shaping satisfaction (Gustika *et al.*, 2021). Nevertheless, long delays at the cashier can affect patient flow and final impressions of service efficiency. To mitigate this, several hospitals have implemented integrated payment systems and digital billing applications to shorten transaction times and enhance transparency (Pratama and Arifin, 2020). Thus, while waiting time at this stage may not directly affect satisfaction, it remains relevant to overall operational efficiency and hospital image.

Overall, the study underscores that waiting time reduction remains a strategic priority for improving service quality and patient satisfaction. However, satisfaction determinants are multifactorial encompassing service competence, interpersonal communication, infrastructure, and system reliability. In the context of Siloam Hospitals Makassar, the integration of digital platforms such as MySiloam has improved workflow but still requires optimization to achieve a fully patient-centered experience (Suprpto *et al.*, 2024). Efforts to enhance satisfaction should, therefore, adopt a holistic approach, combining technological innovation with human-centered service delivery. Regular monitoring of service indicators, periodic patient feedback surveys, and staff training on empathy and communication can synergistically improve patient experiences across all touchpoints.

CONCLUSION

The results of this study indicate that waiting time remains a significant dimension influencing patient satisfaction at Siloam Hospitals Makassar. Specifically, registration waiting time was found to have a statistically significant relationship with patient satisfaction, showing that a shorter registration process directly enhances positive patient perceptions. In contrast, waiting times for doctor consultations, pharmacy services, and cashier transactions did not significantly affect satisfaction levels. This finding suggests that patients tend to value service quality, friendliness, professionalism, and reliability more highly than speed alone. Therefore, improving service quality and communication between healthcare providers and patients is fundamental to maintaining satisfaction, even in cases where waiting cannot be entirely eliminated.

To improve patient satisfaction and service efficiency, Siloam Hospitals Makassar should implement a comprehensive service improvement strategy. First, optimizing the MySiloam digital system can further reduce registration congestion and enhance transparency in service flow.

Second, continuous staff training in communication, empathy, and service ethics should be prioritized to strengthen patient trust and comfort. Furthermore, periodic evaluation of service performance indicators especially related to waiting time and patient feedback should be institutionalized as part of hospital quality assurance. Future studies are recommended to explore qualitative perspectives on patient satisfaction, integrating emotional and cultural factors that may influence perceptions of healthcare service quality.

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Conflict of Interest

There are no potential conflicts of interest relevant to this article.

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