



## Waiting Time Experiences and Perceptions Among National Health Insurance Patients in Outpatient Care

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### Article Info

#### Article history:

Received 1 November 2025

Received in revised form 20

November 2025

Accepted 24 December 2025

#### Keywords:

JKN Patient Perception

Outpatient Service Quality

### Abstract

*Waiting time is a critical aspect of healthcare service quality that influences patient satisfaction and overall service evaluation. This study aims to explore patients' perceptions of waiting time in healthcare services by examining experiential factors that shape how waiting is interpreted and tolerated. A qualitative research design was employed, using in-depth interviews with four patients who had direct experience with healthcare service delivery. Data were analyzed thematically to identify recurring patterns in participants' accounts. The findings reveal that perceptions of waiting time were influenced not only by its duration but also by procedural clarity, staff responsiveness, communication and information transparency, service environment, and the presence of personalization and emotional support. Clear service procedures and timely, understandable information reduced uncertainty and moderated negative perceptions of waiting. Additionally, clean and comfortable environments, along with empathetic and attentive staff interactions, enhanced patients' ability to tolerate waiting and contributed to more positive service experiences. The study concludes that waiting time should be understood as a multidimensional experience shaped by both operational and interpersonal factors. These findings highlight the importance of adopting patient-centered strategies that integrate effective communication, environmental comfort, and emotional support in managing waiting time within healthcare services.*

## Introduction

Indonesia is one of several countries committed to achieving the Sustainable Development Goals (SDGs). However, as defined by the World Health Organization (WHO) in the health sector, the primary target of the SDGs is achieving Universal Health Coverage (UHC), which aims to provide full access to healthcare services for everyone without experiencing financial difficulties (Isibor et al., 2022; Isibor et al., 2022; Suwarno et al., 2023; Bankole & Lateefat, 2021). To achieve and sustain its commitment to this goal, Indonesia has implemented a national health insurance system since 2014, implemented through the Social Security Administering Agency (BPJS). This program aims to address the barriers associated with the cost of accessing healthcare services (Eka Suyanti, 2024; Frazier et al., 2023; Allen et al., 2023; Khatri et al., 2024; Coombs et al., 2022).

With the National Health Insurance (JKN) program, regulated by the Social Security Administering Agency (BPJS), hospitals are crucial healthcare resources and are responsible for improving public health and increasing demand for healthcare services (Sari et al., 2024; Dwiyoivita et al., 2024; Suartama et al., 2025). Under the National Health Insurance (JKN)

program, everyone who has paid contributions or contributions paid by the government has the right to receive healthcare services (Ministry of Health of the Republic of Indonesia, 2008).

Every hospital is built to meet patient needs, so improving service quality must be a top priority in the hospital management system (Hidayah et al., 2022; Gavahi et al., 2023; Jonkisz et al., 2021). Fast patient waiting time is one aspect of hospital healthcare quality (Buhang, 2007 in & Laeliyah & Subekti, 2017). Patient waiting time, calculated from the time a patient registers for a doctor's examination, is a dimension of healthcare quality improvement characterized by the speed of waiting times.

Patient waiting time is an indicator of patient satisfaction and helps improve the quality of hospital services. Excessive patient numbers and inefficient polyclinic services are still common in Indonesia (Situmorang et al., 2024).

In Indonesia, Indonesian Minister of Health Decree No. 129/Menkes/SK/IV/2008 sets the standard waiting time for outpatient services at hospitals at 60 minutes from the time a patient registers until they are seen or treated by a specialist (Ministry of Health of the Republic of Indonesia, 2008). If the waiting time for outpatient services exceeds 60 minutes, the service does not meet established standards. If hospitals adhere to established regulations, longer patient wait times will indicate better and more optimal service, and patients will feel comfortable and satisfied when visiting the doctor (Soremekun et al., 2011; Xie & Or, 2017).

The increase in the number of patients visiting hospitals, especially outpatients, is driven by the attractiveness of the National Health Insurance (JKN) program (Jauhar, 2025; wahyu Nugroho, 2024). Patient overcrowding can occur if this is not properly managed, impacting patient satisfaction levels. Moe et al. (2022) The Canadian Institute for Health Information states that 90 percent of emergency department visits in Canada take longer than the initial triage time to see a doctor. The ideal wait time for hospitalization is 120 minutes, but actual waiting times can be up to 229 minutes. A study in China found that outpatients at a tertiary hospital waited an average of 98 minutes for a doctor's appointment, with some patients waiting up to 13.5 hours for an appointment.

A study conducted at a tertiary hospital in the United States found that 61% of patients waited 90 to 180 minutes in outpatient clinics, while 36.1% waited less than 5 minutes to see a doctor. The Malaysian General Hospital reported that the average patient wait from registration to receiving a prescription was more than 2 hours (Yi et al., 2021; Liew et al., 2024; Taridi et al., 2022).

The Institute of Medicine (IOM) in the United States recommends that, when clinic appointments are scheduled, at least 90% of patients should be seen within 30 minutes of arrival at a health facility. However, this practice is not applicable in most low- and middle-income countries, including Nigeria, likely due to weak health systems and inadequate healthcare personnel (Balogun, 2022; Abah, 2022; Ogueji et al., 2024).

The National Health Insurance Program (Jaminan Kesehatan Nasional – JKN), launched in 2014 through the Social Security Agency for Health (BPJS Kesehatan), aims to ensure equitable and affordable access to healthcare services for all Indonesians (Manita & Afrita, 2024). However, despite its progressive objectives, various operational challenges persist in both primary and secondary healthcare facilities, one of the most notable being prolonged patient waiting times. Waiting time serves as a critical indicator of hospital service quality, directly influencing patient perceptions, comfort, and overall satisfaction (Gurusinga et al., 2025). Within the JKN framework, several studies indicate that JKN patients generally experience longer waiting times compared to non-JKN patients, revealing systemic inefficiencies in healthcare delivery and patient flow management.

Patients' perceptions of service quality are strongly shaped by their experiences during healthcare encounters, particularly during the waiting period in outpatient clinics (Setyaji, 2024). Negative perceptions of waiting time have been consistently linked to reduced patient satisfaction and diminished trust in healthcare institutions. Reports from the Indonesian Ministry of Health stipulate that the maximum standard waiting time for outpatient services should not exceed 60 minutes (Laksita et al., 2025). Nonetheless, in practice, many patients report having to wait between 90 to 120 minutes before receiving medical attention, highlighting a persistent gap between policy expectations and on-ground realities in healthcare service delivery.

The high volume of JKN patients seeking care at healthcare facilities often results in long queues, limited availability of physicians, and an imbalance between service capacity and patient demand (Susi & Yopiannor, 2024). This mismatch poses a substantial challenge to hospital management, especially during peak operational hours. Multiple studies have also established a direct correlation between waiting time and patient loyalty, as patients' perceptions of service speed significantly influence their likelihood of returning to the same healthcare facility in the future (Aribowo et al., 2024). Therefore, managing waiting time effectively is not merely a logistical concern but also a strategic imperative for sustaining patient retention and institutional credibility.

In response to these challenges, digital transformation efforts such as the implementation of electronic queuing systems (e-antrian) and electronic medical records have been introduced in several hospitals to streamline patient flow and reduce waiting times. Nevertheless, not all healthcare facilities have been able to implement these technological solutions effectively (Zulfikar, 2025). Beyond technology, managerial approaches such as non-emergency patient triage, limiting consultation durations, and optimizing workflow efficiency have been proposed as viable strategies to minimize waiting time without compromising care quality. From the patient's perspective, prompt service delivery reflects the attentiveness and empathy of healthcare personnel (Nissa & Hadithya, 2024). Hence, understanding patients' subjective perceptions of their waiting experience is vital, as the mismatch between expectations and reality can influence not only satisfaction levels but also broader public service indicators such as complaint frequency, alternative service utilization, and potential legal disputes (Nugraha & Orbawati, 2025).

Therefore, it is crucial to explore how JKN patients perceive waiting time and outpatient services across different regions of Indonesia using both qualitative and quantitative approaches that capture contextual nuances ((Bowling et al., 2012; Peck et al., 2001).). This article aims to synthesize previous research findings from the past five years to develop a comprehensive understanding of JKN patients' perceptions of waiting time, while also evaluating the challenges and opportunities for improving service quality in the future. By consolidating these insights, this literature review contributes to the discourse on healthcare management reforms and provides a foundation for evidence-based strategies to enhance efficiency, equity, and patient satisfaction within Indonesia's national health insurance system.

Research conducted at Dr. Achmad Darwis Suliki Regional General Hospital (RSUD) showed that patients in the outpatient clinic are examined by designated nurses, including blood pressure checks and physical examinations. Afterward, the patient is directed to wait and be examined by a doctor. Observations, interviews, and focus groups at the outpatient clinic revealed that the main problem was the relatively long examination schedule due to inconsistent arrival times. Doctors from this hospital traveled approximately 25 km to the hospital. Services could not begin if the doctor did not arrive on schedule.

According to the BPKP evaluation, patient satisfaction at the outpatient facility at Semarang City Hospital remains low, with only 76.63% achieving a target of 90%. This was confirmed

by statements from key informants and triangulation, who reported that patients frequently complained about healthcare services at Semarang City Hospital, including long waiting times, uncertainty about examination times, and even patients waiting for examinations not being seen (Sinta Indi et al., 2015).

A previous study at Mardi Waloeja Rampal Women's and Children's Hospital (RSIA) showed that patient satisfaction surveys do not represent actual patient experiences, due to the high number of negative reviews in the suggestion box and feedback on the patient satisfaction statement form. Patients' experiences receiving healthcare can influence their decisions to visit healthcare facilities in the future (Entwistle et al., 2011; Pyo et al., 2025; Aminabee, 2024).

The concept of patient satisfaction is now shifting to patient experience. In some countries, measuring service quality and satisfaction through patient experience has been widely used. However, in Indonesia, this remains rare.

Participants defined the waiting experience as waiting in departments (e.g., the polyclinic and emergency unit) at both public and private hospitals. Patients waited longer in public hospitals than in private hospitals, which was often justified by patients and did not lead to distrust of public hospitals. However, shorter wait times increased trust in private hospitals and decreased trust in public hospitals. Furthermore, patients frequently reported experiencing longer waits in public hospitals, which left them fearful and frustrated; however, they rarely blamed nurses or doctors, the system, or inadequate staff.

## Methods

This qualitative study employed a phenomenological approach to explore the deeper meanings of patient experiences. The aim of the study was to gain an in-depth understanding of the experiences and perceptions of JKN patients regarding waiting times in the outpatient clinic at RS X in Palembang City. Data were collected through direct observations, in-depth interviews, and document analysis, allowing for a comprehensive exploration of the phenomenon under study.

The phenomenological approach focuses on the subjective experiences of individuals and how they interpret and make sense of those experiences in their everyday lives. This approach seeks to uncover the essence and meaning of lived experiences without simplifying or fragmenting the complexity of the data. By emphasizing participants' own perspectives, phenomenology enables a holistic and in-depth understanding of the phenomenon as experienced by the individuals themselves.

In this study, the phenomenological approach was applied to capture the lived experiences of JKN patients related to outpatient waiting times at RS X in Palembang. The experiences shared by informants were expected to provide rich, detailed, and meaningful insights into how waiting times influence patient perceptions, satisfaction, and trust in healthcare services. Through this approach, the study aims to generate nuanced findings that reflect the real conditions faced by patients and contribute to improving the quality of outpatient services.

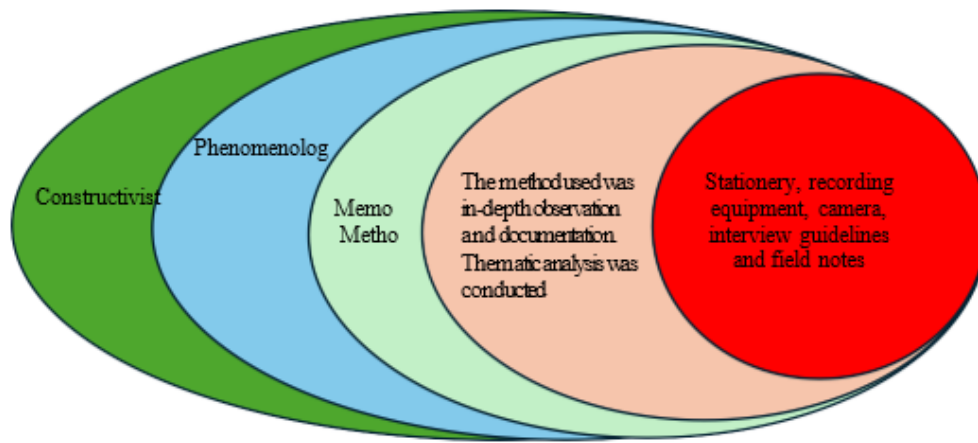


Figure 1. Research Onion

This study is grounded in a constructivist paradigm, which views knowledge as socially constructed through individuals' subjective experiences rather than passively acquired as objective facts. Accordingly, the understanding of healthcare service quality in this research is derived from the lived experiences and perceptions of JKN patients, obtained through direct, face-to-face interactions at the research site, RS X in Palembang. This paradigm enables the researcher to capture social realities as they are experienced, interpreted, and given meaning by patients within their specific outpatient service context.

An inductive qualitative approach was employed, allowing theoretical insights to emerge organically from empirical field data. Data collection began with in-depth interviews, observations, and documentation, followed by the identification of recurring patterns and meanings within informants' narratives. Through this inductive process, conceptual interpretations were developed with reference to Wilde et al.'s service quality framework and the American Customer Satisfaction Index (ACSI) model, which were contextually adapted to outpatient healthcare services at RS X in Palembang. This approach allowed existing theoretical frameworks to be enriched by empirical insights rooted in local healthcare practices.

The study adopted a mono-qualitative methodology, relying exclusively on qualitative techniques to explore in depth the experiences and perceptions of JKN patients regarding outpatient waiting times. The researcher served as the primary research instrument, supported by interview guidelines, audio recorders, cameras, writing tools, and field notes. Data were collected through direct, face-to-face interviews, non-structured observations, and documentation, and subsequently analyzed using thematic analysis to identify key patterns and themes representing patients' service experiences.

The research was conducted from October 2024 until completion at RS X in Palembang, Indonesia. Informants were selected using purposive sampling based on their relevance and direct involvement in outpatient services, consisting of 10 JKN outpatients, 2 registration administrative officers, 2 outpatient nurses, and 1 hospital management representative. Data credibility was ensured through triangulation of sources, methods, and data, by comparing information obtained from patients with that from healthcare staff, management, official documents, and field observations. This triangulation enhanced the trustworthiness, consistency, and validity of the findings while minimizing researcher bias (Sugiyono, 2017).

## Result and Discussion

This study examines patients' perceptions of healthcare service quality with a particular focus on waiting time, drawing on in-depth interviews with four informants. Consistent with qualitative health services research, the findings are presented thematically to reflect recurring patterns in participants' experiences and interpretations. Four major themes emerged from the

analysis: accessibility and staff responsiveness; communication and clarity of information; service environment; and personalization and emotional support.

### **Accessibility and Staff Responsiveness**

Accessibility was identified as a fundamental factor shaping patients' initial perceptions of healthcare services. Informants generally perceived the early stages of service delivery, including registration procedures and queue number acquisition, as relatively straightforward and easy to navigate. One informant explained that

*“The initial process, such as registration and taking a queue number, was quite easy and not confusing” (I1)*

while another stated that

*“The service flow was clear from the beginning, so I knew where to go and what to do next” (I2)*

These experiences suggest that clarity in procedural access contributed to a positive first impression of the healthcare facility by reducing uncertainty and helping patients feel oriented within the service system from the outset. When registration procedures and service flows were clearly communicated and easy to follow, patients were able to navigate the initial stages of care with confidence and minimal confusion. This clarity fostered a sense of order and predictability, which in turn shaped patients' early evaluations of service quality. As a result, the healthcare facility was perceived as organized and patient-friendly, creating a psychological readiness among patients to engage with subsequent service processes, including waiting periods and clinical encounters..

Staff responsiveness further reinforced perceptions of accessibility. Informants emphasized that healthcare personnel were generally responsive when patients required guidance or additional information. As one participant noted,

*“When I asked for directions, the staff responded quickly and helped me understand the process” (I3)*

Another informant similarly indicated that

*“The staff were quite alert in giving explanations, especially when patients looked confused” (I4)*

Such responsiveness was perceived as reassuring and helped reduce anxiety, particularly for patients unfamiliar with the service system. When healthcare staff responded promptly to questions and provided clear guidance, patients felt supported during moments of uncertainty. This responsiveness created a sense of attentiveness and care, which alleviated concerns about navigating unfamiliar procedures and reduced feelings of confusion. For first-time visitors, in particular, timely assistance reinforced perceptions of safety and reliability within the healthcare setting, thereby contributing to a more positive overall service experience during the early stages of care.

However, informants also reported variations in responsiveness during peak service hours. Under crowded conditions, interactions with staff were perceived as less detailed. One informant remarked that

*“When the queue was very crowded, the staff still responded, but the explanations were short and felt rushed” (I2)*

While another stated that,

*“The response was fast, but there was little time for detailed explanations” (I3)*

These accounts indicate that patients assessed responsiveness not only in terms of speed but also in relation to the quality of interaction and communication. While timely responses were appreciated, patients placed equal importance on the extent to which staff provided clear, attentive, and respectful explanations. Brief or rushed interactions, although fast, were sometimes perceived as less supportive when they lacked sufficient detail or interpersonal engagement. This suggests that patients evaluated responsiveness as a multidimensional experience, where effective communication and interpersonal quality played a central role in shaping perceptions of service adequacy and care.

Overall, the findings show that accessibility and staff responsiveness jointly shaped early patient experiences. Easy access supported by responsive yet communicative staff created a positive foundation for subsequent service encounters, including patients' tolerance of waiting time.

### **Communication and Clarity of Information**

Communication and clarity of information emerged as central determinants of patients' perceptions of waiting time. Informants who received clear explanations regarding queue order, service procedures, and estimated waiting duration reported greater understanding and acceptance of the waiting process. One informant stated that

*"Because the staff explained how the queue worked, I could estimate how long I had to wait" (I1)*

Similarly, another participant noted that

*"The information about the process made the waiting feel more reasonable" (I2)*

Clear communication reduced uncertainty and enabled patients to adjust their expectations. Even when waiting times were relatively long, informants reported feeling more comfortable when they understood the reasons for delays. As expressed by one informant,

*"Even though I had to wait for a long time, I felt okay because I knew why it was taking so long" (I3)*

Another informant added that

*"Knowing the process made me more patient during the waiting time" (I4)*

These findings suggest that transparency played a crucial role in shaping perceived waiting time. When patients were informed about the sequence of services, reasons for delays, and approximate waiting duration, they were better able to contextualize the waiting experience. Such transparency reduced uncertainty and prevented negative assumptions about service inefficiency, allowing patients to interpret waiting time as a reasonable and expected part of the care process. As a result, waiting was perceived as more manageable and less burdensome, even when the actual duration was relatively long.

In contrast, inadequate communication contributed to negative perceptions. Informants who felt they did not receive sufficient information described feelings of uncertainty and frustration. One participant explained that,

*"When no one explained what was happening, the waiting felt longer and more tiring" (I2)*

while another stated that,

*"Without clear information, I felt ignored and unsure about when I would be served" (I3)*

Such experiences intensified dissatisfaction even when objective waiting times were similar. Patients who lacked access to clear and consistent information reported greater frustration and

emotional discomfort during the waiting process compared to those who were adequately informed. In these situations, uncertainty and perceived neglect amplified negative feelings, making the waiting period feel longer and more exhausting despite comparable actual durations. This indicates that dissatisfaction was shaped less by measurable waiting time and more by patients' subjective experiences of communication and attention during the service encounter.

The use of understandable language also influenced communication effectiveness. Informants appreciated explanations delivered in simple and non-technical terms. As one informant noted,

*"The staff used simple language, not medical terms, so it was easy to understand" (I4)*

Conversely, overly technical explanations hindered comprehension and reduced patient comfort, particularly among patients with limited familiarity with medical terminology. When information was delivered using complex or unfamiliar terms without adequate clarification, patients experienced difficulty understanding the service process and their position within it. This lack of comprehension contributed to feelings of exclusion and discomfort during the waiting period. Overall, the findings demonstrate that effective communication and clear information significantly shaped patients' perceptions of waiting time and service quality by enabling understanding, fostering a sense of inclusion, and supporting more positive evaluations of the healthcare experience.

### **Service Environment**

The service environment was identified as an important factor influencing patient comfort during the waiting period. Informants generally evaluated the cleanliness of the healthcare facility positively, describing it as conducive to a comfortable waiting experience. One informant stated that

*"The waiting room was clean and well-organized, which made me feel comfortable" (I1)*

while another noted that

*"The cleanliness of the facility made the atmosphere feel more pleasant" (I2)*

In addition to cleanliness, physical comfort provided by facilities such as seating, ventilation, and lighting influenced patients' tolerance toward waiting time. One informant explained that

*"There were enough seats and good air circulation, so waiting did not feel too exhausting" (I3)*

Another participant similarly remarked that,

*"Comfortable seating helped reduce boredom while waiting" (I4)*

These facilities were perceived as mitigating the negative effects of prolonged waiting by reducing physical strain and preventing excessive fatigue. Informants described how comfortable seating and adequate ventilation helped them remain physically at ease, even when waiting times extended beyond their initial expectations. The availability of such facilities shifted patients' attention away from discomfort and allowed them to wait in a more relaxed state, thereby softening negative emotional responses associated with long queues.

In addition, supportive physical facilities contributed to a more tolerable and less stressful waiting experience by creating a sense of care and consideration from the service provider. Patients interpreted the presence of adequate facilities as an indication that their comfort was acknowledged, which positively influenced their overall perception of service quality. As a result, prolonged waiting was not always experienced as burdensome, as the physical environment helped maintain patient comfort and psychological stability throughout the waiting period.

Nevertheless, overcrowding and limited facilities negatively affected patient experiences. Informants reported that crowded waiting rooms increased discomfort and fatigue. One informant stated that,

*“When the waiting room was very crowded, it became uncomfortable and tiring” (I2)*

While another explained that,

*“In a crowded situation, the waiting time felt much longer” (I3)*

Such conditions were particularly challenging for patients in poor physical condition. Informants noted that overcrowded waiting areas, limited seating, and inadequate ventilation intensified feelings of physical discomfort and fatigue among patients who were already unwell. For these individuals, prolonged waiting under uncomfortable conditions exacerbated weakness and discomfort, making the waiting experience more burdensome. These accounts indicate that patients’ physical health status influenced how environmental conditions were perceived, with vulnerable patients experiencing greater difficulty tolerating waiting time when supportive facilities were insufficient.

The overall atmosphere of the service environment also influenced perceptions. Informants who experienced orderly and calm settings reported more positive experiences, whereas noisy and disorganized environments heightened discomfort. As one informant noted,

*“If the room is noisy and crowded, it makes the waiting more stressful” (I4)*

These findings indicate that the service environment functioned as both a physical and psychological factor shaping patients’ experiences of waiting time. Physically, elements such as cleanliness, seating availability, ventilation, and spatial arrangement directly affected patients’ comfort levels during the waiting period. When these elements were perceived as adequate, patients reported reduced physical fatigue and greater tolerance toward waiting, whereas inadequate conditions intensified discomfort and exhaustion.

Psychologically, the service environment influenced patients’ emotional responses and perceptions of service quality. Orderly, calm, and well-managed spaces fostered a sense of reassurance and control, making waiting feel more manageable. In contrast, crowded, noisy, or disorganized environments heightened stress and frustration, amplifying negative perceptions of waiting time. Together, these findings demonstrate that the service environment played a crucial role in shaping both the physical comfort and emotional experiences of patients during healthcare service encounters.

### **Personalization and Emotional Support**

Personalization and emotional support from healthcare staff emerged as crucial elements influencing patient experiences. Informants who felt personally acknowledged reported more positive perceptions of service quality. One informant stated that,

*“The staff greeted me politely, which made me feel respected” (I1)*

while another noted that,

*“Being treated kindly made a big difference in how I felt during the waiting time” (I2)*

Empathy and emotional support were particularly valued. Informants described feeling calmer and more comfortable when staff demonstrated concern and patience. One participant explained that,

*“The staff listened to my complaints patiently, and that reduced my anxiety while waiting” (I3)*

Another informant similarly stated that,

*“Their caring attitude made me feel more at ease, even though I had to wait” (I4)*

In contrast, lack of personalization intensified negative perceptions. Informants who felt ignored or treated in a rushed manner reported dissatisfaction. One informant remarked that,

*“When the staff seemed rushed and didn’t pay much attention, the waiting felt more stressful” (I2)*

while another stated that,

*“Not being acknowledged made me feel like just another number in the queue” (I3)*

Such experiences amplified the perceived burden of waiting time.

Importantly, the findings indicate that personalization did not require complex interventions. Simple gestures such as greetings, brief explanations, and friendly interactions were sufficient to enhance patient experiences. As one informant expressed,

*“Just being greeted and given a short explanation already made me feel better” (I4)*

Personalization and emotional support played a critical role in mitigating the negative effects of waiting time and fostering patient satisfaction. Informants who experienced friendly greetings, attentive listening, and individualized responses reported feeling more valued and respected during the service process. These interpersonal interactions helped patients remain calm and patient while waiting, as emotional reassurance reduced feelings of neglect and frustration commonly associated with prolonged waiting periods.

Moreover, emotional support contributed to more positive overall evaluations of healthcare services by strengthening patients’ sense of trust and comfort. When staff demonstrated empathy and concern, patients perceived the waiting experience as more humane and tolerable, even in situations involving delays. These findings indicate that personalization and emotional support enhanced patient satisfaction not by shortening waiting time, but by improving the quality of the waiting experience through empathetic and patient-centered interactions.

This study provides insight into how patients perceive waiting time within healthcare services by highlighting the roles of accessibility, communication, service environment, and emotional support. Rather than viewing waiting time as a purely operational issue, the findings suggest that patient perceptions are shaped by a combination of procedural clarity and interpersonal dynamics. This aligns with prior research indicating that perceived waiting time is influenced more by contextual and psychological factors than by actual duration alone (Nie, 2000; Timmins & Timmins, 2021).

The finding that clear procedural access and staff responsiveness influenced early service impressions supports the service quality framework proposed by Sait & Vijesh (2025), particularly the dimensions of responsiveness and assurance. When patients encounter structured and navigable service processes, they are more likely to perceive the healthcare system as reliable and well-managed. This reinforces earlier studies showing that first-contact experiences strongly affect overall evaluations of healthcare quality and patient trust (He et al., 2025; Thompson et al., 2024).

The prominent role of communication and information transparency in shaping perceived waiting time extends existing literature on uncertainty reduction in service settings. Consistent with Maister’s (1985) proposition that “uncertain waits feel longer than known waits,” this study demonstrates that transparent explanations regarding delays and service flow can recalibrate patient expectations and reduce dissatisfaction. These findings further support patient-centered communication models that emphasize clarity and accessibility of information as key components of perceived service effectiveness (Epstein & Street, 2011; Tran, 2021).

Environmental factors also emerged as significant in shaping waiting experiences, reinforcing evidence from healthcare design research that physical surroundings influence both comfort and emotional responses (Lamb, 2021; Juliá Nehme et al., 2021; Yap et al., 2022). The findings suggest that environmental quality functions as a moderating factor, buffering the negative effects of waiting time when conditions are supportive, and amplifying dissatisfaction when they are not. This highlights the importance of considering environmental design as part of service quality improvement strategies, rather than treating it as a secondary concern. Lastly, the role of personalization and emotional support underscores the relevance of patient-centered care frameworks, which emphasize empathy, respect, and relational quality. The findings indicate that emotional support does not eliminate waiting time but reshapes how it is experienced. This supports prior research demonstrating that empathetic interactions enhance patient satisfaction and trust, even in resource-constrained service environments.

## Conclusion

This study concludes that patients' perceptions of waiting time in healthcare services are shaped by a combination of procedural clarity, communication practices, environmental conditions, and interpersonal interactions rather than by waiting duration alone. Clear service procedures and transparent information help reduce uncertainty, while supportive physical environments and empathetic, personalized staff interactions enhance patients' tolerance of waiting and overall satisfaction. These findings underscore the importance of adopting a patient-centered approach to waiting time management that integrates operational efficiency with effective communication, environmental quality, and emotional support to improve healthcare service experiences.

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