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# THE EFFECT OF PATIENT WAIT TIME EFFICIENCY ON PATIENT SATISFACTION LEVEL

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**Abstract**

*Patient satisfaction is a key indicator of health service quality and is closely related to loyalty, intention to repeat visit, and institutional reputation [1]. Waiting time reflects the efficiency of the process and the responsiveness of services at the stages of registration, administration, and consultation which have a direct impact on the perception of quality and satisfaction [2]. Literature review shows a consistent pattern: long wait times decrease satisfaction, while short, predictable wait times increase satisfaction, especially in outpatient services that have higher expectations of timeliness [3]. Waiting longer than 60 minutes is associated with a significant decrease in satisfaction scores, making the management of wait time duration and variability crucial. Determining factors include queue design, health worker capacity, administrative complexity, and timeliness of doctors; Meanwhile, digital solutions (e.g. Mobile JKN) speed up the pre-visit and visit process and related to a 5.6 reduction in waiting time. This review summarizes the findings of 2015–2024, maps the determinants and mechanisms of the relationship between wait time and satisfaction, and offers managerial strategies for healthcare facilities in Indonesia and internationally [7].*

**Keywords**: *Waiting time; Patient satisfaction; Service Efficiency; Queue Management.*

## 1. INTRODUCTION

Patient satisfaction is one of the main outcomes of health service quality because it reflects the extent to which patients' needs, expectations, and preferences can be met. Satisfaction is not only determined by the medical aspect, but also includes non-medical factors such as the friendliness of health workers, the comfort of facilities, the affordability of costs, and the efficiency of service time [1]. Satisfied patients generally have higher retention rates, make repeat visits, recommend facilities to others, and strengthen the legitimacy of healthcare organizations in the community [1,2]. Thus, patient satisfaction is an indicator of service performance as well as a benchmark for the success of quality management.

In the framework of service quality, the dimensions *of responsiveness* and *reliability* are factors that are very sensitive to waiting times. Responsiveness is related to the ability of the system and health workers to provide fast services, while reliability reflects the certainty of services according to schedule [1,2]. Therefore, the length of the waiting time is a real

indicator that patients can immediately observe to assess the quality of service. Research shows that patient complaints are most often related to the length of the registration queue, delays at the polyclinic, and the uncertainty of estimated service time [3].

Operationally, the waiting time is defined as the interval from the time the patient registers to the first contact with the medical personnel [4]. This concept can be expanded into several segments: (1) pre-doctor waiting time (registration until called to the consultation room), (2) waiting time for doctors (if the doctor is late), and (3) post-service waiting time, for example when taking medication at a pharmacy installation [4.5]. Each segment contributes to the perception of the total quality of service because patients assess the service experience as an overall flow, rather than a separate stage.

In Indonesia, the problem of waiting time is still a major issue that negatively impacts patient satisfaction. The causative factors include limited number of health workers, doctor delays, a layered manual administration system, and variations in compliance with the clinician's schedule [6.7]. Research in various regions shows outpatient wait times often exceed 60–90 minutes, lowering patient satisfaction and loyalty rates [7]. Therefore, systemic and sustainable interventions are needed in the form of digitization of services, increasing human resource capacity, and restructuring of service processes [6.8]. Waiting time efficiency efforts not only increase satisfaction, but also support patient safety, service effectiveness, and institutional competitiveness according to *the patient-centered care* principle [7.8].

## 2. RESEARCH METHOD

This review compiles 2015–2024 publications from Google Scholar, PubMed, ScienceDirect, and Garuda using the keywords waiting time, patient satisfaction, queue management, healthcare efficiency [9.10]. Inclusion criteria: studies measuring the relationship between waiting time and satisfaction with outpatient/crash services, as well as a study evaluating queue management strategies; Exclusion: Non-empirical reports or do not involve satisfaction variables [11].

A total of 18 articles met the criteria, classified into four themes: (1) waiting time as a determinant of satisfaction, (2) the main causes of long wait times, (3) digital innovation and automation, (4) managerial and policy implications; data extraction focused on the definition of waiting time, measurement methods, the magnitude of the effect on satisfaction,

and the components of the intervention [12]. Validity of content and consistency of findings compared across settings (Asian vs non-Asian) to assess generalizations [13].

## 3. RESULTS AND DISCUSSION

### Waiting Time as a Determinant of Satisfaction

Cross-study evidence shows a consistent contribution of wait times to patient satisfaction, with the strongest effect in outpatient care due to sensitivity to time affordability and expectation of prompt service [3]. Some studies reported a marked decline in satisfaction scores when wait times exceeded the 60-minute threshold, supporting the need for an operational target of ≤30–45 minutes to maintain quality perception [4]. Theoretically, shortening duration and just as important predictability (small variances) increases perceptions of responsiveness and process fairness, which fosters satisfaction even when the average is not zero [1.15].

### Determinants of Length of Waiting Time

The determinants include (1) an unbalanced patient-health worker ratio, (2) no-show and late arrival that disrupts schedules, (3) layered manual administration processes, (4) variability of doctor attendance, and (5) weak information system connectivity [6,7,8]. Facilities with conventional registration and no pre-arrival triage reported a wait time of >90 minutes during peak hours, while the implementation of e-registration and slot scheduling lowered peak load and leveled the flow [by 6.14]. Asian regional evidence supports global findings: hourly clinic load optimization and staggered scheduling reduce congestion and improve the experience [13].

### The Role of Digital Technology and Analytics

The front-door digital application (Mobile JKN) enables online registration, self-check-in, and notification-based queue calls, thereby reducing pre-visit time and physical waiting time [6.14]. Integration with real-time analytics helps predict peak arrivals, manage slot redistribution, and enable clinic overflow or rapid assessment when the risk threshold is exceeded [by 10.12]. The digital systems evaluation study showed a decrease in average lead time and an increase in the on-time domain satisfaction score, which supported clinical IT investment as a value enabler [9.12].

### Moderators dan Mediators

The effect of wait time on satisfaction was mediated by the perception of responsiveness (responsiveness), procedural fairness (order of the call), and communication quality (time estimate notification), all of which shaped the patient experience [1.5]. The effect may be stronger in first-visit patients, productive-age patients, and clinics with high peak demand, while satisfaction is relatively more resistant in crash patients who rated comfort and safety aspects as more dominant [7,13]. Accurate time estimation information reduces uncertainty, reduces frustration, and improves quality assessment even though the absolute duration is not ideal [2.15].

### Good Practices for Managing Waste

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### Impact on Organizational Performance

In addition to satisfaction, wait time efficiency correlates with clinic throughput, space utilization, and left-without-being-seen (LWBS) decreases, which in turn increases revenue and reputation [3]. In the context of financing policies, the reduction of non-value time supports performance-based financing and stronger standardization of service quality [7]. Successful digital interventions often show a quick payback period through reduced overtime hours and increased patient retention [10,12,14].

## LIMITATIONS OF REVIEW AND RESEARCH AGENDA

Some studies are observational in nature so causal inferences depend on covariate control and natural design; variations in the definition of waiting time (e.g., pharmaceutical time inclusion) give rise to heterogeneity [3,13]. The limitations of the local context (Indonesia)

related to the readiness of digital infrastructure and variations in compliance with clinical schedules may affect the implementation of recommendations [6.7]. Further research is suggested in the form of a controlled trial of digital intervention, a multi-poly time-series study, and an analysis of the cost-benefit of institution-scale [implementation 10,12,14,15].

## 4. CONCLUSION

Wait time efficiency has been shown to be closely and meaningfully related to improved patient satisfaction through the perception pathways of responsiveness, procedural fairness, and communication quality; the strongest impact appears in outpatient services [3,4]. Key determinants include queue design, HR capacity, schedule compliance, and administrative automation rate; digital interventions such as Mobile JKN and arrival analytics are strategic levers to reduce the duration and variability of waiting times [5,6,10,12,14]. Gradual implementation based on measurement, dynamic scheduling, and time estimation transparency is suggested as the core of the quality improvement program and patient experience [1,7,15].

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