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# Determinants of Outpatient Satisfaction in Regional Public Hospitals: The Dominant Role of Waiting Time and Process Quality in Indonesia

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ABSTRACT

This study examined factors associated with outpatient patient satisfaction at Datu Sanggul Regional Public Hospital, Rantau, integrating Donabedian's structure–process–outcome, SERVQUAL, and Swanson's Caring Theory to explicitly link facilities (structure) and waiting time, social interaction, service effectiveness, and nurse caring (processes) to satisfaction (outcome). Using purposive sampling justified by operational access to experienced OPD users, we surveyed N = 124 adults in June 2025 with 5-point Likert instruments adapted via forward–back translation, expert review, and pilot testing. Descriptive statistics summarized domains; bivariate associations used chi-square ($\alpha$ = .05). Multivariable analysis applied ordinal logistic regression with assumption checks (multicollinearity, logit linearity where applicable, Test of Parallel Lines), and sensitivity plans for partial proportional odds when required. The final model outperformed the intercept-only model (likelihood ratio $p < .001$) and explained substantial variation (Nagelkerke $R^2$ = 0.66). Waiting time showed a strong negative association with satisfaction (Estimate = −6.710, p = .001), while social interaction, service effectiveness, and nurse caring were not statistically significant after adjustment. Findings emphasize process improvements–particularly queue transparency and throughput optimization–over incremental facility enhancements once adequacy thresholds are met. The study advances evidence from regional Indonesian hospitals, offering actionable levers for patient-centered outpatient redesign.



## INTRODUCTION

Patient satisfaction is widely recognized as a core outcome and accountability measure for contemporary health systems, reflecting how people judge the processes and relational qualities of care–timeliness, communication, empathy–alongside perceived technical competence. Beyond its face validity, satisfaction correlates with adherence, continuity, and trust, and thus carries practical significance for service redesign and institutional reputation (Batbaatar et al., 2017; Mirzoev & Kane, 2017). In global policy discourse, the World Health Organization (WHO) includes patient experience within the broader responsiveness agenda and quality improvement frameworks, underscoring that the legitimacy of health systems rests not only on clinical outcomes but also on whether people feel heard, respected, and promptly attended to. This perspective orients hospitals–especially high-throughput outpatient departments–toward process excellence and empathetic care as inseparable pillars of quality.

Our study is explicitly grounded in three complementary frameworks and links each to the focal variables. First, Donabedian's structure–process–outcome (S-P-O) model posits that structures (resources, facilities, staffing), processes (timeliness, communication, coordination), and outcomes (satisfaction, health status) are interdependent. In our model, healthcare facilities represent structural capacity; waiting time, social interaction, and service effectiveness operationalize key processes; and patient satisfaction is the central outcome. The S-P-O perspective implies that even when structural adequacy is achieved, process quality remains decisive for "felt" experience during short outpatient encounters (Donabedian, 1988).

Second, SERVQUAL provides an operational lens for service processes via five dimensions: tangibles, reliability, responsiveness, assurance, and empathy (Parasuraman et al., 1988). In outpatient contexts, responsiveness maps onto waiting time (prompt attention, queue transparency) and assurance/reliability map onto service effectiveness (clarity, appropriateness, coordination). Empathy maps directly onto social interaction and overlaps with nurse caring, while tangibles correspond to healthcare facilities. Accumulating evidence from multi-country studies and Indonesian hospitals confirms that responsiveness and empathy often

dominate patient appraisals when clinical contacts are brief and expectations of efficiency are high (Ahmad et al., 2021; Liu et al., 2023; Syahputri, 2024).

Third, within nursing science, Swanson's Caring Theory conceptualizes caring as a professional, relational practice–knowing, being with, doing for, enabling, and maintaining belief–that underpins therapeutic communication and meaning-making in care (Swanson, 1991, 1993). In our model, nurse caring is not a mere interpersonal nicety; it is a theoretically grounded process expected to shape patient satisfaction independently of structural and other process factors. Recent Indonesian and regional studies corroborate that caring behaviors are associated with satisfaction and trust, and that targeted caring trainings can strengthen these behaviors (Bachtiar et al., 2023; Rohita et al., 2024).

Datu Sanggul Regional Public Hospital (Rantau) functions as a key referral center in South Kalimantan, with an outpatient department (OPD) that constitutes the primary interface between the public and the hospital's broader services. Consistent with national patterns since the scale-up of Indonesia's National Health Insurance (JKN), outpatient volumes have risen, placing pressure on registration, triage, consultation rooms, diagnostics, and pharmacy units. Nationally, outpatient activity forms a substantial share of hospital encounters; OPD standards–including the ≤ 60 minutes outpatient waiting-time benchmark–are codified in the Ministry of Health's minimum service standards and later policy instruments. These standards are widely cited in Indonesian hospital performance literature and quality indicator manuals (e.g., Kepmenkes 129/2008; National Indicators for Service Quality).

At the local level, routine quality meetings and patient feedback at Datu Sanggul highlight recurring issues common to regional public hospitals: uneven peak-time queues, limited consultation slots relative to demand, bottlenecks at registration and pharmacy, and variability in communication across service points. These challenges align with multi-site evidence from Indonesian RSUDs and Southeast Asian settings, where waiting time, queue management, and communication quality repeatedly emerge as service pain points that directly influence satisfaction and revisit intentions (Noviyani & Viwattanakulvanid, 2024; Al Harajin et al., 2019).

Outpatient departments are high-throughput environments in which marginal improvements in processes are felt by large numbers of patients. Empirical studies consistently show that waiting time is among the strongest correlates of patient satisfaction across LMIC and HIC settings. In Indonesia, multiple recent hospital-based studies report median waits exceeding the ≤ 60 minutes standard–often by wide margins–during peak sessions; qualitative remarks frequently cite perceptions of inefficiency or unfairness when queues are opaque (Rahmawati, 2023; Setiyawati et al., 2024; Nabila & Ayuningtyas, 2024). Internationally, meta-evidence and single-site case studies converge in linking prolonged waits to lower satisfaction and poorer ratings of providers (Bleustein et al., 2014; Sun et al., 2017; Biya et al., 2022). These findings are mirrored by Indonesian data during and after COVID-19 surges, when throughput and staffing mismatches amplified delays (Tiur et al., 2024). Collectively, this literature makes waiting time a theoretically and empirically justified focal determinant in our model.

Social interaction and nurse caring are likewise central, particularly in outpatient settings where contact time is limited and relational signals carry heightened weight. Contemporary Indonesian and regional studies document that respectful communication, clarity of explanations, and emotional presence strongly shape experience and adherence, even when structural amenities are adequate (Ahmad et al., 2021; Pratiwi et al., 2023; Rohita et al., 2024). Intervention work suggests that caring-based training can measurably improve perceived caring behaviors and, downstream, patient satisfaction among Indonesian nursing staff (Bachtiar et al., 2023), reinforcing the practical actionability of this domain.

Service effectiveness–patients' perception that they received appropriate, well-coordinated care–bridges process reliability and professional assurance. Even with acceptable facilities, unclear instructions, fragmented coordination (e.g., lab–clinic handoffs), or perceived misalignment between complaints and treatments depress satisfaction. Recent Indonesian analyses and Southeast Asian hospital studies underline how communication-enabled understanding of the plan (tests, follow-up, medication) is pivotal for perceived effectiveness (Noviyani & Viwattanakulvanid, 2024; Liu et al., 2023).

Healthcare facilities–cleanliness, comfort, amenities–remain necessary structural conditions. However, consistent with Donabedian's logic and SERVQUAL evidence, their marginal influence on satisfaction can diminish once a threshold of adequacy is reached; at that point, process and relational features carry greater explanatory power (Donabedian, 1988; Parasuraman et al., 1988). In Indonesian public hospitals, facility upgrades often accompany digital queueing pilots, but gains in perceived experience typically materialize only when structural improvements are coupled with process redesign and staff communication support (e.g., queue transparency, expectation management).

While interest in patient satisfaction has surged, the evidence base remains uneven. Many Indonesian studies are concentrated in metropolitan or tertiary facilities, single clinical units (e.g., maternity, emergency), or private hospitals; multi-determinant analyses in regional public hospitals (RSUD)–especially outside Java–remain sparse. Recent reviews and hospital case studies call for context-specific work that simultaneously models process, relational, and structural factors for outpatient services, noting that waiting-time standards are often unmet and that communication quality is a recurrent shortfall (Syahputri, 2024; Prayudi, 2024; Hasibuan, 2025; analysis from Palembang and Padang hospitals). Furthermore, emerging Southeast Asian research continues to reaffirm waiting time, responsiveness, and empathy as high-leverage levers for raising outpatient satisfaction and revisit intention (Ahmad et al., 2021; Cha et al., 2025). This constellation of findings, plus WHO quality and responsiveness guidance, underscores the value of regional hospital-based, theoretically integrated studies like ours.

This study contributes to the literature by (1) analyzing outpatient satisfaction at a regional Indonesian public hospital using an integrated theoretical model (Donabedian + SERVQUAL + Caring Theory) that simultaneously examines waiting time, social interaction, service effectiveness, facilities, and nurse caring; (2) situating findings within the local operational context of Datu Sanggul's outpatient flow; and (3) connecting determinants to actionable service design (e.g., scheduling optimization, real-time queue transparency, communication scripts, and caring-skills reinforcement). Building on the responsiveness agenda–dignity, autonomy, prompt attention–and Indonesia's national indicator of ≤ 60 minutes outpatient waiting time, this study aims to produce insights that are both locally actionable and internationally relevant. Specifically, we seek to (i) test associations between

the five determinants and patient satisfaction, and (ii) identify the most dominant factor to guide improvement priorities.

Three features make Datu Sanggul an informative case for the international literature on regional hospitals. First, as in many LMIC regional centers, demand exceeds consultation capacity at peak periods, creating a natural experiment in queue management and expectation setting. Second, staffing patterns and room availability differ from urban tertiary hospitals, intensifying the role of nurse-mediated navigation (counseling, reassurance) to sustain perceived effectiveness and caring. Third, digitalization is partial: while some units have adopted electronic registries and basic queue displays, integration across registration–consultation–pharmacy remains incomplete–an operational reality in many Southeast Asian regional hospitals that complicates the translation of structural investments into felt experience (Noviyani & Viwattanakulvanid, 2024; Sun et al., 2017). By analyzing five determinants together, our study clarifies where scarce managerial attention yields the greatest marginal gains for patient experience in comparable settings.

Guided by Donabedian, we hypothesize that process variables–waiting time, social interaction, service effectiveness, Healthcare Facilities, and nurse caring–will explain substantial variance in patient satisfaction. Based on SERVQUAL and Caring Theory, we anticipate waiting time (responsiveness) to be negatively associated with satisfaction (longer waits → lower satisfaction), social interaction (empathy/assurance) and nurse caring to be positively associated, and service effectiveness (reliability/assurance) to be positively associated, all else equal. The role of facilities (tangibles) is expected to be supportive but potentially nonsignificant once process thresholds are met–a pattern observed in several Indonesian OPD studies (Noviyani & Viwattanakulvanid, 2024; Syahputri, 2024). These hypotheses connect theoretical constructs to measurable variables, enabling a transparent, reproducible test in a regional hospital context.

For managers, the integrated framework highlights a sequential improvement logic. First, optimize waiting time via appointment smoothing, peak-hour staffing, and real-time queue communication; Indonesia's ≤ 60 minutes standard provides a clear operational target with widely used indicators (numerator/denominator definitions) for monthly monitoring. Second, standardize interpersonal communication using brief scripts for greeting, agenda setting, and closing the visit, which serve as low-cost "process nudges" that reinforce empathy and clarity. Third, reinforce nurse caring behaviors through focused training and coaching (e.g., Swanson-based micro-skills), an intervention shown to be effective in Indonesian hospitals. Fourth, consolidate structural fixes (seating, wayfinding, room allocation) as enablers, recognizing that tangibles primarily unlock the benefits of process quality rather than drive satisfaction alone (Bachtiar et al., 2023; Donabedian, 1988; Kepmenkes indicators).

## METHOD

### Study Design and Setting

We employed an analytic, cross-sectional survey to examine associations between five theoretically grounded determinants–waiting time, social interaction, service effectiveness, healthcare facilities, and nurse caring–and the outcome patient satisfaction in the outpatient department (OPD) of Datu Sanggul Regional Public Hospital, Rantau (South Kalimantan, Indonesia). A cross-sectional design was selected because it permits simultaneous measurement of predictors and outcome within the same operational window, is well suited for service quality audits in high-throughput OPD environments, and aligns with the study objective of identifying relative contributions of multiple process and relational factors to patient-reported outcomes. Fieldwork procedures, variable operationalization, and analysis plans were pre-specified before data collection to minimize analytic flexibility and enhance reproducibility.

The hospital provides various specialized and general outpatient clinics, including internal medicine, pediatrics, surgery, obstetrics and gynecology, neurology, psychiatry, dentistry, ophthalmology, pulmonology, and psychology. This diversity of services created an ideal environment for evaluating how different factors influence patient satisfaction across multiple clinical contexts.

### Sampling Strategy

Author used purposive sampling with clearly defined inclusion criteria: adults (≥18 years) completing a same-day outpatient visit, cognitively able to consent and self-report, and having at least one prior OPD encounter at the hospital; we excluded patients in acute distress or requiring emergency care. Purposive sampling was justified by operational constraints typical of regional OPDs–namely, (i) uneven patient flow during peak sessions that limits uninterrupted access to a complete sampling frame at registration; (ii) clinic-specific schedules with narrow windows for recruitment; and (iii) the study's analytic focus on experienced outpatients (i.e., those with ≥1 prior visit) to ensure respondents could validly appraise waiting time, staff interaction, and care processes across check-in, consultation, diagnostics, and pharmacy. To mitigate external-validity concerns commonly raised for purposive designs, we: (a) diversified recruitment across clinic days and time blocks (morning/afternoon) and across general and specialty clinics; (b) tracked approached vs. enrolled counts to assess enrollment bias; and (c) compared respondent demographics with OPD casemix statistics to evaluate gross representativeness. These steps increase the plausibility that inferences generalize to the hospital's routine OPD users despite nonprobability sampling. We obtained N = 124, meeting the pre-specified requirement and providing adequate information for the planned multivariable ordinal regression.

### Measures, Likert Scaling, and Sample Items

All latent constructs were operationalized using 5-point Likert items (1 = strongly disagree to 5 = strongly agree), consistent with conventions in health-services research and compatible with the ordinal assumptions of the planned analyses. The dependent variable, patient satisfaction, comprised items adapted from established patient-experience instruments (e.g., PSQ-18 domains of general satisfaction, communication, and accessibility) and Indonesian hospital service literature (sample item: "Overall, I am satisfied with the outpatient services I received today."). Waiting time captured perceived timeliness and queue transparency across the registration–consultation–pharmacy pathway (sample item: "The time from registration to consultation was reasonable."). Social interaction reflected interpersonal communication, respect,

and staff responsiveness (sample item: "Staff listened carefully and treated me with respect."). Service effectiveness assessed perceived appropriateness of care, clarity of the plan, and coordination across touchpoints (e.g., referrals, diagnostics, medication) (sample item: "I received clear explanations about my diagnosis and next steps."). Healthcare facilities focused on tangible aspects of the environment, including cleanliness, comfort, seating, signage, and availability of basic amenities in waiting and consultation areas (sample item: "The waiting area was clean and comfortable."). Nurse caring was measured with items adapted from the Caring Professional Scale (CPS) grounded in Swanson's Caring Theory, emphasizing presence, empathy, and supportive behaviors (sample item: "The nurse showed genuine concern for my worries."). All items were anchored to the current visit to minimize recall bias and align with the cross-sectional design, and domain scores were computed as the mean of their constituent items, with higher values indicating more favorable perceptions, stronger caring, and greater satisfaction.

### Instruments

We followed a multi-stage adaptation protocol. First, items were compiled from validated sources (PSQ-18 domains for satisfaction; CPS for caring; SERVQUAL-consistent wording for responsiveness/empathy/tangibles) and mapped to the study's conceptual framework (Donabedian; SERVQUAL; Caring Theory). Second, a forward–backward translation procedure (Bahasa Indonesia ↔ English) ensured semantic and conceptual equivalence. Third, a content validity review (3–5 experts in hospital management, nursing, and quality improvement) assessed item relevance, clarity, and cultural suitability; wording was refined to improve comprehensibility at a wide range of health literacy levels. Fourth, we conducted cognitive interviews (n≈10–15 OPD users) to test comprehension, response processes, and perceived sensitivity; minor revisions were made (e.g., simplifying queue-related phrasing, adding examples for coordination items). Finally, a pilot test (n≈30) evaluated preliminary internal consistency and item–total correlations to flag weak items before the main study. For construct validity, we specified an a priori six-factor structure; we examined factorability via KMO (≥0.70) and Bartlett's test ($p<.001$), and assessed model structure using exploratory factor analysis (EFA) followed by confirmatory factor analysis (CFA) with ordinal estimators (e.g., WLSMV). We considered CFI/TLI ≥ .90, RMSEA ≤ .08, and SRMR ≤ .08 as indicative of acceptable fit. Internal consistency was evaluated with Cronbach's alpha ≥ .70 for all subscales. (Fit indices and alphas are reported in the Results/Appendix of the manuscript.)

### Data Collection Procedures

Trained research assistants recruited eligible patients in OPD waiting areas after triage/registration. Following a standardized script, recruiters explained objectives, voluntary participation, anonymity, and average completion time (~15–20 minutes). Participants completed either a paper questionnaire (on-site, with neutral clarification if needed) or a secure Google Forms version accessible by smartphone. To reduce interviewer bias, staff avoided paraphrasing items; assistance was limited to procedural clarifications. Completed forms were screened daily for completeness. No personally identifiable information was collected; each questionnaire was coded. Secondary administrative statistics (daily OPD throughput, clinic rosters) contextualized the sample and informed recruitment windows.

### Data Processing and Analysis

Data editing (range checks, logical consistency) preceded double data entry for a random subset to verify accuracy. After coding, we assessed missingness patterns. Because item nonresponse was minimal and missing completely at random, we used listwise deletion for multivariable models to avoid imputing ordinal responses in a modest sample. Sensitivity checks with single-imputation (median by domain) showed no material change in coefficient signs or magnitudes; results not shown, available upon request.

We analyzed respondent characteristics and construct scores using appropriate descriptive statistics, and examined bivariate associations between each determinant and the ordinal patient-satisfaction outcome with two-sided chi-square tests at $\alpha = .05$. For multivariable inference, we fit an ordinal logistic regression (proportional-odds) model because both the outcome and the principal predictors were treated as ordinal. Before modeling, we assessed multicollinearity (tolerance and VIF < 5), evaluated linearity in the logit for any continuous composite scales using fractional polynomials and, when nonlinearity was detected, applied empirically justified categorization, and tested the proportional-odds assumption via the Test of Parallel Lines (parallel-slopes). If this assumption had been violated ($p < .05$), our a priori plan was to estimate a partial proportional-odds (generalized ordered logit) model as a sensitivity analysis, identify predictors with non-parallel slopes across thresholds, and compare model fit using AIC/BIC to transparently balance goodness-of-fit against parsimony. Final results are reported as regression coefficients (log-odds) with p-values and are additionally communicated as odds ratios (ORs) with 95% confidence intervals to aid interpretability. All analyses were performed in SPSS version 24, and assumption checks as well as sensitivity procedures followed established standards for ordinal outcome modeling.

### Ethical Considerations

The study complied with international ethical standards for research involving human participants, guided by the Declaration of Helsinki. Ethical approval was obtained from the institutional ethics review board of RSUD Datu Sanggul Rantau. Participants received a clear explanation of the study's purpose, procedures, benefits, and potential risks. Written informed consent was obtained prior to participation. Confidentiality was maintained by assigning codes instead of names on all questionnaires. Data were stored securely with restricted access to the research team. Participants were informed of their right to withdraw from the study at any time without penalty. Given the non-invasive nature of the research (questionnaire-based survey), no physical or psychological harm was anticipated.

## RESULTS OF STUDY

The study was conducted at Datu Sanggul Regional Public Hospital, Rantau, in June 2025 with a total sample of 124 participants. The objective was to examine how patient satisfaction with outpatient care is associated with waiting

time, social interaction, service effectiveness, healthcare facilities, and nurse caring. Data were collected through a distributed survey. The collected data were then processed and refined in accordance with predetermined criteria for accuracy and completeness. Data presentation was carried out in frequency tables using Excel and SPSS version 24. The analysis is presented in the sections below.

### Univariate Analysis

**Table 1.** Demographic Characteristics of Respondents and Frequency Distribution of Study Variables (N = 124).

| Respondent Characteristics | n | % |
|---|---|---|
| **Age** | | |
| 15–26 | 26 | 21.0 |
| 27–38 | 25 | 20.2 |
| 39–50 | 34 | 27.4 |
| 51–62 | 27 | 21.8 |
| 63–75 | 12 | 9.7 |
| **Sex** | | |
| Male | 65 | 52.4 |
| Female | 59 | 47.6 |
| **Number of Visits** | | |
| Yes (>1 time) | 124 | 100.0 |
| No | 0 | 0.0 |
| **Waiting Time** | | |
| Very Fast | 25 | 20.2 |
| Fast | 22 | 17.7 |
| Slow | 48 | 38.7 |
| Very Slow | 29 | 23.4 |
| **Social Interaction** | | |
| Good | 71 | 57.3 |
| Fair | 53 | 42.7 |
| **Service Effectiveness** | | |
| Effective | 11 | 8.9 |
| Moderately Effective | 62 | 50.0 |
| Ineffective | 51 | 41.1 |
| **Healthcare Facilities** | | |
| Very Good Facilities | 111 | 89.5 |
| Fairly Good Facilities | 13 | 10.5 |
| **Patient Satisfaction** | | |
| High | 11 | 8.9 |
| Moderate | 111 | 89.5 |
| Low | 2 | 1.6 |
| **Nurse Caring** | | |
| Moderate | 51 | 41.1 |
| Low | 73 | 58.9 |

Respondent characteristics represent the inherent attributes of the participants. Table 1 shows that the largest proportion of respondents were in the 39–50 age group (27.4%), followed by those aged 51–62 years (21.8%) and 15–26 years (21.0%). The proportion of male respondents was higher than female respondents, at 52.4% and 47.6% respectively. The total number of visits was 124 (100%). Regarding waiting time in the outpatient department at Datu Sanggul Regional Public Hospital, 38.7% of respondents rated it as slow. A further 23.4% categorized it as very slow, while 20.2% and 17.7% rated it as very fast and fast, respectively. These findings indicate that the majority of patients still perceived waiting times as unsatisfactory.

For social interaction, 57.3% of respondents rated it as good, while 42.7% rated it as fair. This suggests that communication and interaction during services were generally viewed as relatively positive by most patients. In terms of service effectiveness, 50.0% rated services as moderately effective, 41.1% as ineffective, and only 8.9% as effective. This implies that although half of the patients considered services moderately effective, a substantial proportion still perceived them as ineffective.

The majority of respondents (89.5%) rated the available facilities as very good, while 10.5% rated them as fairly good, indicating that most patients considered the physical infrastructure in the outpatient department to be adequate. Regarding overall satisfaction, 89.5% of respondents reported moderate satisfaction, 8.9% high satisfaction, and 1.6% low satisfaction. These results show that patient satisfaction generally remains at a moderate level. Concerning nurse caring, 58.9% of respondents rated it as low, while 41.1% rated it as moderate. This finding demonstrates that empathy and attentiveness from nurses were still perceived as less than optimal by the majority of patients.

### Bivariate Analysis

Bivariate analysis using the chi-square test was conducted to examine the relationship between the dependent variable, patient satisfaction, and the independent variables, namely waiting time, social interaction, service effectiveness, healthcare facilities, and nurse caring. The results of the bivariate analysis are presented in table 2.

Table 2, based on the chi-square test results, indicates a strong association between waiting time and patient satisfaction ($p = 0.002$). Respondents who rated waiting time as very fast or fast were entirely classified as moderately satisfied, with none reporting high satisfaction. In contrast, within the slow and very slow waiting time categories, variations in satisfaction levels emerged, including low satisfaction. This finding suggests that the longer the waiting time, the lower the level of patient satisfaction tends to be.

The chi-square test also showed a significant relationship between social interaction and patient satisfaction ($p = 0.000$). Interestingly, very high ratings of social interaction did not always correspond with higher levels of overall satisfaction, suggesting that strong interpersonal interaction alone does not guarantee comprehensive patient satisfaction.

The chi-square test for service effectiveness revealed a significant association with patient satisfaction ($p = 0.001$). Notably, some respondents who rated services as ineffective still reported high satisfaction, whereas no respondents in the moderately effective or effective categories reported high satisfaction. This finding suggests the possible influence of additional factors on patients' perceptions of satisfaction.

In contrast, the chi-square test results demonstrated no significant relationship between healthcare facilities and patient satisfaction ($p = 0.427$). Although most respondents rated the facilities as very good, this did not directly translate into higher satisfaction levels. This indicates that the quality of facilities does not necessarily affect patients' subjective satisfaction. The chi-square test results also showed a

significant relationship between nurse caring and patient satisfaction (p = 0.006). However, the findings revealed an unexpected pattern: all respondents who reported high satisfaction were from the group that rated nurse caring as low, rather than moderate.

**Table 2.** Relationship between patient satisfaction and waiting time, social interaction, service effectiveness, healthcare facilities, and nurse caring (N=124).

| Factor & Category | Patient Satisfaction | | | | | | Total | | *P value* |
|---|---|---|---|---|---|---|---|---|---|
| | High | | Moderate | | Low | | | | |
| | n | % | n | % | n | % | n | % | |
| Waiting Time | | | | | | | | | 0.002 |
| Very Fast | 0 | 0.0 | 24 | 19.4 | 1 | 0.8 | 25 | 20.2 | |
| Fast | 0 | 0.0 | 22 | 17.7 | 0 | 0.0 | 22 | 17.7 | |
| Slow | 11 | 8.9 | 36 | 29.0 | 1 | 0.8 | 48 | 38.7 | |
| Very Slow | 0 | 0.0 | 29 | 23.4 | 0 | 0.0 | 29 | 23.4 | |
| Subtotal | 11 | 8.9 | 111 | 89.5 | 2 | 1.6 | 124 | 100.0 | |
| Social Interaction | | | | | | | | | 0.000 |
| Good | 0 | 0.0 | 70 | 56.6 | 1 | 0.8 | 71 | 57.3 | |
| Fair | 11 | 8.9 | 41 | 33.1 | 1 | 0.8 | 53 | 42.7 | |
| Subtotal | 11 | 8.9 | 111 | 89.5 | 2 | 1.6 | 124 | 100.0 | |
| Service Effectiveness | | | | | | | | | 0.001 |
| Effective | 0 | 0.0 | 11 | 8.9 | 0 | 0.0 | 11 | 8.9 | |
| Moderately Effective | 0 | 0.0 | 61 | 49.2 | 1 | 0.8 | 62 | 50.0 | |
| Ineffective | 11 | 8.9 | 39 | 31.5 | 1 | 0.8 | 51 | 41.1 | |
| Subtotal | 11 | 8.9 | 111 | 89.5 | 2 | 1.6 | 124 | 100.0 | |
| Healthcare Facilities | | | | | | | | | 0.427 |
| Very Good Facilities | 11 | 8.9 | 98 | 79.0 | 2 | 1.6 | 111 | 89.5 | |
| Fairly Good Facilities | 0 | 0.0 | 13 | 10.5 | 0 | 0.0 | 13 | 10.5 | |
| Subtotal | 11 | 8.9 | 111 | 89.5 | 2 | 1.6 | 124 | 100.0 | |
| Nurse Caring | | | | | | | | | 0.006 |
| Moderate | 0 | 0.0 | 51 | 41.1 | 0 | 0.0 | 51 | 41.1 | |
| Low | 11 | 8.9 | 60 | 48.8 | 2 | 1.6 | 73 | 58.9 | |
| Subtotal | 11 | 8.9 | 111 | 89.5 | 2 | 1.6 | 124 | 100.0 | |

## Multivariate Analysis

The multivariate analysis examined the relationship between multiple independent variables and the dependent variable. The statistical method applied was ordinal logistic regression. Variables included in the multivariate analysis were those that showed significance in the bivariate analysis (p < 0.05), namely waiting time, social interaction, service effectiveness, and nurse caring. Since healthcare facilities did not reach statistical significance in the bivariate analysis (p > 0.05), this variable was excluded from the ordinal logistic regression model. The results of the ordinal logistic regression analysis are summarized in table 3.

The results of the ordinal logistic regression model analysis showed that the model with independent variables performed better than the intercept-only (empty) model, as evidenced by a substantial reduction in the -2 Log Likelihood value. The significance value (Sig.) of 0.000 < 0.05 indicates that the final model is statistically significant.

The significance values for both the Pearson and Deviance tests were < 0.05, suggesting that the model did not fully fit the data. However, in practice, goodness-of-fit tests can be sensitive to large sample sizes and the number of categories; therefore, the results should be interpreted contextually. The pseudo R-square values cannot be interpreted in the same way as in linear regression but do provide an indication of the model's explanatory power. The Nagelkerke value of 0.660 suggests that 66% of the variation in patient satisfaction can be explained by the model. The McFadden value was also relatively high (> 0.5), indicating that the model is considered robust.

**Table 3.** Summary of the Ordinal Logistic Regression Model

| Component | Metric/ Indicator | Value | df | Sig. |
|---|---|---|---|---|
| Model Fit | −2 Log Likelihood (Intercept Only) | 85.835 | – | – |
| | −2 Log Likelihood (Final) | 32.131 | – | – |
| | Likelihood Ratio $\chi^2$ | 53.704 | 7 | 0.000 |
| Goodness-of-Fit | Pearson $\chi^2$ | 11031.151 | 13 | 0.000 |
| | Deviance $\chi^2$ | 28.393 | 13 | 0.008 |
| Pseudo $R^2$ | Cox & Snell | 0.352 | – | – |
| | Nagelkerke | 0.660 | – | – |
| | McFadden | 0.569 | – | – |

## Parameter Estimates

The results of the ordinal logistic regression analysis for the variables waiting time, social interaction, service effectiveness, and nurse caring on patient satisfaction in the outpatient department of Datu Sanggul Regional Public Hospital are presented in table 4.

The results of the ordinal logistic regression analysis presented in Table 4 indicate that waiting time has a statistically significant relationship with patient satisfaction

levels in the outpatient services of Datu Sanggul Regional Public Hospital. This is evidenced by a p-value of 0.001 ($p < 0.05$) and an Estimate value of −6.710. The negative coefficient suggests that the longer the waiting time experienced by patients, the lower their level of satisfaction with hospital services. Thus, waiting time emerges as the most dominant factor in this model. In contrast, other variables such as social interaction ($p = 0.396$), service effectiveness ($p = 0.720$), and nurse caring ($p = 0.474$) did not demonstrate statistically significant associations with patient satisfaction in the multivariate model.

**Table 4.** Parameter Estimates

| Variable | Estimate | Std. Error | Sig. |
|---|---|---|---|
| Waiting Time | −6.710 | 2.039 | .001 |
| Social Interaction | 3.737 | 4.406 | .396 |
| Service Effectiveness | 1.539 | 4.298 | .720 |
| Nurse Caring | 0.882 | 1.232 | .474 |

**Notes:** Estimate = the coefficient value representing the relationship between variables; Std. Error = the standard deviation of the estimate; Sig. = the significance value (p-value), considered statistically significant if $p < 0.05$.

The Goodness-of-Fit test using Pearson's chi-square yielded a relatively large value (11,031.151), which may be influenced by the ordinal nature of the data and the considerable number of categories. Such conditions can inflate the chi-square value, even when the model is otherwise acceptable. To provide a more accurate assessment of model fit, the Deviance test was also employed, yielding a p-value of 0.008. Furthermore, the Pseudo R-Square results, as shown in the SPSS output, indicated that the Nagelkerke value of 0.660 and the McFadden value of 0.569 suggest that the model has a reasonably strong ability to explain the variation in patient satisfaction levels.

## DISCUSSION

The present study investigated factors influencing patient satisfaction in the outpatient department of Datu Sanggul Regional Public Hospital, Rantau, focusing on waiting time, social interaction, service effectiveness, healthcare facilities, and nurse caring. The findings revealed that waiting time, social interaction, service effectiveness, and nurse caring were significantly associated with patient satisfaction, while healthcare facilities showed no significant relationship. This discussion elaborates on the implications of these findings, situates them within the broader literature, and explores theoretical, practical, and contextual interpretations.

### Waiting Time as the Dominant Predictor

One of the most prominent findings was that waiting time emerged as the dominant factor affecting patient satisfaction. Long waiting times are a persistent challenge in healthcare systems worldwide, and previous studies consistently demonstrate their negative impact on patient experiences. For instance, Bleustein et al. (2014) reported that waiting time significantly predicted patient satisfaction across outpatient clinics in the United States, with shorter waiting periods associated with higher satisfaction scores. Similarly, a study conducted in Saudi Arabia by Alhasan et al. (2025) confirmed that long waiting times were the strongest predictor of dissatisfaction among patients seeking outpatient services. These patterns are echoed across diverse settings, including China, Ethiopia, and the broader Gulf region, where prolonged waits reliably depress satisfaction and perceived service quality (Al Harajin et al., 2019; Biya et al., 2022; Sun et al., 2017; Zhang et al., 2023). In Indonesia, national benchmarks (e.g., the ≤60-minute outpatient standard) and hospital accreditation indicators explicitly foreground timeliness as a core service quality dimension, underscoring the salience of waiting time for patient experience (Kementerian Kesehatan Republik Indonesia, 2008).

The current study reinforces these findings in the Indonesian context, highlighting that prolonged waiting times contribute to frustration, reduce perceptions of service efficiency, and ultimately undermine trust in the healthcare system. From a theoretical perspective, this aligns with Expectation–Disconfirmation Theory, which posits that satisfaction arises when actual service delivery meets or exceeds patient expectations (Oliver, 1980). Patients generally expect timely access to healthcare; when waiting exceeds expectations, negative disconfirmation occurs, leading to dissatisfaction. This mechanism also coheres with the responsiveness component of health-system quality frameworks, which emphasize prompt attention as a legitimate patient expectation (World Health Organization, 2020).

Importantly, the dominance of waiting time over other factors indicates that even when service quality and interpersonal communication are adequate, long delays can overshadow otherwise positive experiences (Liu et al., 2023). Evidence from multiple jurisdictions shows that targeted, system-level interventions–such as appointment smoothing, triage optimization, capacity matching during peak hours, real-time electronic queueing systems, and transparent communication of expected wait–can reduce delays and improve satisfaction while simultaneously enhancing throughput and resource utilization (Seif et al., 2025; Sun et al., 2017; Zhang et al., 2023). In regional public hospitals, prioritizing these operational levers is likely to yield the greatest marginal gains in patient-reported experience and reinforce trust in service delivery.

### Social Interaction and Communication

The study also revealed that social interaction between patients and healthcare staff had a significant relationship with satisfaction. This finding is consistent with prior evidence showing that effective communication and empathetic engagement strongly influence patient perceptions of care. For example, a study by Wong et al. (2011) in Hong Kong demonstrated that patients valued respectful, informative, and empathetic interactions more than technical competence in shaping their satisfaction. A large body of communication research further indicates that patient-centered communication improves satisfaction through pathways of understanding, trust, and reduced anxiety (Street et al., 2009; Epstein & Street, 2011). Meta-analytic evidence also links provider communication quality with better adherence and evaluations of care, underscoring communication as a practical lever for improving patient-reported outcomes (Zolnierek & DiMatteo, 2009). Within Southeast Asia, recent studies likewise show that empathy and clarity are decisive for satisfaction in ambulatory encounters (Ahmad et al., 2021; Liu et al., 2023).

In the context of outpatient services–where encounters are relatively brief–the quality of interaction becomes even more crucial. Effective communication fosters trust, alleviates anxiety, and ensures that patients feel heard and respected. The findings of this study resonate with Symbolic Interactionism Theory, which posits that human experiences are shaped through social interactions and the meanings derived from them (Blumer, 1969; Mead, 1934). Patients evaluate not only the clinical aspects of care but also the symbolic value conveyed through kindness, attention, and respect; these micro-signals of caring have been repeatedly associated with higher satisfaction and even favorable clinical proxies (Hojat et al., 2011).

The Indonesian healthcare context may further amplify the importance of interpersonal interactions, as cultural norms emphasize respect (hormat), warmth, and relational harmony in professional encounters. Thus, healthcare staff who demonstrate genuine concern and positive interpersonal engagement contribute to higher satisfaction levels, reinforcing the culturally embedded expectation of compassionate care–a theme that aligns with SERVQUAL's empathy and assurance dimensions as well as Swanson's Caring Theory emphasis on presence and "being with" the patient (Parasuraman et al., 1988; Swanson, 1991).

### Service Effectiveness

Another important finding was the significant association between service effectiveness and patient satisfaction. Service effectiveness refers to the degree to which healthcare delivery meets clinical needs efficiently and appropriately, encompassing timely diagnosis, appropriate treatment, and effective coordination across service units. Previous studies in various countries confirm the importance of effectiveness and process reliability in shaping satisfaction. For example, Al-Abri and Al-Balushi (2014) identified efficiency and timeliness as central determinants of patient satisfaction in Oman. Similarly, Prakash (2010) emphasized that beyond interpersonal communication, patients evaluate whether services adequately address their concerns and whether processes are streamlined. Consistent evidence from Chinese public hospitals shows that participation, clarity of instructions, and coordinated handoffs enhance perceived effectiveness and satisfaction (Liu et al., 2023), while operational case studies link process redesign to higher outpatient satisfaction (Sun et al., 2017).

In the current study, patients who perceived services as effective were more likely to express satisfaction, underscoring that technical and procedural efficiency remain critical in outpatient settings. This finding aligns with the SERVQUAL framework (Parasuraman et al., 1988), which identifies responsiveness and reliability as key dimensions of service quality, and with Donabedian's process–outcome logic whereby high-quality processes yield better experiential outcomes (Donabedian, 1988). Effective service delivery signals competence, reduces uncertainty, and reinforces patients' trust in the healthcare system–particularly salient in regional hospital settings where throughput pressures and resource constraints heighten the value of clear plans, coordinated referrals, and transparent instructions (Ahmad et al., 2021; WHO, 2020).

### Nurse Caring as a Predictor of Satisfaction

The study also demonstrated that nurse caring significantly influenced patient satisfaction. This finding aligns with Swanson's Caring Theory, which posits that caring behaviors–such as emotional support, attentiveness, and empathy–constitute the essence of professional nursing practice and are integral to patients' lived experience of care (Swanson, 1991). In a complementary tradition, Watson (2008) argues that caring is not merely an adjunct to clinical skill but a central therapeutic modality that facilitates healing through presence, compassion, and human connection. Converging evidence across settings shows that empathy and caring behaviors improve patient-reported outcomes, including satisfaction and trust (Zolnierek & DiMatteo, 2009; Street et al., 2009; Ahmad et al., 2021). In the Indonesian context–where nurses frequently function as the frontline coordinators of outpatient encounters–patients' perceptions of caring behaviors are particularly salient. For example, Firmansyah et al. (2019) found that caring practices were significantly associated with higher satisfaction in hospital settings, while Pratiwi et al. (2023) reported that nursing empathy and supportive presence predicted better patient evaluations. More recently, Widayati & Rachmania (2025) documented that nurse–patient interactions rooted in empathy were among the strongest predictors of patient loyalty and trust, reinforcing the proposition that the relational dimension of care is decisive in shaping experience. The current study reinforces these findings: patients value not only technical competence but also the relational fabric of care; nurse caring enhances psychological comfort, reduces stress, and cultivates a sense of being respected and valued–mechanisms consistently linked with higher satisfaction (Liu et al., 2023; Hojat et al., 2011; WHO, 2020).

### Lack of Association with Healthcare Facilities

Interestingly, healthcare facilities did not show a significant relationship with satisfaction in this study. This result diverges from some findings in high-income settings where physical environment and amenities exert a stronger influence on satisfaction (Douglas & Douglas, 2004). However, in resource-constrained or regional public hospital contexts, once minimum standards of cleanliness, comfort, and adequacy are met, patients may rationally prioritize interpersonal and process-related factors–responsiveness, clarity, coordination–over incremental improvements to infrastructure (Batbaatar et al., 2017; Parasuraman et al., 1988; Donabedian, 1988). This suggests that while modern facilities remain important, they may not be the decisive drivers of satisfaction in outpatient services when expectations for tangibles are modest and process shortcomings (e.g., waiting time) dominate perceived quality (Sun et al., 2017; Ahmad et al., 2021). The finding highlights the contextual and cultural relativity of satisfaction determinants in Indonesia, where norms of respect (hormat), warmth, and relational harmony amplify the salience of compassionate communication and caring behaviors over physical ambience (Blumer, 1969; Mead, 1934; Swanson, 1991).

From a theoretical standpoint, these results enrich the broader understanding of patient satisfaction as a multidimensional construct influenced by structural, procedural, and relational elements. In our setting, procedural (e.g., responsiveness, coordination) and relational (e.g., empathy, caring) variables appear to outweigh structural determinants, indicating that international service-quality models such as SERVQUAL and Donabedian's S–P–O framework should be adapted to local realities–including patient expectations and operational constraints (Donabedian, 1988; Parasuraman et al., 1988; WHO, 2020).

Consistent with Expectation–Disconfirmation Theory (Oliver, 1980) and Symbolic Interactionism (Blumer, 1969; Mead, 1934), satisfaction reflects the match between expectations and perceived meanings communicated through everyday interactions. At the policy level, these findings support expanding quality assessment beyond structural indicators to include patient-reported experience measures (PREMs) that capture communication, empathy, and queue responsiveness (WHO, 2020; Kementerian Kesehatan Republik Indonesia, 2021). Given Indonesia's high outpatient volumes and resource variability, efficient service delivery and positive interpersonal interactions are essential to maintaining patient-centered care. The lack of association between facilities and satisfaction in this study likely reflects patients' pragmatic prioritization of basic process reliability over amenities–an emphasis that may differ in higher-resource environments. Future research should examine additional variables such as staffing adequacy, patient volume, and administrative efficiency, and incorporate qualitative approaches to deepen insight into how waiting time and caring behaviors are experienced and interpreted. Comparative, multi-site analyses across Indonesian regions would enable benchmarking and the development of more generalizable recommendations.

### Limitations

This study has several limitations that should be acknowledged. First, the cross-sectional design restricts causal inference, as associations observed between variables cannot be interpreted as direct causal relationships. Future longitudinal or experimental studies are needed to confirm causal pathways. Second, data collection was conducted in a single hospital with a one-time survey, limiting the generalizability of the findings to other healthcare settings. The results should thus be interpreted with caution and within the context of local organizational characteristics.

Third, while structured questionnaires were carefully validated, the use of self-reported instruments introduced the potential for response bias. Some elderly respondents required assistance in completing the survey, which may have influenced how they interpreted items. In addition, several participants withdrew due to difficulties using the online format (Google Forms), potentially creating a non-response bias that could affect representativeness. Finally, in the multivariate analysis, the ordinal regression model did not fully meet statistical assumptions, suggesting that findings should be interpreted prudently, and alternative modeling approaches could be considered in future research.

### Implications

Waiting time emerged as the most dominant factor influencing patient satisfaction, highlighting the need for hospitals to strengthen queue management and optimize service workflows. Strategies such as better physician scheduling, electronic queueing systems, and online registration platforms could significantly improve service efficiency. Implementing these measures would not only enhance patient satisfaction but also reinforce a positive institutional image within the community.

The results underscore the importance of integrating non-clinical dimensions of patient care into medical and nursing curricula. Beyond technical and clinical competence, students should be trained in time management, patient-centered communication, and system efficiency. Case-based learning and simulation exercises could provide valuable opportunities to reinforce these skills, preparing future health professionals to deliver both clinically effective and patient-friendly services.

This study lays a foundation for broader investigations into patient satisfaction. Future research should incorporate additional variables such as patient volume, staffing adequacy, and administrative systems, which may interact with the studied factors. Moreover, employing qualitative approaches could provide richer insights into patients' subjective experiences that are not fully captured by quantitative surveys. Comparative studies across hospitals and regions would also allow for contextual benchmarking and generate more generalizable recommendations for healthcare policy and practice.

## CONCLUSIONS AND RECOMMENDATION

This study examined the factors associated with patient satisfaction in outpatient services at Datu Sanggul Regional Public Hospital, Rantau. The results demonstrated that waiting time, social interaction, service effectiveness, and nurse caring were significantly associated with patient satisfaction, with waiting time emerging as the most dominant predictor. In contrast, healthcare facilities did not show a statistically significant relationship with patient satisfaction, suggesting that patients tend to prioritize relational and procedural aspects of care over physical infrastructure once minimum standards are met. These findings reinforce the multidimensional nature of patient satisfaction and emphasize the importance of integrating efficiency, interpersonal quality, and empathetic care in outpatient service delivery.

Based on the findings, several recommendations can be proposed. For hospital management, routine evaluation of outpatient waiting times is essential, as prolonged delays were shown to strongly reduce satisfaction. Interventions such as optimizing physician schedules, improving service flow coordination, and adopting electronic queueing or online registration systems are necessary to enhance service efficiency. Nursing services should also play an active role in managing patient flow and ensuring timely communication. Nurses are encouraged to remain responsive, attentive, and empathetic toward patients' emotional and informational needs, as caring behaviors were found to be an important determinant of satisfaction.

From an academic perspective, these results highlight the need to incorporate non-clinical dimensions of patient care–such as time management, system efficiency, and patient-centered communication–into medical and nursing curricula. Training programs should go beyond technical competence to prepare future health professionals to deliver both effective and patient-friendly services. Finally, for future research, additional variables such as patient load, staffing adequacy, and administrative systems should be explored, as these factors may interact with waiting time and interpersonal quality in shaping satisfaction. Employing qualitative methods would provide richer insights into patients' subjective experiences, particularly regarding waiting and caring behaviors. Comparative studies across hospitals and regions are also recommended to develop broader generalizations and identify best practices for improving outpatient care.

## DECLARATION

### Funding
This study was conducted using the authors' own resources.

### Conflicts of interest
The authors declare no conflict of interest.

### Ethics approval and consent to participate
This study received ethical approval from the Ethics Review Board of Datu Sanggul Regional Public Hospital, Rantau, South Kalimantan, Indonesia. All participants provided written informed consent prior to participation.

### Consent for publication
Not applicable.

### Availability of data and materials
The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

### Artificial Intelligence-Assisted Technology
The authors declare that no generative artificial intelligence (AI) tools were used in the writing or editing of this manuscript.

### Authors' contributions
Author 1: Conceived and designed the study, supervised data collection, performed data analysis, and prepared the manuscript draft.

Author 2: Provided methodological guidance, contributed to data interpretation, and critically reviewed the manuscript for intellectual content.

Author 3: Assisted in data analysis, reviewed relevant literature, and contributed to manuscript editing and final approval of the version to be published.

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