Volume 17, Issue 3, 05 Oktober 2026, Pages. 908-919

Jurnal Manajemen (Edisi Elektronik)

Sekolah Pascasarjana Universitas Ibn Khaldun Bogor

http://dx.doi.org/10.32832/jm-uika.v17i3.25335

The Effects of Queueing System, Interpersonal Communication, and Drug Availability on Outpatient Satisfaction at Pratama Griya Medika

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ARTICLE INFO

DOI: 10.32832/jmuika.v17i3.25335

Article history:
Received:
03 Oktober 2026
Accepted:
24 Oktober 2026
Available online:
28 Oktober 2026

Keywords:
Queuing system, interpersonal communication, drug availability, patient satisfaction, outpatients

ABSTRACT

Patient satisfaction is an indicator of health service quality. The queueing system, healthcare staff interpersonal communication, and drug availability are service components that can affect outpatient satisfaction. This study aims to determine the partial and simultaneous effects of the queue system, officers' interpersonal communication, and drug availability on outpatient satisfaction. Research Locale and Design of Analysis Study. The current study was conducted at Pratama Griya Medika Clinic in Bandar Lampung. The study employed a quantitative cross-sectional design. The study population comprised 1095 patients. The sample size was calculated using the Slovin formula and accidental sampling. We selected 92 patients. Data were collected using a structured five-point Likert questionnaire covering the queueing system, interpersonal communication, drug availability, and patient satisfaction. Data were analyzed using correlation and multiple linear regression. The results showed that the queueing system, interpersonal communication, and drug availability each had a strong positive relationship with outpatient satisfaction and significant positive partial effects. Simultaneously, the three variables significantly affected outpatient satisfaction. These findings indicate that patient satisfaction is influenced by service flow, healthcare staff interactions, and access to prescribed medicines. Improving queue management, communication quality, and drug availability may enhance outpatient service experiences. This study provides empirical evidence supporting an integrated approach to managing operational, interpersonal, and pharmaceutical aspects of outpatient services.

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INTRODUCTION

Outpatient healthcare is among the most frequently accessed forms of care because it allows patients to receive assessment and treatment without hospitalization. Unlike inpatient care, outpatient services involve a relatively short interaction between patients and healthcare personnel, making the service process an important part of the patient experience. The quality of healthcare service depends not only on the outcomes produced by the care process but also on how the service is provided to patients (Noviyani & Viwattanakulvanid, 2024). Outpatient healthcare is an important component of health service delivery because it enables patients to receive assessment and treatment without hospitalization. In this setting, patients evaluate not only clinical care but also the way services are delivered, including waiting time, staff behaviour, information provision, and access to prescribed medicines (Norsaputera et al., 2025).

One of the common problems that can be observed in healthcare facilities is the formation of queues. Studies have reported an association between queueing arrangements and patient satisfaction in healthcare settings (Hasibuan, 2023). A queue forms when demand for a service exceeds the capacity available to provide it. In outpatient care, patients may wait for registration, examination, or medicines. Some waiting may be unavoidable because patient arrivals and staffing levels vary, but unclear procedures and inadequate information about the waiting process can make the experience more difficult for patients (Rizany & Setiawan, 2021). The problem addressed in this study was identified from the service concerns described in the research background, including complaints about waiting time and the need for a more orderly service process, and also discuss queue management in healthcare services; this study is cited as relevant literature rather than described as the newest evidence (Norsaputera et al., 2025).

Another factor that patients encounter directly during the service process is interpersonal communication. Communication takes place at different stages of an outpatient visit, including when patients receive information, ask questions, express concerns, or seek clarification about the services they receive (Ting et al., 2022). For this reason, communication with the healthcare personnel is not only about providing the information to the patients but also about listening to them, answering questions, treating them with respect, and expressing empathy (Kim et al., 2024). In addition, such interaction can affect how patients view the service they receive and how they assess their experience. Previous studies have reported a relationship between interpersonal communication and patient satisfaction (Herlina et al., 2024). In this study, the issue concerns patients' experience of communication with healthcare personnel during an outpatient visit. This includes whether staff listen to patients, provide understandable information, respond to questions, show respect, and communicate with empathy. These interactions can influence how patients understand the service and how they evaluate the care they receive.

Drug availability represents another aspect of outpatient service that can affect the patient

experience. The treatment process does not necessarily end when the consultation is completed. Patients may still need to obtain the medicines prescribed by healthcare personnel in order to continue their treatment (Adinew et al., 2021). When prescribed medicines are available, patients can obtain them as part of the planned treatment without having to search for the medicines elsewhere. Research has identified a relationship between medicine availability and patient satisfaction (Ali et al., 2022). The consultation may not complete the treatment process if a patient cannot obtain the prescribed medicine. When medicines are available, patients can continue the planned treatment through the clinic; when they are unavailable, patients may need to search elsewhere, potentially adding time, effort, or cost. Drug availability is therefore an important service component to consider alongside waiting processes and communication (Kassa et al., 2021).

At Pratama Griya Medika Clinic in Bandar Lampung was selected as the study setting because of concerns regarding outpatient waiting time, communication between healthcare staff and patients, and the availability of medicines. Although these factors have been examined in previous studies, investigating them together in this setting provides a context-spesific assessment of how operational, interpersonal, and pharmaceutical service components are associated with patient satistaction. Accordingly, this study examines the individual and simultaneous effects of these three factors on outpatient satisfaction. The queueing system, interpersonal communication of officers, and drug availability is encountered as the part of outpatient services. Each factor was different in the context of a patient's experience, while satisfaction is their overall evaluation of services provided.

Examining these factors together can provide a broader view of the aspects of outpatient service that are associated with patient satisfaction. Therefore, this study examined the partial and simultaneous effects of the queue system, officers' interpersonal communication, and drug availability on outpatient satisfaction at Pratama Griya Medika Clinic, Bandar Lampung. The study was also intended to provide empirical evidence that can support the evaluation and improvement of outpatient service management at the clinic. The research framework is presented in Figure 1.

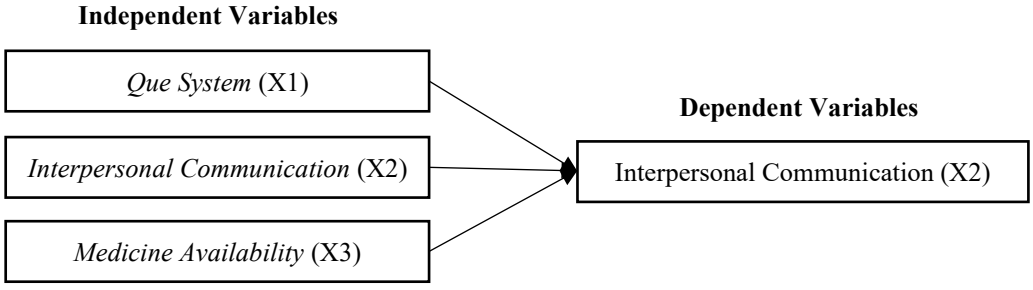


Figure 1 Research Framework

Hypothesis. H1: The queueing system has a positive effect on outpatient satisfaction. H2: Interpersonal communication by healthcare staff has a positive effect on outpatient satisfaction.

H3: Drug availability has a positive effect on outpatient satisfaction. H4: The queueing system, interpersonal communication, and drug availability simultaneously have a significant effect on outpatient satisfaction.

RESEARCH METHODS

This study employed a quantitative approach with a cross-sectional design. The research was conducted at Pratama Griya Medika Clinic, Jl. Ikan Kembung No. 50, Pesawahan, Telukbetung Selatan, Bandar Lampung. The population consisted of 1,095 outpatients during the study period. The sample size was determined using the Slovin formula with a 10% margin of error, resulting in 91.63, which was rounded to 92 respondents. Accidental sampling was employed to recruit eligible outpatients who attended the clinic during the data-collection period and agreed to participate after completing their outpatient visits. This method was appropriate for facility-based cross-sectional survey, as respondents were recruited based on their availability and willingness to participate rather than through purposive selection.

Respondents included those aged 21 and older, who have undergone an outpatient service, who are able to read and communicate in Indonesian, and who provided informed consent. In addition, we excluded emergency patients, those who were unable to respond to the questionnaire independently, and those unwilling to participate. Finally, we also excluded respondents who provided incomplete data. The primary data were collected using a closed questionnaire that comprised a five-point Likert scale.

The study used a researcher-developed, closed-ended questionnaire with a five-point Likert scale to measure four constructs: the queueing system (X1), interpersonal communication of healthcare staff (X2), drug availability (X3), and patient satisfaction (Y). The questionnaire items were developed based on the operational definitions and indicators established in the study's literature review, following established principles of instrument development (Febriana et al., 2023).The queueing-system construct covered patient arrival, queue discipline, and service facilities. Interpersonal communication was assessed through five indicators: engaging, delivering, questioning, responding, and ending (Ridho et al., 2022). Drug availability covered selection, procurement, distribution, and use, while patient satisfaction was assessed in terms of access, service quality, service process, and service system. The questionnaire was subsequently evaluated for validity and reliability before being used for data collection (Kurniasari et al., 2023).

The statistical analysis was done using the Statistical Package for Social Sciences (SPSS). First, the validity of each item in the questionnaire was evaluated by comparing their correlation coefficients with the critical r value. Moreover, Cronbach's Alpha was used to determine the reliability of the study. Therefore, the descriptive statistics, Pearson correlation, classical assumption tests, multiple linear regression analysis, partial t-test, simultaneous F-test, and coefficient of determination were performed. The results were considered statistically significant at $\alpha = 0.05$.

RESULTS & DISCUSSION

This section begins by outlining grand theory as the fundamental theory covering the research, then outlines the theory applied to each variable. This theoretical review will cover the relationships among variables, relevant research, the research framework, and the research hypothesis.

Demography of Respondents. A total of 92 respondents participated in the study. Their demographic characteristics are presented in Table 1.

Table 1. Demography of Respondents

Category	Information	n	%
Age	21–30 years	42	45.7
	31–40 years	18	19.6
	>40 years	32	34.8
Education	Secondary school	27	29.3
	Diploma/Bachelor	65	70.7
Sex	Male	42	45.7
	Female	50	54.3

Source:Research Data (Processed) (2026)

Validity Test Results

The validity test showed that all 62 questionnaire items met the validity criterion. The 62 items questionnaire was developed based on the study's operational definitions and indicators, referring to instrument-development principles described by (Suiraoka et al,.2019) and (Hardani et al,. 2020). For 92 respondents, the critical r value was 0.205 (df = 90; $\alpha = 0.05$). All item correlation coefficients exceeded the critical value, indicating that each item was valid and suitable for inclusion in the subsequent analysis, in Table 2.

Table 2. Validity Test Results

Variable	Items	r-table	Validity Result	Conclusion
Patient Satisfaction (Y)	20	0.205	All r-calculated > 0.205	All items valid
Queue System (X1)	15	0.205	All r-calculated > 0.205	All items valid
Interpersonal Communication (X2)	15	0.205	All r-calculated > 0.205	All items valid
Drug Availability (X3)	12	0.205	All r-calculated > 0.205	All items valid

Source: Research Data (Proccessed), 2026

Table 2 The validity criterion was r-calculated > r-table (0.205). The item-level r-calculated coefficients were not reproduced in the manuscript; therefore, the table summarizes the validity decision by construct based on the reported result that all items exceeded the critical r value.

Reliability Test Results. Presents the reliability test results for the four study variables, as indicated by Cronbach's Alpha coefficients, in Table 3.

Table 3. Reliability Test Result

Variable	Items	Cronbach's Alpha	Interpretation
Patient Satisfaction (Y)	20	0.954	Very high
Queue System (X1)	15	0.953	Very high
Interpersonal Communication (X2)	15	0.928	Very high
Drug Availability (X3)	12	0.933	Very high

Source: Research Data (Proccessed), 2026

Table 3 Reliability was assessed using Cronbach's Alpha. The questionnaire demonstrated high internal consistency, with coefficients of 0.954 for patient satisfaction, 0.953 for the queueing system, 0.928 for interpersonal communication, and 0.933 for drug availability. All coefficients exceeded the minimum acceptable threshold of 0.70, indicating that the items within each construct were reliable for further analysis.

Descriptive Statistics. Summarises the descriptive statistics of the four study variables, including the number of respondents, minimum and maximum scores, mean, and standard deviation, in Table 4**.**

Table 4. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	SD
Patient Satisfaction (Y)	92	32.60	81.78	64.8826	13.59481
Queue System (X1)	92	21.64	65.95	48.5557	11.81110
Interpersonal Commucation (X2)	92	22.08	65.11	49.1471	11.22537
Drug Availability (X3)	92	18.51	50.92	37.9396	9.15590

Source: Research Data (Proccessed), 2026

Table 4 Patient satisfaction had a mean score of 64.88, followed by interpersonal communication (49.15), the queueing system (48.56), and drug availability (37.94). These results summarise the respondents' scores and their variability across the study variables.

Correlation Analysis. Presents the Pearson correlation matrix, showing the correlation coefficients among the four study variables, in Table 5**.**

Table 5. Pearson Correlation Matrix

Variable	X1	X2	X3	Y
Patient Satisfaction (Y)	0.868	0.819	0.825	1.000
Queue System (X1)	1.000	0.804	0.758	0.868
Interpersonal Commucation (X2)	0.804	1.000	0.789	0.819
Drug Availability (X3)	0.758	0.789	1.000	0.825

Source: Research Data (Proccessed), 2026

Table 5 correlations between patient satisfaction and the queueing system (r = 0.868), interpersonal communication (r = 0.819), and drug availability (r = 0.825). These findings indicate that higher scores for each service dimension were associated with higher patient

satisfaction.

Summary of Classical Assumption Tests. Presents the results of the classical assumption tests, including normality, multicollinearity, heteroscedasticity, and linearity tests, in Table 6

Table 6. Summary of Classical Assumption Tests

Test	Variable/Statistic	Result	Conclusion
Normality	K–S Sig.	0.200	Normal
Multicollinearity	X1: Tolerance / VIF	0.313 / 3.195	No multicollinearity
	X2: Tolerance / VIF	0.277 / 3.607	No multicollinearity
	X3: Tolerance / VIF	0.335 / 2.988	No multicollinearity
Heteroscedasticity	X1 / X2 / X3 Sig.	0.934 / 0.301 / 0.201	No heteroscedasticity
Linearity	X1 / X2 / X3 Deviation Sig.	0.072 / 0.728 / 0.903	Linear

Source: Research Data (Proccessed), 2026

Table 6 summarises the regression assumption tests. The results indicated no significant deviation from normality, no evidence of severe multicollinearity or heteroscedasticity, and no statistically significant deviation from linearity. These findings supported proceeding with multiple linear regression analysis.

Multiple Linear Regression. Presents the multiple linear regression results, including regression coefficients, standard errors, standardized beta coefficients, t-statistics, and significance values for each predictor, in Table 7.

Table 7. Multiple Linear Regression Results

Variable	B	Std. Error	Beta	t	Sig.
Constant	9.301	2.803	—	3.318	0.001
Queue System (X1)	0.557	0.091	0.484	6.135	<0.001
Interpersonal Communication (X2)	0.217	0.101	0.179	2.139	0.035
Drug Availability (X3)	0.471	0.113	0.317	4.159	<0.001

Source: Research Data (Proccessed), 2026

Table 7 shows that the queueing system ($B = 0.484$, $p < 0.001$), drug availability ($B = 0.317$, $p < 0.001$), and interpersonal communication ($B = 0.179$, $p = 0.035$) were positively and significantly associated with patient satisfaction. The queueing system had the largest standardised coefficient among the three predictors.

Coefficient of Determination and Hypothesis Testing. The coefficient of determination analysis showed an R value of 0.910, an R^2 value of 0.829, and an adjusted R^2 value of 0.823, with a standard error of the estimate of 5.72225. The adjusted R^2 indicates that the queueing system, interpersonal communication, and drug availability collectively explained 82.3% of the variation in patient satisfaction. The remaining variation may be related to factors not included in the model.

Partial and Simultaneous Significance Tests. Presents the partial t-test and simultaneous F-test results used to assess the significance of the relationships between the independent variables and patient satisfaction, in Table 8**.**

Table 8. Partial and Simultaneous Significance Tests

Test	Statistic	Sig.	Conclusion
Queue System → Satisfaction	t = 6.135	<0.001	Significant
Interpersonal Communication → Satisfaction	t = 2.139	0.035	Significant
Drug Availability → Satisfaction	t = 4.159	<0.001	Significant
X1 + X2 + X3 → Satisfaction	F = 141.878	<0.001	Significant

Source: Research Data (Proccessed), 2026

Table 8 shows that each of the three independent variables individually predicted patient satisfaction. The simultaneous F-test was also significant ($F = 141.878$, $p < 0.001$), indicating that the predictors jointly predicted patient satisfaction.

The Relationship Between the Queueing System and Patient Satisfaction. The findings indicate that the queueing system is positively and significantly associated with outpatient satisfaction. The correlation analysis showed a strong positive relationship between the two variables ($r = 0.868$). In contrast, the multiple regression analysis demonstrated a significant positive association after accounting for the other variables in the model ($B = 0.557$, $B = 0.484$, $p < 0.001$). Among the three predictors, the queueing system had the largest standardised regression coefficient, suggesting it contributed the most to the model.

Conceptually, the queueing system represents the organizational dimension of outpatient service delivery. An orderly sequence of patients, clear procedures, and effective coordination between service stages can help patients understand how the service process operates. Conversely, unclear procedures and uncertainty about waiting times may increase frustration and negatively affect patients' perceptions of service quality. These considerations suggest that satisfaction depends not only on waiting time but also on how the waiting process is organised and communicated (Rizany & Setiawan, 2021).

This finding is consistent with previous studies examining the relationship between waiting processes and patient satisfaction (Rizany & Setiawan, 2021). At Pratama Griya Medika Clinic, the results highlight the importance of evaluating queue management as part of a broader effort to improve outpatient services. Clear patient sequencing, transparent information about service procedures, and better coordination between registration, consultation, and pharmacy services may help create a more satisfactory patient experience.

The Relationship Between Interpersonal Communication and Patient Satisfaction. Interpersonal communication was also positively and significantly associated with outpatient satisfaction. The correlation coefficient indicated a strong positive relationship ($r = 0.819$), while the regression analysis showed a significant positive association after adjustment for the other predictors ($B = 0.217$, $B = 0.179$, $p = 0.035$). Although its standardised coefficient was

smaller than those of the queueing system and drug availability, the result indicates that interpersonal communication remains a relevant component of patient satisfaction.

Conceptually, interpersonal communication concerns the quality of interactions between healthcare personnel and patients. Respectful behaviour, clear explanations, active listening, empathy, and appropriate responses to patients' questions can help patients understand the services they receive and feel that their concerns are acknowledged (Kim et al., 2024). These interactions are particularly important in outpatient settings, where patients may need information about procedures, examinations, treatment recommendations, and medication use.

These findings align with previous research linking interpersonal communication to patient satisfaction (Hamdiah & Budiyanto, 2024). The results suggest that improvements in outpatient services should extend beyond administrative efficiency to include the quality of communication between staff and patients. Providing understandable information, responding appropriately to questions, and maintaining respectful interactions may help strengthen patients' confidence in the care process.

The Relationship Between Drug Availability and Patient Satisfaction. Drug availability demonstrated a strong positive relationship with outpatient satisfaction ((r = 0.825)) and a significant positive association in the multiple regression analysis ((B = 0.471), (B = 0.317), ($p < 0.001$)). This finding indicates that the availability of prescribed medicines is an important aspect of patients' evaluations of outpatient services, even when the queueing system and interpersonal communication are considered in the same model.

Theoretically, drug availability represents the pharmaceutical dimension of healthcare service quality. Patients may view outpatient care more positively when they can obtain prescribed medicines through an accessible, well-coordinated service process. Conversely, when medicines are unavailable, patients may need to seek alternatives or obtain them elsewhere, potentially creating additional costs, inconvenience, and delays in completing treatment (Fanda et al., 2024). Medicine availability therefore relates not only to pharmacy operations but also to the continuity and convenience of the patient's treatment experience.

This interpretation is consistent with previous studies examining the relationship between medicine availability and outpatient satisfaction (Adinew et al., 2021). For Pratama Griya Medika Clinic, the findings support the importance of appropriate stock management, monitoring medicine requirements, and coordinating pharmaceutical services with clinical care. However, the study does not establish that medicine availability alone determines satisfaction; rather, it identifies drug availability as one of several service dimensions associated with patients' evaluations.

The Combined Relationship of the Queueing System, Interpersonal Communication, and Drug Availability with Patient Satisfaction. The simultaneous analysis showed that the queueing system, interpersonal communication, and drug availability were jointly associated with outpatient satisfaction ($F = 141.878$, $p < 0.001$). The model's adjusted coefficient of determination $\left(R^2_{\text{adjusted}} = 0.823\right)$ indicates that the three predictors collectively accounted for

a substantial proportion of the observed variation in patient satisfaction within the study sample.

These findings can be interpreted through an integrated view of outpatient service quality. The queueing system reflects service organisation and flow, interpersonal communication reflects the relational dimension of care, and drug availability reflects access to prescribed medicines. Each dimension addresses a different part of the patient journey, from entering the facility and interacting with healthcare personnel to obtaining the prescribed treatment (Nasution, Sri., L. et al., 2021). Considering these dimensions together therefore provides a broader perspective on patient satisfaction than examining each component in isolation.

The findings are consistent with the broader approach to healthcare service evaluation discussed in previous studies (Wildani, 2024). Nevertheless, the adjusted R^2 should be interpreted as the proportion of variation explained by the statistical model, rather than evidence that these variables causally determine patient satisfaction. Other factors not included in the analysis may also contribute to patients' evaluations of outpatient care.

Overall, the study highlights the value of integrating operational management, effective staff–patient communication, and pharmaceutical service management in efforts to improve outpatient satisfaction. For primary healthcare facilities, these findings provide a basis for reviewing service procedures and identifying areas for improvement. Because the research was conducted in a single clinic using a cross-sectional design, interpret the findings within that context and do not automatically generalise them to all healthcare facilities.

CONCLUSION & SUGGESTION

This study concludes that the queueing system, healthcare staff's interpersonal communication, and drug availability are positively and significantly associated with outpatient satisfaction at Pratama Griya Medika Clinic in Bandar Lampung. An efficient queueing system supports a more organised service process, while effective interpersonal communication fosters positive interactions between healthcare staff and patients. The availability of prescribed medicines is also an important part of the outpatient experience. Together, these findings highlight the importance of improving operational efficiency, communication quality, and pharmaceutical services to enhance patient satisfaction. Healthcare facility managers should therefore consider these three aspects as complementary priorities in outpatient service management. By strengthening queue management, promoting clear, responsive communication, and ensuring prescribed medicines are available, healthcare facilities can improve patients' perceptions of service quality. These findings provide a basis for developing more integrated approaches to improving outpatient services in primary healthcare settings.

These findings indicate that patient satisfaction in outpatient services is related to several aspects of the service process rather than to a single component. From a service-management perspective, attention to patient flow, communication between healthcare personnel and patients, and the availability of medicines may therefore be considered together when evaluating outpatient services. In practice, the clinic may improve the clarity of queue

procedures and information provided to patients, minimise unnecessary waiting, maintain respectful and responsive communication, and monitor medicine stocks on a routine basis.

Several limitations should also be considered when interpreting these findings. The study was conducted at only one clinic and used a cross-sectional design, self-reported questionnaire data, and accidental sampling. Therefore, the findings should be interpreted within the characteristics and conditions of the study setting. Future research may involve a larger number of healthcare facilities, include additional variables that may contribute to patient satisfaction, and use other research designs to provide a broader understanding of factors associated with satisfaction in outpatient healthcare services.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to the supervisors and examiners, Kosasih, Vip Paramarta, and Farida Yuliaty, for their valuable guidance, constructive feedback, and support throughout the research and manuscript preparation. Their academic advice and encouragement greatly contributed to the completion of this study.

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