

## PATIENT SATISFACTION TOWARDS PHARMACEUTICAL SERVICES AT THE GOVERNMENTAL HEALTH CARE INSTITUTION

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### Abstract

This study aimed to assess patient satisfaction with pharmaceutical services and examine related factors at government medical institutions in Al-Buraimi Governorate. A cross-sectional design using a standardized self-administered questionnaire was applied. A total of 371 patients were selected through random sampling. The questionnaire covered five domains: sociodemographic characteristics, location, supply, pharmacist's attitude, and promptness. Data were analyzed using multiple linear regression, Mann-Whitney U, and Kruskal-Wallis tests. The results of the respondents, 55.8% were male, with a mean age of 39.6 years. Overall, 75.27% were satisfied with pharmaceutical services. Highest mean scores were reported for "Pharmacist showed interest in helping me obtain medication" and "Pharmacist showed respect" (4.73), followed by "Received medication within a reasonable time" (4.71) and "Waiting time acceptable considering prescription quantity" (4.69). More than three-quarters (78.7%) used daily medications. Patients visited pharmacies an average of three times annually (SD  $\pm 1.372$ ) and received about four items per visit (SD  $\pm 1.994$ ). Dispensing took approximately three minutes (SD  $\pm 1.213$ ). Four variables showed significant correlation with satisfaction, one showed weak correlation, and one showed no association ( $p < 0.05$ ). Patient satisfaction with pharmaceutical services was generally high, reflecting the quality of care provided. However, regular audits are recommended to enhance satisfaction and support continuous quality improvement, particularly for national accreditation processes. Strengthening communication between pharmacies and government institutions is also essential to improve services and prevent drug-related issues.

**Keywords:** Cross-Sectional Study, Patient Satisfaction, Pharmaceutical Care, Pharmacy Communication, Pharmacy Services



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## INTRODUCTION

Patient satisfaction is a central indicator of healthcare quality and has been widely applied in the evaluation of pharmacy services. Studies from various contexts—including outpatient hospital pharmacies and primary healthcare centers—demonstrate that satisfaction influences patients' adherence to treatment, willingness to communicate with providers, and continuity of care (Gourley et al., 2000; Larson et al., 2002; Horvat & Kos, 2010; Ajadi & Ayanlowo, 2025; Trisninawati et al., 2025). In pharmacy-specific settings, satisfaction has consistently been used to measure the effectiveness of pharmaceutical care delivery, particularly regarding counseling, dispensing efficiency, and medication availability (Alshammari, 2014; Surur et al., 2015; Teshome Kefale et al., 2016; Alkilany et al., 2025; Asmaningrum et al., 2025).

To ensure Pharmaceutical Care services align with current demands and expand effectively, the Ministry of Health (MOH) in Oman, through its National Five-Year Health Development Plans, has implemented various assessments and monitoring tools. Among these, patient satisfaction is a primary indicator. According to Donabedian's model for measuring healthcare performance, patient satisfaction is considered a patient-reported outcome, whereas patient experiences reflect the efficiency of healthcare systems and processes (Donabedian, 2005; Charlize et al., 2025; Demon & Santos, 2025). Donabedian emphasized the value of understanding patient satisfaction from the patients' perspective when implementing quality improvement initiatives and total quality management strategies.

The conceptual framework guiding this study draws on Donabedian's structure, process, and outcome (Donabedian, 2005; Diaz et al., 2025; Fetmirwati et al., 2025; Zhao & Lertlit, 2025). In this framework, patient satisfaction is considered a patient-reported outcome, reflecting users' judgments of care quality. It is distinct from—but complementary to—patient experiences, which capture the processes of care delivery. By focusing on satisfaction, this study aims to assess patients' perceptions of outcomes resulting from pharmaceutical care interactions, such as respect, communication, and timeliness.

Studies conducted in Ethiopia, Pakistan, India, Indonesia, and Tanzania have examined levels of patient satisfaction with outpatient hospital pharmacies (Jande et al., 2003; Javed, 2005; Surur et al., 2015; Sharma & Jiwan, 2016; Teshome Kefale et al., 2016; Pasulu et al., 2023; Islami et al., 2025). Meanwhile, research from Brazil and Saudi Arabia has evaluated satisfaction with pharmacy services at primary healthcare centers (Alshammari, 2014; Soeiro et al., 2017; Hafiz et al., 2025; Hagad & Riah, 2025), while other studies have focused on specialized hospital-based clinical pharmacy services.

In the Gulf Cooperation Council (GCC) region, three studies from Qatar, Oman, and one from Saudi Arabia have assessed patient satisfaction with community and hospital pharmacy services, respectively (El Hajj et al., 2011; Jose et al., 2015; Al-Tannir et al., 2016; Jackson & Alfaki, 2025). These findings highlight the importance of developing informed healthcare policies that consider the differing satisfaction levels across various socio-demographic groups. In Satisfied patients are more likely to follow treatment plans, share vital information with healthcare providers, and continue using health services. As noted by Soeiro et al. (Soeiro et al., 2017), greater satisfaction is often associated with a higher quality of life. Thus, patient satisfaction is both a target and a tool for enhancing healthcare delivery, making it crucial to study and improve.

Given that patient satisfaction serves as a healthcare quality indicator, evaluating satisfaction with pharmacy services is essential for enhancing performance in government-run facilities. However, there is a lack of research in Oman specifically addressing patient satisfaction with pharmaceutical services; specifically, only one study was found, and done 10 years ago (Jose et al., 2015). This study aims to develop a reliable instrument for assessing patient satisfaction in Oman's pharmaceutical sector. The insights gained may help identify specific areas needing improvement. The primary objective is to assess patients' satisfaction levels and examine the relationship between satisfaction and socio-demographic factors such as gender, age, marital status, economic status, and education. A better understanding of these relationships can aid policymakers in targeting healthcare services to meet the needs of different population groups.

Ultimately, this research is expected to enhance the viability of pharmacy services, contribute to achieving national healthcare goals, and support continuous quality improvement in Oman's public healthcare system—benefiting patients' overall quality of life. Additionally, raising awareness about pharmacists' roles and patient satisfaction can lead to improved pharmacy services and patient care. Therefore, this study is based on the following hypotheses: There is a significant relationship between

demographic factors and patient satisfaction or There is a significant relationship between pharmacy services and patient satisfaction.

## RESEARCH METHOD

A descriptive cross-sectional study was conducted from April 1 to May 1, 2019, at the Al-Buraimi Extended Health Centre in Al-Buraimi Governorate to evaluate patient satisfaction. The study was approved by the Studies and Research Committee of the Directorate General of Health Services in Al-Buraimi Governorate with Ref. MOH/IRB /336/2018. Dependent variable in this study was the patient's satisfaction with pharmaceutical service, and the independent variables in this study were socio-demographic data (age, sex, nationality, marital status, education, medication usage) and pharmacy service (time of prescription dispensing, pharmacist attitude, medication supply, the pharmacy place, medication information).

The required sample size was calculated using a Daniel Soper calculator (Soper, 2012), based on a 95% confidence interval, 5% margin of error, 11 predictors, and an anticipated effect size of 0.15, yielding a minimum sample of 179 participants. Data were collected over 21 working days, with approximately 18 patients surveyed each day. Participants were chosen through systematic random sampling, selecting every third patient visiting the pharmacy. Eligible participants were adults aged 18 and above, able to write and read in English or Arabic, willing to participate, and visiting the outpatient pharmacy to fill a prescription. Prior to participation, patients were required to sign a consent form.

The survey instrument included sections on socio-demographic data, pharmacy service, and overall satisfaction. Satisfaction was measured using a 5-point Likert scale, where 1 represented "very dissatisfied" and 5 represented "very satisfied". To make it easier for participants to express their views, a range of satisfaction levels was offered. The final question of the survey asked participants to rate their overall satisfaction with pharmacy services on a scale from 0 to 100.

The questionnaire's content was reviewed for relevance and accuracy. After finalizing the items, the questionnaire was translated into Arabic using the forward-backward translation method. Face validity was evaluated through a pilot test involving 30 participants to ensure clarity, comprehension, and appropriate length. These participants were not included in the main study. Construct validity was tested using factor analysis with principal components extraction, the Kaiser–Meyer–Olkin (KMO) measure, and varimax rotation. Cronbach's alpha was used to determine internal consistency of the entire scale and its subscales, supported by inter-item and item-total correlations. Additionally, 20 questionnaires were pretested in the outpatient department (OPD) for reliability. Based on the feedback, minor revisions were made. The pretest resulted in a Cronbach's alpha of 0.813, indicating good reliability.

Data collectors received written instructions on administering the survey, including how to explain the study's purpose to participants. Personal data was collected anonymously. Participants' literacy was confirmed prior to survey distribution. Patients unable to complete the form due to language issues were excluded. Although the questionnaire was self-administered, data collectors assisted participants who needed clarification. The survey was completed in the pharmacy supervisor's office after participants received their medication. The completed questionnaire was collected in the anonymous box in a neutral area. Principal investigators regularly reviewed the completed forms for accuracy and completeness. Patients who were critically ill, refused participation, or had previously taken part in the study were excluded to minimize bias.

The data was examined with the help of SPSS version 25. To summarize socio-demographic factors and satisfaction levels, descriptive statistics were utilized, including frequencies, percentages, means, and standard deviations. With patient satisfaction as the dependent variable and six socio-demographic variables as the independents, we used Kruskal-Wallis and Mann-Whitney U tests to investigate potential connections between patient characteristics and overall satisfaction. We utilized multiple regression analysis to look at how happy customers were with their pharmacy's service. Overall satisfaction was the dependent variable in this case, with the created satisfaction rating scales acting as the independent variables. To further understand the impact of demographic characteristics, we also examined the mean satisfaction scores.

## RESULTS AND DISCUSSION

### Validity

Factor Analysis (FA) is a statistical method used to reduce large sets of variables by grouping them into smaller, more manageable components or factors. This technique helps identify underlying

structures in data by condensing numerous items into coherent subscales. FA typically involves three primary steps: evaluating data suitability, extracting relevant factors, and rotating factors for interpretation. In this study, all 20 items were included in the analysis. To determine whether the data were appropriate for FA, two key statistical tests were conducted: the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett’s Test of Sphericity. These assessments confirmed the appropriateness of the dataset for factor analysis.

Given the results of the KMO (0.719) and Bartlett’s Test ( $p < 0.000$ ), the data were deemed suitable, suggesting adequate common variance and significant inter-variable correlations.

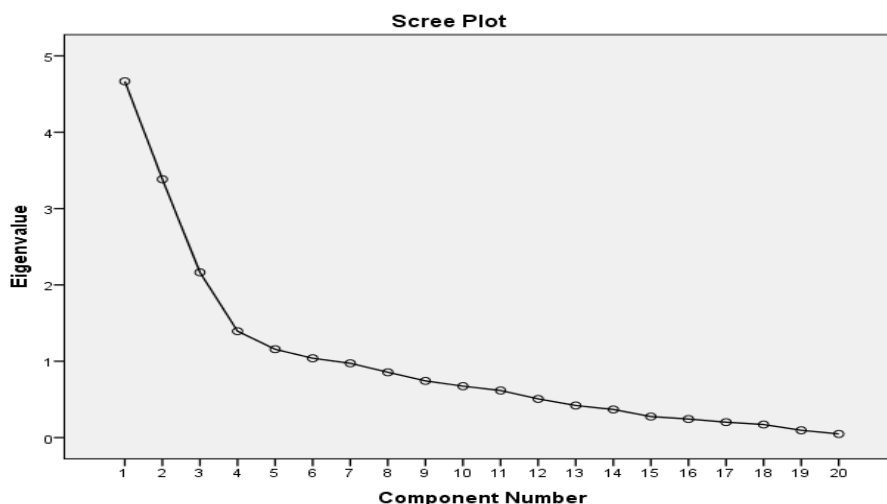


Figure 1. KMO Test

The second phase of FA involved determining the optimal number of factors that best represent the dataset. According to the scree plot (Figure 1), five factors had eigenvalues greater than 1, which led to the decision to retain these five. These five extracted factors collectively explained 71.4% of the total variance.

Table 1. Principal Components Analysis with corresponding factor loadings: The Items with Factor Loadings greater than 0.6

Dimensions/evaluation items	Mean	SD	Factor loadings
<b>Factor 1: Time of prescription dispensing</b>			
1.1 Received medication within a reasonable time	4.71	0.577	0.811
1.2 Waiting time is acceptable considering the quantity of prescription medication	4.69	0.464	0.617
<b>Factor 2: Pharmacist attitude</b>			
2.1 Pharmacist showed an interest in helping me to get the medication	4.73	0.563	0.737
2.2 Pharmacist helped me to solve any problem in getting the medication	4.56	0.529	0.779
2.3 Pharmacist showed an interest in answering my questions	4.28	0.929	0.860
2.4 Pharmacist understood my medical condition	4.42	0.893	0.784
2.5 Pharmacist showed respect to me	4.73	0.550	0.709
<b>Factor 3: Medication supply</b>			
3.1 Medication quantity was sufficient	4.50	0.811	0.811
3.2 All my medications were available in the pharmacy	4.61	0.636	0.887
3.3 Medication name was clear and easy to read	4.62	0.629	0.787
3.4 Medication Label /sticker instruction were clear	4.58	0.734	0.839
3.5 Medication appearance and quality was good	4.58	0.626	0.656
<b>Factor 4: The pharmacy place</b>			
4.1 The pharmacy easily found	4.51	0.866	0.751

Dimensions/evaluation items	Mean	SD	Factor loadings
4.2 The pharmacy area was clean and acceptable	3.66	1.267	0.728
<b>Factor 5: Medication Information</b>			
5.1 Pharmacist explained the using indication for my medication	4.10	1.077	0.766
5.2 Pharmacist explained to me how to take the proper dose of my medication	4.53	0.695	0.698
5.3 Pharmacist explained how to store my medication	4.22	0.993	0.798
5.4 I had enough time with the pharmacist	4.25	0.789	0.794
5.5 Pharmacy had provided a private place for explain the use of medication	4.56	5.969	0.846

To better interpret the extracted factors, an orthogonal (Varimax) rotation was applied. Rotation doesn't alter the underlying structure but instead simplifies the presentation of factor loadings. Items with factor loadings below 0.4 were excluded from the final analysis. All remaining items had factor loadings ranging from 0.617 to 0.887, indicating good convergent validity. These items were effectively distributed among the five retained factors (Table 1).

**Reliability**

The reliability testing indicated that the questionnaire was stable and consistent, making it a viable tool for future studies with minimal adjustments. Table 2 shows the reliability scores for each factor, further confirming internal consistency.

Table 2. Internal Consistency reliability

Section	Cronbach's Alpha	N of Items
Time of prescription dispensing	0.795	2
Pharmacist attitude	0.808	5
Medication supply	0.870	5
The pharmacy place	0.756	2
Medication Information	0.837	5
Total	0.813	

**Socio-demographic Characteristics**

Out of 375 distributed questionnaires, the response rate was twice the minimum sample size. A majority of respondents were male (55.8%) and married (82.7%). The most represented age group was 36–45 years (33.2%), followed by 46–55 years (20.6%). Regarding education, the largest group had completed secondary education (45.5%), with 35.5% having higher education.

Most participants (78.7%) reported daily medication use. On average, patients visited the pharmacy three times per year (SD = ±1.372), received four items per prescription (SD = ±1.994), and waited approximately three minutes for dispensing (SD = ±1.213) (Table 3).

Table 3. Socio-demographic characteristics of patients (N=301)

Characteristics	Frequency N=301	%	Mean	SD <sup>a</sup>	P-value <sup>b</sup>
<b>Age</b>					0.000
18-25 years	26	8.6%	5.00	0.000	
26-35 years	60	19.6%	8.03	1.669	
36-45 years	100	33.2%	4.04	1.180	
46-55 years	62	20.6%	4.29	0.458	
>56	53	17.6%	4.62	0.489	
<b>Sex</b>					0.589
Male	168	55.8%	4.98	1.576	
Female	133	44.2%	5.20	1.227	

Characteristics	Frequency N=301	%	Mean	SD <sup>a</sup>	P-value <sup>b</sup>
<b>Nationality</b>					0.819
Omani	294	97.7%	5.09	1.932	
No-Omani	7	2.3%	4.57	0.535	
<b>Marital Status</b>					0.041
Single	52	17.3%	4.67	0.474	
Married	249	82.7%	5.16	0.442	
<b>Education</b>					0.002
Primary	18	6%	4.44	0.511	
Preparatory	39	13%	4.72	0.456	
Secondary	137	45.5%	5.82	0.585	
University & Higher Education	107	35.5%	4.35	1.117	
			5.07		
<b>Medication usage</b>					0.002
Daily	237	78.7%	5.17	1.603	
Weekly	3	1%	4.00	0.000	
When necessary	61	20.3%	4.74	0.444	
-Average of patients visits last year			+/-1.372		
-Average of service waiting time in the last visit (minutes) <sup>c</sup>			+/-1.213		
-Average medication number in the last visit (items)			+/-1.994		
a-Standard Deviation					
b- Mann-Whitney U and Kruskal Wallis non-parametric tests Correlation between patient characteristics and satisfaction level					
c- Mean+/- SD					

### Client Satisfaction with Pharmacy Services

All 301 respondents completed the full set of 21 items assessing satisfaction with pharmaceutical services. The overall average satisfaction score was 75.27%, indicating a generally favorable view of the pharmacy services provided. However, none of the items achieved the maximum possible mean score of 5.0, suggesting room for improvement across all service aspects.

Among the most highly rated aspects were the pharmacist’s attitude and responsiveness. Specifically, participants expressed strong agreement with statements such as “The pharmacist showed interest in helping me obtain my medication” and “The pharmacist showed respect to me”, both receiving a mean satisfaction score of 4.73. Timeliness of service also scored well, with “I received my medication within a reasonable time” earning a mean of 4.71, and “The waiting time was acceptable given the number of medications prescribed” scoring 4.69.

In contrast, areas related to information and environment received the lowest ratings. The item “The pharmacist explained the indications for my medication” had a mean score of 4.10, indicating a need for better communication regarding medication usage. Additionally, the statement “The pharmacy area was clean and acceptable” received the lowest mean score of 3.66, suggesting that environmental conditions may require attention (see Table 3).

### Relationship Between Patient Characteristics and Satisfaction

The analysis revealed several significant relationships. Younger patients reported notably lower satisfaction levels compared to older participants ( $p < 0.01$ ). Marital status also played a role, with married individuals expressing higher satisfaction than those who were single ( $p < 0.01$ ). Educational attainment influenced satisfaction levels as well; participants with secondary or higher education reported significantly greater satisfaction than those with lower educational backgrounds ( $p < 0.01$ ). Similarly, compared to individuals who took their medication sporadically, those with chronic illnesses who needed

to take it regularly were more satisfied with the pharmacy services they received ( $p < 0.01$ ). Interestingly, gender and nationality did not show any statistically significant impact on satisfaction levels, indicating a consistent perception of service quality across these groups (see Table 3).

Male participants in this study reported higher satisfaction, which aligns with findings from earlier studies (Kamei et al., 2001; González et al., 2005; Quintana et al., 2006; Fahmi Khudair & Raza, 2013; Alomi et al., 2016; Klinaku et al., 2025), though other research found no gender differences (Kamei et al., 2001; Lee et al., 2015). Nationality was another differentiating factor, as non-Omani respondents expressed greater satisfaction than Omani participants, echoing findings that non-citizens often report higher satisfaction with governmental healthcare services. This, however, contrasts with studies that found no significant link between nationality and satisfaction (Ayalew et al., 2017). This might be because of the limited number of non-Omani samples in this study. Patients with chronic illnesses who required daily medication were more satisfied than those using medications only when needed, a pattern consistent with previous studies (Fahmi Khudair & Raza, 2013; Lee et al., 2015), likely reflecting the stronger relationships and familiarity these patients build with pharmacy staff. Age differences were also notable, with younger respondents expressing lower satisfaction compared to older patients. This trend has been widely reported in the literature (Kamei et al., 2001; González et al., 2005; Quintana et al., 2006; Fahmi Khudair & Raza, 2013; Asadova, 2025; Le & Aye, 2025; Linh et al., 2025; Mor, 2025) and may be due to older patients having more modest expectations or being less critical of services, although other research has reported either the opposite pattern (Alomi et al., 2016) or no age-related differences (Lee et al., 2015). Educational background also played a role: patients with only a high school education were more satisfied than those with university or higher qualifications, consistent with prior studies (Quintana et al., 2006; Fahmi Khudair & Raza, 2013; Alomi et al., 2016; Tanti et al., 2025; Nisa et al., 2025), possibly because more educated patients hold higher expectations of healthcare quality.

Table 4. Multiple analysis correlation between pharmacy services and satisfaction

Predictor	B (Unstandardized Coeff.)	Std. Error	Beta (Standardized)	t
Time of Prescription Dispensing	-0.161	0.076	-0.101	-2.116*
Pharmacist Attitude	0.185	0.028	0.316	6.598**
Medication Supply	0.137	0.028	0.231	4.8**
Pharmacy Environment	0.179	0.031	0.281	5.865**
Medication Counseling	0.141	0.021	0.327	6.844**

\* $p < 0.05$ , \*\* $p < 0.01$

### Multiple analysis correlation between pharmacy services and satisfaction score

The correlation analysis further clarifies the relationships between these variables and overall satisfaction. The strongest positive correlation emerged between medication counseling and satisfaction ( $r = .336$ ,  $p < .001$ ), emphasizing the critical role of patient education and communication. Other significant positive correlations were observed for pharmacist attitude ( $r = .314$ ), pharmacy environment ( $r = .243$ ), and medication supply ( $r = .213$ ). Interestingly, the time of prescription dispensing displayed a weak, negative, and non-significant correlation with satisfaction ( $r = -.062$ ), suggesting that the speed of service, while important, was less influential than interpersonal and environmental factors. This pattern highlights that patients value human interaction and the quality of services more than speed alone.

The regression model provides additional support for these findings. The model produced an R value of .576, indicating a moderate relationship between the predictors and overall satisfaction. With an  $R^2$  of .332, the predictors collectively explained 33.2% of the variance in satisfaction, while the adjusted  $R^2$  of .321 confirmed that the explanatory power remained strong after accounting for model complexity. The model was statistically significant,  $F(5, 295) = 29.36$ ,  $p < .001$ , confirming that the predictors together had a meaningful impact on patient satisfaction. Moreover, the Durbin-Watson statistic of 2.128 suggested that residuals were independent, thereby meeting an important assumption of regression analysis.

The findings of this study provide valuable insights into the determinants of patient satisfaction with pharmaceutical services in governmental healthcare institutions. The regression analysis demonstrated that approximately one-third ( $R^2 = .332$ ) of the variance in overall satisfaction could be

explained by five key service dimensions: time of prescription dispensing, pharmacist attitude, medication supply, pharmacy environment, and medication counseling. This moderate explanatory power suggests that these service elements play a substantial role in shaping patient perceptions, although it also indicates that other unmeasured factors may contribute. Among the predictors, medication counseling emerged as the strongest determinant of satisfaction ( $\beta = .327, p < .001$ ), underscoring the pivotal role of pharmacist–patient communication. Patients valued clear instructions, proper guidance on medication use, and counseling on potential side effects, all of which are essential not only for adherence to treatment but also for building trust in pharmaceutical services. This is consistent with previous research that has highlighted counseling as the cornerstone of patient-centered care. Pharmacist attitude was also a robust predictor ( $\beta = .316, p < .001$ ), reflecting the importance of professionalism, empathy, and respectful interaction in shaping patient experiences. Similarly, the pharmacy environment ( $\beta = .281, p < .001$ ) and medication supply ( $\beta = .231, p < .001$ ) contributed positively to satisfaction, pointing to the need for a clean, organized setting and reliable access to medicines as essential components of care. In contrast, time of prescription dispensing showed a small negative effect ( $\beta = -.101, p = .035$ ), indicating that while long waits do lower satisfaction, efficiency is less influential than human interaction and service quality. Patients may be willing to tolerate delays if they receive comprehensive counseling, respectful treatment, and services in a well-maintained environment.

Finally, diagnostic tests confirmed the robustness of the model. All variance inflation factor (VIF) values were approximately 1.0, ruling out multicollinearity and showing that the predictors contributed independently. The standardized residuals were mostly within  $\pm 2.3$ , demonstrating that the regression assumptions were satisfied and that there were no major outliers or violations affecting the model's validity. Several specific aspects of pharmacy service identified in this study mirror those found in previous research. Pharmacist attitude, timeliness of service, and clarity of medication information were all significantly related to satisfaction, consistent with earlier findings (Fahmi Khudair & Raza, 2013; Khalaf Ahmad et al., 2016). Long waiting times were also noted as a negative factor, echoing the results of Alnemer et al. (2015) and Jande et al. (2003). The influence of medication supply was significant in this study, though prior research has produced mixed results, with some studies reporting no effect (Fahmi Khudair & Raza, 2013) and others confirming its importance (Khalaf Ahmad et al., 2016). Medication information, in particular, was a strong predictor, supporting findings from Ankrah et al. (2014) and Shrestha et al. (2015) that emphasized the role of pharmacists in helping patients understand both the benefits and risks of their treatment. Taken together, these results highlight that patient satisfaction is shaped more by relational and service quality factors than by transactional efficiency.

The importance of patient satisfaction extends beyond individual perceptions of pharmacy services. Satisfied patients are more likely to adhere to treatment plans, engage in follow-up care, and maintain effective communication with providers (Surya et al., 2019; Druicã et al., 2021; Molla et al., 2025; Saindah, 2025). Higher satisfaction is often an indicator of higher quality care (Cui et al., 2025) and is a critical component of hospital accreditation frameworks (Babiker et al., 2014; Hussein et al., 2021). Positive interactions, clear communication, and convenient services not only improve patient experiences but also contribute to better health outcomes (Ayele et al., 2020; Fehir Šola et al., 2025). These findings reinforce the theoretical perspective that healthcare quality is multidimensional, shaped by both interpersonal and structural elements, with relational quality often outweighing transactional aspects like waiting time.

Nevertheless, the study has some limitations. Its cross-sectional design captures patient perceptions at a single point in time, limiting the ability to track changes or long-term trends. The research was conducted in a single healthcare facility in Al Buraimi Governorate, which restricts the generalizability of findings to other settings. Certain socio-demographic factors such as income, employment status, and family size were excluded due to their sensitive nature, which may have influenced results. Moreover, the possibility of social desirability bias must be acknowledged, as participants may have overstated their satisfaction levels to align with perceived expectations (Caputo, 2017). Future studies should therefore adopt multi-site and longitudinal designs, integrate additional demographic factors, and employ qualitative methods to capture richer patient narratives.

## CONCLUSION

This study has identified the key factors influencing patient satisfaction with pharmaceutical services in governmental healthcare institutions. The results showed that medication counseling, pharmacist attitude, pharmacy environment, and medication supply are the strongest determinants of

satisfaction, while time of prescription dispensing had a smaller but significant negative effect. These findings highlight that patients value interpersonal communication, respectful interactions, reliable medicine availability, and a supportive environment more than speed alone. Demographic characteristics such as gender, nationality, age, health status, and educational background also influenced satisfaction levels, underscoring the importance of tailoring pharmacy services to diverse patient groups. Importantly, this research is among the first in Oman to quantify patient satisfaction with pharmacy services in a public healthcare setting, offering meaningful insights into the evaluation of healthcare performance and reinforcing that satisfaction is shaped by both relational and service quality dimensions.

The implications of these findings are significant for both practice and policy. Patient satisfaction serves not only as a measure of perceived service quality but also as a driver of treatment adherence, effective communication, and follow-up care. At the institutional level, satisfaction should be treated as a critical performance indicator, guiding pharmacy management strategies, motivating staff, and enhancing the reputation of healthcare facilities. Regular satisfaction assessments—conducted at least twice a year—are essential for monitoring service delivery and identifying areas for improvement. Hospitals should prioritize staff training in communication and patient counseling, ensure consistent availability of medicines, and maintain clean and organized environments to build trust. Furthermore, expanding similar studies across multiple hospitals and comparing public and private sectors would strengthen the generalizability of findings and provide valuable benchmarks. By institutionalizing quality audits and leveraging digital tools for data collection, healthcare providers can address weaknesses, enhance professional performance, and ultimately improve patient outcomes. As this research was limited to a single government facility, expanding similar studies to other healthcare institutions would enhance the generalizability of the findings. Future research should include multiple public hospitals to compare service delivery across institutions. Furthermore, comparing public sector services with private sector hospitals using standardized patient satisfaction indicators could yield valuable insights. Although the response rate was good, it could potentially be improved through the use of digital survey tools such as Google Forms or SurveyMonkey.

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### AUTHOR CONTRIBUTIONS

Talib Salim Al-Kalbani, principal investigator, conceptualized and designed the study, prepared the draft of the manuscript, and reviewed the manuscript; Abdulkareem S. Iblasi led the data collection, advised on the data analysis and interpretation and reviewed the manuscript; Hassan Abdullah Al Buriki reviewed the manuscript; Talib Salim Al-Kalbani and I Gede Juanamasta advised on the data analysis and interpretation and reviewed the manuscript.

### CONFLICTS OF INTEREST

The author(s) declare no conflict of interest.

### USE OF ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

The authors declare that no artificial intelligence (AI) tools were used in the generation, analysis, or writing of this manuscript. All aspects of the research, including data collection, interpretation, and manuscript preparation, were carried out entirely by the authors without the assistance of AI-based technologies.

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