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Patient perception and satisfaction with community pharmacy services in Erbil: a cross-sectional study

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Abstract

Background and objective: Community pharmacies play a crucial role in healthcare, offering accessible medication dispensing and patient-centered services. Their responsibilities have expanded to include pharmaceutical care that enhances treatment outcomes. Patient satisfaction influences adherence and pharmacist relationships. This study examines patient perceptions and satisfaction with community pharmacy services in Erbil city-Iraq, considering socio-demographic factors.

Methods: This cross-sectional study was conducted in community pharmacies across Erbil, Kurdistan-Iraq, from September 2024 to March 2025. A total of 800 patients participated, selected through a multistage sampling method. First, 20 pharmacies were chosen randomly, and using convenience sampling, 40 patients were selected from each pharmacy. Data were analyzed using SPSS (version 27), applying statistical tests such as the Chi-square and T-tests. A *P*-value of ≤0.05 was considered statistically significant.

Result: Prescription pickup (53.4%) was the main reason for pharmacy visits. Satisfaction was high for pharmacist knowledge (71.1%) and communication (72.8%), though issue resolution (37.5%) and collaboration with healthcare providers (48.4% neutral) needed improvement. Most of the respondent (64.6%) preferred doctors for consultations.

Conclusion: Patient satisfaction with community pharmacy services in Erbil was high, particularly regarding pharmacist expertise, communication, and convenience. However, there is a need to strengthen communication with healthcare providers and to establish more effective procedures for addressing patient complaints and service-related issues. Educated patients showed higher expectations, highlighting the need for better pharmacist-patient communication.

Keywords: Patient perception; Patient satisfaction; Community pharmacy; Community pharmacist; Services in community pharmacy.

Introduction

Community pharmacists today are engaged in a broad range of professional activities, classified as either product- or patient-oriented, due to their accessibility and expanding clinical care roles. While the primary function of pharmacies has always been and will remain the dispensing of medications, drug availability continues to be a crucial concern in this field.(1)

In recent years, the pharmacy profession has been experiencing a paradigm shift from product-oriented roles, such as dispensing and compounding medications, to a greater emphasis on patient care. Pharmacists have made significant efforts to transition toward providing pharmaceutical services, patient counseling, and pharmaceutical care.(2)

It is observed that the community pharmacists play a crucial role in patient counseling, which serves as the foundation

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for achieving desired therapeutic outcomes.[3]

These Community pharmacies serve as the primary access points for medical advice and the distribution of pharmaceutical products. In the pharmacy and healthcare sector, customer loyalty remains a vital factor. Patient satisfaction serves as a key indicator of healthcare quality and plays a crucial role in shaping the patient-provider relationship. It also reflects how satisfied patients are with the care they receive and influences adherence to medication regimens.[4]

The successful implementation of pharmaceutical care largely depends on patient satisfaction. However, pinpointing a single factor that directly affects satisfaction levels remains difficult. Over the past 15 years, patient satisfaction has been understood in different ways and is regarded as a complex concept.[5]

Moreover, patient satisfaction is closely linked to patient expectations. It can be defined as the sum of a patient's expectations and their perceptions of the treatment or pharmaceutical services received.[2]

Implementing changes based on patient feedback is essential for improving the healthcare system and achieving optimal patient satisfaction. This interaction between patients and pharmacists has been extensively studied in many developed countries.[2]

Numerous studies have been conducted globally to assess patient satisfaction with community pharmacy services. As patient satisfaction has become a key benchmark in developed countries, there is a growing interest in evaluating it within developing countries to assess the quality of community pharmacy services. The quantitative approach provides accurate methods for measuring patient satisfaction.[5]

Standardized questionnaires, whether self-reported, interviewer-administered, or conducted via telephone, are among the most commonly used tools for assessing patient satisfaction. Several factors influence patient satisfaction, including socio-demographic variables (such as age, gender, and marital status), patient expectations, health status, pharmacy location, waiting time, cost, and medication availability.[5,6]

And understanding patient perceptions and satisfaction is key to enhancing service quality and public health. In Erbil city, a research gap exists regarding patient views on these services, making this study essential. By addressing this gap, the study provides valuable insights to improve patient-centered care and healthcare delivery. The study aims to assess patient perceptions and satisfaction with community pharmacy services, exploring the quality and accessibility of services, overall satisfaction, and the impact of socio-demographic factors on these perceptions.

The aim of this study is to assess patient perceptions and satisfaction with the services provided by community pharmacies. Specifically, the study seeks to explore patient perceptions regarding the quality and accessibility of these services, evaluate their overall satisfaction, and examine the influence of socio-demographic factors on both satisfaction and perception.

Methods

Design and Duration of the study:

This study was a questionnaire-based cross-sectional study conducted with Patients visiting pharmacies in Erbil city, Kurdistan-Iraq, from March 2024 to March 2025. Participants were included if they were over 20 years of age and had adequate command of either the Kurdish or English language.

Sample size:

The sample size for patient participants was determined using Epi Info™ version 7.2, a widely recognized software for epidemiological data analysis. To ensure adequate statistical power, an expected patient satisfaction rate of 50% was

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assumed, representing a conservative estimate. The sample size was calculated with a 5% margin of error and confidence level 95.

Based on these parameters, the initial calculation indicated a required sample size of 768 participants. However, to account for potential missing or incomplete responses and to capture sufficient variability within the data, the sample size was adjusted to 800 participants. This adjustment enhances the robustness of the study findings and ensures their representativeness within Erbil City and its surrounding areas. By incorporating individuals from diverse backgrounds and considering the demographic complexity of the region, the selected sample size strengthens the validity of the research and facilitates a comprehensive analysis.

Sampling Method: Initially, the study population included approximately 500 community pharmacies within the city. In the first stage, a random selection of 20 pharmacies was chosen, ensuring geographic and demographic diversity across Erbil. In the second stage, from each selected pharmacy, a sample of 40 patients was convenience selected to participate in the survey.

Instrument of the study: The questionnaire was administered in both Kurdish and English language to ensure clarity and accessibility for all participants. The questions were carefully formulated to capture comprehensive insights into patient experiences and opinions regarding pharmacy services. This bilingual approach facilitated accurate responses, minimizing language barriers and enhancing the reliability of the collected data.

Data collection was carried out through a questionnaire designed under the supervision of the researcher's supervisor and incorporating insights from previous studies. The structured questionnaire consisted of three sections: the first focused on patient demographics, gathering background information such as age, gender, and education level; the second assessed patients' perceptions of the quality of services provided by community pharmacies; and the final section evaluated patient satisfaction, gauging overall satisfaction with pharmacy services.

Statistical analysis:

The data were analyzed using SPSS software (version 27) with Chi-square tests, T-tests, and a *P*-value of ≤0.05 regarded as indicating statistical differences.

Pharmacists' knowledge was evaluated using a structured questionnaire comprising items related to various aspects of medication management, including appropriate use, indications, side effects, storage conditions, and patient counseling. Each correct and complete response was assigned a score of one, while incorrect or incomplete answers were given a score of zero. The total knowledge score for each participant was obtained by summing the individual item scores and then converting this raw score into a percentage to allow for standardized interpretation across participants. Based on these percentage scores, knowledge levels were categorized as follows: good (≥75%), average (50–74%), and poor (<50%). These classifications were used to represent the pharmacists' ability to provide accurate, evidence-based information regarding medications.

Ethical consideration:

Ethical considerations for this study included ensuring patient confidentiality and securing informed consent from all participants. Each patient received detailed information about the study and was required to sign an informed consent form before participation. Confidentiality was strictly maintained, with all data anonymized to prevent the identification of individual participants. The study was submitted for approval to the Ethical Committee at the College of Pharmacy, ensuring adherence to all relevant ethical guidelines.

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This study did not involve any clinical intervention, and the patients' participation was considered to be below minimal risk. All participants provided informed verbal consent, as written consent was not required.

Results

The results of this study indicate that the percentage of female participants was (71%) and male participants was (28.9%). The largest age group was 18–27 years, comprising 44.4% of respondents. Most participants were married, making up 74.9% of the sample. In terms of education, the largest group was university graduates at 30.1%. Employment data revealed that 68.1% of respondents were unemployed. Regarding household income, 74.9% reported it as sufficient. The majority of participants (94.9%) identified as Kurdish, and 68.1% lived in urban areas, detailed information is shown in Table 1

Table 1 Sociodemographic characteristics of the study participants

Variable	Category	Frequency (n)	Percent (%)
Gender	Male	231	28.9
	Female	568	71.0
Age Group	18–27	355	44.4
	28–37	238	29.8
	38–47	120	15.0
	48–57	60	7.5
	58–67	17	2.1
	68–77	6	0.8
	78–87	4	0.5
Marital Status	Single	174	21.8
	Married	599	74.9
	Divorced	9	1.1
	Widowed	18	2.3
Level of Education	No formal education	90	11.3
	Primary school	110	13.8
	Secondary school	218	27.3
	Vocational/technical school	101	12.6
	University degree	241	30.1
	Postgraduate degree	40	5.0
Employment Status	Employed	153	19.1
	Unemployed	545	68.1
	Retired	6	0.8
	Student	96	12.0
Monthly Household Income	Sufficient	599	74.9
	Insufficient	201	25.1
Ethnic Background	Kurdish	759	94.9
	Arab	32	4.0
	Turkmen	7	0.9
	Assyrian/Chaldean/Syriac	2	0.3
Area of Residence	Urban	545	68.1
	Suburban	237	29.6
	Rural	17	2.1

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The majority of respondents (95.1%) reported having no health conditions, indicating that most individuals in the sample were healthy. Among those with health conditions, hypothyroidism was the most common, affecting 2.4% of participants. Other conditions, such as disc prolapse, PCOS (polycystic ovarian syndrome), eczema, and osteoarthritis, were reported by smaller proportions, each one 1%. These findings highlight the general good health of the population, with a small percentage experiencing chronic conditions, primarily hypothyroidism, detail information shown in Table 2.

Regarding pharmacy experiences questions that most individuals across all age groups visit pharmacies occasionally, with nearly 49% of the total sample reporting this frequency. Monthly visits are the second most common, accounting for 30.5% of respondents. Younger individuals, particularly those aged 18-37, tend to visit pharmacies either occasionally or monthly, while older age groups, particularly those aged 58 and above, are more likely to visit monthly.

Regarding the primary reasons for pharmacy visits, the most cited reason was prescription pickup, chosen by 53.4% of participants, underlining its significance. The second most common reason was consultation with the pharmacist, selected by 27.9% of respondents detailed information is shown in Table 3.

Table 2 Health conditions among the sample

Condition	Frequency (n)	Percent (%)
No Health condition	761	95.1
Hypothyroidism	19	2.4
Disc Prolapse	4	0.5
Migraine	1	0.1
PCOS	3	0.4
Thalassemia	2	0.3
Eczema	4	0.5
Osteoarthritis	3	0.4
GERD	1	0.1
BPH	1	0.1

Table 3 Primary reason for pharmacy reasons

Reason for Visit	Yes (Frequency)	Yes (%)	No (Frequency)	No (%)
Picking up a prescription	427	53.4%	371	46.4%
Consultation with pharmacist	223	27.9%	577	72.1%
Purchasing OTC medications	306	38.3%	494	61.8%
Other services	78	9.8%	722	90.3%

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The pharmacist knowledge

The study assessed patients' perceptions of community pharmacists' expertise using a three-point scale. The majority rated pharmacists' knowledge as Good, reflecting strong confidence in their expertise, while a notable proportion rated it as Average, indicating potential areas for improvement. A minimal percentage expressed dissatisfaction, further details shown in Table 4. Similarly, 72.8% of participants rated pharmacists' communication skills as Excellent, signaling positive perceptions, with 26% rating them as Average and only 1.3% rating them as Poor.

Pharmacy location

The ratings for pharmacy location convenience were collected from 800 participants. Among them, 680 participants (85%) rated the pharmacy location as Convenient, indicating that a large majority find the pharmacy's location easily accessible and suitable for their needs. On the other hand, 120 participants (15%) rated the location as Not Convenient, suggesting that a smaller portion of patients face challenges with the location, further details shown in Table 5.

Table 4 The pharmacist knowledge

Pharmacist Knowledge Rating	Frequency	Percent
Good	569	71.1%
Average	216	27.0%
Poor	13	1.6%

Table 5 Pharmacy location

Pharmacy Location Convenience	Count	Percentage
Convenient	680	85%
Not Convenient	120	15%
Total	800	100%

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Comparison between level of education with pharmacist knowledge rating cross tabulation

A chi-square test was conducted to examine the relationship between level of education and pharmacist knowledge rating. The results indicate no statistically significant association ($\chi^2 = 14.746$, df = 15, $P = 0.470$), suggesting that pharmacist knowledge ratings do not significantly vary across different educational levels. Furthermore, the linear-by-linear association ($P = 0.887$) does not indicate a consistent trend. Additionally, 12 cells (50.0%) have expected counts below 5, with a minimum expected count of 0.10, which may affect the reliability of the findings. For further details, see Table 6.

The majority of participants (50.9%) are likely to continue using the pharmacy, with 40.8% remaining neutral about their decision. A smaller group (8.3%) expressed being unlikely to continue using the pharmacy. In terms of medical consultation preferences, 64.6% of participants preferred consulting a doctor for medical advice, while 29.5% favored a pharmacist. This highlights a strong inclination towards healthcare professionals, with nurses being less preferred at 13.5%, detailed information is shown in Table 7.

Table 6 Comparison between level of education with pharmacist knowledge rating cross tabulation

Level of Education	Excellent	Good	Average	Poor
No formal education	0	63	27	0
Primary school	0	74	36	0
Secondary school	0	157	56	5
Vocational/technical school	0	76	24	1
University degree	2	172	62	5
Postgraduate degree	0	27	11	2

Table 7 Medical consultation preferences

Medical Consultation Preference	Yes (Frequency)	Total Participants	Percentage (Yes)
Pharmacist	236	800	29.5%
Nurse	108	800	13.5%
Doctor	517	800	64.6%
Online Resources	29	800	3.6%
Family/Friends	60	800	7.5%

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Satisfaction of the participant

This study evaluated patient satisfaction across several key aspects of community pharmacy services. A notable proportion of respondents (20.3%) expressed neutrality regarding general engagement and initiatives, suggesting an opportunity to improve effectiveness. Dissatisfaction was reported by 7.3% of respondents, highlighting a need for targeted enhancements. Regarding accommodations for individuals with special needs, the majority (79.9%) were satisfied, though 14.4% expressed neutrality and 5.7% dissatisfaction, indicating potential areas for improvement in inclusivity.

Collaboration with healthcare providers showed mixed results, with 48.0% expressing satisfaction but a significant 48.4% remaining neutral, suggesting a lack of strong impressions or experiences. Only 3.7% reported dissatisfaction, reflecting minimal concerns in this area. In terms of handling personal information, 86.3% of respondents expressed confidence and satisfaction, while only 2.2% were dissatisfied, demonstrating strong performance in this critical aspect of service quality.

Issue resolution received lower satisfaction ratings, with only 37.5% of respondents expressing satisfaction, indicating a clear area for improvement. These findings emphasize the importance of addressing gaps in service delivery to enhance overall patient satisfaction. Regarding overall services, a high level of satisfaction was observed. Detailed information is shown in Table 8.

Table 8 Satisfaction of the participant

Service Aspect	Very Satisfied (%)	Satisfied (%)	Neutral (%)	Dissatisfied (%)	Very Dissatisfied (%)
Availability	40.6	42.9	8.4	7.9	0.3
Price	25.9	48.4	14.5	10.1	1.1
Cleanliness	53.4	36.9	7.8	1.8	0.3
Operating Hours	50.4	38.4	6.6	4.5	0.1
Medication Safety	50.4	38.4	6.6	4.5	0.1
Health Life Promotion	35.6	36.8	20.3	6.8	0.5
Special Needs	36.1	43.8	14.4	5.1	0.6
Collaboration with Healthcare Providers	19.6	28.4	48.4	3.4	0.3
Handling Personal Information	48.5	37.8	11.6	1.9	0.3
Issue Resolution	14.8	22.8	59.9	2.5	0.1
Overall Service	33.5	54.0	10.0	2.3	0.3

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Discussion

Patient perception and satisfaction regarding pharmacy services are essential indicators for evaluating the quality of care provided by community pharmacies. In the present study, nearly half of the participants reported overall satisfaction with the services offered in community pharmacies in Erbil. However, societal perception of pharmacists as healthcare professionals responsible for the appropriate utilization of pharmaceuticals for disease prevention and treatment remains limited.[7]

A significant proportion of patients expressed high satisfaction with the information provided by pharmacists regarding health promotion and medication safety. The assessment of service quality and patient satisfaction from the patient's perspective is crucial for enhancing healthcare delivery. Collecting data on patient needs, expectations, and perceptions allows healthcare professionals to identify areas for service improvement.[8]

In the present study, demographic factors did not show a significant influence on patient satisfaction with pharmacy services, which is consistent with findings reported in a study conducted in Thailand.[9] However, other research from Portugal suggests that demographic variables such as age, gender, race, and income level may play a role in shaping purchasing behavior and consumer loyalty toward pharmacies[10] found that factors like age, gender, race, and income do influence how people behave as consumers and their loyalty to pharmacies. These contrasting results could be due to differences in healthcare systems, economic conditions, or cultural expectations between countries. This suggests that the role of demographic factors in patient satisfaction may vary depending on the local context, highlighting the need for region-specific research.

Notably, this study found that gender had a statistically significant effect on patient satisfaction in two areas: collaboration with healthcare providers and issue resolution. However, the small effect size suggests that gender alone is not a primary determinant of satisfaction, indicating that other factors, such as service quality and patient expectations, may play a more substantial role. Future research should explore these variables to gain a comprehensive understanding of patient satisfaction in community pharmacies.

Previous research highlights that patients expect pharmacists to provide enhanced medication knowledge, improve medication adherence, and alleviate concerns regarding drug use.[11] These expectations were found to be significantly associated with patients' willingness to return to the same pharmacy.[9]

In this study, 29.5% of patients reported trusting pharmacists as their primary source of medication information. In contrast, a study conducted in the United Arab Emirates reported that 43.8% of patients consulted community pharmacists for medication-related inquiries.[8] This difference highlights how pharmacist-patient communication and trust can vary across different cultural and healthcare settings, possibly influenced by factors such as accessibility, patient awareness, and healthcare system structure.

Regarding alternative sources of medication information, 7.5% of patients in this study reported relying on friends, while 3.6% used social media. These findings are comparable to a European study, where approximately 8% of participants sought advice from friends and family.[7]

Despite the increasing use of social media for health information, pharmacist-led patient education remains a critical component of effective healthcare communication.

To date, no local studies have been published assessing patient perception and satisfaction with community pharmacies in Erbil. Therefore, this study is the first to provide insights into these aspects within this region.

Findings indicate that 71.1% of patients

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rated pharmacists' knowledge as "Good," 72.8% rated their communication skills as "Excellent," and 48.7% were very satisfied with the handling of personal information. These results reflect a strong positive perception of pharmacist-patient interactions.

Comparatively, a study conducted in Slovenia reported highly positive satisfaction levels for pharmacist counseling (30.4%), the provision of relevant information (39.0%), pharmacist respect and kindness (42.8%), and the use of clear, simple language (72.8%).[12]

Interestingly, pharmacy patients with higher education levels were less satisfied with the services received. Educated patients often seek more in-depth medication information and tend to evaluate multiple aspects of pharmacy services, which may contribute to lower satisfaction levels. A similar trend was observed in a study conducted in Pakistan, where higher education levels correlated with decreased satisfaction with pharmacy services.[5]

Patient Gender Imbalance:

In this study, a larger proportion of participants were female patients (71.0%). This may be due to several factors, including the greater willingness of women to participate in health-related surveys, their generally higher utilization of pharmacy services, and more frequent health-seeking behaviors compared to men. Cultural and societal norms in the Kurdistan Region and Iraq may also play a role, as women are often more involved in managing health and medication for themselves and their families.

This gender imbalance could influence the findings, particularly in areas related to perception and satisfaction with pharmacy services, as women may have different expectations, communication preferences, or interaction styles with pharmacists compared to men. Therefore, caution is needed when generalizing the results to the entire patient population, especially male patients, who may have different experiences or satisfaction levels.

Limitations section:

The gender distribution of patients in this study was skewed, with females comprising 71.0% of the participants. This may limit the generalizability of the findings, as male patients might have different perspectives, behaviors, or levels of satisfaction with community pharmacy services. Future studies should aim for a more balanced gender representation to ensure comprehensive insights.

The findings of this study provide valuable insights that can assist pharmacists in evaluating and improving patient satisfaction in community pharmacies. Understanding patient perception is crucial, as it influences trust, treatment adherence, and overall satisfaction with pharmacy services. Implementing targeted strategies to address patient concerns and enhance service quality will contribute to the development of more effective community pharmacy practices and improved healthcare outcome.

Scope and Limitations

This study evaluates patient satisfaction and perceptions of community pharmacy services in Erbil city, focusing on aspects like accessibility, care quality, communication, and medication availability. However, limitations include its geographic focus only on Erbil, time constraints affecting sample size, potential response bias due to self-reported data, and possible language or cultural influences. Despite these, the study aims to offer valuable insights for improving local pharmacy services.

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Conclusion

This study provides valuable insights into patient perceptions and satisfaction with community pharmacy services in Erbil, revealing generally high satisfaction levels

with pharmacist expertise, communication, and medication availability. However, areas for improvement were identified, particularly in pharmacist collaboration with healthcare providers and issue resolution. Demographic analysis showed that higher education levels were associated with lower satisfaction, suggesting greater expectations for pharmaceutical care and counseling. Additionally, many patients sought medical advice from non-pharmacist sources, emphasizing the need for pharmacists to strengthen their role as primary healthcare advisors. This study highlights the importance of continuous service improvements and serves as a foundation for future research on patient expectations and pharmacy service quality.

Competing interests

The authors declare that they have no competing interests.

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