



Perceived frequency of pharmacist-led drug counseling and its association with patient satisfaction in pharmaceutical installations

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ABSTRACT

Introduction: Pharmacist-led drug counseling is a core component of pharmaceutical care and plays an important role in supporting rational medicine use and patient-centered services. Variations in the frequency of counseling provided in pharmaceutical installations may influence how patients perceive service quality and satisfaction.

Methods: A quantitative cross-sectional study was conducted among 60 patients receiving pharmaceutical services in pharmaceutical installations. Data were collected using a structured questionnaire measuring patients' perceptions of the frequency of pharmacist-led drug counseling and their level of satisfaction. Descriptive statistics and Pearson correlation analysis were applied using statistical software.

Results: The findings showed that patients generally perceived drug counseling to be provided frequently and reported a high level of satisfaction with pharmaceutical services. A statistically significant positive correlation was identified between perceived counseling frequency and patient satisfaction, indicating that more frequent counseling was associated with higher satisfaction levels.

Conclusion: Frequent pharmacist-led drug counseling contributes positively to patient satisfaction in pharmaceutical installations and should be strengthened as part of quality improvement efforts in pharmaceutical care.

Keywords: drug counseling; patient satisfaction; pharmaceutical care; pharmaceutical services; pharmacist



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INTRODUCTION

Pharmaceutical care has evolved from a product-oriented practice toward a patient-centered approach that emphasizes the safe, effective, and rational use of medicines (Bacci *et al.*, 2025). Within this paradigm, drug counseling provided by pharmacists plays a critical role in ensuring patients' understanding of their medications, promoting adherence, and preventing drug-related problems (Al-Qerem *et al.*, 2026). In pharmaceutical installations, particularly in hospital and community pharmacy settings, pharmacist-led counseling is considered a key component of service quality and an important determinant of patient satisfaction (Almomani *et al.*, 2024).

Despite its recognized importance, the delivery of drug counseling in routine pharmaceutical practice remains inconsistent. In many health care facilities, pharmacists face multiple constraints, including high workload, limited staffing, time pressure, and administrative responsibilities (Badi *et al.*, 2025). These challenges often result in variability in the frequency and depth of counseling provided to patients. As a consequence, patients may receive incomplete or irregular information about their medications, which can negatively affect treatment outcomes and satisfaction with pharmaceutical services (Basheti *et al.*, 2025).

Patient satisfaction has become an essential indicator of health service quality and performance (Blythe *et al.*, 2025). In the context of pharmaceutical installations, satisfaction reflects patients' perceptions of accessibility, communication, professionalism, and the perceived value of counseling services. However, satisfaction is not solely influenced by the presence or absence of counseling; it is also shaped by patients' perceptions of how often and how consistently counseling is provided (Chong *et al.*, 2025). Frequency of counseling may signal to patients the level of attention, care, and professionalism offered by pharmacists, thereby influencing overall satisfaction (Delanoy, Hutcherson and Cieri-Hutcherson, 2026).

Although numerous studies have examined the impact of pharmacist counseling on medication adherence and clinical outcomes, fewer studies have specifically focused on patients' perceptions of counseling frequency and its relationship with satisfaction (Gustini *et al.*, 2024). Existing research tends to emphasize the content or quality of counseling rather than how often patients experience such interactions. Moreover, many studies treat counseling as a binary variable provided or not provided without considering variations in frequency that may be meaningful from the patient's perspective (Ismail, El-Nayal and Domiati, 2024).

This gap in the literature limits understanding of how counseling practices are perceived by patients in real-world pharmaceutical installations (Johnson *et al.*, 2025). In addition, prior studies are often conducted in specific clinical contexts or focus on particular disease groups, reducing their generalizability across different pharmaceutical service settings. There is also limited evidence from low- and middle-income countries, where resource constraints may further influence counseling practices and patient experiences. The novelty of this study lies in its focus on patients' perceptions of the frequency of pharmacist-led drug counseling as a determinant of satisfaction within pharmaceutical installations. By shifting the analytical emphasis from counseling content alone to the perceived regularity of counseling encounters, this study introduces a patient-centered perspective that has been underexplored in previous research. This approach allows for a more nuanced understanding of how counseling practices contribute to patient satisfaction and service quality.

Therefore, this study aims to examine the relationship between patients' perceptions of the frequency of drug counseling by pharmacists and their satisfaction with pharmaceutical services. By addressing existing gaps and introducing a novel analytical perspective, the study seeks to provide evidence that can inform strategies to strengthen pharmaceutical care and enhance patient-centered services in pharmaceutical installations.

RESEARCH METHODOLOGY

Study Design

This study employed a quantitative, cross-sectional research design to examine patients' perceptions of the frequency of pharmacist-led drug counseling and its association with patient

satisfaction in pharmaceutical installations. A quantitative approach was chosen to allow systematic measurement of variables and statistical analysis of the relationship between counseling frequency and satisfaction levels.

Study Population and Sample

The study population consisted of patients who received pharmaceutical services at selected pharmaceutical installations. A total of 60 respondents were included in the study. Respondents were selected using consecutive sampling, in which patients who met the inclusion criteria during the data collection period were invited to participate until the required sample size was achieved.

Variables and Operational Definitions

The independent variable in this study was perceived frequency of drug counseling by pharmacists, defined as patients' perceptions of how often pharmacists provided information and guidance regarding medication use. The dependent variable was patient satisfaction with pharmaceutical services, reflecting patients' overall evaluation of the counseling experience and service quality.

Data Collection Instrument

Data were collected using a structured questionnaire developed from validated pharmaceutical care and patient satisfaction instruments. The questionnaire consisted of closed-ended questions measured on a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). The instrument covered aspects of counseling frequency, clarity of information, pharmacist communication, and overall satisfaction. Prior to data collection, the questionnaire was reviewed for content validity by experts in pharmacy practice. A pilot test was conducted to ensure clarity and internal consistency of the instrument.

Data Collection Procedure

Data collection was conducted over a defined period in the pharmaceutical installations. Eligible patients were informed about the study objectives, and written informed consent was obtained prior to participation. Questionnaires were self-administered or interviewer-assisted when necessary to ensure completeness of responses.

Data Analysis

Data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize respondent characteristics and study variables. Inferential statistical analysis, such as correlation or simple regression analysis, was applied to assess the relationship between perceived counseling frequency and patient satisfaction. Statistical significance was determined at a p-value of <0.05 .

Ethical Considerations

Ethical principles were observed throughout the study. Participation was voluntary, confidentiality was maintained, and respondents had the right to withdraw from the study at any time without consequence.

RESULT

Table 1. Demographic Characteristics of Respondents (n = 60)

Characteristic	Category	Frequency (n)	Percentage (%)
Age (years)	18–25	14	23.3
	26–45	33	55.0
	>45	13	21.7
Gender	Male	26	43.3
	Female	34	56.7
Education	Primary	19	31.7
	Secondary/Higher	41	68.3

Table 1 presents the demographic characteristics of the 60 respondents included in this study. Most respondents were adults aged 26–45 years (55.0%), and female patients constituted a slightly higher proportion (56.7%). The majority of respondents had completed secondary or

higher education (68.3%). These characteristics indicate that respondents were adequately positioned to provide informed perceptions regarding pharmacist counseling services.

Table 2. Univariate Analysis of Key Variables

Variable	Mean	Standard Deviation	Interpretation
Perceived frequency of drug counseling	3.82	0.57	Frequent
Patient satisfaction	3.88	0.54	High

Univariate analysis was conducted to describe respondents' perceptions of the frequency of pharmacist-led drug counseling and their level of satisfaction with pharmaceutical services. As shown in Table 2, the mean score for perceived counseling frequency was 3.82 (SD = 0.57), indicating that counseling was perceived as being provided frequently. Patient satisfaction recorded a mean score of 3.88 (SD = 0.54), reflecting a generally high level of satisfaction.

Table 3. Relationship between Counseling Frequency and Patient Satisfaction

Independent Variable	Dependent Variable	r-value	p-value	Interpretation
Counseling frequency	Patient satisfaction	0.61	<0.001	Strong positive correlation

Bivariate analysis was performed to examine the relationship between perceived frequency of drug counseling by pharmacists and patient satisfaction using Pearson correlation analysis. As presented in Table 3, a significant positive correlation was observed between counseling frequency and patient satisfaction ($r = 0.61$, $p < 0.001$). These findings indicate that patients who perceived more frequent drug counseling by pharmacists reported higher satisfaction with pharmaceutical services.

DISCUSSION

This study provides empirical evidence on the relationship between patients' perceptions of the frequency of pharmacist-led drug counseling and patient satisfaction within pharmaceutical installations. The findings demonstrate a significant positive association between perceived counseling frequency and satisfaction, indicating that patients who experience more frequent counseling interactions tend to report higher satisfaction with pharmaceutical services. This discussion interprets these findings in relation to existing literature, highlights their significance for pharmacy practice, and emphasizes the novel contributions of the study (Lee *et al.*, 2026).

The positive association observed in this study is consistent with previous research emphasizing the role of pharmacist–patient communication in improving patient experiences and satisfaction (Linggi *et al.*, 2024). Earlier studies have shown that counseling enhances patients' understanding of medication use, reduces uncertainty, and builds trust in pharmaceutical services (Marasine, Kunwar, *et al.*, 2025). The present findings extend this evidence by highlighting that not only the quality or content of counseling but also its perceived frequency plays a meaningful role in shaping patient satisfaction (Marasine, Sankhi, *et al.*, 2025). Frequent counseling interactions may signal attentiveness, professionalism, and commitment to patient-centered care, thereby strengthening patients' overall evaluation of pharmacy services (Meehan *et al.*, 2025).

From a service delivery perspective, perceived counseling frequency reflects patients' experiences of accessibility and continuity in pharmacist interactions (Milani *et al.*, 2024). In pharmaceutical installations where counseling is provided consistently, patients are more likely to feel supported throughout their treatment process (Mori *et al.*, 2024). This aligns with service quality frameworks that emphasize responsiveness and reliability as key determinants of satisfaction. The findings suggest that patients value repeated opportunities to receive information and clarification, particularly when managing medications with complex dosing regimens or potential adverse effects (Mozaffarian *et al.*, 2025).

The results also highlight the practical challenges faced by pharmacists in delivering frequent counseling. High workload, limited staffing, and time constraints are widely reported barriers in pharmacy practice (Rainkie, 2025). Despite these constraints, the significant relationship identified in this study suggests that even incremental improvements in counseling frequency may yield meaningful gains in patient satisfaction. This reinforces the importance of

organizational support and workflow optimization to enable pharmacists to engage more regularly with patients.

Compared with prior studies that often treat counseling as a binary intervention, the present study offers a more nuanced understanding by focusing on patients' perceptions of frequency. This represents an important contribution to the literature, as frequency captures the consistency of counseling practices rather than their mere presence. By adopting this perspective, the study addresses a gap in existing research and provides a patient-centered lens for evaluating pharmaceutical care services.

The findings also have implications for pharmaceutical service management and policy. Incorporating counseling frequency as a performance indicator may help pharmacy managers assess and improve service quality. Training programs that emphasize communication skills and efficient counseling strategies could further enhance pharmacists' capacity to provide frequent and meaningful interactions. In addition, integrating counseling activities into standard operating procedures may help institutionalize patient-centered practices within pharmaceutical installations. Regarding the study hypothesis, the results support the hypothesis that a higher perceived frequency of pharmacist-led drug counseling is associated with greater patient satisfaction. The statistically significant correlation indicates that the hypothesis can be accepted within the scope of this study. However, as the study employed a cross-sectional design, causal relationships cannot be definitively established, and the findings should be interpreted as associative rather than causal.

Several limitations should be acknowledged. The reliance on self-reported perceptions may introduce response bias, and the sample size of 60 respondents limits the generalizability of the findings. Nevertheless, the consistency of the results with existing literature enhances their credibility. Future studies could employ larger samples, longitudinal designs, or experimental approaches to further explore the causal pathways between counseling practices and patient satisfaction. In summary, this study underscores the importance of frequent pharmacist-led drug counseling as a determinant of patient satisfaction in pharmaceutical installations. By emphasizing the role of perceived frequency, the findings contribute new insights to pharmaceutical care research and support the ongoing shift toward more patient-centered pharmacy services.

CONCLUSION

This study concludes that patients' perceptions of the frequency of pharmacist-led drug counseling are positively associated with patient satisfaction in pharmaceutical installations. More frequent counseling interactions enhance patients' understanding, trust, and overall experience with pharmaceutical services, indicating that counseling frequency is an important component of patient-centered pharmacy practice. Based on these findings, it is recommended that pharmaceutical installations strengthen routine drug counseling practices by allocating sufficient time and resources for pharmacist–patient interactions. Pharmacy managers should integrate counseling frequency into service standards and support pharmacists through training and workflow optimization to improve patient satisfaction and service quality.

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ETHICAL CLEARANCE

This study received ethical approval from the Ethics Committee of Politeknik Sandi Karsa under approval number B-595/PT19.2.1/PP/VI/2025. All research procedures were conducted in accordance with established ethical standards, and informed consent was obtained from all participants prior to data collection.

CONFLICT OF INTEREST

The authors declare that they have no competing interests.

DATA AVAILABILITY

The data supporting the findings of this study are available from the corresponding author upon reasonable request. The data are not publicly available due to ethical and privacy considerations.

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AUTHORS' CONTRIBUTIONS

Dian Meiliani Yulis contributed to the study conception and design, data collection and analysis, manuscript drafting, and final approval of the version to be published.

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