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Original Article

Effectiveness of an intervention to improve patient satisfaction in medication dispensing with health insurance in Vietnam

[Eficacia de una intervención para mejorar la satisfacción de los pacientes en la dispensación de medicamentos con seguro médico en Vietnam]

Minh Thuy Truong[1,4†], Quang Loc Duyen Vo[2†], Duyen Thi My Huynh[1], Dinh Tieng Hoang[1], Lam Van Nguyen[3*]

[1]Department of Pharmaceutical and Pharmaceutical Technology, Faculty of Pharmacy, Can Tho University of Medicine and Pharmacy, Can Tho 900000, Vietnam.
[2]Department of Health Sciences, College of Natural Sciences, Can Tho University, Campus II, 3/2 Street, Can Tho 900000, Vietnam.
[3]Department of Aesthetic and Plastic Surgery, Faculty of Medicine, Can Tho University of Medicine and Pharmacy, Can Tho 900000, Vietnam.
[4]Pharmacy Department, Vinh Long General Hospital, Vinh Long, Vietnam.
[†]These authors contributed equally to this work.
*E-mail: nvlam@ctump.edu.vn

Abstract

Context: Patient satisfaction with health insurance–covered medication dispensing is an essential indicator of outpatient service quality.

Aims: To evaluate the impact of a multi-component service intervention on patient satisfaction at the outpatient insurance pharmacy of a Vietnamese public hospital from May 2023 to April 2024.

Methods: An interventional, cross-sectional descriptive study was conducted from May 2023 to April 2024. Satisfaction was measured using a Vietnamese-adapted SERVPERF questionnaire.

Results: Overall satisfaction increased from 79.22% pre-intervention to 98.43% post-intervention. Improvements were observed in empathy, reliability, and responsiveness. Age and education were significantly associated with satisfaction ($p<0.05$).

Conclusions: Targeted interventions significantly improved patient satisfaction in medication dispensing. Continuous staff training and infrastructure improvements are recommended.

Keywords: health insurance; intervention; medication dispensing; outpatient; patient satisfaction; Vietnam.

Resumen

Contexto: La satisfacción del paciente con la dispensación de medicamentos cubiertos por el seguro médico es un indicador esencial de la calidad del servicio ambulatorio.

Objetivos: Evaluar el impacto de una intervención multicomponente en la satisfacción del paciente en la farmacia ambulatoria de un hospital público vietnamita, de mayo de 2023 a abril de 2024.

Métodos: Se realizó un estudio descriptivo, intervencionista y transversal, de mayo de 2023 a abril de 2024. La satisfacción se midió mediante el cuestionario SERVPERF adaptado al vietnamita.

Resultados: La satisfacción general aumentó del 79,22% antes de la intervención al 98,43% después de la intervención. Se observaron mejoras en la empatía, la fiabilidad y la capacidad de respuesta. La edad y el nivel educativo se asociaron significativamente con la satisfacción ($p<0,05$).

Conclusiones: Las intervenciones dirigidas mejoraron significativamente la satisfacción del paciente con la dispensación de medicamentos. Se recomienda la formación continua del personal y la mejora de la infraestructura.

Palabras Clave: ambulatorio; dispensación de medicamentos; intervención; satisfacción del paciente; seguro médico; Vietnam.

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AUTHOR INFO
ORCID: 0009-0005-0881-5989 (QLDV)
0000-0003-3306-3051 (DTMH)
0000-0001-5970-0528 (LVN)

INTRODUCTION

Patient satisfaction is a measure of the degree to which patients are satisfied with the healthcare services they receive from their healthcare providers. Patient satisfaction is one of the most critical factors in determining the success of a healthcare facility, as highlighted throughout several studies (Bhatt et al., 2024; Manzoor et al., 2019). In recent years, improving patient care to enhance satisfaction has become a key focus for healthcare providers (Khuwa et al., 2022; Manzoor et al., 2019; Setyawan et al., 2020). In Vietnam, patient satisfaction has been included in the Ministry of Health's annual hospital quality assessments since 2013, reflecting a shift toward patient-centered care (Ministry of Health, 2013).

Medication dispensing comprises prescription verification, drug selection and labeling, patient counseling, and packaging. This process is crucial for ensuring correct drug administration and minimizing medication errors. Medication dispensing procedures are implemented in all healthcare facilities, including public and private institutions, healthcare centers, hospitals, and retail pharmacies, which is essential for patient care (Ministry of Health, 2025). Various clinical pharmacy services, including medication review, reconciliation, synchronization, and therapy management, have been demonstrated to enhance patient health outcomes (Viswanathan et al., 2015). Previous studies assessing medication dispensing operations have often identified issues such as unsystematic procedures and poor documentation (Pizetta et al., 2021). However, evidence on the impact of medication dispensing in hospital settings, particularly for medications covered by health insurance, remains limited.

In healthcare, patients have limited autonomy in service selection, often relying on recommendations from medical staff. This can create a gap between expectations and perceived value. As patient perspectives gain importance in treatment and service decisions, evaluating healthcare delivery through their experiences has become a key indicator of service quality, especially in public hospitals (Manzoor et al., 2019). In practice, medication dispensing is a critical step in patient care (Nguyen et al., 2020). Studies have shown that enhancing communication between healthcare providers and patients, providing comprehensive information about medications and the dispensing process, and optimizing medication supply workflows can significantly improve patient satisfaction (Hurwitz et al., 2023; Huynh et al., 2024; Sirera et al., 2024). Moreover, the adoption of supportive technologies, such as automated drug dispensing systems and medication tracking software, has been shown to reduce patient waiting times, thereby enhancing their overall treatment experience (Alanazi et al., 2022). However, studies investigating patient satisfaction with the medication dispensing process for health insurance-covered drugs remain limited, particularly in the context of Vietnam, where healthcare system overload is common (Ministry of Health Portal, 2024). This study was conducted to explore patient satisfaction and identify interventions to improve patient satisfaction with medication dispensing by health insurance.

MATERIAL AND METHODS

Study design and subjects

Study design

A pre- and post-intervention, cross-sectional descriptive study was conducted between May 1, 2023, and April 30, 2024, at the health insurance outpatient pharmacy of Vinh Long General Hospital, Vietnam.

Research subjects

Outpatients with health insurance who collected their medication at the Outpatient pharmacy counter for health insurance at Vinh Long General Hospital from 2023 to 2024 (the pre-intervention phase from May 1, 2023, to September 30, 2023, the intervention phase from October 1, 2023 to November 30, 2023, and the post-intervention phase from December 1, 2023, to April 30, 2024).

Criteria of selection

Outpatients with health insurance who collected their medication at the Outpatient pharmacy counter for health insurance at Vinh Long General Hospital in the pre-intervention phase from May 1, 2023, to September 30, 2023, and in the post-intervention phase from December 1, 2023, to April 30, 2024.

Criteria of exclusion

The outpatient had a hearing impairment or difficulty hearing. The outpatient provided incomplete answers for the questionnaire.

The study was performed in accordance with the ethical principles for medical research outlined in the Declaration of Helsinki 1964. The study was approved by the Ethics Committee for Biomedical Research of Can Tho University of Medicine and Pharmacy (No. 24.402.HV/PCT-HDDD, April 12, 2023). The personal information of participants would be anonymized.

Data collection and sample size

The sample size was calculated according to the formula for estimating a population proportion:

$$n = z^2_{(1-\alpha/2)}\, p\, (1- p)/d^2 \quad [1]$$

Where, n: The sample size; z: The value of the normal distribution (if α was 0.05, then z was 1.96); α: The probability of type I error (we use α = 0.05); p: Patient satisfaction rate of medication dispensing at outpatient health insurance counter, according to a study by Dang (2022), with p = 0.79 (Dang, 2022); d: The margin of error (d = 0.05).

Substituting the value of z, α, p, and d into the formula, then n = 1.96^2 0.79 (1-0.79)/0.05^2 = 255. Hence, the study was conducted with 255 independent participants at both the pre- and post-intervention stages. A consecutive sampling technique was used to recruit participants during the data collection periods.

Patients characteristics included gender (male and female), ethnicity (Kinh and others), age (<20, 20-39, 40-59, and ≥60), income (<5 million VND, 5-10 million VND and >10 million VND), education level (primary, secondary, high school, college/university/ postgraduate) and occupation (civil servant, farmer, freelancer and others).

Patient satisfaction toward medication dispensing with health insurance was evaluated both pre- and post-intervention based on a self-administered questionnaire integrated the SERVPERF Scales with five aspects (tangible, reliability, responsiveness, assurance and empathy) (Jain and Gupta, 2004), with an assessment tool for patient satisfaction published by the Vietnam Ministry of Health, issued together with Decision No. 3869/QD-BYT dated August 28, 2019 (Ministry of Health, 2019). The questionnaire was consulted with three experts and adjusted accordingly. A 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), was used to rate each item in five aspects by participants. After that, each item was categorized into two groups: satisfaction (4-5 points) and dissatisfaction (1-3 points). The overall patient satisfaction was determined when the number of 4-5 point answers was 80% or more.

The internal consistency of the questionnaire was assessed using Cronbach's alpha. A Cronbach's alpha coefficient higher than 0.7 and corrected item-total correlations greater than 0.3 were considered to demonstrate the reliability. In fact, the domains of tangibility, reliability, responsiveness, assurance, and empathy were found to have Cronbach's alphas of 0.79, 0.85, 0.88, 0.86, and 0.83, respectively. All corrected item-total correlations were greater than 0.3. A pilot test involving 30 participants was conducted to evaluate the clarity of the questionnaire items and their cultural relevance before the formal data collection phase.

Patient-related variables included gender (male and female), ethnicity (Kinh and others), age (<20, 20-39, 40-59, and ≥60), income (<5 million VND, 5-10 million VND and >10 million VND), education level (primary, secondary, high school, college/ university/postgraduate) and occupation (civil servant, farmer, freelancer and others).

Intervention

The intervention lasted two months from October 1, 2023 to November 30, 2023 by the collaboration among research teams, pharmacists in the Pharmacy Department and the Quality Management Department of Vinh Long General Hospital.

The intervention was included reviewing staffing needs and assigning additional dispensing staff during peak hours; conducting monthly short-term training sessions on the first working day of each month, focusing on communication skills, behavioral guidelines, and patient-centered care, with participation from eight pharmacists and two supporting staff; repairing and replacing damaged equipment at the outpatient pharmacy counter; and implementing routine daily cleaning of the dispensing area and restrooms, with additional cleaning as required.

Data processing and data analysis

Data was collected and analyzed by using IBM SPSS version 20 (IBM, Chicago, IL, USA). Qualitative variables were described in terms of numbers and percentages. The χ^2 test was used to compare the differences in the percentage of patient characteristics, patient satisfaction in pre- and post-intervention, and to reveal related factors of patient satisfaction and patient characteristics. A multivariable logistic regression analysis was used to control for potential confounders and identify the relationship between demographic variables and patient satisfaction. The difference was statistically significant if $p<0.05$.

RESULTS

A total of 255 patients were surveyed in each phase. In the pre-intervention phase, 108 males and 147 females were included; in the post-intervention phase, 126 males and 129 females participated (see Table 1). The majority of patients in both pre- and post-intervention phases were of Kinh ethnicity (96.08% in pre-intervention and 91.76% in post-intervention). The majority were aged ≥60, both pre- and post-intervention phases, without any significant changes. Income levels had a significant difference ($p<0.001$), with those earning over 10 million VND increasing from 18.82% in the pre-intervention stage to 52.94% in the post-intervention stage. In terms of

education, most patients held a college/university/postgraduate degree (57.65% in pre-intervention and 35.69% in post-intervention). The largest group of occupations was civil servants (43.14% in pre-intervention and 40.78% in post-intervention).

Overall patient satisfaction showed a significant improvement after the intervention across all five SERVPERF domains. The largest gains were observed in the empathy and assurance dimensions, with post-intervention satisfaction rates approaching or exceeding 99%. Each domain demonstrated a statistically significant increase ($p<0.05$); see Fig. 1.

In the empathy domain, the item "When prescription issues arose, dispensing staff showed concern and addressed them for patients" achieved a perfect post-intervention satisfaction score of 100%. Similarly, in the assurance domain, "Pharmacists and dispensing staff consistently treated all patients fairly, besides offering advice when patients had concerns about medication use," also reached 100% satisfaction. Within the tangible domain, satisfaction with the statement "The waiting area for medication dispensing consistently maintains hygiene" increased significantly from 93.33% to 99.61% ($p=0.004$). In the reliability domain, the most notable improvement was in "Patients were advised by pharmacists on drug side effects," rising from 89.80% to 99.22% ($p<0.001$). The responsiveness domain also showed progress, particularly for the item "The process of dispensing medications was simplified to meet patient needs," which improved from 91.76% to 99.22% ($p<0.001$), see Table 2.

Table 3 shows the factors associated with patient satisfaction. Age presented a significant association, with patients aged 20-39 achieving the highest satisfaction rate at 87.3% ($p<0.001$). Education level was significantly associated with patient satisfaction, with those having primary education reporting 100% satisfaction, while those with higher education levels showed progressively lower satisfaction rates ($p=0.026$). Gender, ethnicity, income, and occupation did not significantly affect satisfaction ($p>0.05$).

Table 1. Characteristics of patients in pre- and post-intervention.

Characteristics	Classification	Pre-intervention n (%)	Post-intervention n (%)	p-value
Gender	Male	108 (42.35)	126 (49.41)	0.11
	Female	147 (58.65)	129 (50.59)	
Ethnicity	Kinh	245 (96.08)	234 (91.76)	**0.041**
	Others	10 (3.92)	21 (8.24)	
Age	<20	25 (9.80)	22 (8.63)	0.545
	20-39	79 (30.98)	76 (29.80)	
	40-59	57 (22.35)	71 (27.84)	
	≥60	94 (36.86)	86 (33.73)	
Income (million VND)	<5	97 (38.05)	94 (36.86)	**<0.001**
	5-10	110 (43.13)	26 (10.20)	
	>10	48 (18.82)	135 (52.94)	
Education level	Primary	18 (7.06)	42 (16.47)	0.13
	Secondary	20 (7.84)	44 (17.25)	
	High school	70 (27.45)	78 (30.59)	
	College/University/Postgraduate	147 (57.65)	91 (35.69)	
Occupation	Civil servant	110 (43.14)	104 (40.78)	0.429
	Farmer	66 (25.88)	57 (22.35)	
	Freelancer	55 (21.57)	60 (23.53)	
	Others	24 (9.41)	34 (13.33)	

Table 2. Patient satisfaction in pre- and post-intervention**.**

Items	Pre-intervention n (%)	Post-intervention n (%)	p-value
Tangible	**208 (81.57)**	**249 (97.65)**	**<0.001**
The waiting area for medication dispensing consistently maintained hygiene	238 (93.33)	254 (99.61)	**0.004**
Equipment serving patients in the medication dispensing area functioned well	230 (90.20)	253 (99.22)	**<0.001**
The medication dispensing area ensured safety and order	237 (92.94)	252 (98.82)	**0.002**
Pharmacists and dispensing staff wore clean and neat uniforms	234 (91.76)	254 (99.61)	**0.002**
Restrooms in the waiting area ensured hygiene and comfort	237 (92.94)	253 (99.22)	**0.001**
Instructional signs for medication receipt were clearly displayed and accessible	241 (94.51)	253 (99.22)	**0.008**
Pharmacists and dispensing staff behaved in a friendly and courteous manner	245 (96.08)	254 (99.61)	**0.026**
Reliability	**215 (84.31)**	**251 (98.43)**	**<0.001**
Patients were provided complete, clear, and transparent invoices	244 (95.69)	254 (99.61)	**0.02**
Patients were advised by pharmacists on drug side effects	229 (89.80)	253 (99.22)	**<0.001**
Patients received careful instructions from pharmacists on how to use medications	252 (98.82)	253 (99.22)	0.463
Prescriptions were accurately issued with the correct quantity, dose and brand name	235 (92.16)	254 (99.61)	**0.001**
Patients felt trust in pharmacists and dispensing staff	244 (95.69)	254 (99.61)	**0.022**
Responsiveness	**205 (80.39)**	**247 (96.86)**	**<0.001**
The process of dispensing medications was simplified to meet patient needs	234 (91.76)	253 (99.22)	**<0.001**
Waiting times to receive medications met patient expectations	228 (89.41)	251 (98.43)	**<0.001**
Security was consistently ensured in the waiting area for medication dispensing	242 (94.90)	252 (98.82)	**0.005**
The service in the dispensing area was timely	236 (92.55)	252 (98.82)	**0.001**
Pharmacists and healthcare staff in the dispensing area were always willing to assist patients	235 (92.16)	251 (98.43)	**0.001**
Assurance	**218 (85.49)**	**247 (96.86)**	**<0.001**
Pharmacists and healthcare staff respected patients' privacy concerns	242 (94.90)	253 (99.22)	**0.004**
Pharmacists carefully verified patient information before dispensing medications	225 (88.24)	252 (98.82)	**<0.001**
Pharmacists demonstrated good knowledge and readiness to answer patient queries about medications	232 (90.98)	253 (99.22)	**<0.001**
Pharmacists and healthcare staff maintained a high level of professional level	248 (97.25)	252 (98.82)	0.196
Empathy	**200 (78.43)**	**253 (99.22)**	**<0.001**
When prescription issues arose. dispensing staff showed concern and addressed them for patients	241 (94.51)	255 (100)	0.994
Pharmacists and dispensing staff consistently treated all patients fairly, beside offering advice when patients had concerns about medication use	238 (93.33)	255 (100)	0.994
Patients always received enthusiastic and thorough advice	239 (93.73)	253 (99.22)	**0.001**
Medication dispensing times were appropriately scheduled	238 (93.33)	254 (99.61)	**0.004**
Overall satisfaction	**202 (79.22)**	**251 (98.43)**	**<0.001**

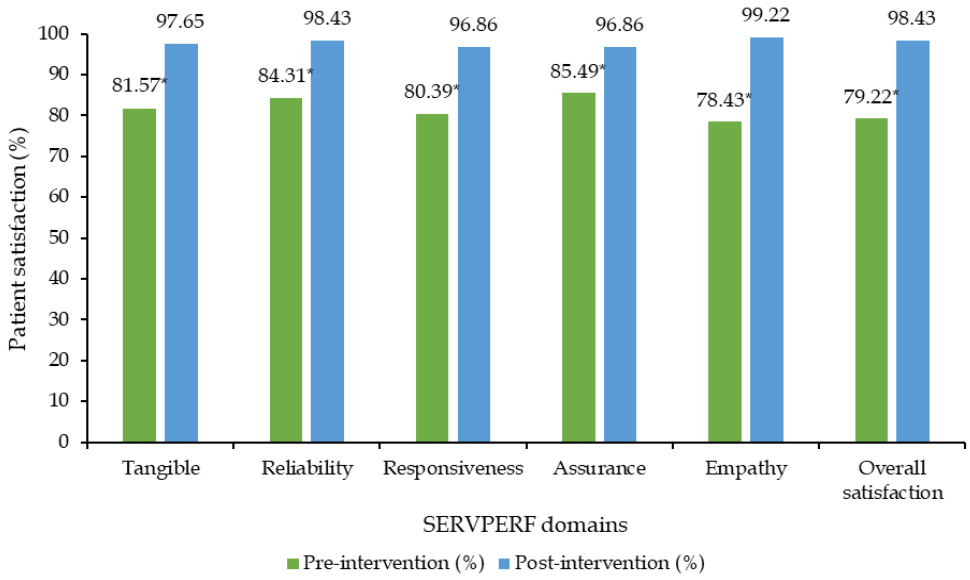

Figure 1. Patient satisfaction (%) before and after intervention across SERVPERF domains and overall satisfaction.

* All differences were statistically significant (p<0.05).

Table 3. Factors associated with patient satisfaction.

Characteristics	Classification	Satisfaction n (%)	Dissatisfaction n (%)	Univariate p-value	Multivariate p-value
Gender	Male	84 (77.8)	24 (22.2)	0.628	0.358
	Female	118 (80.3)	29 (19.7)		
Ethnicity	Kinh	195 (79.6)	50 (20.4)	0.464	0.533
	Others	7 (70)	3 (30)		
Age	<20	23 (92)	2 (8)	**0.009**	**<0.001**
	20-39	69 (87.3)	10 (12.7)		
	40-59	38 (66.7)	19 (33.3)		
	≥60	72 (76.6)	22 (23.4)		
Income (million VND)	<5	75 (77.3)	22 (22.7)	0.671	0.46
	5-10	90 (81.8)	20 (18.2)		
	>10	37 (77.1)	11 (22.9)		
Education level	Primary	40 (100)	0 (0)	**0.002**	**0.026**
	Secondary	31 (83.8)	6 (16.2)		
	High school	74 (71.8)	29 (28.2)		
	College/University/Postgraduate	57 (76)	18 (24)		
Occupation	Civil servant	84 (76.4)	26 (23.6)	0.329	0.304
	Farmer	50 (75.8)	16 (24.2)		
	Freelancer	48 (87.3)	7 (12.7)		
	Others	20 (83.3)	4 (16.7)		

DISCUSSION

The gender distribution remained stable across phases, with females comprising the majority. This pattern may reflect higher healthcare utilization rates among women, as reported in prior studies (Ballering et al., 2023). Patients employed in state-run organizations represented the largest proportion (43.14% in the pre-intervention phase and 40.78% in the post-intervention phase). In comparison, studies in Europe reported a higher proportion of patients employed in the private sector, highlighting differences in occupational structures and healthcare service utilization across regions (Rodríguez et al., 2014).

Patient satisfaction with health insurance medication dispensing services was assessed across five aspects: tangibility, reliability, responsiveness, assurance, and empathy. In the pre-intervention phase, "Equipment serving patients in the medication dispensing area functioned well" had the lowest satisfaction rate at 90.20%. However, following interventions such as the addition of essential equipment, satisfaction increased significantly to 99.22% in the post-intervention phase. Clear and easy-to-follow instructions also made the service more convenient for patients, further improving satisfaction levels (Kebede et al., 2021). About the reliability aspect, items such as "Patients were provided complete, clear, and transparent invoices" and "Prescriptions were accurately issued with the correct quantity, dose, and brand name" achieved the highest satisfaction rates in the post-intervention phase (99.61%). This indicates that outpatient patients felt reassured by the dedication of pharmacists who provided detailed consultations and guidance on medication use (Abass et al., 2021). In the pre-intervention phase, the item "Waiting times to receive medications met patient expectations" recorded the lowest satisfaction rate (89.41%), which was likely influenced by limited staffing and longer preparation times for prescriptions with multiple medications, particularly during peak service hours. Following the intervention, which involved increasing the number of dispensing staff, the satisfaction rate for this item improved markedly to 98.43%. Despite these local improvements, pharmacy workforce shortages continue to be a widespread challenge across Vietnam. A 2022 national survey found that hospitals had an average of only 0.4 full-time equivalent clinical pharmacists per 100 beds (Dong et al., 2022), which constrains the development of patient-specific pharmaceutical care services. To address this persistent gap, telepharmacy has been proposed as a practical and scalable solution, especially for rural and underserved areas where staffing shortages are most severe (De et al., 2023). In general, the overall patient satisfaction rate increased from 79.22% to 98.43%, reflecting the effectiveness of the implemented measures. These findings underscore the necessity of maintaining and continuously improving service quality to better meet patient needs and expectations.

The study revealed that education level was a significant factor influencing patient satisfaction with health insurance medication dispensing services. This may be attributed to the higher expectations of service quality among individuals with advanced education, where individuals with higher education levels demanded greater professionalism and efficiency in healthcare services (Begum et al., 2022; Munawarah et al., 2023). Another explanation is that patients with higher education tend to have more comprehensive knowledge about medication dispensing processes, leading them to consider a broader range of factors when evaluating their satisfaction (Molla et al., 2022). Age was also found to influence satisfaction with health insurance medication dispensing services. Older individuals often prioritize safety and trust when using healthcare services, focusing on factors such as accuracy in medication dispensing, meticulousness of healthcare staff, and other safety measures (Lette et al., 2020). These findings underscored the importance of personalized healthcare services to meet the diverse needs of different patient groups, thereby improving service quality and enhancing satisfaction. This evidence suggests that hospitals should place greater emphasis on addressing the specific needs and preferences of each patient demographic to improve service quality (Quyen et al., 2021). Healthcare staff should be better equipped with skills such as active listening, understanding, and responding to patient needs with professionalism and empathy. Besides, to strengthen causal inferences and better understand the mechanisms behind the observed improvements, future studies should consider controlled trials isolating individual components of the intervention, time-motion analyses to quantify workflow changes, and qualitative inquiries to explore perceptions from both patients and pharmacy staff.

Limitations of this study

This study had some limitations. First, it was conducted at only one hospital in Vietnam, which may not fully reflect the situation at other healthcare facilities, potentially affecting the generalizability of the findings. Second, the data collection method, based on direct surveys, may introduce bias in the results due to the subjective nature of the participants' responses. Patients may answer in ways they perceive as appropriate or desired, leading to less objective evaluations of satisfaction. These limitations were minimized by conducting the study anonymously.

Although the SERVPERF scale was used in this study, it may not encompass all factors influencing patient satisfaction, particularly psychological and social factors. Lastly, the research period, conducted between May 2023 and April 2024, was limited and may not have fully captured changes in patient satisfaction over a longer period. Future research should be conducted to expand to other healthcare facilities for improved generalizability, utilize a longer research period, and incorporate diverse methods, such as longitudinal studies. It should also explore psychological and social factors influencing patient satisfaction through a qualitative study.

CONCLUSION

In this study, the intervention significantly improved patient satisfaction with medication dispensing with health insurance, with satisfaction increasing from 79.22% pre-intervention to 98.43% post-intervention. Key improvements were observed in empathy, reliability, and responsiveness, particularly in the accuracy of prescriptions and the cleanliness of the waiting area. Age and educational level were significantly associated with satisfaction ($p<0.05$). These results underscore the effectiveness of the intervention in enhancing patient satisfaction and improving the quality of healthcare services.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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AUTHOR CONTRIBUTION:

Contribution	Truong MT	Vo QLD	Huynh TMD	Hoang DT	Nguyen VL
Concepts or ideas	x	x	x		
Design	x	x	x		
Definition of intellectual content	x		x		
Literature search	x	x	x	x	x
Clinical trial	x		x		
Experimental studies	x		x		
Data acquisition	x			x	
Data analysis	x	x	x	x	x
Statistical analysis	x	x	x	x	x
Manuscript preparation	x	x			x
Manuscript editing		x	x		x
Manuscript review	x	x	x	x	x

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