



Patient Satisfaction with Outpatient Pharmacy Services in Hospitals: A Systematic Review

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Abstract. Patient satisfaction is a key indicator of hospital service quality. Outpatient pharmacy services support medication access, clear communication, and adherence. Variations in satisfaction across countries emphasize the need for structured evaluation to identify service gaps and improve pharmacy care. This study aims to examine patient satisfaction with outpatient pharmacy services in hospitals. Articles were retrieved from PubMed, Europe PMC, Scopus, ScienceDirect, and SpringerLink, published from January 1st, 2015 to March 20th, 2025. Boolean operators were used to combine terms such as "Outpatient satisfaction", "Patient satisfaction", "Pharmacy services", "Pharmaceutical services", "Hospital pharmacy", and "Healthcare pharmacy". Thematic analysis was applied, and methodological quality was assessed using the Mixed Methods Appraisal Tool. From 514 records, 16 studies met the inclusion criteria (15 quantitative and one mixed-methods). Satisfaction ranged from 40.5 % – 90.0 %, influenced by service models, pharmacist communication, drug availability, waiting time, and infrastructure. Structured systems and effective pharmacist interaction were associated with higher satisfaction. Dissatisfaction was linked to drug stockouts, limited counseling, and lack of privacy. Patient satisfaction improves with structured services, good communication, and adequate counseling, but hindered by stockouts and long waiting times. Standardized tools and patient-centered improvements are needed to strengthen pharmacy service quality.

Keywords: Hospital pharmacy, Outpatient services, Patient satisfaction, Pharmacy services, Service quality.

1 Introduction

Patient satisfaction has become a vital indicator of healthcare quality, particularly in hospital-based services where patients expect professional, timely, and empathetic care. Within this context, outpatient pharmacy services in hospitals are a critical component of the care continuum, responsible for ensuring medication access, providing drug-related information, and supporting adherence. As the final point of interaction for

many patients during a hospital visit, these services have a direct impact on how patients perceive the overall quality of care they receive [1,2].

Despite the central role of outpatient hospital pharmacies, studies conducted across various countries report wide variation in patient satisfaction. Contributing factors include the availability of prescribed medications, clarity of pharmacist communication, waiting time, counseling quality, physical environment, and privacy. High satisfaction levels are often associated with efficient systems, adequate drug supply, and respectful, informative pharmacist interactions. Conversely, patient dissatisfaction frequently arises from drug shortages, poor labeling, insufficient counseling, and long queues, which can reduce trust in hospital services [3–5].

Understanding what constitutes high-quality service is essential to address these issues and improve patient experiences in outpatient pharmacies. Service quality is a concept developed to measure how well the service delivered matches customer expectations. According to Parasuraman, Zeithaml, and Berry, service quality is defined as the gap between customer expectations and their perceptions of the service they receive. They introduced the SERVQUAL model, which conceptualizes service quality through five core dimensions: tangibles (physical facilities and equipment), reliability (accuracy and consistency), responsiveness (willingness to help patients), assurance (competence and courtesy), and empathy (personalized attention). In hospital pharmacy settings, these dimensions offer a structured approach to identifying service strengths and areas needing improvement [6].

Previous research has reviewed patient satisfaction in pharmacy services, but there is limited synthesis focusing specifically on hospital outpatient settings. A recent meta-analysis by Ayele et al. (2022) evaluated patient satisfaction with inpatient pharmacy services in tertiary care hospitals and highlighted variability across studies and regions, calling for more focused investigations into outpatient settings to enhance generalizability and contextual relevance [7]. This underscores the need for updated and targeted systematic reviews that address outpatient pharmacy services and integrate contemporary data from diverse healthcare contexts.

This systematic review aims to synthesize evidence from quantitative and mixed-methods studies that examine patient satisfaction with outpatient pharmacy services in hospitals. It explores key factors that influence satisfaction, including pharmacist communication and attitude, drug counseling and information provision, medication availability, waiting time, and pharmacy infrastructure. In addition, the review highlights service models and contextual practices that have been associated with improved satisfaction outcomes. By identifying consistent themes and variations across diverse healthcare settings, this review offers insight into strategies for improving the quality of outpatient pharmacy services and emphasizes the importance of adopting standardized evaluation tools to enhance comparability across future research.

2 Methods

2.1 Article Selection

This study is a systematic review conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure

transparency, comprehensiveness, and reproducibility [8,9]. The review synthesizes evidence from quantitative and mixed-methods studies to evaluate patient satisfaction with outpatient pharmacy services in hospital settings worldwide. Quantitative studies provided measurable outcomes such as satisfaction scores or ratings, while mixed-methods studies enriched the findings through qualitative insights into patient perceptions and experiences. The protocol for this systematic review was registered with PROSPERO International Prospective Register of Systematic Reviews (registration number: CRD420251011188). It is available at: [https://www.crd.york.ac.uk/PROSPERO/view/CRD420251011188].

2.2 Search Strategy

A comprehensive search was conducted across several databases to identify relevant studies for this systematic review. The databases to be searched include PubMed, Scopus, ScienceDirect, SpringerLink, and Europe PMC.

Table 1. Search terms on database.

Database	Search terms	Search date	Filter
Europe PMC	"Outpatient satisfaction" OR "Patient satisfaction" AND "Pharmacy services" OR "Pharmaceutical services" AND "Hospital pharmacy" OR "Healthcare pharmacy" NOT "Community pharmacy"	March, 20th 2025	English and Indonesia Language 2015-2025 Sorted by relevance
PubMed	"Outpatient satisfaction" OR "Patient satisfaction" AND "Pharmacy services" OR "Pharmaceutical services" AND "Hospital pharmacy" OR "Healthcare pharmacy" NOT "Community pharmacy"	March, 20th 2025	Best match 2015-2025 English Language
Scopus	("Outpatient satisfaction" OR "Patient satisfaction") AND ("Pharmacy services" OR "Pharmaceutical services") AND ("Hospital pharmacy" OR "Healthcare pharmacy") NOT "Community pharmacy"	March, 20th 2025	English Language 2015-2025 Sorted by relevance
Science Direct	"Outpatient satisfaction" OR "Patient satisfaction" AND "Pharmacy services" OR "Pharmaceutical services" AND "Hospital pharmacy" OR "Healthcare pharmacy" NOT "Community pharmacy"	March, 20th 2025	English Language 2015-2025 Sorted by relevance
Springer Link	("Outpatient satisfaction" OR "Patient satisfaction") AND ("Pharmacy services" OR "Pharmaceutical services") AND ("Hospital pharmacy" OR "Healthcare pharmacy") NOT "Community pharmacy"	March, 20th 2025	English Language 2015-2025 Sorted by relevance

These databases were selected based on their relevance and coverage of healthcare and pharmaceutical research. Boolean operators (AND/OR/NOT) were used to combine search terms, such as "Outpatient satisfaction", "Patient satisfaction", "Pharmacy services", "Pharmaceutical services", "Hospital pharmacy", "Healthcare pharmacy", "Community pharmacy". These terms are intended to capture a broad range of studies that focus on patient satisfaction with pharmacy services in hospital settings.

Search strings were adapted for each database and limited to articles published in English or Indonesian between January 2015 and March, 20th 2025. The full search strategy is provided in Table 1.

Table 2. The quality assessment of studies

Author (Year)	Qualitative Studies					Quantitative Descriptive Studies					Mixed Methods Studies				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Nguyen and Nguyen, 2022 [10]						Y	CT	Y	CT	Y					
Pribadi <i>et al.</i> , 2023 [11]						Y	CT	Y	CT	Y					
Semegn and Alemkere, 2019 [12]						Y	CT	CT	Y	Y					
Adinew <i>et al.</i> , 2021 [13]						Y	Y	CT	CT	Y					
Ayele <i>et al.</i> , 2020 [14]						Y	Y	Y	Y	Y					
Ergetie <i>et al.</i> , 2024 [5]						Y	Y	Y	Y	Y					
Yehualaw <i>et al.</i> , 2023 [15]						Y	Y	Y	CT	Y					
Martin-Conde <i>et al.</i> , 2021 [16]	Y	Y	Y	Y	Y	Y	Y	Y	CT	Y	Y	Y	Y	Y	Y
Gidey <i>et al.</i> , 2021 [17]						Y	Y	Y	Y	Y					
Al Zabadi <i>et al.</i> , 2023 [18]						Y	CT	Y	CT	Y					
Kassa <i>et al.</i> , 2021 [19]						Y	Y	Y	Y	Y					
Molla <i>et al.</i> , 2022 [20]						Y	Y	Y	Y	Y					
Chanie <i>et al.</i> , 2024 [21]						Y	Y	Y	Y	Y					
Kashfi <i>et al.</i> , 2022 [22]						Y	Y	Y	Y	Y					
Pribadi <i>et al.</i> , 2019 [23]						Y	Y	Y	CT	Y					
Nigussie and Edessa, 2018 [24]						Y	Y	Y	CT	Y					

Y, Yes; CT, Can not tell

2.3 Eligibility Criteria

The eligibility criteria for this systematic review were defined to focus on studies assessing patient satisfaction with pharmacy services in hospital outpatient settings. Included studies comprise quantitative and mixed-methods studies that investigate components of outpatient pharmacy services. Patient satisfaction must be reported as either a primary or secondary outcome. Only articles published in English or Indonesian from 2015 onward, and available in full-text were considered eligible. Studies were excluded if they focused on inpatient populations, pediatric patients without separate adult data, or pharmacy services provided exclusively in community settings. Articles that do not present original data, including reviews, editorials, and commentaries, were also excluded.

2.4 Data Extraction

Data extraction was conducted independently by individual researchers using a structured data extraction form, which captured essential information such as author name, year of publication, study design, sample characteristics, country of origin, selected variables, methodological approach, research objectives, and study findings. Any discrepancies or disagreements during the extraction process were addressed through discussion among the authors to reach a consensus. During the duplication removal stage, Zotero and Microsoft Excel were employed to facilitate and expedite the process. In the screening phase, a thorough assessment was performed to evaluate the relevance of each article's title and the appropriateness of the study variables in relation to the review's focus. Further analysis was conducted to ensure consistency between the title and abstract and to verify the availability of the full-text version. Articles that passed this initial screening were then evaluated for eligibility based on predetermined inclusion criteria and exclusion criteria.

2.5 Data Analysis

Data were analyzed thematically to identify key factors influencing patient satisfaction with outpatient pharmacy services. Descriptive statistics summarized study characteristics and satisfaction outcomes, while diverse findings were organized into thematic domains such as communication, drug availability, counseling, service efficiency, and infrastructure. Due to methodological variation, results were synthesized narratively. Study quality was assessed using the Mixed Methods Appraisal Tool (MMAT), with any discrepancies resolved through consensus. The critical appraisal of studies presented in Table 2.

3 Results

3.1 Article Selection

A total of 514 records were initially identified through six databases: PubMed (n = 28), Europe PMC (n = 285), Scopus (n = 106), ScienceDirect (n = 57), Springer Link (n =

38). After removing 70 duplicate records, 444 unique articles remained for screening. Of these, 397 records were excluded based on irrelevance to the topic ($n=326$), review articles ($n=62$), book chapters ($n=4$), practice guidelines ($n=1$), editorials ($n=1$), letters ($n=1$), conference abstracts ($n=1$), and note ($n=1$), resulting in 47 articles for full-text assessment. Following eligibility screening, 31 full-text articles were excluded for reasons such as not meeting the study design criteria ($n=13$), lacking satisfaction-related data ($n=3$), having no relevant outcomes ($n=4$), or lacking access to full-text ($n=11$). Ultimately, 16 studies met all inclusion criteria and were included in the review, as shown in Fig. 1.

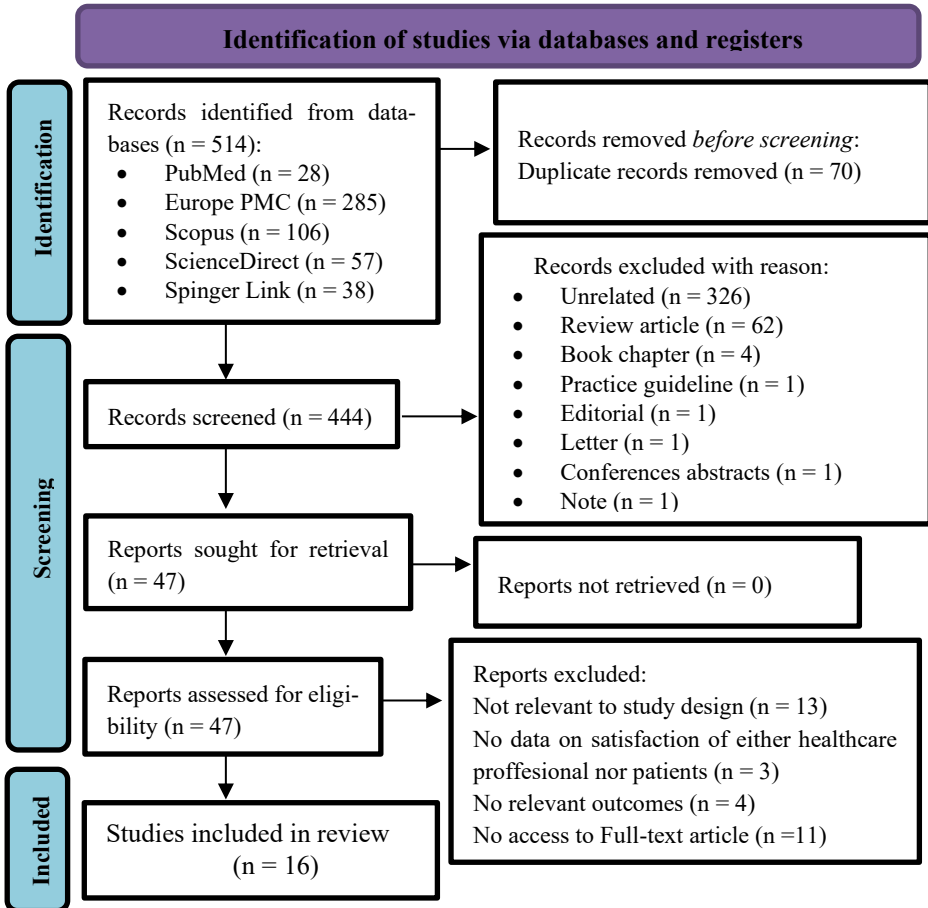


Fig. 1. PRISMA flow diagram.

The selected studies consisted of fifteen cross-sectional studies and one quantitative descriptive study incorporating a mixed-methods approach through the use of questionnaires and focus group discussions (FGDs). These studies were conducted across diverse hospital settings in countries such as Ethiopia, Indonesia, Iran, Vietnam, Palestine, and Spain. Study participants were outpatients representing various demographic backgrounds. Most of the studies employed structured, self-administered question-

naires and interviews to assess patient satisfaction, with Likert-scale instruments being the most common. The methodological diversity and contextual variations across studies provide a broad overview of outpatient pharmacy service delivery in different regions. The methodological characteristics for selected studies of this paper (Table 3).

Table 3. Methodology of selected studies.

Study	Setting	Study Design	Instrument	Sample Size
Nguyen and Nguyen, 2022 [10]	Cho Ray Hospital, Vietnam	Cross-sectional	Validated-adjusted SERVQUAL questionnaire	210
Pribadi <i>et al.</i> , 2023 [11]	2 hospitals in Yogyakarta, Indonesia	Cross-sectional	Validated questionnaire based on scientific literature review	301
Semegn and Alemkere, 2019 [12]	Tikur Anbessa Specialized Hospital, Ethiopia	Cross-sectional	Unvalidated questionnaire adapted from related literature	250
Adinew <i>et al.</i> , 2021 [13]	26 hospitals in Ethiopia	Cross-sectional	Validated questionnaire	650
Ayele <i>et al.</i> , 2020 [14]	13 Public hospitals, Eastern Ethiopia	Cross-sectional	Validated questionnaire based on related literatures	422
Ergetie <i>et al.</i> , 2024 [5]	Felege Hiwot Hospital, Ethiopia	Cross-sectional	Validated questionnaire based on related literatures	318
Yehualaw <i>et al.</i> , 2023 [15]	Felege Hiwot Hospital, Ethiopia	Cross-sectional	Validated questionnaire based on related literatures	410
Martin-Conde <i>et al.</i> , 2021 [16]	Hospital Clinic, Spain	Mix methods	Self-developed questionnaire based on focus group interview	3287
Gidey <i>et al.</i> , 2021 [17]	Dubti General Hospital, Ethiopia	Cross-sectional	Validated questionnaire based on related literatures	422
Al Zabadi <i>et al.</i> , 2023 [18]	3 hospitals in Palestine	Cross-sectional	Validated questionnaire based on related literatures	990
Kassa <i>et al.</i> , 2021 [19]	Seven hospitals in Tigray, Ethiopia	Cross-sectional	Validated SERVQUAL questionnaire based on related literatures	794
Molla <i>et al.</i> , 2022 [20]	Debre Tabor Comprehensive Specialized Hospital, Ethiopia	Cross-sectional	Validated questionnaire based on related literatures	401
Chanie <i>et al.</i> , 2024 [21]	3 Comprehensive Specialized Hospitals Psychiatric Clinic, Ethiopia	Cross-sectional	Validated questionnaire based on related literatures	422

Study	Setting	Study Design	Instrument	Sample Size
Kashfi <i>et al.</i> , 2022 [22]	10 Teaching hospital pharmacies, Iran	Cross-sectional	Self-developed modified SERVQUAL questionnaire	300
Pribadi <i>et al.</i> , 2019 [23]	4 hospitals in the Special Region of Yogyakarta, Indonesia,	Cross-sectional	Validated questionnaire based on related literatures	432
Nigussie and Edessa, 2018 [24]	Hiwot Fana Specialized University Hospital & Harar Police Hospitals, Eastern Ethiopia	Cross-sectional	Questionnaire based on World Health Organization (WHO) criteria for satisfaction of pharmaceutical service provisions	844

3.2 Overall Satisfaction Summary

This systematic review explored patient satisfaction with outpatient pharmacy services across diverse hospital settings in countries such as Ethiopia, Indonesia, Iran, Vietnam, Palestine, and Spain. The overall satisfaction scores reported in these studies varied widely, reflecting differences in service quality, system maturity, and local challenges in pharmacy practice. Among the included studies, the highest reported level of satisfaction was 90 %, found in the study by Adinew *et al.* (2021) in Ethiopia, where implementing the Auditable Pharmaceutical Transactions and Services (APTS) system was credited for enhancing transparency and service delivery. In contrast, the lowest satisfaction level was 40.5 %, as reported by Gidey *et al.* (2021), also in Ethiopia, where drug shortages and facility constraints were identified as major issues.

Several studies, including Martin-Conde *et al.* (2021) from Spain and Nguyen and Nguyen (2022) from Vietnam, used Likert-scale ratings to assess satisfaction, with mean scores ranging from moderate to high (e.g., 4.3/5). However, some studies, such as Pribadi *et al.* (2019) and Nigussie & Edessa (2018), did not report an explicit overall satisfaction score but instead analyzed satisfaction based on various service domains or through regression modeling. A comprehensive summary of how each included study reported patient satisfaction, including whether overall satisfaction scores were explicitly stated and the general patterns observed, is presented in the summary Table 4.

Table 4. Satisfaction report.

Author and Year	Satisfaction Report		Overall Satisfaction Score
	Supporting Satisfaction	Reducing Satisfaction	
Nguyen and Nguyen, 2022 [10]	Reliability with the provision of health-insurance drugs. Tangibility, with the available equipment for COVID-19 prevention in the facility.	Tangibility, sympathy with listening to patient issues.	3.42/5.0

Author and Year	Satisfaction Report		Overall Satisfaction Score
	Supporting Satisfaction	Reducing Satisfaction	
	Sympathy, with the pharmacy staff's care for each person. Responsiveness and assurance, were the reasonable cost of each prescription and the careful listening of the staff to customer requests		
Pribadi <i>et al.</i> , 2023 [11]	Drug efficacy, drug education and personnel quality. Patient satisfaction was found to positively influence trust in the pharmacy	No factors reducing satisfaction reported	Not performed
Semegn and Alemkere, 2019 [12]	The time given and the language communication (medication advice)	pharmacy staff number insufficiency, waiting area	51.60%/100.0%
Adinew <i>et al.</i> , 2021 [13]	Communication skills, waiting area and staff number sufficiency for the service.	Lower satisfaction report towards the medication guidance given	90.00%/100.0%
Ayele <i>et al.</i> , 2020 [14]	Key factors influencing satisfaction included pharmacist counseling skills and the dispensing area.	Medication availability, space in the waiting area, number of staffs, bureaucracy pharmacist–patient relationship	46.19%/100%
Ergetie <i>et al.</i> , 2024 [5]	Pharmacy professional availability, language used by the pharmacy professional, service with dignity and respect	Waiting time, consultation time and dispensing time	72.01%/100%
Yehualaw <i>et al.</i> , 2023 [15]	Pharmacists' commitment to correct myth, pharmacist availability, and cleanliness	Sociodemographic characteristic, counseling on how medication work, keeping to dosage regimen, advice on the current medical condition	65.37%/100%
Martin-Conde <i>et al.</i> , 2021 [16]	Staff kindness and professionalism, waiting time as significant change	Waiting time as a previous source of dissatisfaction and waiting area	4.1/5-4.3/5
Gidey <i>et al.</i> , 2021 [17]	Service payment insured through their workplace	Key factors affecting satisfaction included drug availability, pharmacy	40.50%/100%

Author and Year	Satisfaction Report		Overall Satis- faction Score
	Supporting Satisfaction	Reducing Satisfaction	
		workflow, and medica- tion costs	
Al Zabadi <i>et al.</i> , 2023 [18]	Clear written instructions, ad- equate patient–pharmacist communication, the timing of ser vices, and the availability of medications	No factors reducing satis- faction reported	3.24/5.0
Kassa <i>et</i> <i>al.</i> , 2021 [19]	Empathy, tangibility and re- sponsiveness rated highest. Pharmacist-patient relation- ship and physical aspects of the service	Assurance and reliability rated lowest. Lack of In- formation and Counsel- ing and lack providing comprehensive pharma- ceutical care	3.1/5.0
Molla <i>et</i> <i>al.</i> , 2022 [20]	The most important medica- tion instructions such as ad- ministration instructions, the provision of instructions on how to take medications, and label clarity	Key factors negatively impacting satisfaction in- cluded uncomfortable waiting areas, unavaila- bility of medications, and inadequate private coun- seling spaces.	50.90%/100%
Chanie <i>et</i> <i>al.</i> , 2024 [21]	Urban residents showed greater satisfaction with com- munity-based health insur- ance services than rural resi- dents. The study highlighted that first and second visits to the institution significantly impacted patient satisfaction with pharmacy services	A significant number of patients expressed dissat- isfaction with pharmacist counseling on medication side effects and interac- tions.	62.10%/100%

Overall, higher levels of patient satisfaction were commonly associated with the presence of structured pharmacy service models, such as APTS that ensured transparency and efficiency. Facilities where pharmacists engaged actively with patients, communicated clearly, and maintained consistent availability of essential medicines tended to report more favorable satisfaction outcomes. Conversely, lower satisfaction was often linked to frequent stockouts, inadequate counseling, and limited privacy or comfort in the pharmacy setting, all of which hindered patient engagement and trust. These patterns highlight the dual importance of systemic organization and interpersonal quality in delivering patient-centered pharmacy services. The diversity in reporting also indicates a methodological limitation: not all studies employed standardized tools for summarizing satisfaction scores, making cross-comparisons challenging. Future research in this area should consider using validated and unified instruments, such as the

SERVQUAL model, alongside reporting of explicit overall satisfaction metrics to ensure better comparability.

3.3 Pharmacist Communication and Attitude

Pharmacists' communication and attitude play a significant role in shaping patient satisfaction and overall care quality. Positive interactions foster trust, build therapeutic relationships, and improve medication adherence. Patients tend to report higher satisfaction when pharmacists demonstrate professionalism and courtesy. Communication in the patient's native language further enhances satisfaction, emphasizing the need to address cultural and language barriers in pharmaceutical care delivery [24]. Respectful engagement, empathetic interaction, and clear medication explanations are repeatedly cited as critical elements of a positive patient experience [13,18]. Moreover, the strength of the pharmacist-patient relationship, influenced by interpersonal communication quality, has a direct impact on satisfaction levels [20,23]. The amount of time pharmacists spend with patients is also essential; limited consultation time is often linked to reduced trust and dissatisfaction [19].

3.4 Drug Counseling and Information Provision

A Patient satisfaction is also influenced by the adequacy of medication counseling and the clarity of drug-related information. Several studies show that many patients lack essential understanding of their medications, including potential side effects, precautions, and storage guidelines [12,14,15]. This knowledge gap can lead to improper use and safety risks [5,23]. Contributing factors include pharmacists' limited communication skills, inadequate knowledge, and high workload, especially under national health schemes [11,21,23]. Additionally, labeling practices were found to be insufficient, with an average completeness score of 3.1 out of 8 [13]. Written materials about side effects can help patients distinguish expected reactions from adverse effects [19], and the presence of private counseling areas supports patient confidentiality and satisfaction [5]. Improved verbal and written communication is necessary to support adherence and treatment effectiveness.

3.5 Drug Availability and Supply Consistency

Consistent drug availability is a major factor in patient satisfaction. Studies show that reliable access to prescribed medications enhances satisfaction, whereas drug shortages lead to dissatisfaction and delayed treatments [10,12,15,20]. While strong correlations between drug availability and satisfaction were found in Ethiopia and similar settings, studies from South Korea and Nigeria showed mixed results, likely due to differences in healthcare infrastructure [15,20]. Poor inventory and procurement systems contribute to supply issues, which became worse during the COVID-19 pandemic due to disruptions in transportation and global supply chains [10].

3.6 Waiting Time and Service Efficiency

Waiting time, defined as the interval between ticketing and consultation, is a key performance metric. Queue management systems like Qmatic and Plexus have been used to track this. Long waits, with some patients waiting over 30 minutes, resulted in dissatisfaction and complaints [16], while even short delays of more than three minutes negatively affected satisfaction [5]. Facility quality, such as air-conditioned and spacious waiting areas, was linked to greater comfort and fewer complaints [16]. Lean management strategies in outpatient pharmacies have helped cut down waiting times and improve service quality [10]. Staffing adequacy is another influencing factor; perceived staff shortages reduce satisfaction [12]. Managing human resources efficiently during peak times is essential to avoid delays [10].

3.7 Pharmacy Infrastructure, Environment and Privacy

In Ethiopia, the implementation of the Auditable Pharmaceutical Transactions and Services (APTS) model improved infrastructure through redesigned layouts aimed at better efficiency and privacy [19]. This included logical counter arrangements and optimized staff workflows, which positively impacted service quality [19]. The APTS model also brought about adjustments in dispensary design to align with patient needs and improve satisfaction [13]. Unstructured workflows were associated with lower satisfaction [17]. Enhanced infrastructure improved patient flow, while redesigned spaces that ensured privacy significantly contributed to positive patient experiences [5,13,19,22].

4 Discussion

This systematic review highlights several key factors that influence patient satisfaction with outpatient pharmacy services in hospitals. Effective communication and respectful attitudes from pharmacists play a vital role in improving satisfaction. Patients value clear explanations, empathy, and the use of their preferred language during interactions, which help foster trust and strengthen the therapeutic relationship [13,18,24]. Additionally, the quality of drug counseling remains a significant concern, with gaps in verbal explanations, written labeling, and pharmacist knowledge contributing to reduced understanding and adherence [12,14,15,21,23].

Drug availability is another critical issue. While consistent medication supply is associated with higher satisfaction, variations across countries indicate that healthcare infrastructure and supply systems influence outcomes differently [10,12,15,20]. Challenges such as poor procurement practices and transport disruptions during the COVID-19 pandemic further complicated consistent access to medications [10].

Waiting time and perceived service efficiency also affect patient experiences. Long queues and slow service lead to dissatisfaction, while improvements in infrastructure, staffing, and queue systems help mitigate these concerns [5,10,16]. Moreover, pharmacy infrastructure, including layout, privacy, and waiting area comfort, contributes significantly to patient satisfaction. Implementation of models such as

APTS has shown positive results in service organization, flow, and privacy protection [13,19,22].

In addition to the studies included in this review, evidence from external literature reinforces the central findings regarding the determinants of patient satisfaction in outpatient pharmacy services. Studies conducted in healthcare settings across various countries have consistently demonstrated that effective communication and professional demeanor of pharmacists, particularly in terms of empathy, active listening, and clarity in medication counseling, are pivotal in shaping positive patient experiences. Research in hospital environments in China and Saudi Arabia, revealed that despite the implementation of advanced technologies, meaningful improvements in patient satisfaction were achieved only when pharmacists were actively engaged in patient interactions, including the provision of clear instructions and responsiveness to patient concerns [25,26].

Moreover, alternative models of pharmacy service delivery have shown potential to enhance satisfaction outcomes. A quasi-experimental study conducted in Indonesia demonstrated that providing wait time targets and direct feedback on patient satisfaction to pharmacy personnel significantly reduced prescription wait times and simultaneously improved patient satisfaction scores over a five-week period [27]. This finding underscores the effectiveness of targeted operational interventions in enhancing service quality in outpatient pharmacy settings.

Operational performance, particularly related to waiting time and service flow, also emerges as a consistent factor influencing satisfaction. Evidence from several Indonesian hospitals indicates that prolonged waiting times contribute substantially to patient dissatisfaction. However, specific interventions such as increasing the number of dispensing counters and simplifying the workflow process have been associated with improved patient perceptions of service quality [28,29].

The physical environment and infrastructural conditions of outpatient pharmacies have also been recognized as significant contributors to satisfaction. Aspects such as comfort and cleanliness of waiting areas, presence of private counseling spaces, and legibility of medication labeling have been identified as influential variables in studies conducted in West Sumatra and Saudi Arabia. These findings support the view that patient satisfaction is shaped not only by interpersonal communication but also by the broader environmental context in which pharmacy services are delivered [30,31].

This review has certain limitations. It only includes studies published in selected databases and in English, which may have excluded relevant local-language literature or gray literature. The majority of included studies were quantitative and descriptive, which may limit the depth of insight into patients' subjective experiences. Additionally, variations in methodology and assessment tools across studies could affect the consistency of findings and make direct comparisons challenging.

5 Conclusion

Patient satisfaction with outpatient pharmacy services is influenced by a combination of structural, operational, and interpersonal factors. Consistently, higher satisfaction levels are associated with structured pharmacy service models, such as the Auditable Pharmaceutical Transactions and Services (APTS), which enhance workflow

efficiency, ensure medication availability, and support patient privacy. Effective pharmacist communication, respectful attitudes, and culturally responsive interactions play a pivotal role in strengthening therapeutic relationships and patient trust. Furthermore, the provision of comprehensive drug counseling and accessible written information, particularly regarding side effects and proper storage, is essential for improving patient knowledge and adherence. Persistent challenges such as medication stockouts, inadequate staffing, long waiting times, and limited counseling time remain significant barriers to optimal service delivery and satisfaction. Differences in satisfaction levels across regions also reflect the impact of healthcare system maturity and contextual factors. To improve comparability in future studies, standardized and validated assessment tools should be employed. Ultimately, a patient-centered approach that integrates infrastructure improvement, workforce optimization, and continuous quality evaluation is essential for advancing the quality and responsiveness of outpatient pharmacy services in hospital settings.

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Conflict of Interest. The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

1. Ryan Austin, JMMR J. Medicoeticolegal Dan Manaj. Rumah Sakit **13**, 265 (2024).
2. N. Martínez-López-de-Castro, M. Álvarez-Payero, A. Martín-Vila, M. Samartín-Ucha, P. Iglesias-Neiro, M. Gayoso-Rey, D. Feijoo-Meléndez, C. Casanova-Martínez, M. Fariña-Conde, and G. Piñeiro-Corrales, *Eur. J. Hosp. Pharm.* **25**, 183 (2018).
3. Nasser Hadal Alotaibi, Abdulaziz Ibrahim Alzarea, Ahmed Mohammed Alotaibi, Yusra Habib Khan, Tauqeer Hussain Mallhi, Khalid Saad Alharbi, Nabil K. Alruwaili, Abdullah S. Alanazi, Ahmed Hassan, and Badriyah Shadid Alotaib, *PloS One* **16**, e0247912. (2021).
4. O. Ferrández, S. Grau, E. Colominas-González, M. E. Navarrete-Rouco, N. Carballo-Martínez, M. De Antonio-Cuscó, X. Fernández-Sala, L. Rio-No, O. Fando Romera, M. Berzosa Malagon, S. Pineda Rodriguez, N. Torres Rius, X. Duran-Jordà, C. Rodríguez-Caba, J. Casas-Sánchez, F. Caro Herranz, and C. Pontes-García, *Front. Public Health* **12**, 1335265 (2024).
5. F. S. Ergetie, A. T. Kassaw, and E. A. Belachew, *SAGE Open Med.* **12**, 20503121241229562 (2024).
6. A. Parasuraman, V. A. Zeithaml, and L. L. Berry, *J. Mark.* **49**, 41 (1985).
7. A. Azhar, S. Wasif Gillani, N. Jiaan, V. Menon, S. Abdi, and H. A. Rathore, *J. Pharm. Health Serv. Res.* **13**, 191 (2022).
8. M. J. Page, J. E. McKenzie, P. M. Bossuyt, I. Boutron, T. C. Hoffmann, C. D. Mulrow, L. Shamseer, J. M. Tetzlaff, E. A. Akl, S. E. Brennan, R. Chou, J. Glanville, J. M. Grimshaw, A. Hróbjartsson, M. M. Lalu, T. Li, E. W. Loder, E. Mayo-Wilson, S. McDonald, L. A. McGuinness, L. A. Stewart, J. Thomas, A. C. Tricco, V. A. Welch, P. Whiting, and D. Moher, *BMJ* **372**, n71 (2021).

9. M. J. Page, D. Moher, P. M. Bossuyt, I. Boutron, T. C. Hoffmann, C. D. Mulrow, L. Shamseer, J. M. Tetzlaff, E. A. Akl, S. E. Brennan, R. Chou, J. Glanville, J. M. Grimshaw, A. Hróbjartsson, M. M. Lalu, T. Li, E. W. Loder, E. Mayo-Wilson, S. McDonald, L. A. McGuinness, L. A. Stewart, J. Thomas, A. C. Tricco, V. A. Welch, P. Whiting, and J. E. McKenzie, *BMJ* **372**, n160 (2021).
10. B. Q. Nguyen and C. T. T. Nguyen, *Healthc. Switz.* **10**, (2022).
11. P. Pribadi, Riska, S. Ari Kristina, S. P. Syahlani, and Satibi, *PHARMACIA* **70**, 317 (2023).
12. S. Semegn and G. Alemkere, *PloS One* **14**, e0224400 (2019).
13. A. Adinew, M. Feyissa, B. Tadesse, B. Demeke, T. Assefa, M. Abdella, E. Diriba, R. Bayisa, E. Geremew, F. Alemu, E. Ejigu, T. Seifu, A. Nardos, D. Dejene, M. Mideksa, and N. Solomon, *J. Pharm. Policy Pract.* **14**, (2021).
14. Y. Ayele, B. Hawulte, T. Feto, G. V. Basker, and Y. D. Bacha, *SAGE Open Med.* **8**, 2050312120922659 (2020).
15. A. Yehualaw, C. Tafere, D. G. Demsie, K. Feyisa, B. Bahiru, B. Kefale, M. Berihun, and Z. Yilma, *Ann. Med. Surg.* 2012 **85**, 5885 (2023).
16. M. T. Martín-Conde, E. del C. Cacho, E. Calvo-Cidoncha, J. Roura-Turet, M. T. Pérez-Baldoyra, and D. Soy-Muner, *Farm. Hosp.* **45**, 317 (2021).
17. A. B. Gidey, T. S. Yazie, T. Bogale, and T. M. Gulente, *PLoS ONE* **16**, (2021).
18. H. Al Zabadi, R. Shraim, R. Sawalha, and A. Alkaiyat, *J. Pharm. Policy Pract.* **16**, (2023).
19. D. G. Kassa, C. Xiang, S. Hu, K. Hayat, A. K. Andegiorgish, Y. Fang, and C. Yang, *BMJ Open* **11**, (2021).
20. M. Molla, W. Sisay, Y. Andargie, B. Kefale, and P. Singh, *PloS One* **17**, e0262300 (2022).
21. G. S. Chanie, W. Atalay, T. T. Alemayehu, Z. Wube Bayleyegn, G. Tadesse, S. Fentahun, Y. A. Wassie, T. C. Tesfaye, and G. W. Geremew, *Front. Med.* **11**, 1469832 (2024).
22. S. M. Kashfi, E. Karimian, R. Ravangard, G. Mehralian, and P. Bastani, *Int. J. Pharm. Pract.* **30**, 153 (2022).
23. P. Pribadi, S. A. Kristina, and S. P. Syahlani, *Res. J. Pharm. Technol.* **12**, 4623 (2019).
24. S. Nigussie and D. Edessa, *Front. Pharmacol.* **9**, 1132 (2018).
25. H. jian Ji, F. Yue, J. Song, and X. Zhou, *Eur. J. Hosp. Pharm.* **26**, 240 (2018).
26. M. A. S. Ali, P. Amirthalingam, Y. Alatawi, and A. Aljabri, *J. Patient Exp.* **9**, 23743735221112631 (2022).
27. Y. Leemanza and E. Kristin, *Can. J. Hosp. Pharm.* **77**, e3438 (2024).
28. D. Pratiwi, D. Wahyono, and S. Sampurno, *J. Manaj. DAN PELAYANAN Farm. J. Manag. Pharm. Pract.* **3**, 24 (2013).
29. A. Santoso, Ishak, and N. Wulandari, *Farmasains J. Farm. Dan Ilmu Kesehat.* **8**, 33 (2023).
30. D. A. Juwita, N. Q. Desri, and D. Permatasari, *J. Farm. DAN ILMU KEFARMASIAN Indones.* **10**, 324 (2023).
31. N. H. Alotaibi, A. I. Alzarea, A. M. Alotaibi, Y. H. Khan, T. H. Mallhi, K. S. Alharbi, N. K. Alruwaili, A. S. Alanazi, A. Hassan, Author, F.: Article title. *Journal* **2**(5), 99–110 (2016)

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