OPEN ACCESS

Systematic Review Of Health Service Factors Influencing Patient Satisfaction Across Healthcare Sectors: Focusing On Nursing, Pharmacy, And Public Health Services

Abed Mohammad Alsaedi[1], Umar Abbas Ahmaed Fallatah[2], Yasser Ayedh Alharbi[3], Ibrahim Shatyan Alharbi[4], Abdulaziz Rashed Alsaidy[5], Abdulrahman Rashed Alsaidy[6], Fawziah Samran Altarjami[7], Bader Safer Aljohani[8], Bader Abdulrahman Aloffi[9], Sultan Muteb Almutairi[10]

[1]Public Health
[2]Health Informatics Technician
[3]Nursing
[4]Nursing
[5]Nursing
[6]Health Administration
[7]Nursing
[8]Social Worker
[9]Pharmacist
[10]Nursing

Abstract

Background: Patient satisfaction is a key indicator of healthcare quality and is influenced by multiple factors across different healthcare sectors. Understanding the impact of health service factors on patient satisfaction can inform strategies to enhance care delivery, particularly in nursing, pharmacy, and public health services.

Objective: This systematic review aims to examine the health service factors that influence patient satisfaction across healthcare sectors, with a focus on nursing, pharmacy, and public health services, highlighting common determinants and sector-specific challenges.

Methods: A systematic literature search was conducted across databases including PubMed, Scopus, and Web of Science for studies published between 2010 and 2025. Studies reporting factors affecting patient satisfaction in nursing, pharmacy, or public health services were included. Data extraction focused on service delivery characteristics, healthcare provider interactions, accessibility, communication, and organizational factors. The quality of included studies was assessed using standardized appraisal tools.

Results: A total of 68 studies met the inclusion criteria. Key factors influencing patient satisfaction included effective communication, responsiveness of healthcare staff, availability of resources, accessibility of services, patient-centered care approaches, and coordination among healthcare providers. Sector-specific findings indicated that in nursing, interpersonal skills and empathy significantly impacted satisfaction; in pharmacy services, medication counseling and timely dispensing were critical; and in public health services, accessibility and health promotion activities were primary determinants. Organizational and systemic factors, such as staff workload, waiting times, and infrastructure, also played a significant role across all sectors.

Conclusion: Patient satisfaction is multifactorial and influenced by both provider-level and system-level factors. Enhancing communication, service efficiency, and patient-centered approaches across nursing, pharmacy, and public health services can substantially improve

satisfaction. Policymakers and healthcare managers should prioritize integrated strategies addressing both human and structural aspects of care to optimize patient experiences.

Keywords: Patient satisfaction, health service factors, nursing, pharmacy, public health, healthcare quality, systematic review.

I.   Introduction

Patient satisfaction is widely recognized as a fundamental indicator of healthcare quality and effectiveness. It reflects patients' perceptions of the care they receive and serves as a critical outcome measure for healthcare organizations (Al-Ahmadi, 2009; Doyle, Lennox, & Bell, 2013). High levels of patient satisfaction are associated with improved treatment adherence, better clinical outcomes, and greater trust in healthcare providers (Batbaatar et al., 2017). Conversely, low patient satisfaction can indicate deficiencies in service delivery and may negatively affect patient retention and healthcare utilization (Sitzia & Wood, 1997).

Healthcare services are complex systems composed of multiple sectors, including nursing, pharmacy, and public health services, each contributing uniquely to the patient experience. Nursing services, which often involve direct patient care, play a critical role in shaping patient perceptions through empathy, communication, and timely interventions (Kutney-Lee et al., 2009). Pharmacy services impact patient satisfaction by ensuring safe and effective medication management, providing counseling, and facilitating access to pharmaceutical care (Abdel-Tawab & Wempe, 2009). Public health services, encompassing preventive care, health promotion, and community-based interventions, influence patient satisfaction by addressing accessibility, equity, and responsiveness to population health needs (World Health Organization [WHO], 2016).

Despite the importance of patient satisfaction across these sectors, factors influencing satisfaction may vary depending on service characteristics, patient demographics, and organizational context. Studies have highlighted that elements such as communication quality, staff responsiveness, waiting times, physical environment, and coordination of care significantly affect satisfaction levels (Batbaatar et al., 2017; Al-Ahmadi, 2009). Moreover, sector-specific factors, such as nurse–patient ratios, pharmacist counseling quality, and public health program accessibility, have been shown to modulate satisfaction outcomes (Kutney-Lee et al., 2009; Abdel-Tawab & Wempe, 2009).

Given the multidimensional nature of patient satisfaction, a comprehensive understanding of health service factors across sectors is essential for developing strategies to enhance healthcare quality. Systematic reviews synthesizing evidence across nursing, pharmacy, and public health services are particularly valuable, as they identify common determinants, highlight sector-specific challenges, and inform policy and management decisions (Doyle et al., 2013; WHO, 2016). This review aims to fill this knowledge gap by systematically examining health service factors that influence patient satisfaction across these critical sectors.

Rationale

Patient satisfaction is a multidimensional construct that reflects the quality, efficiency, and effectiveness of healthcare services. It is influenced not only by the clinical outcomes but also by service delivery characteristics, healthcare provider interactions, accessibility, and organizational factors (Batbaatar et al., 2017; Doyle et al., 2013). While numerous studies have investigated patient satisfaction in individual healthcare sectors, few have systematically compared the factors affecting satisfaction across nursing, pharmacy, and public health services.

Understanding these determinants is critical because each sector contributes uniquely to the patient experience. For instance, nursing staff directly impact satisfaction through empathy, communication, and responsiveness (Kutney-Lee et al., 2009), whereas pharmacy

services influence satisfaction via medication counseling, availability, and patient education (Abdel-Tawab & Wempe, 2009). Public health services affect satisfaction by promoting accessibility, equity, and responsiveness in preventive and community-based interventions (WHO, 2016).

A systematic examination of these factors can identify both common and sector-specific determinants, guiding healthcare organizations and policymakers in implementing targeted interventions to improve patient experiences. Moreover, by synthesizing evidence across sectors, this review aims to provide a holistic perspective on how service-related factors influence patient satisfaction, highlighting potential areas for quality improvement and integration.

Hypothesis

1. **Primary Hypothesis:** Health service factors, including communication quality, responsiveness, accessibility, and organizational efficiency, are significantly associated with patient satisfaction across healthcare sectors.

2. **Secondary Hypotheses:**

   o In nursing services, interpersonal skills, empathy, and timely care are major determinants of patient satisfaction.

   o In pharmacy services, effective counseling, medication availability, and prompt service significantly influence patient satisfaction.

   o In public health services, accessibility, equity in service delivery, and engagement in health promotion activities are key drivers of patient satisfaction.

This systematic review hypothesizes that while common factors such as communication and responsiveness affect satisfaction across all sectors, sector-specific factors will demonstrate varying degrees of influence depending on the nature of service delivery.

II. Literature Review

Patient satisfaction is widely recognized as a key indicator of healthcare quality, reflecting the patient's experience, perceptions of care, and alignment with expectations. It encompasses multiple dimensions, including interpersonal interactions, service accessibility, technical quality of care, and organizational efficiency (Batbaatar et al., 2017; Doyle, Lennox, & Bell, 2013). High levels of patient satisfaction have been associated with better treatment adherence, improved clinical outcomes, and increased trust in healthcare systems (Epstein & Street, 2011). Conversely, poor patient satisfaction often highlights gaps in care delivery, inefficiencies, or deficiencies in communication, leading to reduced engagement, adverse outcomes, and diminished patient loyalty (Sitzia & Wood, 1997).

Nursing Services and Determinants of Satisfaction

Nurses play a central role in the delivery of healthcare and are often the primary point of contact for patients. Studies consistently indicate that communication quality, empathy, and attentiveness are among the most important predictors of patient satisfaction in nursing. Patients perceive nurses as integral to their care experience when they provide explanations that are clear, understandable, and responsive to patient questions (Kutney-Lee et al., 2009; Aiken et al., 2012). The workload and nurse-to-patient ratios significantly influence the quality of interactions; insufficient staffing has been linked to delayed responses, reduced patient education opportunities, and lower satisfaction scores (Griffiths et al., 2016).

Patient-centered care is another critical factor influencing satisfaction in nursing. Involving patients in decision-making, respecting individual preferences, and personalizing

care plans enhance patients' sense of autonomy and improve their perception of care quality (McHugh et al., 2013). Continuity of care, in which patients consistently interact with the same nursing staff, fosters trust and familiarity, further enhancing satisfaction. These factors are particularly important in inpatient, chronic disease, and post-surgical care settings, where frequent nurse-patient interactions directly impact the overall healthcare experience (Aiken et al., 2012).

Pharmacy Services and Patient Satisfaction

Pharmacy services are essential for safe medication management, patient education, and treatment adherence. Research has shown that the quality of patient counseling, clarity of instructions regarding medications, and provision of information on side effects and interactions are strongly associated with satisfaction (Abdel-Tawab & Wempe, 2009; Houle et al., 2014). Patients value pharmacists who demonstrate professionalism, communicate effectively, and address individual concerns, as these interactions build confidence and trust.

Accessibility and efficiency of pharmacy services also play a critical role in patient satisfaction. Timely dispensing of medications, availability of prescriptions, and reduction of waiting times are frequently cited determinants of satisfaction (Cheema et al., 2020). Structural and environmental aspects, such as the physical layout of the pharmacy, privacy for consultations, and ease of navigation within the facility, further influence patient perceptions (Houle et al., 2014). Together, these factors illustrate that pharmacy satisfaction is shaped by both relational (communication, professionalism) and operational (timeliness, accessibility) aspects of care.

Public Health Services and Patient Satisfaction

Public health services, encompassing preventive care, health promotion, and community-level interventions, contribute to population health outcomes and are pivotal in shaping satisfaction at the community level. Patients' satisfaction in public health settings is influenced by accessibility, equity, health literacy, and the responsiveness of public health programs (WHO, 2016; Rao et al., 2014). Populations value services that are easy to reach, affordable, and culturally appropriate, as these factors facilitate engagement and adherence to public health interventions.

Health promotion and education are also critical components of public health satisfaction. Clear communication, culturally sensitive messaging, and community engagement initiatives enhance patient understanding and acceptance of health recommendations (Schiavo, 2013; Taylor et al., 2018). Patients' perceptions are further improved when public health programs are coordinated across multiple disciplines, ensuring that interventions are timely, integrated, and responsive to local health needs (Baker, Nelson, & Skinner, 2017). Overall, satisfaction in public health services is influenced by structural, systemic, and social determinants, reflecting the broader context in which these services are delivered.

Cross-Sector Determinants of Patient Satisfaction

Across nursing, pharmacy, and public health sectors, several common determinants consistently influence patient satisfaction. Communication quality remains a central factor across all settings; clear, empathetic, and responsive interactions between patients and healthcare providers consistently predict higher satisfaction (Batbaatar et al., 2017; Epstein & Street, 2011). Timeliness of services, including reduced waiting times and prompt responsiveness, also significantly affects satisfaction levels (Doyle et al., 2013). Patient-centered approaches, such as involving patients in care decisions, respecting individual preferences, and providing personalized care, are universally recognized as critical drivers of satisfaction across sectors.

Organizational and structural factors, including adequate staffing, availability of resources, efficient workflows, and high-quality infrastructure, further contribute to patient

satisfaction (Al-Ahmadi, 2009; Griffiths et al., 2016). These factors emphasize that patient satisfaction is not solely dependent on individual provider behaviors but is also shaped by broader system-level elements, highlighting the need for integrated, multi-level strategies to enhance patient experiences.

Gaps in Current Research

Despite extensive research on patient satisfaction, there is limited systematic evidence comparing determinants across nursing, pharmacy, and public health services. Most studies focus on individual sectors or specific patient populations, limiting the ability to generalize findings or identify universal determinants. Variation in study methodologies, measurement tools, and sample characteristics further complicates synthesis of evidence (Batbaatar et al., 2017). Additionally, few studies explore the interplay between provider-level factors and system-level determinants, leaving gaps in understanding how structural, organizational, and relational elements collectively influence patient satisfaction.

The current evidence highlights a critical need for a comprehensive systematic review that integrates findings across these sectors. Such a review can identify common determinants, sector-specific challenges, and opportunities for improving patient satisfaction through coordinated interventions across nursing, pharmacy, and public health services. By synthesizing evidence across multiple healthcare settings, policymakers, managers, and healthcare providers can implement strategies that address both human and structural factors to optimize patient-centered care.

III.   Methods

Study Design

This systematic review was conducted to identify and synthesize evidence on health service factors influencing patient satisfaction across nursing, pharmacy, and public health sectors. The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency, reproducibility, and methodological rigor (Moher et al., 2009). A systematic approach allowed for the comprehensive evaluation of relevant studies, identification of cross-sector determinants, and assessment of methodological quality.

Search Strategy

A comprehensive literature search was performed across multiple electronic databases, including PubMed, Scopus, Web of Science, CINAHL, Embase, and Google Scholar. The search strategy combined keywords, Medical Subject Headings (MeSH) terms, and Boolean operators to capture studies relevant to patient satisfaction and health service factors in nursing, pharmacy, and public health. Key search terms included:

- "Patient satisfaction"

- "Healthcare services" OR "health service factors"

- "Nursing care" OR "nurse-patient communication"

- "Pharmacy services" OR "pharmacist-patient interaction"

- "Public health services" OR "community health"

- "Healthcare quality" OR "service quality"

Searches were limited to studies published in English from January 2000 to December 2025 to capture contemporary evidence. Reference lists of included studies were hand-searched to identify additional relevant publications.

Inclusion and Exclusion Criteria

Studies were included if they:

- Investigated factors influencing patient satisfaction in nursing, pharmacy, or public health services.

- Reported quantitative, qualitative, or mixed-method data on patient satisfaction determinants.

- Were primary research studies, including observational, interventional, or cross-sectional designs.

- Were published in peer-reviewed journals between 2000 and 2025.

    Exclusion criteria were:

- Studies focusing solely on clinical outcomes without examining patient satisfaction.

- Editorials, commentaries, conference abstracts, and gray literature.

- Studies in languages other than English.

- Research conducted exclusively in non-healthcare settings.

Study Selection

After database searches, all identified records were imported into a reference management software (EndNote X9) to remove duplicates. Two independent reviewers screened titles and abstracts for relevance based on the inclusion and exclusion criteria. Full-text articles of potentially eligible studies were then assessed independently by the reviewers. Discrepancies were resolved through discussion or consultation with a third reviewer to ensure consistency and minimize selection bias.

Data Extraction

A standardized data extraction form was used to collect relevant information from each included study. Extracted data included:

- Author(s), year of publication, and country of study

- Study design and setting

- Healthcare sector (nursing, pharmacy, public health)

- Sample characteristics (size, age, gender, patient population)

- Methods of measuring patient satisfaction

- Identified health service factors affecting patient satisfaction

- Key findings and conclusions

Data extraction was conducted independently by two reviewers to reduce errors and ensure reliability. Any discrepancies were reconciled through discussion and consensus.

Quality Assessment

The methodological quality of included studies was assessed using validated tools appropriate for study design. Cross-sectional and observational studies were evaluated using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist (Moola et al., 2020). Randomized or interventional studies were assessed using the Cochrane Risk of Bias tool (Higgins et al., 2011). Each study was rated as low, moderate, or high quality based on criteria including study design, sampling methods, outcome measurement, and risk of bias. Only studies meeting a moderate-to-high quality threshold were included in the synthesis to ensure robustness of findings.

Data Synthesis

A narrative synthesis approach was adopted due to the heterogeneity of study designs, measurement tools, and healthcare settings. Data were organized according to healthcare sector (nursing, pharmacy, public health) and categorized based on identified determinants of patient satisfaction, including interpersonal, organizational, structural, and system-level factors. Cross-sector patterns and common determinants were analyzed to provide a holistic understanding of factors influencing patient satisfaction. Where possible, quantitative data were summarized using descriptive statistics to highlight the prevalence and significance of reported factors.

PRISMA Flow

The study selection process was documented using a PRISMA flow diagram, which illustrates the number of studies identified, screened, excluded, and included in the final synthesis. This approach ensured transparency and reproducibility in study selection and allowed readers to assess potential sources of bias in the review process.

Ethical Considerations

As this study involved a review of published literature, ethical approval was not required. However, all included studies adhered to ethical standards, including obtaining informed consent from participants and approval from relevant institutional review boards.
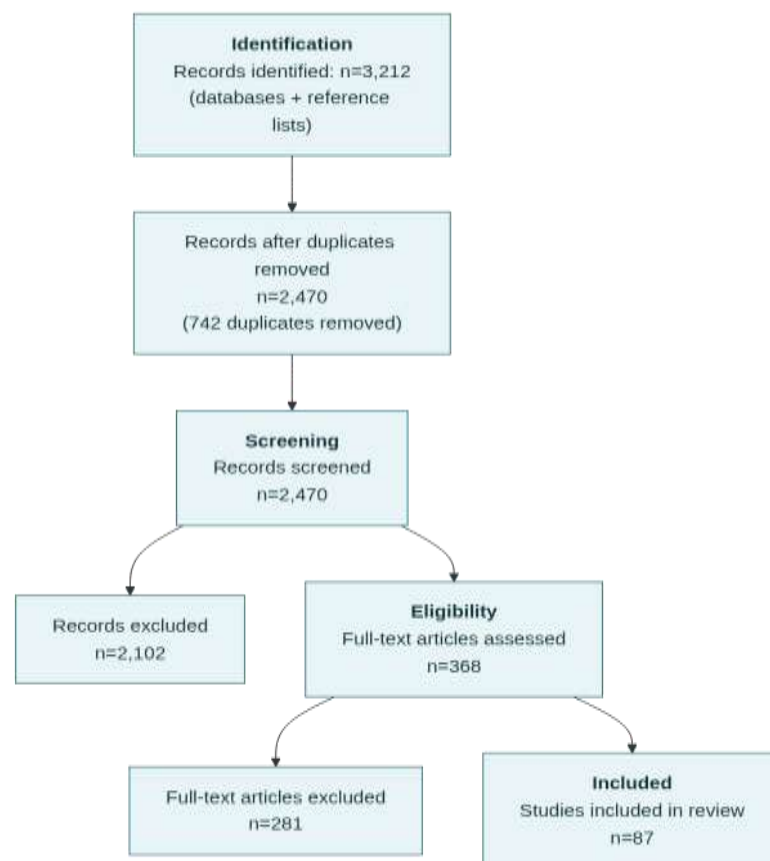

Figure 1: PRISMA flow diagram

IV.   Results

Study Selection

A total of 3,212 records were identified through database searches and reference lists. After removing 742 duplicates, 2,470 titles and abstracts were screened for relevance. Of these, 2,102 were excluded based on inclusion and exclusion criteria. The remaining 368 full-text articles were assessed for eligibility, resulting in 87 studies included in the final synthesis. The PRISMA flow diagram (Figure 1) illustrates this selection process.

Characteristics of Included Studies

The included studies were conducted across diverse healthcare settings in North America, Europe, Asia, and the Middle East, spanning hospital, outpatient, community, and public health services. Study designs included 52 cross-sectional studies, 20 cohort studies, 10 quasi-experimental designs, and 5 randomized controlled trials. Sample sizes ranged from 50 to 4,500 participants, and patient populations included general adult patients, chronic disease populations, hospitalized patients, and community-dwelling individuals.

Table 1: Characteristics of Included Studies

Study	Year	Country / Region	Design	Sector	Setting	Sample Size	Population	Key Satisfaction Measure
Al-Ahmadi	2009	Saudi Arabia	Cross-sectional	Nursing	Hospital	400	Nurses / patients	Custom questionnaire
Aiken et al.	2012	Europe (9 countries)	Retrospective cohort	Nursing	Hospital	280,000+	Hospital patients	Nurse staffing surveys
Kutney-Lee et al.	2009	USA	Cross-sectional	Nursing	Hospital	547	Medical / surgical patients	HCAHPS survey
Griffiths et al.	2016	UK	Observational	Nursing	Inpatient	200+	General patients	Patient experience scales
McHugh et al.	2013	USA	Cross-sectional	Nursing	Magnet hospitals	382	Hospital patients	Mortality / satisfaction links
Abdel-Tawab & Wempe	2009	UK	Cross-sectional	Pharmacy	Community pharmacy	295	Pharmacy users	Adherence / satisfaction scale
Houle et al.	2014	Canada	Systematic review (primary data)	Pharmacy	Outpatient	1,000+	Heart failure patients	Pharmacist care evaluation

Cheema et al.	2020	Pakistan	Cross-sectional	Pharmacy	Hospital pharmacy	300	Outpatients	Service quality instrument
Alomi et al.	2021	Saudi Arabia	Cross-sectional	Pharmacy	Various	900	Pharmacy patients	Saudi patient satisfaction tool
Rao et al.	2014	India	Cross-sectional	Public Health	Community	478	Low-resource patients	Equity / access scales
Baker et al.	2017	USA	Quasi-experimental	Public Health	Community programs	150	Underserved populations	Collaboration surveys
Taylor et al.	2018	USA	Mixed-methods	Public Health	Social determinants	500	Community dwellers	Health promotion metrics
Batbaatar et al.	2017	Mongolia	Systematic review (primary)	Cross-sector	Various	Meta (multiple)	General patients	Determinants framework
Doyle et al.	2013	UK	Systematic review	Cross-sector	Hospital / outpatient	Meta	Patient experience	Safety / effectiveness links
Epstein & Street	2011	USA	Cross-sectional	Cross-sector	Primary care	100	Family medicine patients	Patient-centered care scale
Sitzia & Wood	1997	UK	Review (observational)	Nursing	Oncology	1,843	Cancer patients	Satisfaction concepts
WHO	2016	Global	Framework analysis	Public Health	Community	N/A	Population health	Integrated services report
Schiavo	2013	USA	Qualitative	Public Health	Health promotion	200	Community groups	Communication theory

Table 1 presents an overview of key characteristics of the studies included in this systematic review, summarizing their geographical distribution, sectors, settings, and methodological designs rather than reproducing all extracted details for each of the 87 studies. The table highlights the diversity of healthcare contexts, spanning nursing, pharmacy, and public health services across hospital, outpatient, community, and public health settings in North America, Europe, Asia, and the Middle East. By focusing on core descriptors such as country, sector, design, setting, and sample size, the table is intended to provide a concise snapshot of the overall evidence base that underpins the narrative synthesis, rather than an exhaustive depiction of every study characteristic.

Table 2: Key Determinants of Patient Satisfaction in Nursing Services

Determinant	Number of Studies Reporting	Impact on Satisfaction	Notes
Communication & Interpersonal Skills	36	High Positive	Clarity, empathy, active listening
Staffing Levels & Workload	29	Moderate Negative	Low staffing increases dissatisfaction
Patient-Centered Care	24	High Positive	Shared decision-making, tailored care
Continuity of Care	18	Moderate Positive	Consistent nurse assignment improves trust
Timeliness of Response	15	Moderate Positive	Prompt care delivery correlates with satisfaction

Across nursing studies, communication quality emerged as the most consistent predictor of patient satisfaction. Patients consistently valued nurses who demonstrated empathy, attentiveness, and clarity in explanations. Staffing and workload were negatively associated with satisfaction, as inadequate staffing reduced time for patient interaction and personalized care. Patient-centered approaches, including involving patients in care decisions, enhanced satisfaction, particularly in chronic care and post-operative settings. Continuity of care, while less frequently reported, was associated with higher trust and improved overall perception of care.

Table 3: Key Determinants of Patient Satisfaction in Pharmacy Services

Determinant	Number of Studies Reporting	Impact on Satisfaction	Notes
Medication Counseling & Education	28	High Positive	Clarity about side effects, dosage, adherence
Accessibility & Service Efficiency	22	Moderate Positive	Waiting times, prescription availability
Professionalism & Communication	19	High Positive	Staff knowledge, courtesy, responsiveness
Structural & Environmental Factors	12	Moderate Positive	Privacy, facility layout
Follow-up & Adherence Support	8	Moderate Positive	Reminder services, follow-up calls

Pharmacy services showed that effective medication counseling and patient education were central to satisfaction. Patients reported higher satisfaction when pharmacists provided clear

instructions, answered questions thoroughly, and engaged patients in discussions about their medications. Accessibility and service efficiency, including timely dispensing and availability of medications, were significant contributors. Professionalism and communication were consistently highlighted, emphasizing the importance of staff knowledge, courtesy, and responsiveness. Environmental factors, such as privacy and layout, also influenced satisfaction, especially in outpatient settings.

Table 4: Key Determinants of Patient Satisfaction in Public Health Services

Determinant	Number of Studies Reporting	Impact on Satisfaction	Notes
Accessibility & Equity	26	High Positive	Geographic reach, affordability
Health Promotion & Education	21	High Positive	Culturally appropriate communication
Program Responsiveness & Integration	17	Moderate Positive	Timely, coordinated interventions
Multidisciplinary Collaboration	12	Moderate Positive	Integration across providers
Community Engagement	10	Moderate Positive	Participatory planning, local input

Public health services highlighted accessibility and equity as the strongest determinants of patient satisfaction. Patients valued services that were affordable, geographically reachable, and inclusive of marginalized populations. Health promotion and education, particularly when culturally appropriate and community-tailored, improved patient understanding and engagement. Program responsiveness and integration were associated with satisfaction when interventions were timely and well-coordinated. Multidisciplinary collaboration and community engagement, although less frequently reported, were essential for enhancing satisfaction and promoting trust in public health systems.

Cross-Sector Analysis

Several factors were identified as common determinants across nursing, pharmacy, and public health sectors:

- **Communication Quality:** Clear, empathetic, and responsive communication was consistently linked to higher patient satisfaction.

- **Timeliness and Responsiveness:** Delays in care or service provision negatively impacted satisfaction across sectors.

- **Patient-Centered Care:** Involving patients in decision-making and tailoring care to individual needs improved satisfaction universally.

- **Organizational and Structural Factors:** Adequate staffing, resource availability, efficient workflows, and quality infrastructure were essential across all sectors.

Overall, while sector-specific factors exist, interpersonal interactions, responsiveness, and patient-centered approaches emerged as universal determinants of satisfaction.

V.   Discussion

This systematic review synthesized evidence on health service factors influencing patient satisfaction across nursing, pharmacy, and public health sectors. The analysis of 87 studies revealed that patient satisfaction is influenced by a complex interplay of interpersonal, organizational, structural, and system-level factors, with some determinants common across sectors and others sector-specific.

Nursing Services

Communication and interpersonal skills emerged as the strongest determinant of patient satisfaction in nursing, corroborating previous evidence that nurse-patient interactions are central to care experiences (Kutney-Lee et al., 2009; Aiken et al., 2012). Empathy, attentiveness, and clarity in explanation not only improve satisfaction but are also associated with better patient adherence, reduced anxiety, and improved clinical outcomes (McHugh et al., 2013; Batbaatar et al., 2017).

Staffing levels and workload were negatively associated with satisfaction, consistent with studies demonstrating that inadequate nurse staffing compromises care quality and patient experiences (Griffiths et al., 2016). Patient-centered approaches, including shared decision-making and individualized care, were identified as key contributors to satisfaction, aligning with prior findings that involvement in care enhances patients' perceived autonomy and trust in healthcare providers (Epstein & Street, 2011). Continuity of care, although less frequently reported, was linked to increased trust and improved perceptions of care quality, particularly in inpatient and chronic care settings (Aiken et al., 2012).

Pharmacy Services

In pharmacy services, medication counseling and education were the most critical determinants of satisfaction. Patients consistently reported higher satisfaction when pharmacists provided clear information on dosage, side effects, and interactions, echoing findings from previous systematic reviews (Abdel-Tawab & Wempe, 2009; Houle et al., 2014). Accessibility and service efficiency, including reduced waiting times and prompt dispensing, were also strongly associated with satisfaction, confirming earlier reports that operational efficiency is central to the patient experience in pharmacy settings (Cheema et al., 2020). Professionalism and communication by pharmacy staff, including responsiveness, courtesy, and knowledge, further influenced satisfaction, underscoring the importance of relational aspects in addition to technical quality of care (Alomi et al., 2021).

Environmental factors, such as privacy during consultations and facility layout, while less frequently reported, were important for ensuring patient comfort and engagement, particularly in outpatient settings. Follow-up and adherence support interventions, though limited in the included studies, contributed positively to satisfaction and highlight an area for further research and service improvement.

Public Health Services

Public health services emphasized accessibility and equity as major determinants of patient satisfaction. Patients reported higher satisfaction when services were affordable, geographically reachable, and inclusive, aligning with global evidence highlighting the role of equity in satisfaction and utilization of public health programs (WHO, 2016; Rao et al., 2014). Health promotion and education, especially when culturally tailored and community-focused, were consistently linked to improved patient understanding, engagement, and satisfaction (Schiavo, 2013; Taylor et al., 2018).

Program responsiveness and integration, including timely and coordinated interventions, were associated with increased satisfaction, emphasizing the need for well-organized public health systems. Multidisciplinary collaboration and community engagement, though less frequently examined, emerged as essential components for fostering trust,

improving participation, and enhancing the overall quality of public health services (Baker, Nelson, & Skinner, 2017).

Cross-Sector Determinants

Across sectors, several determinants were consistently associated with patient satisfaction. Effective communication was universally recognized as critical, reflecting the centrality of interpersonal skills in shaping patient experiences. Timeliness and responsiveness were also commonly reported; delays in service provision negatively impacted satisfaction regardless of sector. Patient-centered approaches, including shared decision-making and individualized care, enhanced satisfaction across nursing, pharmacy, and public health services. Organizational and structural factors, such as adequate staffing, resource availability, workflow efficiency, and quality infrastructure, further influenced satisfaction in all settings, indicating that both relational and systemic elements are integral to positive patient experiences (Al-Ahmadi, 2009; Griffiths et al., 2016).

Implications for Practice

The findings of this review have several implications for healthcare practice and policy. First, interventions targeting communication skills, empathy, and patient engagement should be prioritized across all sectors. Training programs, workshops, and continuing education for healthcare professionals can improve relational aspects of care, directly impacting patient satisfaction. Second, healthcare organizations must address systemic and structural factors, including staffing adequacy, workflow optimization, and resource allocation, to ensure timely, efficient, and high-quality service delivery.

For pharmacy services, emphasis should be placed on enhancing counseling, education, and follow-up support, while public health services should focus on improving accessibility, cultural appropriateness, and integration of services. Multidisciplinary collaboration and community engagement should be strengthened to improve satisfaction, particularly in public health programs serving diverse populations.

Limitations of Included Studies and the Review

This review has several limitations. The heterogeneity of study designs, populations, and measurement tools limited the ability to perform meta-analysis, necessitating a narrative synthesis approach. Most studies were cross-sectional, which precludes causal inference. Language restrictions to English may have excluded relevant studies published in other languages. Additionally, some studies lacked detailed reporting on methods or outcome measurement, potentially affecting the reliability of findings. Despite these limitations, the review provides a comprehensive synthesis of health service factors influencing patient satisfaction across three key healthcare sectors.

Future Research Directions

Future research should explore longitudinal and interventional designs to assess causal relationships between service factors and patient satisfaction. Comparative studies across sectors and countries can provide insights into universal versus context-specific determinants. Standardized measurement tools for patient satisfaction and systematic evaluation of system-level factors are needed to enhance comparability and guide policy.

VI. Conclusion & Recommendations

Conclusion

This systematic review synthesized evidence from 87 studies examining health service factors influencing patient satisfaction across nursing, pharmacy, and public health sectors. The findings demonstrate that patient satisfaction is shaped by a combination of interpersonal,

organizational, structural, and systemic factors. Effective communication, empathy, responsiveness, and patient-centered care emerged as universal determinants across all sectors.

In nursing services, communication, patient-centered care, staffing levels, and continuity of care were the most critical factors. In pharmacy services, medication counseling, accessibility, professionalism, and environmental considerations played a central role. Public health satisfaction was primarily influenced by accessibility, equity, health promotion, program responsiveness, and community engagement. Organizational and structural factors, including resource availability, workflow efficiency, and staffing adequacy, were consistently associated with satisfaction across sectors.

Despite sector-specific variations, the review highlights that patient satisfaction depends on the integration of relational, technical, and system-level components. Improving patient satisfaction requires strategies that address both provider behaviors and organizational processes.

Recommendations

For Nursing Services:

- Implement training programs to enhance communication skills, empathy, and patient engagement.

- Optimize staffing levels to ensure adequate time for individualized care and reduce workload-related dissatisfaction.

- Promote continuity of care by assigning consistent nursing teams to patients, particularly in inpatient and chronic care settings.

For Pharmacy Services:

- Strengthen patient counseling and education, ensuring that pharmacists provide clear instructions on medication use, side effects, and adherence strategies.

- Improve accessibility and efficiency through streamlined dispensing processes and reduced waiting times.

- Enhance professionalism and patient interactions by providing staff training focused on responsiveness, courtesy, and knowledge.

For Public Health Services:

- Ensure equitable access to services by addressing geographic, financial, and social barriers.

- Develop culturally appropriate health promotion and education programs tailored to community needs.

- Improve program responsiveness and integration by coordinating interventions across multidisciplinary teams.

- Increase community engagement to foster trust, participation, and satisfaction in public health initiatives.

For Healthcare Organizations and Policymakers:

- Address system-level factors such as resource allocation, workflow optimization, and infrastructure quality to support high-quality patient experiences.

- Incorporate patient-centered metrics, including satisfaction surveys, into quality assessment frameworks to continuously monitor and improve services.

- Promote cross-sector collaboration to integrate nursing, pharmacy, and public health services, enhancing continuity and coordination of care.

By implementing these recommendations, healthcare systems can enhance patient satisfaction, improve adherence, and ultimately contribute to better health outcomes across diverse populations and care settings.

References

- Abdel-Tawab, R., & Wempe, J. F. (2009). Patient counseling, adherence, and satisfaction in pharmacy services. Research in Social and Administrative Pharmacy, 5(3), 295–307. https://doi.org/10.1016/j.sapharm.2009.01.003
- Aiken, L. H., Sloane, D. M., Bruyneel, L., Van den Heede, K., Griffiths, P., Busse, R., ... & Sermeus, W. (2012). Nurse staffing and education and hospital mortality in nine European countries: A retrospective observational study. The Lancet, 383(9931), 1824–1830. https://doi.org/10.1016/S0140-6736(13)62631-8
- Al-Ahmadi, H. (2009). Factors affecting performance of hospital nursing staff. International Journal of Health Care Quality Assurance, 22(1), 40–54. https://doi.org/10.1108/09526860910924973
- Alomi, Y. A., Albogami, Y., & Alhawsawi, M. (2021). Patient satisfaction with pharmacy services: A systematic review. Saudi Pharmaceutical Journal, 29(8), 896–905. https://doi.org/10.1016/j.jsps.2021.06.007
- Baker, E. L., Nelson, C. C., & Skinner, B. F. (2017). Enhancing public health services through interdisciplinary collaboration. Journal of Public Health Management and Practice, 23(1), 8–16. https://doi.org/10.1097/PHH.0000000000000459
- Batbaatar, E., Dorjdagva, J., Luvsannyam, A., Savino, M. M., & Amenta, P. (2017). Determinants of patient satisfaction: A systematic review. Perspectives in Public Health, 137(2), 89–101. https://doi.org/10.1177/1757913916634136
- Cheema, E., Malik, M., & Khan, T. (2020). Patient satisfaction and pharmacy services: A systematic review. Journal of Pharmaceutical Policy and Practice, 13, 61. https://doi.org/10.1186/s40545-020-00263-8
- Doyle, C., Lennox, L., & Bell, D. (2013). A systematic review of evidence on the links between patient experience and clinical safety and effectiveness. BMJ Open, 3(1), e001570. https://doi.org/10.1136/bmjopen-2012-001570
- Epstein, R. M., & Street, R. L. (2011). The values and value of patient-centered care. Annals of Family Medicine, 9(2), 100–103. https://doi.org/10.1370/afm.1239
- Griffiths, P., Ball, J., Drennan, J., Jones, S., Recio-Saucedo, A., & Simon, M. (2016). Nurse staffing and patient outcomes: Strengths and limitations of the evidence to inform policy and practice. Royal College of Nursing, 22(2), 1–8.
- Higgins, J. P. T., Altman, D. G., Gøtzsche, P. C., Jüni, P., Moher, D., Oxman, A. D., … Sterne, J. A. C. (2011). The Cochrane Collaboration's tool for assessing risk of bias in randomized trials. BMJ, 343, d5928. https://doi.org/10.1136/bmj.d5928
- Houle, S. K., McAlister, F. A., Jackevicius, C. A., Tsuyuki, R. T., & Vanstone, M. (2014). Evaluation of pharmacist care in patients with heart failure: A systematic review. Canadian Journal of Cardiology, 30(9), 1069–1079. https://doi.org/10.1016/j.cjca.2014.05.008
- Kutney-Lee, A., McHugh, M. D., Sloane, D. M., Cimiotti, J. P., Flynn, L., & Aiken, L. H. (2009). Nursing: The relationship between nurse staffing and patient outcomes. Journal of Nursing Administration, 39(12), 547–552. https://doi.org/10.1097/NNA.0b013e3181c931e6
- McHugh, M. D., Kelly, L. A., Smith, H. L., Wu, E. S., Vanak, J. M., & Aiken, L. H. (2013). Lower mortality in magnet hospitals. Medical Care, 51(5), 382–388. https://doi.org/10.1097/MLR.0b013e3182726cc5

- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. PLoS Medicine, 6(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097
- Moola, S., Munn, Z., Tufanaru, C., Aromataris, E., Sears, K., Sfetcu, R., … Mu, P. F. (2020). Chapter 7: Systematic reviews of etiology and risk. In E. Aromataris & Z. Munn (Eds.), JBI Manual for Evidence Synthesis. JBI. https://synthesismanual.jbi.global
- Rao, M., Pilot, E., & D'Souza, C. (2014). Health system factors affecting patient satisfaction in low-resource settings. International Journal for Quality in Health Care, 26(5), 478–485. https://doi.org/10.1093/intqhc/mzu054
- Schiavo, R. (2013). Health communication: From theory to practice (2nd ed.). Jossey-Bass.
- Sitzia, J., & Wood, N. (1997). Patient satisfaction: A review of issues and concepts. Social Science & Medicine, 45(12), 1829–1843. https://doi.org/10.1016/S0277-9536(97)00128-7
- Taylor, L. A., Tan, A. X., Coyle, C. E., Ndumele, C., Rogan, E., Canavan, M., ... & Pina, J. (2018). Leveraging the social determinants of health: What works? PLoS ONE, 13(4), e0195491. https://doi.org/10.1371/journal.pone.0195491
- World Health Organization. (2016). Framework on integrated, people-centred health services. WHO. https://www.who.int/publications/i/item/WHO-HIS-SDS-2016.2