



# Enhancing Patient Satisfaction by Healthcare Service Providers: A Systematic Literature Review

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## Authors' contributions

*This work was carried out in collaboration among all authors. Author TS designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors Ramadania and WP managed the analyses of the study and managed the literature searches. All authors read and approved the final manuscript.*

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## ABSTRACT

**Aims:** The aim of this study is to identify the primary determinants and emerging trends that influence patient experiences patient experiences.

**Study Design:** Through a systematic review of scholarly literature, an investigation examines the pivotal elements that drive patient satisfaction outcomes in innovative healthcare service delivery contexts.

**Place and Duration of Study:** The study was conducted in healthcare service innovation. The duration of the study around six months by analyzing articles published between 2019 and 2023 in Scopus-indexed academic journals.

**Methodology:** Following the PRISMA guidelines, this study analyzed 54 peer-reviewed articles to examine the relationship between service quality, communication, digital transformation, physical environment, waiting time, and healthcare accessibility on patient satisfaction.

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**Results:** The findings emphasize the increasing trend toward patient-centered care and the integration of technology to improve service delivery. These results underscore the importance of continuous service improvement and innovation in healthcare to meet patient expectations and enhance satisfaction. The study concludes that addressing these key factors is essential for healthcare providers to achieve higher patient loyalty, better health outcomes, and a competitive advantage. Future study should focus on further integrating digital solutions and patient-centered approaches to drive improvements in customer satisfaction in healthcare settings.

**Conclusion:** The review indicates that service quality, characterized by reliability, responsiveness, and empathy, is the most significant determinant of customer satisfaction. Communication between healthcare providers and patients is also identified as a critical factor, with clear and empathetic interactions significantly enhancing patient trust and satisfaction. Digital transformation, including telemedicine and electronic health records, emerges as a key innovation in improving service efficiency, reducing waiting times, and expanding access to care. The physical environment and waiting times are also noted as important contributors to patient satisfaction, influencing their overall experience in healthcare facilities.

*Keywords: Customer satisfaction; healthcare service; service quality; patient-centered care; digital transformation; PRISMA.*

## 1. INTRODUCTION

Customer / patient satisfaction has emerged as a critical measure of service quality in the healthcare sector, influencing patient outcomes and the overall reputation of healthcare providers (Ali & Dzandu, 2023; Gonzalez, 2019). As healthcare systems worldwide face increasing pressure to improve efficiency and effectiveness, a deeper understanding of the factors driving patient satisfaction is essential to achieving these goals (Chatterjee et al., 2021). Study indicates that patient satisfaction is shaped by a combination of factors, including healthcare accessibility, the quality of interactions between patients and healthcare professionals, and service delivery efficiency (Moher et al., 2009; Wood & Siegel, 2021). For instance, trust in healthcare providers has been highlighted as a key determinant of satisfaction, emphasizing the importance of personalized care and empathy in modern healthcare systems (Gok & Burckin, 2020; Kot & Syaharuddin, 2020).

In recent years, numerous studies have explored how enhanced customer orientation can lead to improved patient satisfaction and better health outcomes (Dogra & Sharma, 2021). For example, the paradigm shift towards more patient-centered care has been recognized as a crucial factor in enhancing patient experiences, particularly in complex healthcare environments (Akthar et al., 2022; Velmurugan et al., 2019). The role of efficient healthcare delivery, especially in terms of reducing wait times and improving care coordination, has also been noted

as critical for increasing satisfaction levels (Ahmad et al., 2020).

The study aims to review and analyze the key factors influencing customer satisfaction in healthcare innovation strategies, such as building patient trust and healthcare accessibility. It will examine the methodologies used to assess patient satisfaction through a systematic literature review approach and identify emerging trends in healthcare service quality improvement, such as patient-centered care and enhanced service delivery, and their impact on patient satisfaction (Rastogi & Sharma, 2020). A review aims to provide healthcare organizations with insights into the drivers of patient satisfaction, which are crucial for improving service quality and enhancing patient outcomes. The findings intend to contribute to ongoing efforts to enhance patient-centered care and healthcare service delivery, ultimately leading to better patient experiences and higher satisfaction levels.

## 2. MATERIALS

This study employs a systematic review methodology to identify, review, and synthesize literature on the determinants of consumer satisfaction with healthcare services. The review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009).

**Identification:** The literature identification process was carried out through a search in the Scopus database using the search string:

**Table 1. The search term employed in the study of literature**

Search String
TITLE-ABS-KEY (customer AND satisfaction) AND TITLE-ABS-KEY (healthcare) AND PUBYEAR > 2014 AND PUBYEAR < 2024 AND (LIMIT-TO (LANGUAGE, "English"))

*Source: Author based on Scopus preview*

**Table 2. Inclusion and Exclusion Criteria**

Inclusion and Exclusion	Criteria
Inclusion Criteria	Empirical studies focused on customer satisfaction in the healthcare service published in English Between 2019 and 2023 Sourced from peer-reviewed journals.
Exclusion Criteria	Study not focusing on healthcare topic Study not explicitly measuring customer satisfaction Study not in publication type Study not in study duration

*Source: Author based on Scopus preview*

This search strategy aims to capture a comprehensive and up-to-date body of literature on customer satisfaction in healthcare innovation, focusing on recent developments in the field while ensuring the inclusion of internationally recognized studies

**Screening:** Following initial literature identification, the implementing a rigorous screening protocol to remove duplicate entries and evaluate adherence to established inclusion-exclusion parameters. The selection criteria prioritized both empirical investigations and secondary analyses that specifically addressed healthcare service innovations targeting improved customer satisfaction metrics. Publications falling outside the healthcare domain or lacking robust data were excluded from consideration. The screening methodology incorporated automated analytical tools to efficiently process the extensive volume of scholarly materials. These criteria are detailed in Table 2.

**Selection:** In the selection stage, articles that passed the initial screening process were further evaluated based on their relevance to the study topic. The evaluation was conducted through a review of the title, abstract, and conclusions of each article to ensure that the study's focus was directly related to customer satisfaction in the context of healthcare services. In cases where doubts arose regarding an article's relevance, a full-text assessment was conducted to determine its eligibility for inclusion.

A selection stage ensured that only high-quality studies closely related to the review's theme were considered in the final analysis. The selected articles encompassed various methodological approaches, allowing for a more holistic view of the factors influencing customer satisfaction.

**Synthesis:** The synthesis aimed not only to organize information from various studies but also to reveal new trends in healthcare practices and service quality that contribute to improved patient satisfaction. This synthesis provides a comprehensive overview of key factors and relevant recommendations for healthcare providers.

The synthesis process extends beyond mere information organization, seeking to uncover emerging trends in healthcare practices and service quality that contribute to enhanced patient satisfaction. This approach allows for a holistic understanding of the key factors influencing customer satisfaction in healthcare settings and provides relevant recommendations for healthcare providers

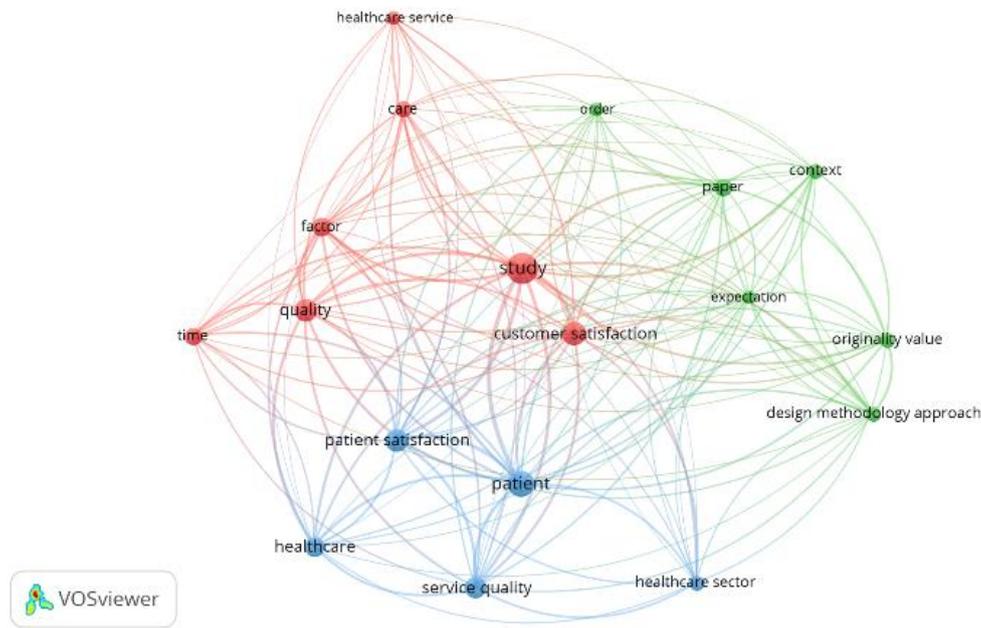
### 3. METHODS

#### 3.1 Keyword Co-Occurance

A co-occurrence analysis was conducted to identify key terms or authors from the literature corpus underlying this study. The analysis, performed using VOS viewer, aimed to reveal how specific topics or keywords are

interconnected, or how certain authors collaborate in this study field. Understanding these keywords or topics provides insight into the central themes or subjects within the study scope. This co-occurrence analysis provides a visual representation of the key themes and their

relationships within the literature, offering a comprehensive overview of the study landscape in customer satisfaction in healthcare services. Fig. 1 presents a visualization of keyword co-occurrence, with the results organized into three clusters, each distinguished with a different color.



**Fig. 1. Network Visualization of Co-occurred Keywords**

**Table 3. Co-occurrence Keywords summary**

<b>Cluster 1 (Red)</b>	<b>*Occ</b>	<b>**TLS</b>
Care	12	63
Customer Satisfaction	24	110
Factor	16	86
Healthcare Service	9	37
Quality	22	115
Study	41	209
Time	13	59
<b>Cluster 2 (Green)</b>	<b>Occ</b>	<b>TLS</b>
Context	11	62
Design Methodology Approach	10	69
Expectation	9	52
Order	8	45
Originality Value	11	73
Paper	14	81
<b>Cluster 3 (Blue)</b>	<b>Occ</b>	<b>TLS</b>
Healthcare	17	90
Healthcare Sector	10	54
Patient	31	165
Patient Satisfaction	22	124
Service Quality	21	116

\*Occ = Occurance \*\*TLS = Total Link Strength

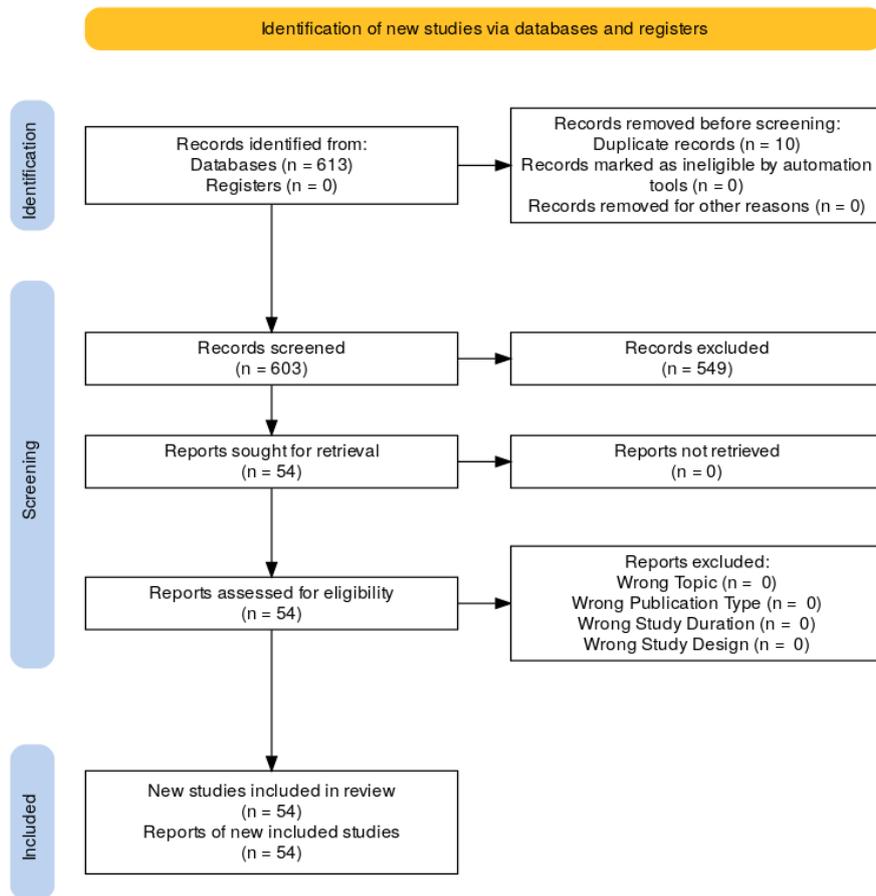


Fig. 2. PRISMA Flowchart

The co-occurrence analysis using Vos Viewer software revealed 18 keywords/items, with each piece of literature containing at least seven or more keywords. Table 3 provides a summary of the co-occurrence keywords along with their total link strength (TLS). The most frequently occurring keywords in this study include: study (Occ = 41, TLS = 209), patient (Occ = 31, TLS = 165), customer satisfaction (Occ = 24, TLS = 110), patient satisfaction (Occ = 22, TLS = 124), quality (Occ = 22, TLS = 115), service quality (Occ = 21, TLS = 116), healthcare (Occ = 17, TLS = 90), and factor (Occ = 16, TLS = 86).

This co-occurrence analysis provides both a visual and quantitative representation of the key themes and their relationships within the literature, offering a comprehensive overview of the study landscape in customer satisfaction in healthcare services. The high occurrence and total link strength of keywords such as "patient," "customer satisfaction," and "service quality" underscore the central focus of the reviewed

literature on patient-centered approaches and quality of care in healthcare services.

### 3.2 Prisma Model

This study explains how the minimum topics to be reviewed in this systematic review were selected using the PRISMA methodology (Haddaway et al., 2022). The chart below (Fig. 2) presents the PRISMA flow diagram created for this study.

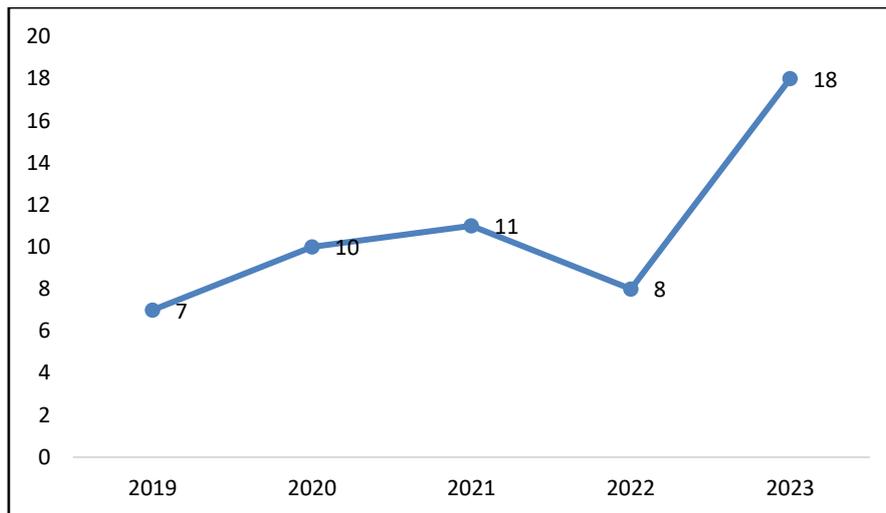
Fig. 2 illustrates the PRISMA flow diagram for the document exclusion and selection process. After removing duplicates, a total of 603 records were identified from the Scopus database. Of these, 603 records were excluded after a step-by-step screening of titles and abstracts. Exclusions were made based on the following reasons: (1) irrelevant topics (n = 194); (2) unsuitable population (n = 180); (3) inappropriate study duration (n = 148); and (4) inappropriate study design (n = 27). Ultimately, 54 remaining documents were deemed eligible for inclusion

(Barfar et al., 2021; Materla & Cudney, 2020; Tóth et al., 2020).

### 3.3 Sample Characteristics

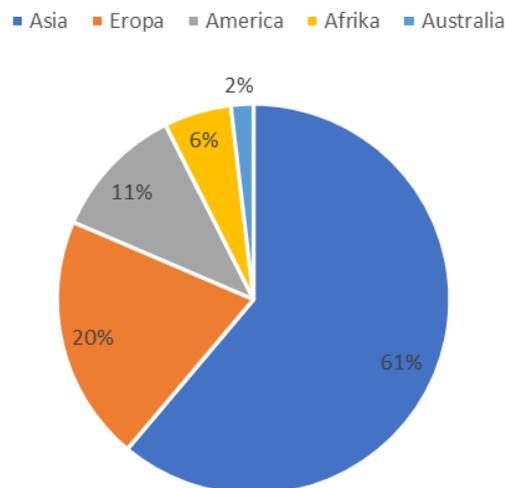
The initial search yielded 615 Scopus articles, of which 54 met the inclusion criteria after screening for relevant topics, abstracts, full texts, and publication duration (Fig. 2. PRISMA Flowchart). The resulting data were analyzed based on three variables: region, year of publication, and data collection methods. This study utilized articles spanning a five-year period, from 2019 to 2023.

Fig. 3 shows that studies related to customer/patient satisfaction in healthcare innovation services have seen an upward trend year by year, indicating that this topic continues to attract significant interest for further investigation. Although there have been some declines, the number of publications demonstrates a stable trend, with a peak in 2023, reflecting the relevance and importance of customer/patient satisfaction as a study topic. The consistent recovery in publication numbers suggests that academics and practitioners continue to pay considerable attention to this field, highlighting its lasting appeal and critical role in business strategy.



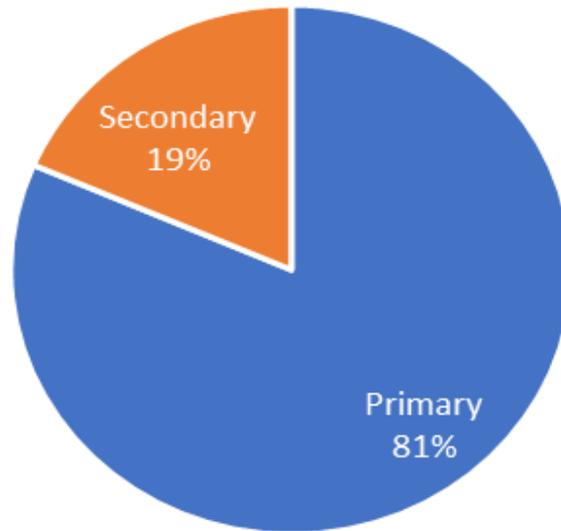
**Fig. 3. Sample Characteristic based on Year of Publication**

Source: Author based on Scopus Preview



**Fig. 4. Sample Characteristic (Geographic Region)**

Source: Author based on Scopus Preview



**Fig. 5. Sample Characteristic (Data Collection Method)**

*Source: Author based on Scopus Preview*

Fig. 4 illustrates the distribution of articles by continent. Asia accounts for the largest proportion of articles, at 61%, indicating that the majority of studies originate from this region. Europe ranks second, contributing 20%, which signifies that studies on customer satisfaction in healthcare service innovation are widely discussed in Europe. America contributes 11%, while Africa contributes 6%, and Australia accounts for 2%, making it the continent with the fewest articles in this distribution. This figure provides an overview of how the reviewed study predominantly focuses on Asia compared to other continents.

Fig. 5 shows that the majority of articles, 81%, used primary data collection methods, while only 19% utilized secondary data. This indicates that most of the studies analyzed in this study relied on data collected directly from original sources, with only a small portion drawing from pre-existing data.

## 4. RESULTS

Several factors are mentioned as influencing customer satisfaction in the 54 articles including:

### 4.1 Service Quality

Anabila et al. (2020); Singh and Dixit (2020) mention Service quality has been identified as the most critical factor influencing patient

satisfaction in various studies. Service quality encompasses several dimensions, such as reliability, responsiveness, and empathy. Reliability reflects the consistency and timeliness of healthcare services, where patients expect services that meet their needs without errors or delays. Responsiveness relates to the ability of healthcare providers to respond promptly and effectively to patient requests, including response times to questions or complaints. Empathy is another crucial dimension, where patients feel cared for, understood, and treated with respect by healthcare staff. The studies show that when these dimensions are consistently present, patient satisfaction levels increase significantly (Al-hilou & Suifan, 2023; Mohammed & Mahmood, 2022; Shie et al., 2022). This confirms that healthcare services focused on interpersonal and procedural quality will have a positive impact on patient perceptions.

### 4.2 Communication

Effective communication between healthcare providers and patients is also identified as a crucial factor in improving customer satisfaction. Study indicates that clear explanations, active listening, and empathetic interactions are strongly correlated with higher patient satisfaction (Bux et al., 2023; Irfan & Baig, 2023). Patients expect open and honest communication from doctors or other medical professionals regarding their health conditions, upcoming procedures, and the associated risks and

benefits. Additionally, when healthcare professionals listen to patient concerns or questions fully and respond appropriately, it fosters trust and confidence in the quality of care received. According to Al-Daoar and Munusamy (2019) Empathetic interactions are also essential, as they demonstrate to patients that they are being treated as individuals rather than just medical cases, ultimately enhancing their satisfaction with the services provided.

### 4.3 Digital Transformation

The use of digital technology in healthcare services has become a central theme in recent years, with significant impacts on the accessibility and convenience of services (Budiman et al., 2019; Chatterjee, 2021). Mention by Chatterjee et al. (2019) Technologies such as telemedicine, electronic medical records, and digital communication tools like health apps offer patients the convenience of interacting with healthcare providers without the need for physical presence. This greatly improves access to services, particularly for patients living in remote areas or those with mobility limitations. Telemedicine enables patients to receive virtual medical consultations, reducing travel time and providing a sense of security during pandemics. Furthermore, electronic medical records allow better coordination between different providers, increasing efficiency and reducing the risk of medical errors, which ultimately has a positive impact on patient satisfaction (Li et al., 2020; Ravinder Rao & Sucharita, 2019).

### 4.4 Physical Environment

The physical environment of healthcare facilities, including ambiance, cleanliness, and comfort, significantly influences patient perceptions and satisfaction (Sofianos, 2023; Vigolo et al., 2020). A clean, well-maintained, and comfortable environment creates a positive impression of the quality of care received. Study shows that comfortable facilities, such as tidy waiting areas and adequate sanitation, provide patients with a sense of calm, which is essential in creating a pleasant healthcare experience. Additionally, a comfortable physical atmosphere can reduce patient anxiety while waiting or receiving treatment, which overall improves their satisfaction with the healthcare services provided (Braumah et al., 2023).

### 4.5 Waiting Time

Long waiting times are a major factor that negatively impact to patient satisfaction (Ahmad et al., 2020; Li et al., 2021; Lu et al., 2022). Several studies indicate that patients tend to feel dissatisfied when they have to wait too long for care, whether for consultations, diagnostic tests, or other procedures. Extended waiting times can lead to increased stress and frustration, especially when there is no clear explanation for the delay. Therefore, according to Al-hilou and Suifan (2023) innovations that reduce waiting times, such as improving administrative process efficiency or using technology to schedule and manage patient visits, are crucial to enhancing patient experience and satisfaction.

### 4.6 Healthcare Service Accessibility

Healthcare service accessibility is an important factor influencing customer satisfaction, particularly in healthcare service innovation. Accessibility includes the ease of physically accessing healthcare facilities, as well as the availability of services that facilitate interaction between patients and providers (Guglielmetti Mugion et al., 2020). Study indicates that good accessibility, such as easily reachable healthcare facility locations, significantly increases patient satisfaction. Patients feel more satisfied when they do not face significant barriers, such as long distances, in accessing healthcare services (Ali & Dzandu, 2023; Haber & Fagnoli, 2019).

## 5. DISCUSSION

### 5.1 Impact of Customer Satisfaction

The study by Ai et al. (2022); Apaolaza et al. (2020); Ren et al. (2021) aims to examine the critical determinants shaping patient satisfaction outcomes, encompassing four primary dimensions such as experiential value derived from customer interactions, technological infrastructure implementation, subjective assessment of service delivery, and tangible facility provisions by healthcare institutions. Furthermore, the study seeks to establish robust metrics for evaluating hospital-based customer satisfaction through a multifaceted framework. The study encompasses patient perceptions of clinical care delivery, effectiveness of healthcare professional communications (incorporating physician, nursing, and support staff interactions), architectural environmental factors,

sanitization protocols, alignment with patient expectations, and infrastructure standards assessment (Nguyen et al., 2021; Xie et al., 2022). Creating customer satisfaction in the healthcare service industry has become essential, as this satisfaction stems from customers' experiences with their previous purchasing decisions. In the study Lugosi et al. (2022) where this study on healthcare services in cancer clinics indicates that customer satisfaction can be derived from the experiences customers have had. According to Nikolaeva et al. (2020); Oliver (2014) customer satisfaction is the level at which expectations align with the perceived outcomes, meeting the customer's expectations. Customer satisfaction can have several impacts, including:

**Customer Loyalty Improvement:** High customer satisfaction leads to stronger loyalty toward healthcare services. Satisfied patients are more likely to return and use the same services, as well as recommend them to others, thereby strengthening the long-term relationship between healthcare providers and patients (Ali & Dzandu, 2023; Khaleel et al., 2022). This loyalty also becomes the foundation for successful innovation, as satisfied customers are more willing to try new services offered by healthcare providers (Mandala et al., 2021).

**Enhanced reputation and image of healthcare services:** Healthcare organizations that successfully maintain customer satisfaction build a positive reputation within the community. This reputation reflects the quality of services and innovations implemented by the organization (Brahmah et al., 2023; Singh & Dixit, 2020). Satisfied patients are more likely to share their experiences positively, either through word of mouth or online reviews, thereby enhancing the organization's image. A good reputation makes it easier for healthcare providers to gain greater trust from the public and strategic partners (Cacciotti et al., 2022).

**Adoption and success of healthcare service innovation:** Customer satisfaction drives the adoption of new technologies and healthcare service innovations such as telemedicine, health apps, and electronic medical records (Sodhro et al., 2021). Satisfied patients are more likely to support and accept changes offered by healthcare providers, particularly related to technologies that facilitate access and care efficiency. This also reduces resistance to innovation, allowing providers to continue

evolving and improving the quality of care more rapidly (Al-hilou & Suifan, 2023).

**Operational efficiency and cost savings:** Healthcare services that ensure customer satisfaction often demonstrate better operational efficiency (Moore, 2021). Efficient systems can reduce patient waiting times, expedite administrative processes, and increase healthcare staff productivity (Bux et al., 2023). Based on study by Ha et al. (2023), Customer satisfaction also impacts cost savings by reducing the number of complaints, the need for problem resolution, and post-service remediation efforts.

**Positive impact on patient health:** Patient satisfaction in healthcare services directly impacts health outcomes. Satisfied patients are more likely to adhere to medical instructions, pay attention to doctors' recommendations, and actively participate in the health care programs provided. This contributes to better clinical outcomes, reduces the risk of complications, and improves patients' overall quality of life (Dayan et al., 2022).

**Competitive advantage development:** Healthcare providers that maintain high levels of customer satisfaction can develop a competitive advantage in the market. In a competitive environment, customer satisfaction is one of the key factors that differentiates healthcare providers. Study in Dayan et al. (2022) providers focusing on innovation and customer satisfaction will more easily attract new patients and retain existing ones. This allows the organization to grow more rapidly and innovate more efficiently than its competitors.

## 5.2 Customer Satisfaction and Healthcare Service

**Driving digital technology adoption:** Customer satisfaction is a key factor in the successful adoption of digital technology in the healthcare sector. When patients are satisfied with the technology used in healthcare services, such as telemedicine systems, health apps, or electronic medical records, they are more likely to embrace and feel comfortable using it. This is crucial, as the integration of technology often faces obstacles, particularly in communities less familiar with digital tools. Customer satisfaction plays a critical role in sustaining digital transformation across various industries, including healthcare (Zhang et al., 2022). The

study demonstrated that successful technology adoption requires a deep understanding of customer needs and expectations, which should be accommodated through tailored services (Nobile et al., 2019).

**Improving operational efficiency and patient experience:** Healthcare industries adopting technology-based innovations can significantly enhance operational efficiency and the patient experience. Patients who are satisfied with shorter wait times, easier access to services through digital platforms, and improved communication with healthcare providers tend to be more loyal to the service. Huetten et al. (2019) highlighted that the barriers to digitalization in healthcare can be mitigated by focusing on improving customer satisfaction. The study found that when customers perceive the service as more efficient and convenient, especially through digital platforms, they are more likely to support the transformation. This indicates that customer satisfaction also serves as an indicator of operational success in an increasingly digitized healthcare environment (Braumah et al., 2023).

**Increasing patient loyalty and trust:** Customer satisfaction is closely related to patient loyalty. Satisfied patients are more likely to return to the same healthcare services and recommend them to others (Mandala et al., 2021). In the context of innovative healthcare services, patient trust in new technologies, such as artificial intelligence (AI) for diagnosis, depends on their positive experiences in receiving these services. Technology-based services are well-received by customers, it boosts patient loyalty and drives greater adoption of innovation. Technologies like IoT, which monitor patients' health in real-time, also provide them with a sense of security, leading to higher trust in healthcare providers (Dayan et al., 2022; Mhasnah et al., 2020).

**Improving patient outcomes through service innovation:** Customer satisfaction not only affects patients' direct experiences with the healthcare system but also impacts health outcomes. Patients satisfied with the services they receive are more likely to follow medical instructions, participate in long-term care programs, and undergo preventive healthcare. Innovations in patient-centered health management, such as the use of big data for health predictions, enable more effective healthcare delivery (Epaminonda et al., 2020). A study by Braimah et al. (2023) highlighted that

the use of integrated digital knowledge management systems can enhance data-driven decision-making in healthcare, ultimately improving patient outcomes. When patients experience the direct benefits of these innovations, they are more satisfied and more likely to comply with medical advice, contributing to better health outcomes overall.

**Enhancing patient experience and active engagement:** High customer satisfaction fosters active patient engagement in managing their health (Irfan & Baig, 2023). Innovations such as mobile applications that allow patients to monitor their health conditions or access real-time health information provide a more interactive and controlled experience for patients (Bordoloi, 2020; Srivastava & Prakash, 2019). Patients who feel more involved in the decision-making process about their health tend to be more satisfied and achieve better outcomes. Chang et al. (2021); Nikolaeva et al. (2020) emphasized the importance of integrated digital models in improving the customer experience. The result indicated that active patient engagement with digital healthcare services can increase satisfaction and create a greater sense of responsibility for their health.

## 6. CONCLUSION

This systematic literature review highlights the critical factors influencing customer satisfaction in healthcare service innovation. Key determinants such as service quality, communication, digital transformation, physical environment, waiting time, and accessibility have been consistently shown to impact patient satisfaction positively. The integration of these factors, particularly the shift toward patient-centered care and the increasing use of digital technology, has emerged as a significant trend in enhancing healthcare services. The findings underscore the importance of personalized care, empathy, and responsiveness in meeting patient expectations, while the role of technology in improving access and efficiency is equally crucial. Furthermore, this review illustrates that innovations such as telemedicine and electronic health records contribute to reduced wait times, improved care coordination, and ultimately higher patient satisfaction.

These conclusions have important implications for both healthcare providers and policymakers. For providers, the need to focus on continuous improvements in service quality, communication,

and digital adoption is paramount to achieving higher patient satisfaction. Policymakers, on the other hand, should prioritize initiatives that promote digital literacy and incorporate patient satisfaction metrics into healthcare quality assessments. Overall, this review offers valuable insights for future study and practical applications aimed at enhancing patient experiences and outcomes in healthcare services.

## DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declares that generative AI technologies such as Large Language Models, etc. have been used during the writing or editing of manuscripts. This explanation will include the name, version, model, and source of the generative AI technology and as well as all input prompts provided to the generative AI technology

### Details of the AI usage are given below:

1. The authors use option 2. The AI called Claude use for as Translator and Paraphrasing tools.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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