

The Use of Importance Performance Analysis (IPA) of Dental Health Services: A Systematic Review for Health Promotion Strategies

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ARTICLE INFO	ABSTRACT
<p>Manuscript Received: 10 Feb, 2025 Revised: 16 Jun, 2025 Accepted: 23 Jun, 2025 Date of Publication: 10 Jul, 2025 Volume: 8 Issue: 7 DOI: 10.56338/mppki.v8i8.7709</p>	<p>Introduction: Dental and oral health services are essential for promoting not only physical health but also psychological well-being and patient confidence. Patient satisfaction is a crucial metric of healthcare quality, and the SERVQUAL dimensions—Tangibles, Reliability, Responsiveness, Assurance, and Empathy—serve as a foundation for service evaluation. Importance Performance Analysis (IPA) is an effective method for identifying gaps between patients' expectations and the actual performance of dental services, offering a strategic basis for service improvement.</p> <p>Methods: This systematic review followed the PRISMA 2020 guidelines. Literature was identified through searches in PubMed, Scopus, and Google Scholar using relevant Boolean keywords. A total of 150 articles were initially retrieved. After applying inclusion and exclusion criteria, 10 eligible studies were analyzed. Data were synthesized based on study focus, key findings, moderating factors, and geographic context.</p> <p>Results: The review revealed significant performance gaps in the dimensions of Responsiveness and Empathy, especially in developing countries such as Indonesia, Iran, and Iraq. Contributing factors included limited resources, cultural communication barriers, and disparities in healthcare access. Tangibles such as facility cleanliness and design were also influential in patient satisfaction. Reliability and Assurance contributed to trust-building, though they showed relatively smaller gaps. Studies from high-resource settings demonstrated better overall balance across SERVQUAL dimensions, highlighting the role of institutional support and training.</p> <p>Conclusion: IPA serves as a powerful diagnostic and strategic tool for evaluating and enhancing the quality of dental and oral health services. By highlighting critical performance gaps—particularly in interpersonal and environmental aspects—IPA supports targeted interventions. The integration of patient-centered care principles with IPA findings can guide resource allocation, improve patient satisfaction, and address systemic inequalities in dental healthcare delivery. This review underscores the need for contextualized quality improvement strategies, especially in low-resource environments.</p>
KEYWORDS	
<p>Importance Performance Analysis (IPA); SERVQUAL; Dental Health Services; Patient Satisfaction; Service Quality</p>	

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INTRODUCTION

Dental and oral health services are considered important in maintaining quality of public health services. Patient satisfaction is often used as a key indicator of quality health services, functioning not only to overcome dental and oral health problems, but also playing a significant role in aesthetics, and patient confidence. Therefore, quality of dental and oral health services is a major focus for hospitals (1,2). Importance Performance Analysis (IPA) helps identify gaps between patient expectations and the performance of health services received. For example, a quadrant with a high level of importance but low performance indicates areas that require immediate attention. This indicates that IPA is both a diagnostic tool and a strategic guide for managerial decision-making in hospitals (3). Evaluation of health services quality is important to increase patient trust and loyalty, as well as ensure managerial efficiency (4).

Several studies have shown that the perception of dental and oral health services quality is influenced by dimensions such as Tangibles, Reliability, Responsiveness, Assurance, and Empathy (5,6). However, there is significant variation in the results of service quality evaluations across locations (7). Therefore, this study aimed to analyze articles related to the use of IPA in evaluating quality of dental and oral health services, identify gaps, as well as provide recommendations for improving quality (6).

This systematic literature review aimed to comprehensively examine the literature on evaluating quality of health services on patient satisfaction using IPA method at Dental and Oral Hospitals. The results are expected to provide significant contributions to improving quality of health services in Dental and Oral Hospitals. While IPA has been widely used across healthcare settings, some researchers have questioned its subjectivity and dependence on perceived performance, which may not fully reflect actual clinical outcomes. Moreover, previous systematic reviews on healthcare service quality often lack contextual depth, particularly in capturing cross-regional disparities and challenges in low-resource environments. This review addresses these methodological gaps by synthesizing evidence from diverse geographic settings, highlighting structural and interpersonal quality issues in dental and oral health services.

METHOD

This study employs a clear and systematic approach to ensure the reliability and validity of the findings. Below are the components of the methodology:

Research Type

The method section should clearly explain the research approach used, whether quantitative, qualitative, mixed-methods, or a literature review:

The screening and selection process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines. A total of 150 articles were initially identified through the database search. After removing duplicates and applying the predefined inclusion and exclusion criteria, 10 articles were deemed eligible and included in the final synthesis.

RESULTS

Articles that appear in the database were filtered using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram guidelines, as shown in Figure 1. The search conducted using Boolean sentences yielded 150 articles, and then filtering was carried out according to the inclusion and exclusion criteria, resulting in 10 articles that met the criteria.

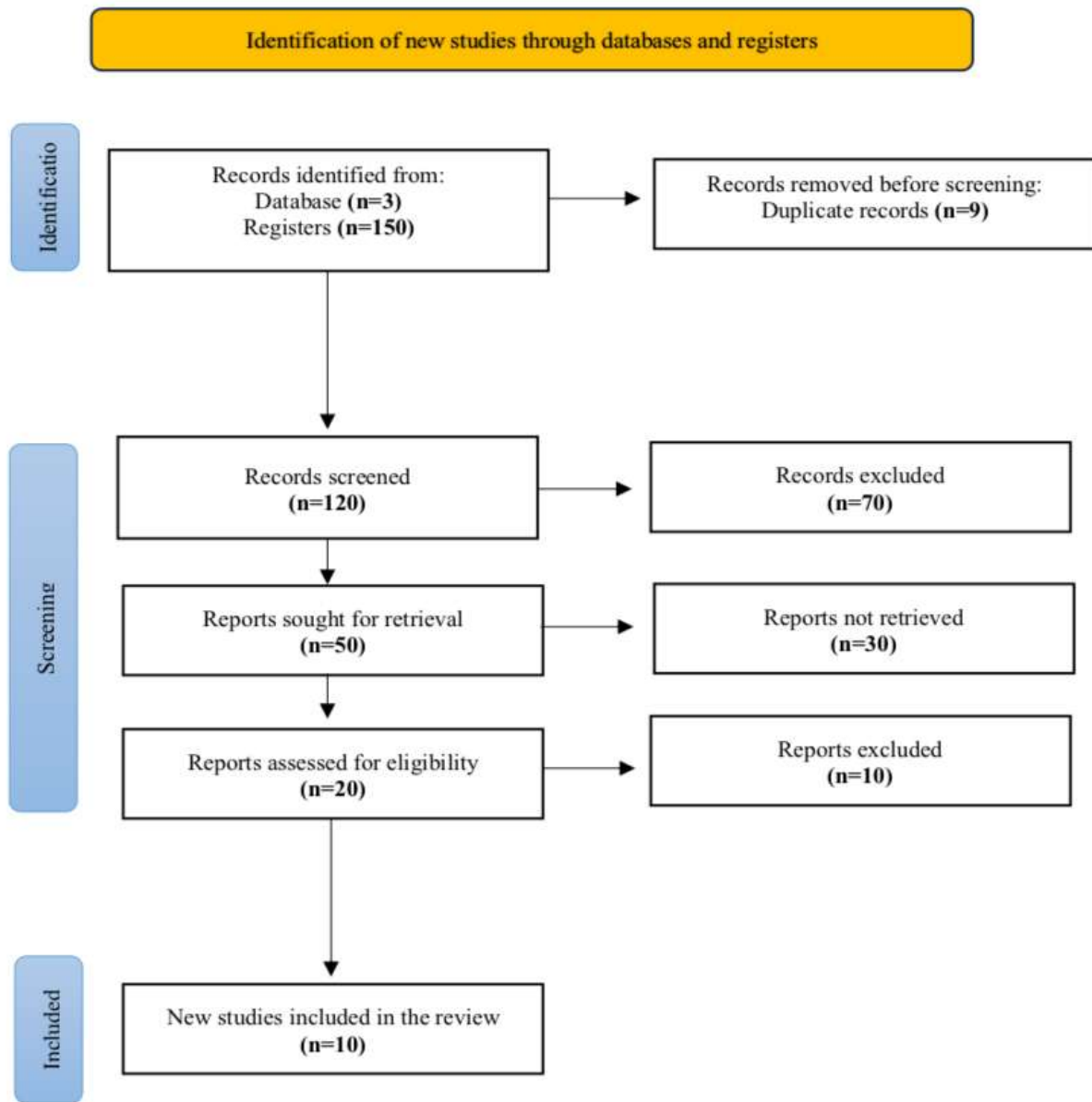


Figure 1. Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA)

Table 1. Data from journals inclusion criteria

No	Author(s)	Year	Study Focus	Key Findings	Moderating Factors	Geographic Context
1	Miranda et al.	2010	Analyze and compare the perceptions of patients	Significant perceptions gap, patients priorities	Role-Based perception differences	Spain, Badajoz
2	Mohebifar et al.	2016	Evaluate service quality with SERVQUAL	Negative gap across all dimensions	Demographic characteristics	Iran, Qazvin

No	Author(s)	Year	Study Focus	Key Findings	Moderating Factors	Geographic Context
3	Ali et al.	2021	Impact of service quality dimensions	All five dimensions significantly influence satisfaction	Healthcare as High-Involvement service	Iraq, Kurdistan
4	Lee et al.	2021	Evaluating perception	Positive and statistically significant correlation	Interrupted access to school-based health	Korea, Seoul
5	Akbar et al.	2022	Quality of dental health services	Empathy and responsiveness	Geographical disparity	Indonesia, Bone
6	Aghajanzadeh et al.	2022	Evaluate user satisfaction	Cleanliness and Reliability were rated high in IPA	COVID-19, Metro infrastructure limitations, Economic Stress	Iran, Tehran
7	Shin et al.	2024	Importance Performance Analysis	Infection control and surgical counting showed significant gaps between IPA	Training experience, hospital policy and support, resource availability, work environment and culture	Korea, Daejeon
8	Lu et al.	2020	Assess gaps between patient and family expectations and perceptions and Apply IPA	Tangibles dimension had significantly higher perception than expectation	Responder age, family involvement, Healthcare system	Taiwan, Taipei
9	Arani et al.	2024	Evaluate patients' perceptions with Importance Performance Analysis	Responsiveness had the largest gap, Reliability dimension followed closely	Communication Barriers, Patient Economic Constraints	Iran, Tehran
10	Dopeykar et al.	2018	Quality gap between expectations and perceptions dental services	Negative quality gap in all dimensions	Gender, marital status, age, education level	Iran, Tehran

A cross-analysis of the included studies reveals that geographic and socio-economic contexts significantly influenced patient perceptions of service quality. Studies conducted in developing countries, such as Indonesia, Iran, and Iraq, consistently reported wide gaps in Responsiveness and Empathy—dimensions closely tied to interpersonal communication and staffing capacity. These gaps were frequently attributed to infrastructural limitations, patient-provider ratios, and cultural expectations around care. Conversely, studies from high-resource settings like South Korea and Taiwan showed more balanced performance across all SERVQUAL dimensions, likely reflecting stronger

institutional support, better training systems, and more robust healthcare investment. Cultural factors, such as expectations regarding family involvement in care (e.g., in Taiwan), and logistical factors, such as access interruptions (e.g., in Korea during COVID-19), also moderated satisfaction levels. These findings emphasize the importance of tailoring quality improvement strategies to the unique demographic, economic, and cultural realities of each healthcare environment.

DISCUSSION

This systematic review demonstrates that the use of Importance Performance Analysis (IPA) in evaluating the quality of dental and oral health services provides actionable insights for healthcare management. The studies reviewed consistently highlighted the SERVQUAL dimensions—Tangibles, Reliability, Responsiveness, Assurance, and Empathy—as core components that shape patient satisfaction and perceptions of service quality. Among these, Responsiveness and Empathy were identified as the most critical areas with considerable performance gaps. Akbar et al. (2022) found that patients in rural Indonesian settings placed high importance on responsiveness and empathy but rated their performance as low, signaling the urgent need for improved interpersonal communication and emotional engagement between patients and healthcare providers (5). Similarly, Arani et al. (2024) reported that the largest discrepancy in patient satisfaction stemmed from the Responsiveness dimension, particularly concerning communication barriers and delays in care (13).

Empathy, encompassing the ability of healthcare workers to provide individualized attention and understand patient needs, was also a dominant theme. The study by Miranda et al. (2010) indicated role-based perception differences in Spain, where patients prioritized empathy over technical competence, unlike healthcare managers who focused more on efficiency metrics (6). These findings suggest that addressing interpersonal aspects of care, such as attentive listening, friendliness, and emotional support, can significantly enhance overall service satisfaction (14).

Tangibles, referring to the physical environment and appearance of the facility and staff, were also identified as influential in shaping patient experiences (19,23). Lu et al. (2020) found that in Taiwan, the Tangibles dimension had a significantly higher perception score compared to expectations, suggesting that investment in modern and clean infrastructure was well-received by patients (12). Likewise, Aghajanzadeh et al. (2022) emphasized that cleanliness and reliability were highly rated attributes in Tehran's metro healthcare services, underscoring how visual and physical cues contribute to the perceived quality of care environments, especially during the COVID-19 pandemic (7).

Reliability and Assurance, while less frequently reported as having large performance gaps, remained essential for building trust and fostering patient loyalty. These dimensions reflect consistent service delivery, accurate information, and the perceived competence of healthcare professionals. Ali et al. (2021) observed that all five SERVQUAL dimensions had a statistically significant influence on patient satisfaction in private hospitals in Iraq, with Reliability and Assurance being foundational to the patient-provider relationship (9). Furthermore, Mohebifar et al. (2016) reported negative gaps across all SERVQUAL dimensions in Qazvin, Iran, suggesting systemic issues that undermine patient trust (8,14).

One of the key advantages of IPA is its ability to visually map the gap between importance and performance, helping decision-makers prioritize interventions. Shin et al. (2024) applied IPA in a surgical context and demonstrated that infection control and procedural protocols fell into the high-importance but low-performance quadrant, making them strategic targets for quality improvement (11,18). In the context of dental services, this mapping is especially valuable in identifying dimensions that, if improved, would yield the highest impact on satisfaction (17,24).

Geographic and contextual disparities also played a significant role. For instance, developing countries such as Indonesia, Iran, and Iraq often faced challenges in both human resource capacity and infrastructure, affecting multiple SERVQUAL dimensions (20,22). In contrast, studies from Korea and Taiwan displayed more balanced performance, aided by stronger institutional frameworks, training programs, and healthcare investment (10,12). These findings suggest that although the IPA framework is universally applicable, the solutions derived from it must be context-sensitive (25).

These findings resonate with the core principles of patient-centered care, which prioritize individual patient values, preferences, and emotional needs in clinical decision-making (15,26). Responsiveness and Empathy—identified as the most critical gaps in this review—are central to this framework. In low-resource settings, achieving

patient-centered care requires targeted policies that address human resource shortages, provider-patient communication training, and supportive institutional culture. Bridging these gaps not only enhances service satisfaction but also builds trust, loyalty, and long-term health outcomes (16,27). Therefore, integrating IPA assessments with patient-centered care indicators can guide more culturally relevant and policy-responsive improvements in dental healthcare systems (26).

In summary, the IPA approach, when applied to dental and oral health services, proves to be a powerful diagnostic tool for healthcare providers aiming to align service delivery with patient expectations (27). It allows institutions to make informed decisions based on empirical evidence, thereby promoting continuous quality improvement. However, it is essential that interventions arising from IPA analyses are not only technically sound but also culturally and contextually appropriate to the local healthcare setting (21).

CONCLUSION

This systematic review investigated the application of Importance Performance Analysis (IPA) in evaluating the quality of dental and oral health services, aiming to identify priority dimensions for improvement based on patient perceptions. The findings demonstrated that integrating IPA with the SERVQUAL framework is effective in uncovering performance gaps—particularly in Responsiveness, Empathy, and Tangibles—that significantly influence patient satisfaction and trust.

A notable finding of this review is the consistent trend across developing countries, where interpersonal communication challenges and infrastructural limitations often contribute to lower service performance. This study also provides novel insights into the contextual variability of service quality perceptions, shaped by demographic, cultural, and economic factors. The IPA approach thus serves not only as an evaluative tool but also as a strategic framework for healthcare service optimization.

To enhance patient-centered care and operational efficiency, it is recommended that healthcare institutions, especially in resource-constrained settings, prioritize regular IPA-based assessments. These should be followed by targeted investments in staff training focused on empathy and responsiveness, along with improvements in the physical environment and facility aesthetics.

This review contributes not only a synthesis of existing evidence but also a methodological refinement by applying IPA as a comparative lens across diverse healthcare systems. From a managerial perspective, the findings emphasize the utility of IPA in prioritizing resource allocation toward interpersonal care dimensions that are often neglected in traditional quality frameworks. On a policy level, the study underscores the importance of tailoring service improvement strategies to local institutional capacities and patient expectations, especially in developing countries. These contributions position IPA as both a diagnostic and strategic planning tool in advancing equitable, patient-centered dental care.

Despite offering valuable insights, this review has limitations. The exclusion of non-English and paywalled studies may have led to selection bias, and methodological heterogeneity among the included studies limited comparability.

Future research should incorporate longitudinal and interventional study designs to assess the long-term impact of IPA-based strategies on service quality and patient satisfaction. Additionally, integrating qualitative methods could deepen the understanding of patient expectations and inform the development of contextually responsive healthcare policies and quality frameworks.

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CONFLICTS OF INTEREST

Confirms that the authors have declared any potential conflicts that could influence the impartiality of the research. The authors explicitly state that they have no financial or personal relationships with entities that might

unduly affect their objectivity. This declaration ensures the integrity of the study by transparently addressing any possible influences on the research outcomes, contributing to the credibility and trustworthiness of the article.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

Authors are required to transparently disclose any use of generative artificial intelligence (AI) tools or AI-assisted technologies—such as ChatGPT, Grammarly, or DeepL—during the manuscript preparation process. This policy aims to uphold academic integrity, promote responsible authorship practices, and ensure compliance with ethical publication standards. If AI tools have been employed to support language refinement, enhance clarity, or improve the overall readability and structure of the manuscript.

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