



Review Article

Systematic analysis of the factors associated with dental care patient satisfaction - A literature review

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Abstract

This research explores the elements related to patient satisfaction in dental care services. The researchers used the systematic literature review method to identify and analyze the factors to develop a research framework. This research provides insights into dental care and new constructs for measuring patient satisfaction. Two constructs, "service quality factors" and "services experienced factors," are derived from the data collected from various research articles, and multiple factors were then classified under them to understand the level and importance of different aspects related to patient satisfaction. The analysis revealed that waiting time, physical facilities under service quality factors, dentists' behavior, communication language, and cost under service experienced factors are the most influential factors in patient satisfaction in dental care services.

Keywords: Dental care service, Patient satisfaction, Factors of satisfaction.

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1. Introduction

Dental care is an area where patient satisfaction plays a crucial role. Patient satisfaction has become a key focus in healthcare, especially as the industry shifts from provider-centered to patient-centered. In this new model, patient satisfaction is an integral part of the definition of quality care.¹ Health services must be patient-focused to increase satisfaction resulting from patients' perceptions of their healthcare experiences. This perception includes their views on the setting, procedures, and outcomes of the services received. It also encompasses their assessment of the entire healthcare system² Defining and measuring patient satisfaction would be much easier if we fully understood the factors influencing patient contentment or dissatisfaction.³ Oral health significantly impacts a person's overall quality of life, and maintaining excellent dental health is vital for general well-being. Dental professionals are responsible for a patient's compromised oral health to a satisfactory level.⁴ Feedback from patients is invaluable for identifying strengths

and weaknesses within dental practices, ultimately leading to improved quality of care. Patient feedback in dentistry is often more reliable than expert assessments, as it reflects the real experiences and satisfaction levels of the individuals receiving care.

This review examines dental care services and patient satisfaction, highlighting inconsistencies in existing research. Patient satisfaction is a multifaceted concept, with individuals often satisfied with some aspects of care but dissatisfied overall. The factors influencing satisfaction are grouped into two categories: service quality (e.g., waiting times, facilities, hygiene, provider qualifications, and accessibility) and service experience (e.g., communication, costs, consultation time, and dentist behavior). This paper aims to analyze these factors and their role in improving healthcare quality.

2. Materials and Methods

The researchers have followed a specific procedure in this study to achieve the objective.

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2.1. Research problem

The researchers have identified a problem and research gap after evaluating different articles on dental care patient satisfaction and observing the following points:

1. Research on patient satisfaction in dental care services is abundant, yet few studies examine the key determinants influencing this satisfaction or categorize them by service quality and patient experience. This study seeks to create a conceptual framework to identify the most important factors in dental care services.
2. No study has attempted to categorize factors of service quality and experience. Previous research, including the SERVQUAL model, has not included all relevant aspects and their connections. This research aims to introduce a new framework in patient satisfaction literature.

2.2. Design

The reporting of this systematic review is as per the guidelines of the "Preferred Reporting Items for Systematic Reviews and Meta-Analysis PRISMA.

2.3. Search strategy

This systematic review identifies a relevant sample by searching in Scopus, Web of Science, and PubMed databases in September 2023 with keywords related to patient satisfaction and dental care. We adapted these terms from prior reviews and manually checked references from selected papers to find additional studies, ensuring no duplicates and adherence to reporting criteria.

3. Eligibility Criteria

The study considered peer-reviewed research articles written in English between 2000 and 2024. Excluded from the study were government reports, conference proceedings, book chapters, abstracts, proceedings, editorials, theses, duplicates, and clinical trials. Studies on patient satisfaction at particular medical facilities, such as mental health counselling offices or rehabilitation institutions, were not considered for this analysis. Studies on populations under 18 and child caregivers were also not included in this study.

Papers were included if they examined the factors influencing patient satisfaction or experience, tested a theoretical framework, compared patient satisfaction in dental care services, evaluated the relationship between patient satisfaction and patient characteristics, conducted scoping, systematic, or thematic reviews on the determinants of patient satisfaction, and focused on dental care studies.

3.1 Screening criteria

1. **Papers only related to Patient satisfaction:** These included the general articles on Dental service and

patient satisfaction and were not associated with the topic; no factors were considered in these articles; n = 23.

2. **Papers only related to Dental care services** included articles on the dental service and some factors, but no factors were focused on patients' satisfaction or experience (n = 34).
3. **Papers related to Factors associated with dental care services but not satisfaction:** These included specific articles on factors related to dental care services, but these factors are not focused on patient satisfaction with dental care services, n = 30; hence, 87 articles did not match the research criteria. And finally,
4. **Papers directly related to Factors associated with patients' satisfaction with dental care services:** Some 46 articles were considered for the next step, including the articles that included various factors directly related to the patient's satisfaction with dental care services, refer to **Figure 1**.

4. Selection of Studies

One author reviewed the paper titles and abstracts, which were forwarded to the second author for verification in case of disagreement. A Kappa coefficient of 0.61 indicated strong agreement on paper selection. Both authors assessed full-text papers against eligibility criteria, excluding those that did not match or were inaccessible. Ultimately, 46 research publications meeting the criteria were included in the study, as shown in **Figure 1**.

4.1. Data extraction

The electronic reports were imported into the reference manager Endnote, eliminating duplicate entries. Each publication was evaluated in two stages: initially, by examining the title and abstract, followed by a thorough assessment of the complete text to confirm adherence to the inclusion criteria. One reviewer conducted the initial evaluation, and the second reviewer conducted the second assessment.

4.2. Data analysis

In this method, the researchers have conducted a systematic analysis of factors using the following procedure:

5. Analysis and Clubbing of Articles

The phase concludes with creating an Excel sheet that includes columns for the study, author, journal, publication year, and relevant factors. After data entry, researchers grouped related variables, calculating the relative incidence by dividing the number of articles containing a factor by the total number of articles. This ratio helps evaluate each factor's relative weight.

Relative Incidence = No. Of articles (Quoted by each Factor)
/ Total number of articles s

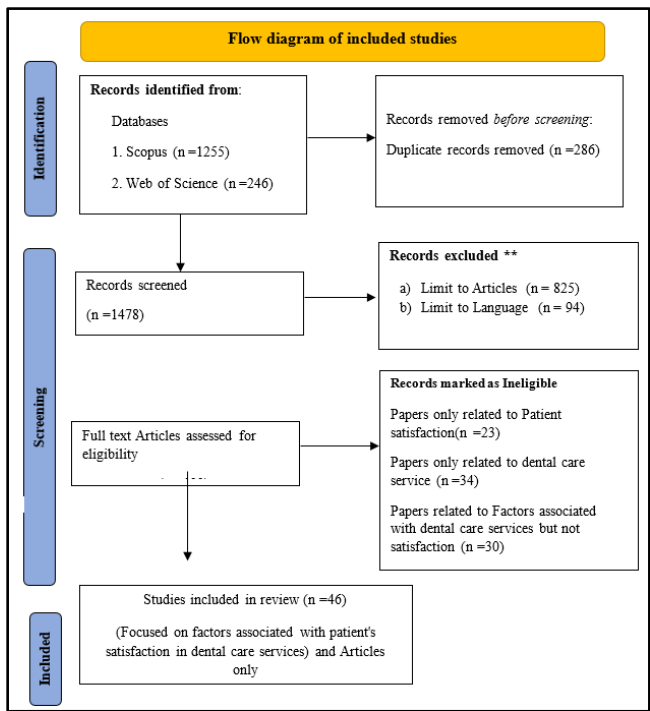


Figure 1: Flow diagram of the included studies.

Table 1: Clustering of publications based on different factors

Table 1 summarizes the categorization analysis. To conduct this analysis, the researchers have screened out 46 papers primarily examining factors of patient satisfaction in dental care services.

Table 1: Clustering of publications based on different factors.

Clusters			Service Quality (Observed) Factors			Service Experienced Factors				
S. No	Author	Waiting Time	Physical Facilities	Overall Hygiene	Educational background/ Experience	Accessibility	Communication Language	Cost of treatment	Consultation Time	Dentist's Behavior
1	(Hakeberg et al., 2000) ⁶				☑		☑			
2	(Baldwi A, Sohal A, 2003) ⁷	☑	☑							☑
3	(Sur H et al, 2004) ⁸	☑	☑							☑
4	(Hashim R, 2005) ⁹	☑				☑				
5	(Tamaki Y, Nomura Y, Nishikawara F, etal 2005) ¹⁰			☑			☑	☑	☑	☑
6	(Shrestha A, Doshi D, Rao A, Sequeira P,2008) ¹¹	☑	☑				☑			☑
7	(Bamise C, Bada T, Bamise F, Ogunbodede E, 2008) ¹²		☑			☑		☑	☑	☑
8	(Mazzei A, Russo V, Crescentini A, 2009) ¹³	☑	☑	☑		☑	☑	☑	☑	☑

6. Results and Discussion

6.1. Classification of publications based on factors influencing the patient's satisfaction with dental care services

The researchers utilized the systematic qualitative method of assessing the literature after carefully examining the many antecedents of patient satisfaction in dental care services appropriation from the chosen article pool.5 The variable was classified into many clusters and mapped to a single factor.

6.2. The Comparative contribution of factors in a different context

The following section highlights the significance of specific factors based on the frequency with which they occurred in the pool of articles used. After numerous rounds of scientific research and filtering, the researchers discovered 46 papers directly relevant to the factors affecting the patient's satisfaction with dental care services. The researcher has categorized the factors into clusters, like Service Quality Factors and Service Experienced Factors.

9	(Sun N, Burnside G, Harris R, 2010) ⁸						<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
10	(Al Johara, A. (2010)) ¹⁵		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
11	(Li, S. J., Huang, Y. Y., & Yang, M. M. (2011)) ¹⁶	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>
12	(Mahrous, M. S., & Hifnawy, T. (2012)) ¹⁷	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			
13	(Chang W-J, Chang Y-H, 2013) ¹		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
14	(Tellez M, Kaur S, 2013) ³	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
15	(Siqueira, G. P. D., Dos Santos, M. B. F., Santos, J. F. F. D., & Marchini, L. (2013)) ¹⁸									<input checked="" type="checkbox"/>
16	(Patel JY,(2014)) ¹⁹					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
17	(Adebayo ET, Adesina BA, Ahaji LE, Hussein NA, (2014)) ²⁰	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>			
18	(Ahmady AE, Pakkhesal M, Zafarmand AH, Lando HA,(2015)) ²¹		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
19	(Bahadori M, Raadabadi M, Ravangard R, Baldacchino D, (2015)) ²²	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
20	(Ungureanu M-I, Mocean F, (2015)) ²³	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
21	(Ali DA (2016)) ²⁴		<input checked="" type="checkbox"/>							<input checked="" type="checkbox"/> <input type="checkbox"/>
22	(Ekbäck G, Ordell S, Ståhlacke K(2016)) ²⁵	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
23	(Aldosari, M. A., Tavares, M. A., Matta-Machado, A. T. G., & Abreu, M. H. N. G. (2017)) ²			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				
24	(Eslamipour F, Tahani B, Heydari K, Salehi H,(2017)) ²⁶	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>				
25	(Batbaatar E, Dorjdagva J, Luvsannyam A, Savino MM, Amenta P,(2017)) ²⁷							<input checked="" type="checkbox"/>		
26	(Rocha J, Pinto A, Batista M, de Paula JS, Ambrosano G, (2017)) ²⁸	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
27	(Tanbakuchi B, Amiri M, Valizadeh S,(2018)) ²⁹	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
28	(Manríquez J, Pereira K,(2018)) ³⁰					<input checked="" type="checkbox"/>				
29	(Luo JYN, Liu PP, Wong MCM, (2018)) ³¹		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
30	(Opeykar N, Bahadori M, Mehdizadeh P, Ravangard R, Salesi M, Hosseini SM,(2018)) ³²	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
31	(Skapetis T, Ajwani S, Bhole S,(2018)) ³³			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
32	(Hashem TN, Ali N,(2019)) ³⁴		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			

33	(Akbar FH, Pasinringi S, Awang AH, (2019)) ⁴	✓	✓	✓			✓	✓	✓	✓
34	(Rosing K, Leggett H, Csikar J, et al,(2019)) ³⁵					✓				
35	(Obadan-Udoh E, Ramoni R, Der Berg-Cloete V, White G, Kalenderian E,(2019)	✓	✓	✓	✓		✓			✓
36	(Chiou S-J, Lee L-H, Lee P-C, Lin K-C, (2020)) ³⁷	✓				✓	✓	✓	✓	
37	(Park S, Kim H-K, Choi M, Lee M, (2021)) ³⁸						✓			
38	(Lwin HNN, Punnakitakashem P, Thananusak T,(2021)) ³⁹		✓			✓		✓		✓
39	(Siripipatthanakul S,(2021))	✓	✓	✓			✓	✓	✓	✓
40	(Klaassen H, Dukes K, Marchini L, (2021)) ⁴¹	✓			✓		✓			
41	(Siripipatthanakul S, Vui CN, 2021)) ⁴²		✓					✓		✓
42	(Lin W, Yin W,(2022)) ⁴³	✓	✓					✓		
43	(Tadin A, Dadic M, Gavic L, 2022)) ⁴⁴	✓	✓	✓					✓	✓
44	(Hasibuan RR, (2023)) ⁴⁵	✓								
45	(Pradyachaipimol N, Tangsathian T, Supanimitkul K, et al, (2023)) ⁴⁶							✓		
46	(Karimbux N, T JOHN M, Stern A, et al,(2023)) ⁴⁷	✓					✓			✓
	Total	25	23	12	3	14	22	19	09	29

7. Service Quality Factors

After analysing and clubbing the factors, the researchers have clustered the listed factors, such as waiting time, physical facilities, overall hygiene, and educational or background experience, under the "Service Quality (Observed)" factors. The factors are clustered based on similarity and relatedness to the primary construct, "Service Quality," from **Table 2**. It is observed that waiting time and physical facilities are the most dominant factors, bearing an incidence ratio of (0.54). This implies that it has been quoted as an essential determinant by most researchers, whereas "educational background/experience," bearing the lowest incidence ratio (0.07), was least appealing to most of the researchers in their studies.

Figure 2 provides a visual representation of these findings. The bar chart illustrates the frequency of each factor's mention

across articles (blue bars) and their corresponding incidence ratios (orange bars). It clearly shows the prominence of waiting time and physical facilities, with significantly higher mentions and ratios, while educational background/experience lags in both measures.

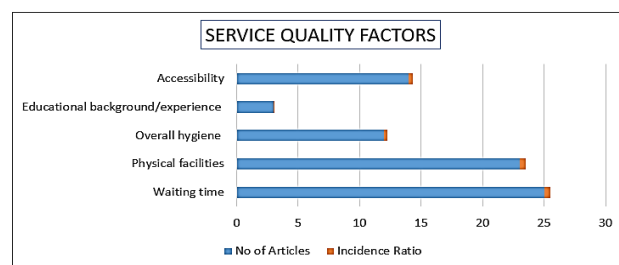


Figure 2: Graphic representation of service quality factors (see online version for colors)

Table 2: Service quality factors

S. No	Factors	No. of Articles	Incidence Ratio
1	Waiting time	25	0.54
2	Physical facilities	23	0.50
3	Overall hygiene	12	0.26
4	Educational background/experience	3	0.07
5	Accessibility	14	0.30

8. Service Experienced Factors

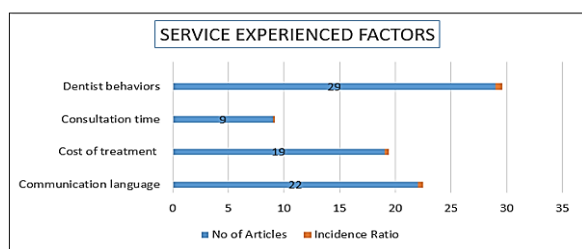
Under this construct, the researchers have grouped listed factors such as communication language, cost of treatment, consultation time, and dentist's behavior under the "Service Experienced" factors heading. The elements are clustered based on similarity and relatedness to the primary construct from.

Figure 3: Graphic representation of service experienced factors (see online version for colors)

Table 3. It is observed that the dentist's behavior is the most dominant Factor, bearing an incidence ratio of (0.63). This implies that the dentist's behavior has been quoted as an essential determinant by most researchers, whereas "consultation time" bears a moderate incidence ratio (0.20) and was somewhat less appealing for most of the researchers in their studies.

Figure 3: Graphic representation of service experienced factors (see online version for colors)

Figure 3 highlights "Dentist Behaviors" and "Communication language" as the leading determinants of service experience, emphasizing the importance of both professional conduct and affordability in shaping user satisfaction.

**Figure 3:** Graphic representation of service experienced factors (see online version for colors)**Table 3:** Service experienced factors

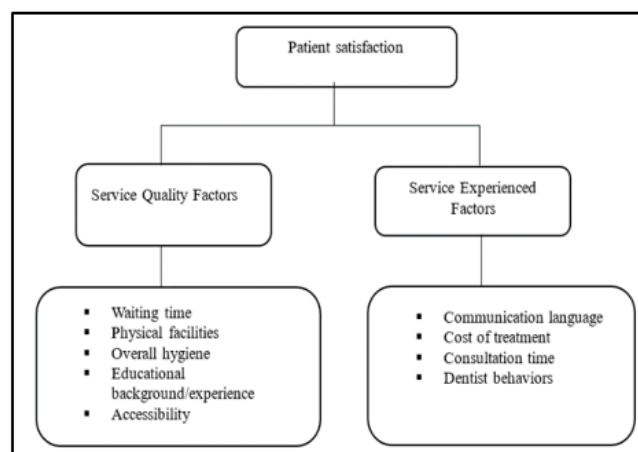
S. No	Factors	No. of Articles	Incidence Ratio
1	Communication language	22	0.48

2	Cost of treatment	19	0.41
3	Consultation time	09	0.20
4	Dentist behaviors	29	0.63

From the analysis and literature review, the author has identified two constructs, namely "Service Quality" and "Service Experienced," and this is the unique contribution of this research to the body of knowledge in the domain of patient satisfaction in dental care services. It is observed from the findings that both constructs are essential in measuring patient satisfaction with dental care services.

8.1 Reviewing of factors affecting the patient's satisfaction in dental care services

The researchers attempt to identify the factors connected with patients' satisfaction. Numerous studies have found that patient satisfaction depends upon various determinants, and to increase patient satisfaction, we need patient-centered healthcare services that stick to standard and efficient guidelines.¹ To address the issue of determining the factors influencing patient satisfaction, the researchers categorized these factors into two clusters through a systematic analysis, grouping them under distinct headings. This method is detailed in the methodology section of this article. **Figure 4** illustrates the categorization process, providing a visual representation of the factors and their grouping, further aiding in understanding the clustering approach.

**Figure 4:** Determinants of patient satisfaction

9. Dentist's Behavior

This is one of the essential elements observed in significant studies and defined as the dentist's response and courtesy to their patients during treatment.^{11,13, 22} Some researchers have quoted these factors as professionalism^{1,2,35}, empathetic assurances^{1,4,7,14}, and trustworthiness^{28, 29} and addressed the fact that welcoming patients positively correlates with patient satisfaction^{2, 8,47}. Other studies examined how patients felt about the technical aspects of dental care^{10,21,23}, such as diagnosis and treatment administration^{33, 36, 41}, and how this was reflected in their perceptions of the dentist's overall

attitude³¹ towards them as a person^{2,19,31,40,48}. Further scholarship has utilized the SERVQUAL model to describe the dentist's attitude as an assurance the dentist must possess the necessary skills and be proficient in their field^{4,7,16,20,22,28,32,40}. At the same time, many scientists specified this Factor as a dentist's attitude^{3,11,12,31}. The competence¹⁸ and kindness of dentists¹⁶, which encompass aspects of professionalism and politeness, were noted in multiple articles^{1,13,29,33,36}. Hence, from the above justification, the researchers proposed a depicts the relationship between patient satisfaction and the dentist's behavior.

Preposition (P1): The dentist's behavior will significantly influence the patient's satisfaction.

10. Communication Language

Medical practitioners who communicate well with their patients correctly identify their patients' issues, and their patients are more satisfied with their treatment.^{13,19,20} Communication is the most crucial aspect of the process by which the dentist and their team attempt to connect professionally with the patients^{11,38,46,47}. The clinic employees' positive communication with the customer^{33,22} is also quoted by many studies. The dentist's explanation of treatment is communication language and affects the patient's satisfaction.^{1,14,41} Communication between dentists and their assistants is essential because dental offices typically provide more in-depth care than other medical facilities.^{17,10} As a result, patient-centered communication by doctors is essential to increase service value and patient satisfaction in dental clinics.^{6,19,38}

The academic literature has investigated the communication aspect of empathy³⁴ within the SERVQUAL model, as evidenced by the studies conducted by.^{4,22,32,40} Care providers can close the empathy gap by recognizing and responding to patient's needs and requests and by fostering better communication with their patients^{1,22,28}. The most often mentioned predictors of satisfaction in the literature on communication in health services are interpersonal care elements, including friendliness, compassion, sympathy,²⁷ and the dentist's language.^{18,34} This has led to the development of the following proposition.

Preposition (P₂): Communication Language will have a significant influence on the patient's satisfaction.

10.1 Physical facilities

Facilities contain structures, tools, and services offered for a particular reason.⁴⁰ The main precondition for an adequate health care facility (HCF) design is understanding the interior environment's physical aspects that influence human health and welfare.^{21,23} Research by³⁹ refers to it as environmental comfort and overall impression regarding the sanitary conditions of the physician's clothing.^{1,17} In contrast, other researchers asserted that infrastructure has a positive impact on dental patient satisfaction,^{28,39,40} while other researchers

discussed physical facilities and tangibles^{4,28,32,40} as part of the clinic's quality management system.^{7,11,13} They quoted dental offices as quite contemporary and modern environments^{8,12,31}. Physical facilities, as mentioned^{4,22,36,40} under the tangibility factor,²⁰ include the clinic's use of cutting-edge technology,^{15,31} staff members' professionalism, and the clinic's cleanliness.^{22,36} In addition, the management of supplies and equipment adheres to satisfactory cleanliness and quality standards and an efficient and user-friendly billing procedure.⁴¹ Consequently, the association leads to the formulation of the following proposition.

Preposition (P₃): Physical Facilities will have a significant influence on the patient's satisfaction

11. Educational Background

Patient-centered care is also influenced by a healthcare provider's educational background.^{36,41} Local dental education programs can help people feel more confident in their abilities. In contrast, professional development opportunities like conferences, training courses, and consultations with industry leaders can help a dentist's reputation, and technical competence and education are vital in measuring dental patient satisfaction.^{6,41} Significantly fewer authors use this Factor in their studies. Still, it is found to be an essential determinant, as patients are always concerned about the education level of their health practitioner. This leads to the deduction of the following proposition.

Preposition (P₄): Educational Background will have a significant influence on the patient's satisfaction

11.1 Overall hygiene

Hygiene encompasses a range of practices and activities to maintain optimal health and cleanliness. Adherence to infection control standards and protocols is crucial in all medical and dental establishments.

Dental clinics are among the places where infectious illnesses are spread.²⁹ According to⁴⁴ dental clinics are recognized as potential sources for transmitting infectious diseases such as AIDS and hepatitis. Hygiene can be discussed within dental establishments due to the thorough sterilization of the entire facility, including chairs, instruments, and equipment, after each patient.^{10,33,44}

Hygiene is a topic that can be broached in dental offices because the entire facility, including the chairs, instruments, and equipment, is meticulously sterilized after each patient.^{11,17} Dental staff perform a detailed examination before procedures.^{16,44} In a study, the researchers divided patient satisfaction into clinical and non-clinical parts and covered the hygiene part under the clinical part:²⁴ they mentioned the availability of required dental materials and instruments and infection-control protocol monitoring. In one paper, it was quoted as the cleanliness of the treatment

procedure.¹¹ When asked to define the "quality" of dental services, the participants cited equipment and facilities, as well as the perceived expertise of the dentists; cleanliness, staffing, good ventilation,² and improvement in oral health following treatment are the most important aspects for them as patients.^{10,31} In Saudi Arabia, research was conducted on patient satisfaction, and hygiene was discussed as part of technical competency; the authors explained that the dental instruments used are sterilized, and respondents rated overall technical competence satisfaction as high.¹⁷ The dental clinic's cleanliness was studied and mentioned in the structure and amenities category. The hospital was kept clean and well-maintained. The waiting area was organized well. The tools used to treat them appeared to be in good working order. The dentists washed their hands before starting the surgery. The dental staff wrapped them in a lead apron to keep them safe when they needed an X-ray.³⁶ Tangibility and assurance are also similar in some studies from the overall hygiene perspective.³⁴ Hence, the following relationship can be proposed.

Preposition (P₅): Overall hygiene will significantly influence the patient's satisfaction.

12. Cost of Treatment

The cost of treatment services is one of the critical factors patients consider when selecting a treatment facility, and it significantly impacts their satisfaction level.^{29,41,46} Most researchers have discussed the cost and its effect on patient satisfaction^{3,21,29,31} and referred to the cost as the price, the fees charged for the services provided, and they expanded on whether or not that price was reasonable or expensive.^{3,25,31,46} Turkey experiences a high prevalence of oral health problems and has a shortage of dentists relative to its population. Additionally, dental services in the country are prohibitively expensive⁸. The cost-effectiveness of therapies provided by certain clinics is a crucial determinant of patients' decision to seek medical care.^{10,12,39} Out-of-pocket costs are the most common funding source, so the satisfaction of the patients covered by state pension funds was much higher.⁸ The primary reason for the high number of patients visiting specific clinics is the affordability of services,^{27,37} resulting in reduced satisfaction levels.^{29,39}

Payment options and payment schedules may have influenced patient satisfaction with health care services, and the availability of coverage for health insurance may have significantly impacted patient satisfaction.^{15,27,43} Other studies have supported the same, and it appears that patients who do not have medical insurance coverage have higher expectations of dental service providers than do patients who do have medical insurance coverage due to the high cost of dental services and the high out-of-pocket costs for receiving such services.³² This led to the development of a proposition between the variables:

Preposition (P₆): Cost of Treatment will have a significant influence on the patient's satisfaction.

13. Waiting Time

Timeliness and a short waiting list are the most critical aspects of patient satisfaction⁴⁵. Many studies have been conducted on the length of time patients wait in dental offices;^{3,20,21} managers use some of these to illustrate how efficient their practice is;^{26,28,44} patients are seen immediately and treated with respect.^{7,43} Ineffective services and unresponsiveness^{4,40,43} might also cause patient frustration^{13,16,22,32}. Dental clinics should offer a comfortable waiting area, clean facilities, and enough parking. Due to the large number of patients and the limited number of dental doctors and personnel in attendance, long waiting times are expected.^{36,10,29} Studies examined how perceived service quality affects patient loyalty due to waiting time.^{41,23} The general image of a hospital and perceived quality in terms of administrative service levels and waiting time impact inpatients' loyalty to doctors.^{11,17,25} Patient satisfaction bridges perceived value and patient loyalty.⁴³

In contrast, some study findings revealed high satisfaction with the clinic's professional competence, administrative efficiency, and convenience.^{9,29} They evaluated it by asking patients if the dental office's working hours were satisfactory if they had to wait a long time to schedule their next visit, and if they had to wait a long time in the office for the planned treatment (the expected treatment time is respected).^{8,46,47} If the waiting room is cosy,⁴⁴ it will positively affect the patient's satisfaction.

One study on patient satisfaction with dental care examined previous experiences, such as the time spent traveling to the dentist and sitting in the practice.²⁵ It can be deduced from the above arguments that there will be a significant relationship.

Preposition (P₇): Waiting Time will have a significant influence on the patient's satisfaction.

14. Consultation Time

Consultation time is the time required for treatments. Many articles have discussed consultation time as a significant factor affecting patient satisfaction.^{12,19} According to research on patient satisfaction with dental health services, patients believed that the dentist spent more time completing the treatment procedure, and nearly (71%) of the patients were satisfied.^{10,19 10,19}. Dental operations are lengthy and meticulously performed, requiring enough time for the procedure to be completed, and the patient's privacy is protected during treatment.⁴⁴ It also supports the study in Thailand,⁴⁰ which discussed the positive impact of consultation time on patient satisfaction.³⁷ The researcher mentioned that there is little time between patients' physical examinations and treatment operations at the dental facility; the therapy is administered efficiently and comfortably,

which is similar to what^{10,22,37} has been mentioned in their papers. Giving the patients adequate time to convey their concerns will also encourage interaction in both directions, which will help the patients feel heard and included in the decision-making process.² According to one study, having enough time and satisfying demands were linked to better satisfaction. Hence, a preposition is drafted between the factors as follows:

Preposition (P₈): Consultation time will have a significant influence on the patient's satisfaction.

14.1 Accessibility

The primary considerations for health authorities in developing nations are ensuring appropriate access to oral health care services and raising the standard of oral health status.¹¹ Dental accessibility concerns how a person gets or utilizes a system or service. One of the parameters of patient satisfaction studied is accessibility to services by checking the appointment method. The study findings indicate that patients scheduled for appointments based on their arrival order exhibit a higher likelihood of satisfaction than those assigned specific appointment times. When patients were asked how simple it was to go to the hospital for their treatment, almost 97% said it was easy and convenient.^{31,34} In comparison, 7% said it was problematic, reflecting that many patients were happy and satisfied with accessing dental services.¹⁹ A study conducted in Iran regarding patient satisfaction showed that access generated the highest satisfaction among adult patients.²⁶ One study mentioned access as accessibility, defined as the simplicity of travel to medical facilities (such as hospitals and clinics)^{9,13,30,35} and distance to the hospital.^{12,23,26} However, recent research has demonstrated that easy access to dental facilities favors satisfaction.³⁹ Another study discussed patient satisfaction with access to care. A summary of the carers' satisfaction survey showed that 78% of the offered appointment hours are realistic, and 8.6% said, "I have to wait a long period in the waiting room." Around 9.3% answered, "It is challenging to schedule a consultation with the dentist".³ Many patients reported challenges reaching the dentist when the clinic or health service was not open and making phone requests.³⁰ When respondents were surveyed about the unfavorable aspects of services, the concept of "convenience" emerged, which included accessibility (e.g., hours of operation, hospital location, scheduled booking, patient admission, emergency service) and the amount of time spent in the hospital solving teeth problems.^{30,31} Other researchers focused on the distance between the patients and the service facilities as a more important point;¹⁵ the author found the need to explore this variable in the research on patient satisfaction.^{9,12,15,23} Therefore, the researchers can propose a relationship as follows:

Preposition (P₉): Accessibility will significantly influence the patient's satisfaction.

15. Conclusion

The study offers valuable insights into patient satisfaction with dental care services, addressing all research objectives. By systematically reviewing the literature, the researchers identified key factors influencing satisfaction. **Table 2** and

Figure 3: Graphic representation of service experienced factors (see online version for colors)

Table 3 highlight the relative importance of these factors. In the "Service Quality" category, five factors were identified: waiting time, physical facilities, hygiene, provider qualifications, and accessibility. Among these, physical facilities and waiting time were most frequently cited. In the "Service Experience" category, four factors were explored: communication language, treatment cost, consultation time, and dentist behaviors, with dentist behavior being the most cited. The findings conclude that waiting time, physical facilities, communication, and dentist behavior are critical in shaping patient satisfaction.

16. Implications for Research and Management Practice

The study highlights the shift towards provider-centered dental care services, emphasizing the need for improved consumer experience. It offers valuable insights for medical practitioners and provides a new pathway for researchers to integrate the study's model for verification and generalization.

16.1 Theoretical contributions and implications

This review confirms the effect of dental practice-related factors on patient satisfaction in the dental healthcare sector. Further research will establish the relationship between the measurements of their efforts to improve the quality of their dental practice in response to patient's needs and expectations.⁴² Furthermore, the study's conclusions have some practical implications. In practice, various parameters connected with perceived service quality and perceived value in private clinics should be enhanced. The perceived value included patient ratings of service prices concerning the quality of services obtained and service quality regarding the service fee.⁴³

16.2 Implications for consumers

This study identified the dimensions used in previous research on patient satisfaction surveys of dental school clinics. While the respondents acknowledged a generally high level of satisfaction, areas were identified for potential development in many elements of dental treatment. These areas encompass patient-staff interactions, technical proficiency, and administrative effectiveness. Furthermore, allocating sufficient time for patients to articulate their concerns fosters a reciprocal exchange of information, enhancing patients' sense of being acknowledged and

involved in decision-making. This will not only result in increased satisfaction levels but also facilitate the dental staff in effectively addressing the requirements and expectations of their patients. The outcomes of this study are expected to potentially result in the implementation of improvements aimed at enhancing the number of patients at the clinic along with the overall quality of care.

16.3 Implications for managers

The findings of our study imply that healthcare professionals should consider their communication skills and attitude toward measurements while assessing patients' oral health. Promoting a respectful attitude by doctors towards patients has the potential to impact patient satisfaction. Adopting a polite and considerate approach while conveying medical treatment information to patients, as opposed to an authoritarian demeanor, could potentially serve as a viable technique for dental clinics to cultivate enduring patient relationships. This has the potential to enhance patient satisfaction with their healthcare practitioner and thus lead to an improved care environment. This assessment may also assist decision-makers in formulating a marketing plan and strategies within the healthcare sector, specifically focusing on the dental healthcare industry. The findings of this study are advantageous for dental practitioners, as they highlight the importance of patient satisfaction in attracting and retaining a more extensive patient base.

16.4 Limitations and future research directions

Based on our review, our evaluation has identified numerous potential options for future research. Firstly, it is essential to explore the interrelationships among various dimensions comprehensively. Specifically, do these factors reflect independence or relate to each other? Research can be undertaken to examine the interacting impacts of several aspects of customer experience variables, such as satisfaction and loyalty. Additionally, future research must validate whether a causal relationship exists between different dimensions, as opposed to all dimensions being precursors to the overall assessment of service quality. The incorporation of constructs such as service value and aspirations (emotions) ought to be encompassed within the conceptualizations of service quality.

Furthermore, future researchers must investigate measurements in hybrid services, such as banking and telecommunications, where human-human and human-technology interactions are prevalent. This is attributed to the escalating utilization of technology in service delivery. More research is also needed on integrating emotion into measurements. We advocate for additional empirical investigation that assesses service quality through individuals' lived experiences. Moreover, we recommend comparative analyses encompassing service quality's cognitive and affective aspects. Finally, regarding measurement, it is crucial to analyze the impact of

service quality on an organization's commercial and financial success.

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18. Conflict of Interest

None.

References

1. Chang W-J, Chang Y-H. Patient satisfaction analysis: Identifying key drivers and enhancing service quality of dental care. *J Dent Sci.* 2013;8(3):239–47.
2. Aldosari MA, Tavares MA, Matta-Machado ATG, Abreu MHNG. Factors associated with patients' satisfaction in Brazilian dental primary health care. *PLoS one.* 2017;12(11):e0187993.
3. Tellez M, Kaur S. Caregivers' satisfaction with pediatric dental care in a university clinical setting in North Philadelphia. *J Dent Educ.* 2013;77(11):1515–20.
4. Akbar FH, Pasinringi S, Awang AH. Factors affecting dental center service quality in Indonesia. *Pesquisa brasileira em odontopediatria e clínica integrada.* 2019;19.
5. Ahmad M, Siraj S. A systematic review and analysis of determinants impacting adoption and assimilation of e-commerce in small and medium enterprises. *Int J Elect Bus.* 2018;14(4):326–51.
6. Hakeberg M, Heidari E, Norinder M, Berggren U. A Swedish version of the dental visit satisfaction scale. *Acta Odontologica Scandinavica.* 2000;58(1):19–24.
7. Baldwin A, Sohal A. Service quality factors and outcomes in dental care. *Managing Service Quality: An Int J.* 2003;13(3):207–16.
8. Sur H, Hayran O, Yildirim C, Mumcu G. Patient satisfaction in dental outpatient clinics in Turkey. *Croatian Med J.* 2004;45(5):651–4.
9. Hashim R. Patient satisfaction with dental services at Ajman University, United Arab Emirates. *EMHJ-Eastern Medit Health J.* 2011;5(6):913–21.
10. Tamaki Y, Nomura Y, Nishikawara F, Motegi M, Teraoka K, Arakawa H. Correlation between patient satisfaction and dental clinic credibility in regular dental check-ups in Japan. *J Oral Sci.* 2005;47(2):97–103.
11. Shrestha A, Doshi D, Rao A, Sequeira P. Patient satisfaction at rural outreach dental camps-a one year report. *Rural Remote Health.* 2008;8(3):1–6.
12. Bamise C, Bada T, Bamise F, Ogunbodede E. Dental care utilization and satisfaction of residential university students. *Lib J Med.* 2008;3(3):1–6.
13. Mazzei A, Russo V, Crescentini A. Patient satisfaction and communication as competitive levers in dentistry. *The TQM J.* 2009;21(4):365–81.
14. Sun N, Burnside G, Harris R. Patient satisfaction with care by dental therapists. *Brit Dent J.* 2010;208(5):E9–E.
15. Al Johara A. Factors affecting utilization of dental health services and satisfaction among adolescent females in Riyadh City. *Saudi Den J.* 2010;22(1):19–25.
16. Li SJ, Huang YY, Yang MM. How satisfaction modifies the strength of the influence of perceived service quality on behavioral intentions. *Leadership Health Serv.* 2011;24(2):91–105.
17. Mahrous MS, Hifnawy T. Patient satisfaction from dental services provided by the College of Dentistry, Taibah University, Saudi Arabia. *J Taibah University Med Sci.* 2012;7(2):104–9.
18. Siqueira GPd, Dos Santos MBF, Santos JFFd, Marchini L. Patients' expectation and satisfaction with removable dental prosthesis therapy and correlation with patients' evaluation of the dentists. *Acta Odontol Scand.* 2013;71(1):210–4.
19. Patel JY. A study on evaluation of patient satisfaction with dental health care services. *J Sci Res Pub.* 2014;4(8):1–4.

20. Adebayo ET, Adesina BA, Ahaji LE, Hussein NA. Patient assessment of the quality of dental care services in a Nigerian hospital. *J Hosp Adminis.* 2014;3(6):20–8.
21. Ahmady AE, Pakkhesal M, Zafarmand AH, Lando HA. Patient satisfaction surveys in dental school clinics: a review and comparison. *Journal of dental education.* 2015;79(4):388–93.
22. Bahadori M, Raadabadi M, Ravangard R, Baldacchino D. Factors affecting dental service quality. *Int J Health Care Qual Assu.* 2015;28(7):678–89.
23. Ungureanu M-I, Mocean F. What do patients take into account when they choose their dentist? Implications for quality improvement. *Patient preference and adherence.* 2015:1715–20.
24. Ali DA. Patient satisfaction in dental healthcare centers. *Eur J Dent.* 2016;10(03):309–14.
25. Ekbäck G, Ordell S, Ståhlhake K. Satisfaction with dental care and life-course predictors: A 20-year prospective study of a Swedish 1942 birth cohort? *Acta Odontologica Scandinavica.* 2016;74(3):194–201.
26. Eslamipour F, Tahani B, Heydari K, Salehi H. Dental care satisfaction among adult population in Isfahan, Iran and its influencing factors. *J Oral Health Oral Epidemiol.* 2017;6(4):218–25.
27. Batbaatar E, Dorjdagva J, Luvsannyam A, Savino MM, Amenta P. Determinants of patient satisfaction: a systematic review. *Perspect Pub health.* 2017;137(2):89–101.
28. Rocha J, Pinto A, Batista M, de Paula JS, Ambrosano G. The importance of the evaluation of expectations and perceptions to improve the dental service quality. *Int J Health Care Qual Assurance.* 2017;30(6):568–76.
29. Tanbakuchi B, Amiri M, Valizadeh S. Level of satisfaction of patients with dental care services provided by dental clinic of Shahrekord University. *Epidemiol Health Syst J.* 2018;5(4):123–7.
30. Manriquez J, Pereira K. Satisfaction with dental care. A review of the literature. *Int J Med Surg Sci.* 2018;5(1):32–7.
31. Luo JYN, Liu PP, Wong MCM. Patients' satisfaction with dental care: a qualitative study to develop a satisfaction instrument. *BMC Oral Health.* 2018;18(1):1–10.
32. Dopeykar N, Bahadori M, Mehdizadeh P, Ravangard R, Salesi M, Hosseini SM. Assessing the quality of dental services using SERVQUAL model. *Dent Res J.* 2018;15(6):430.
33. Skapetis T, Ajwani S, Bhole S. Patient satisfaction and an international dental graduate workforce programme. *Int J Health Gove.* 2018;23(3):243–51.
34. Hashem TN, Ali N. The impact of service quality on customer loyalty: A study of dental clinics in Jordan. *Int J Med Health Res.* 2019;5(1):65–8.
35. Rosing K, Leggett H, Csikar J, Vinall-Collier K, Christensen L, Whelton H, et al. Barriers and facilitators for prevention in Danish dental care. *Acta Odontol Scand.* 2019;77(6):439–51.
36. Obadan-Udoh E, Ramoni R, Der Berg-Cloete V, White G, Kalendarian E. Perceptions of quality and safety among dental patients. *South African Dent J.* 2019;74(7):374–82.
37. Chiou S-J, Lee L-H, Lee P-C, Lin K-C. Better self-report health status and provider–patient communication in dental service can improve the patient experience: A cross-year comparison from the NHI survey. *Health Commun.* 2020;35(13):1569–75.
38. Park S, Kim H-K, Choi M, Lee M. Factors affecting revisit intention for medical services at dental clinics. *PloS one.* 2021;16(5):e0250546.
39. Lwin HNN, Punnakitkashem P, Thananusak T. The level and determinants of international patient satisfaction with dental tourism in Bangkok, Thailand. *Cogent business & management.* 2021;8(1):1898316.
40. Siripipatthanakul S. Service quality, patient satisfaction, word-of-mouth, and revisit intention in a dental clinic, Thailand. *Int Trend Sci Res Develop.* 2021;5(5):832–41.
41. Klaassen H, Dukes K, Marchini L. Patient satisfaction with dental treatment at a university dental clinic: A qualitative analysis. *J Dent Educ.* 2021;85(3):311–21.
42. Siripipatthanakul S, Vui CN. A conceptual review on the mediating effect of patient satisfaction towards patient loyalty in the dental practice in Thailand. *Int J Behav Anal.* 2021;1(2):1–16.
43. Lin W, Yin W. Impacts of service quality, brand image, and perceived value on outpatient's loyalty to China's private dental clinics with service satisfaction as a mediator. *PloS one.* 2022;17(6):e0269233.
44. Tadin A, Dadic M, Gavic L. University Students' Satisfaction with the Quality of Primary Dental Healthcare Services and Dentists in Croatia: A Cross-Sectional Study. *Clin Pract.* 2022;13(1):52–64.
45. Hasibuan RR. The Impact of Dental Satisfaction Questionnaire (DSQ) and Word of Mouth on Patient Satisfaction Educational Dental and Oral Hospital. *Telaah Bisnis.* 2023;23(2):129–43.
46. Pradyachaipimol N, Tangsathian T, Supanimitkul K, Sophon N, Suwanwichit T, Manopattanasoonorn S. Patient satisfaction following dental implant treatment: A survey. *Clin Imp Dent Rel Res.* 2023;25(3):613–23.
47. Karimbux N, T JOHN M, Stern A, T mazanec M, D'Amour A, Courtemanche J. Measuring patient experience of oral health care: A call to action. *J Evid Based Dent Pract.* 2023;23(1):101788.
48. Street J, Richard L. Patients' satisfaction with dentists' communicative style. *Health Commun.* 1989;1(3):137–54.

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