

## Investigating Dental Care Patient Satisfaction in DSC Dental Clinic: A Case Study

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### ABSTRACT

*Dental care plays a vital role in overall health, as poor oral health is linked to systemic diseases such as diabetes, cardiovascular issues, and malnutrition. In Indonesia, around 70% of the population experiences oral diseases, yet only 12% seek professional treatment, a figure significantly lower than the global average. This highlights the urgency of examining patient satisfaction in dental care. This study investigates patient satisfaction at DSC Dental Clinic in Surabaya, Indonesia, using a qualitative case study approach. Nine participants who received various dental treatments were interviewed through semi-structured methods and observed directly. The findings reveal that high clinical skills, clear communication, stringent infection control protocols, and a fair price-to-value perception contribute positively to patient satisfaction. However, inefficient administrative services negatively affect the patient experience. These insights can guide better collaboration between clinical and administrative staff to enhance the quality of dental care services. Furthermore, this research supports clinic management and policymakers in regulating private dental practices by ensuring strict hygiene standards, transparent pricing, and effective administrative procedures.*

**KEYWORDS** *dentistry, dental care service, private dental clinic, patient satisfaction, case study*



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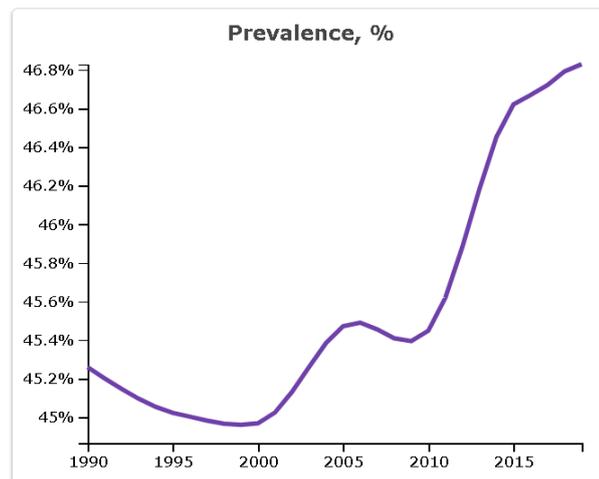
### INTRODUCTION

Dental care is often overlooked as a part of healthcare, but it is an integral component of general health and well-being. The link between general and oral health is apparent. Poor dental health affects the mouth and has comprehensive consequences for general health. Gum disease, for example, has been related to a variety of systemic illnesses such as heart disease, diabetes, respiratory issues, and pregnancy concerns. Furthermore, many drugs and medical conditions might have an impact on dental health. The oral cavity is an important organ used in mastication and eating. Hence, impaired oral health would also lead to general health deterioration as nutritional intake and bodily cell repair and regeneration may be disrupted if the oral cavity is unhealthy and unable to function properly. As a result, it is essential to practice proper oral hygiene and seek regular dental check-ups and treatment to avoid oral health problems and improve body health in general (Barranca-Enríquez & Romo-González, 2022).

Oral disorders can have major consequences for the body by the spread of pathogenic microorganisms in the blood and bones and generating various pro-inflammatory mediators which trigger systemic diseases. Bacteria from the oral cavity enter the body through dental decays into the dental pulp, and from there enter the systemic bloodstream through the small blood capillaries in the dental pulp. Oral pathogenic microorganisms arising from decayed teeth have been related to significant systemic diseases such as heart diseases, brain abscesses, joint and bone infections and septic arthritis. Oral bacteria could also enter the bloodstream through ulcerated gums and directly infect organs or stimulate inflammatory responses, which triggers the progression of a variety of systemic diseases such as atherosclerosis, diabetes mellitus, adverse pregnancy outcomes, and even neurodegenerative disorders such as Alzheimer's disease. Furthermore, since the mouth can be both a window and a gateway to the body,

systemic diseases and negative side effects of medical therapies manifest earlier in the mouth first. This fact is very important to notice as it could provide early diagnosis and treatment, as well as improve the general health and quality of life of a human (Cicciù, 2018).

According to the data by The Institute of Health Metrics and Evaluation (IHME), the Global Burden of Disease study has regularly shown that oral health is still a major unresolved worldwide population health concern (Kassebaum *et al.*, 2017). Oral problems are also placed first and third globally in terms of prevalence (3.48 billion cases [3.20-3.78]) and incidence (4.35 billion [3.89-4.84] cases) in 2019, according to the Global Burden of Diseases. Globally, there were 3.5 billion cases (95% UI, 3.2 to 3.7 billion) of oral diseases in 2017, with 2.3 billion people (95% UI, 2.1 to 2.5 billion) suffering from untreated caries in permanent teeth, 796 million people (95% UI, 671 to 930 million) having severe periodontitis, 532 million people (95% UI, 443 to 622 million) having untreated caries in deciduous teeth, 267 million people (95% UI, 235 to 300 million) were affected by tooth loss, while 139 million people (95% UI, 133 to 146 million) suffering from other oral conditions (Bernabe *et al.*, 2020).



**Fig 1.** Global prevalence percentage of oral disorders

According to the Indonesian Association of Dentists (PDGI), the number of dentists in Indonesia as of 2023 is approximately 46,000, and historical records show that the number has been steadily increasing over the years and will continue to increase exponentially due to the opening of new dental schools in recent years. Given the population of Indonesia, this corresponds to a doctor-to-patient ratio of 1:6000. While this number is still far from World Health Organization's ideal doctor-to-patient ratio of 1:2000, the steady increase in number of dentists doesn't translate to the increase of oral health in the community. According to Indonesian Basic Health Research Report, approximately 70% of the population is suffering from any kind of oral disease at one time (this number is way higher than the average global prevalence) and only 12% receives dental treatment from professionals.

According to Rigo *et al.*'s 2015 study, frequency of dental visits and treatments has an impact on the population's quality of life, as the patient needs to have contact with the professional to maintain a trusting relationship. This implies how dental care is a very crucial and fundamental part of an individual's overall health and quality of life which further emphasizes the importance of investigating the patients' satisfaction of dental care services.

Patient satisfaction is an important statistic for evaluating healthcare quality. It encompasses a variety of characteristics, such as access to care, service quality, and patient-reported results. Oral health, as an integral component of overall health, has a substantial impact on patient happiness. Poor oral health can cause discomfort, difficulties eating, speech problems, and low self-esteem, all of which have a detrimental impact on a person's quality of life and happiness and satisfaction with their healthcare. Thus, communities with superior oral health conditions, as measured by higher Community Oral Health Index (COHI) scores, are more likely to report higher patient satisfaction. Several studies have found that patient satisfaction has a positive effect on treatment prognosis and oral health of patients (Lee *et al.*, 2015; Miyamoto *et al.*, 2010; Oliveira Costa *et al.*, 2011).

Despite a growing amount of research on patient satisfaction in dental care, there are still numerous gaps, notably in terms of qualitative insights into patient experiences in Indonesia. Most studies focus on quantitative indicators like waiting times and service quality while ignoring the emotional and psychological variables that impact patient satisfaction. Additionally, in terms of the number of qualitative studies, there are still significantly fewer articles published in the field of dentistry than in other disciplines of healthcare, such as general medicine or nursing (Akbar, 2018).

Despite the large number of studies on the topic of patient satisfaction, the findings remain equivocal and vary throughout different literatures and various data in dental clinics. Because patient satisfaction is subjective, there is contradictory evidence in most studies. This is especially a contributing aspect because everyone has his/her own perceptions. Satisfaction is nothing more than a relative concept, driven by individual expectations and evaluations of health service features. This variable is enhanced greatly especially in heterogenous communities such as Indonesia, which is home to a variety of ethnicities and races.

DSC Dental clinic was first established in 2018 in Surabaya and has since treated a wide range of dental care patients. The clinic is in a distinguished and prestigious area in Surabaya, operating daily from Monday to Sunday, has three dental units, and comprises of 4 general dentists and 3 specialists. With increased general population awareness of dental care, the number of visiting patients is expected to rise over time, given that dental care is a routine element of healthcare and a dentist visit is suggested every 6-12 months. However, apparently the increase of patient number is not as much as expected and when further investigated using health record data, approximately 50-60% of the patients are non-returning patients, implying that less than half of the patients who have visited the clinic are loyal and goes for dental treatment or check-ups regularly. This could indicate that there is an issue with the patient's perspective and satisfaction with dental care, which could lead to them not returning considering dental care visit is a necessary part of the healthcare routine. Thus, it is essential to do additional investigations on dental care patient satisfaction, especially in Surabaya, Indonesia.

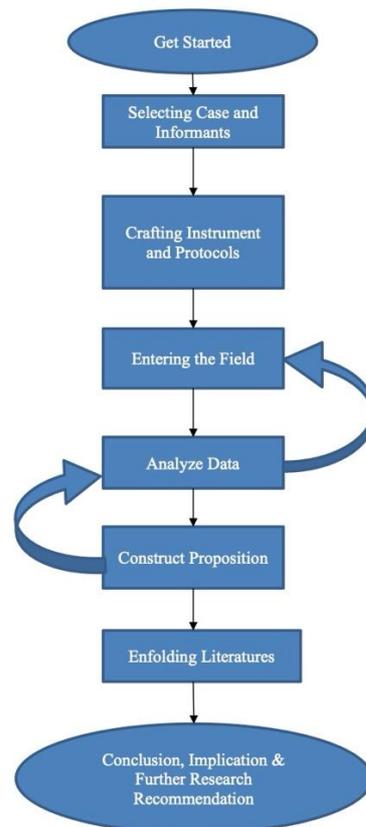
The purpose of this study is to determine patient satisfaction levels with the quality of dental care in Surabaya. On the other hand, what patients expect from the services may differ from what the provider believes is best for them. As a result, their feedback should be considered in order to provide a more holistic understanding of the factors influencing patients' satisfaction with the dental care setting. the author hopes that this study could help to explore

patients' perceptions of the quality of dental care services in Surabaya and identify the key factors that contribute to patient satisfaction with dental care services in Surabaya. This could bridge the gap of oral health status in the community and increase community oral health status through the increase of patient satisfaction in dental care services as the level of satisfaction among patients can be used to assess the success of dental care services.

## RESEARCH METHOD

In this study, the researchers use qualitative research method with an interpretivist paradigm to investigate patient satisfaction at DSC Dental Clinic, a private dental practice in Surabaya, focusing on how individuals construct meaning from their experiences. This approach aligns with the study's qualitative nature and goal of capturing nuanced patient insights. For this study which focuses on one specific dental clinic, the case study approach works best (Creswell & Poth, 2024). Data collection methods include semi-structured interviews, direct and indirect observations, and field notes. Multiple data collection methods promote data triangulation, which contributes to strengthened hypotheses and constructs.

Eisenhardt's (1989) research design for developing theories from case study research is employed for this study. The research design entails eight steps. The process is carried out as follows:



**Fig 2.** Framework for Research Design (Eisenhardt, 1989)

In this study, the researcher took data from several patients who received various types of dental care treatments at DSC Dental Clinic in Surabaya. This study interviewed three patients from each dentistry department (conservative, oral surgery, and orthodontics), which

totals to 9 informants. A qualitative research method was used to get in-depth information from the informants. Below are some examples of the predetermined interview questions that will be asked to the informants:

1. What is the informants' background?
2. How often do you seek dental care treatment or go to the dentist?
3. When was the last time you went to the dentist?
4. How did you know about the clinic and what made you choose the clinic?
5. What type(s) of dental treatments have you received?
6. Are you satisfied with the treatments you received at the clinic?
7. Does the quality of dental care service justify the price you paid?
8. Is there no other dental clinic that offers identical services?
9. What are the advantages of this clinic's services over competitors?
10. Why did you choose this clinic over competitors?

**Table 1. Informant Profiles**

Informant	Type of Treatment	Gender	Age	Profession	Highest Education
Informant 1	Conservative / Restorative	Female	18-29	Self-employed	Bachelor's degree
Informant 2	Conservative / Restorative	Male	30-44	Artist	High School
Informant 3	Conservative / Restorative	Female	45-59	Housewife	High School
Informant 4	Oral Surgery	Male	18-29	Self-employed	Master's Degree or higher
Informant 5	Oral Surgery	Male	18-29	Hospitality & Service	Bachelor's degree
Informant 6	Oral Surgery	Female	18-29	Healthcare	Bachelor's Degree
Informant 7	Orthodontics	Female	18-29	Business & Finance	Master's Degree or higher
Informant 8	Orthodontics	Male	30-44	Healthcare	Diploma
Informant 9	Orthodontics	Female	18-29	Self-employed	Master's Degree or higher

Data were collected through in-depth interviews, recording the interviews, and taking field notes from direct and indirect observations. Interviews were conducted outside of their working hours or treatment schedule, scheduling with each informant and determining the ideal time to minimize interruption. The researcher explained the purpose of the interview and gained the informants' trust by ensuring the data was anonymous and confidential. The interview was conducted in person and lasted approximately 30-40 minutes for each informant.

After the interview session was done, the data is then transcribed into writings before it can be analysed. To discover patterns in the data, combine "within-case" analysis, which describes what happened in a specific case in detail, and "cross-case" analysis, which looks for similarities or differences between cases. The data analysis process will continue until data saturation is reached and new concepts are no longer generated (Eisenhardt, 1989). In the initial phase, data theming was accomplished by paraphrasing the transcribed data. The following phase is thematic analysis, which involves re-analysing and classifying the data into similar categories, which leads to pattern analysis and the production of latent variables as end results.

In constructing the proposition, the researcher utilized the guidance of the data coding analysis table to guarantee that the latent variables were appropriate to answer the factors affecting patient satisfaction with dental care treatments at DSC Dental clinic. To guarantee validity and reliability, several steps will be used in this study on patient satisfaction with dental care treatments at the private dental practice DSC Dental Clinic: (1) Triangulation method will use several data sources, including observational data and patient interviews, to validate conclusions, and (2) Member checking allows participants to review summaries of their responses to make sure interpretations accurately represent their experiences.

## RESULTS AND DISCUSSION

Through qualitative analysis of interviews, observations, and field notes, five latent variables were identified:

**Table 2. Summary of Induced Latent Variables**

Informant	Latent Variables				
	Meticulous Dental Skills	Effective Communication and Transparency	Perceived Balance Between Price and Value	Hygienic Environment and Procedures	Administration Service Efficacy (lack of)
1	v	v	v	v	v
2	v	v	v		v
3	v	v	v	v	
4	v	v	v	v	
5	v	v	v	v	v
6	v	v	v	v	
7	v	v		v	v
8	v	v	v	v	v
9	v	v	v	v	v
<b>(total)</b>	<b>9</b>	<b>9</b>	<b>8</b>	<b>8</b>	<b>6</b>

***Proposition 1 (P1): Meticulous Dental Skills (Variable 1 (V1)) positively contribute to Patient satisfaction (V6)***

Meticulous dental skills refer to the technical expertise and attention to detail demonstrated by the dentist, which directly impacts treatment outcomes and patient satisfaction. Meticulous dental skills encompass precision, thoroughness, and technical competence in performing dental procedures. Participants often associated these skills with successful treatment results and reduced anxiety. Precision in procedures such as wisdom teeth surgery, orthodontics treatment and restorative dentistry directly impacts the success of treatment and patient confidence (Al Khidhr *et al.*, 2022).

All informants that were interviewed in this study praised and mentioned about how the dentist treating them was skilled, attentive and detailed in their work. Patients are more likely to report high satisfaction levels when the dentist demonstrates precision and expertise, resulting in effective treatment outcome. All informants expressed their satisfaction with the outcome of the treatment they received.

*"The dentist was highly skilled, detailed and very careful throughout the whole procedure, which gave me confidence in the results. I really like how the filling results looked and how smooth and comfortable they feel."* – Informant 1, Restorative treatment patient

*“Doctor H treats his patients in a very good and professional manner. ... I also like the treatment outcome and effectiveness.” – Informant 8, Orthodontic patient*

*“The dentist is very skilled, precise, swift and efficient in his work; hence I felt safe and comfortable with my treatment experience.” – Informant 5, Oral Surgery patient*

Majority of the informants even went so far as to compare their experience with different places they have ever received dental care treatment at before and elaborates the reason why they started coming to DSC Dental Clinic was because they were unsatisfied with the treatment result from their previous dental care provider.

*“I once went to another dentist to have my teeth filled and the result was bad. The filling was rough, looked bad and felt uncomfortable. But here, I really like the result. The filling is very good; it feels smooth and comfortable” – Informant 2, Restorative treatment patient*

***Proposition 2 (P2): Effective Communication and Transparency (Variable 2 (V2)) positively contribute to patient satisfaction (V6)***

Effective communication and transparency involve clear explanations on dental conditions, treatment options, procedures, associated costs, post-treatment conditions and expected outcomes. It fosters trust, reduces anxiety, and ensures patients feel informed and respected during their dental care journey. Transparency about possible treatments and pricing also mitigates potential dissatisfaction due to unexpected expenses. A study by Yuan *et al.* in 2020 found that effective communication significantly enhances satisfaction, particularly when addressing treatment plans and costs upfront, ensuring trust in the healthcare provider.

All 9 informants at some point mentioned the importance of communication and transparency during any phase of their treatment. Clear communication and transparency about treatment procedures and pricing foster patient trust and reduce anxiety, which enhances satisfaction (Belasen, *et al.*, 2024). When discussing regarding communication and transparency, they stated:

*“Doctor A is very informative. All her explanations are detailed and crystal clear. She explained everything very thoroughly, from my condition, possible treatments, procedures to aftercare.” – Informant 3, Restorative treatment patient*

*“The doctor did not inform and educate me well enough regarding post-treatment conditions, what is normal and what is not. ... Turns out it was a normal and common occurrence, and I didn't need to be concerned, but I didn't know at that time because he did not inform and educate me regarding that matter.” – Informant 4, Oral Surgery patient*

***Proposition 3 (P3): Perceived Balance between Price and Value (Variable 3 (V3)) positively contribute to patient satisfaction (V6)***

The perceived balance between price and value refers to the patient's assessment of whether the treatment cost justifies the quality of care they received. This variable captures the interplay of financial affordability and the perceived worth of dental care services. Patients associate a higher willingness to pay with outcomes that match and exceed their expectations, highlighting the importance of value perception in determining patient satisfaction (Al Dowis *et al.*, 2023). When patients believe the service, they receive is "worth the price," they are more

likely to report overall satisfaction. This could further emphasize the importance of transparency and effective communication from previous latent variable and its role in shaping and aligning the patient's perception of value.

Patients who perceive a fair balance between treatment quality and its cost are more likely to report satisfaction, even if the cost is high. Patient satisfaction is not solely dependent on affordability but rather on whether the perceived quality justifies the expense. Patients tolerate higher costs when outcomes exceed expectations, emphasizing the importance of cost-benefit alignment. When discussing costs and price, they stated:

*“The price that I paid was well worth the results and service I received. I've tried other cheaper and more costly places, but I believe the treatment here is more worthwhile.” – Informant 1, Restorative treatment patient*

*“Even when there is a discount or special price, all treatments are still performed very professionally, without compromising on any element of the treatment.” – Informant 4, Oral Surgery patient*

*“Even though the pricing is almost the same as the previous dentist I visited, DSC Dental clinic provides better service, treatment and results so it's more worthwhile here.” – Informant 8, Orthodontic patient*

***Proposition 4 (P4): Hygienic Environment and Procedures (Variable 4 (V4)) positively contribute to patient satisfaction (V6)***

Hygiene is very crucial in healthcare, especially in dentistry as it has a direct impact on treatment outcome and success. Poorly executed hygiene protocols may potentially result in complications and infections transmission. A clean and sterilized environment positively influences patients' perceptions of overall care quality and professionalism. Patients view hygiene as a proxy for the quality and safety of care (Belasen, *et al.*, 2024). Clean clinics and adherence to sterilization protocols are essential for ensuring patient trust and satisfaction. When discussing hygienic environment and procedures, they stated:

*“Before entering the clinic, we had to take off our outdoor footwear and replace them with disposable indoor footwear provided by the clinic, so I feel this place is very clean and hygienic, I like it.” – Informant 1, Restorative treatment patient*

*“I like the fact the clinic is very comfortable and clean. All the facilities and tools are sterilized which makes me feel at ease because I feel that a dental care facility must be sanitary.” – Informant 9, Orthodontic patient*

***Proposition 5 (P5): Administration Service Efficacy (lack of) (Variable 5 (V5)) negatively contribute to patient satisfaction (V6)***

Administration service efficacy refers to the accuracy, efficiency and responsiveness of administrative or non-clinical staff in managing patient appointments, medical records, and billing processes. A lack of efficacy in these areas can lead to delays, frustration, and a decline

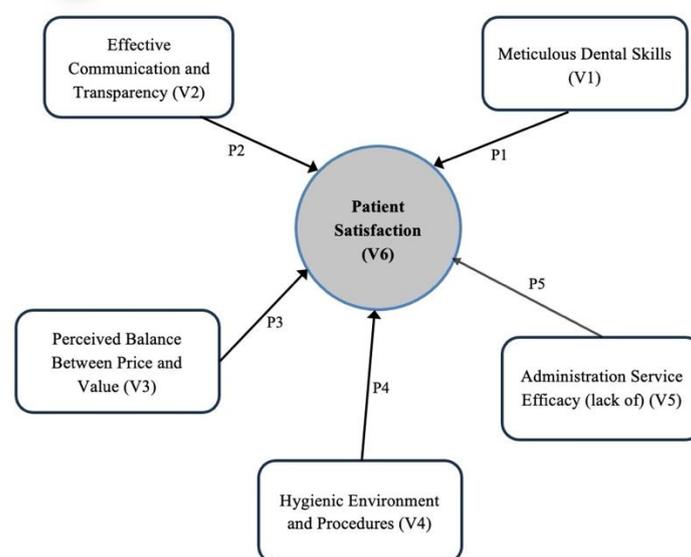
in overall satisfaction, even if clinical care is adequate (Bhati et al., 2023). seamless coordination between administrative and clinical staff prevents patient dissatisfaction caused by scheduling errors or billing discrepancies. This attribute is essential for maintaining patient trust. Inconsistent messaging, such as pricing discrepancies or poor appointment management will leave patients feeling disconnected from their care team.

Administrative inefficiencies, such as scheduling errors or missing records, negatively impact patient satisfaction, even when clinical care is adequate. Efficient administrative systems ensure seamless patient experiences, reducing delays and frustrations (Bhati et al., 2023). Poor coordination between administrative and clinical staff undermines trust and satisfaction. A little over half of the employees reported regarding their experience and concern with administration staff and their work, they stated:

*“The front office / administration staff is not responsive enough and there is lack of coordination and communication between the administration staffs and the doctors or clinical staffs” – Informant 2, Restorative treatment patient*

*“My medical record, which contains treatment history and conditions went missing, which is very crucial because the data contains my allergies and health history, which is absolutely necessary to continue my treatment.” – Informant 1, Restorative treatment patient*

*“Lack of communication and coordination between administration staffs and the clinical staffs, resulting in miscommunication and false suggestions being given to me.” – Informant 9, Orthodontic patient*



**Fig. 3.** Mini Model Theory: Patient Satisfaction at DSC Dental Clinic

## CONCLUSION

Through qualitative analysis of interviews, observations, and field notes, this study identified five key factors influencing patient satisfaction in dental care: meticulous dental

skills, effective communication and transparency, perceived balance between price and value, a hygienic environment and procedures, and the efficacy (or lack thereof) of administrative services. The data highlight how clinical competence, communication, environmental standards, value perception, and administrative processes collectively shape patient experiences. These insights can help private dental clinics enhance operational and clinical practices, particularly by improving communication, administrative efficiency, and hygiene standards, which in turn can boost patient retention and satisfaction. The findings also have policy implications, suggesting the need for standardized hygiene protocols, transparent treatment planning and pricing, and streamlined administrative procedures in private dental care. However, the study's limitations include its focus on a single private clinic in Surabaya and a participant pool primarily receiving conservative/restorative, oral surgery, and orthodontic treatments, with limited representation from other dental specialties. Future research should include a broader range of patients and treatment types to capture satisfaction drivers across all dental fields, and longitudinal studies are recommended to observe these phenomena over time.

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