

# The Impact of Dental Health Services Quality Based on the Dimensions of Responsiveness, Empathy and Assurance on Dental Services Patient Satisfaction at National Guard Specialized Polyclinics, Jeddah: A Cross-Sectional Study

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## ABSTRACT

**Objectives:** The objective of this research is to analyze the effects of responsiveness, empathy and assurance on patient satisfaction with dental services at the National Guard Specialized Polyclinics in Jeddah. This study seeks to determine the degree to which service quality dimensions affect patient satisfaction and to offer practical recommendations for enhancing dental healthcare services.

**Methods:** A quantitative cross-sectional design was utilized, employing a structured questionnaire to gather data from 303 patients. Statistical analyses, both descriptive and inferential, were performed, including multiple linear regression, to evaluate the relationships among responsiveness, empathy, assurance and patient satisfaction.

**Results:** The findings demonstrate that all three dimensions of service quality have a significant effect on patient satisfaction ( $p < 0.001$ ). Assurance demonstrated the greatest impact ( $\beta = 0.895$ ,  $p < 0.001$ ,  $R^2 = 0.802$ ), succeeded by empathy ( $\beta = 0.862$ ,  $p < 0.001$ ,  $R^2 = 0.743$ ) and responsiveness ( $\beta = 0.839$ ,  $p < 0.001$ ,  $R^2 = 0.704$ ). The findings corroborate existing literature, highlighting the essential role of professional competence, compassionate care and effective service delivery in enhancing patient experiences. Patient satisfaction levels were generally high; however, specific areas for improvement were noted, particularly in communication clarity, reduction of waiting times and ongoing professional development.

**Conclusion:** This study empirically validates the SERVQUAL model in the context of dental healthcare and offers practical recommendations for improving service quality. The findings underscore the significance of patient-centered care in enhancing trust and satisfaction. The findings present a systematic framework for healthcare providers to enhance service delivery and elevate the overall quality of dental services in Saudi Arabia.

**Key words:** Dental health services quality, Responsiveness, Empathy, Assurance, Patient satisfaction, National guard specialized polyclinics

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## INTRODUCTION

The quality of dental care is crucial not only for maintaining oral health but also for overall patient satisfaction and the efficacy of healthcare systems. According to Luo et al., patient satisfaction is a key metric that reflects the quality of healthcare services and has

significant implications for patient outcomes. High levels of satisfaction are linked to better adherence to medical advice, increased patient motivation, and enhanced overall healthcare delivery. Asamrew et al. further emphasize that high patient satisfaction correlates with successful healthcare outcomes, reduced healthcare costs due to fewer readmissions and improved patient compliance with treatment plans.

Conversely, dissatisfaction with healthcare services can lead to diminished trust in healthcare providers, negative patient experiences, and lower adherence to medical recommendations, which can ultimately affect health outcomes. This underscores the importance of ensuring

that healthcare services, including dental care, meet high-quality standards to foster positive patient experiences and improve health outcomes. Dental care, in particular, is a critical component of overall health, as oral health significantly impacts general well-being and quality of life. High-quality dental care encompasses several dimensions that contribute to patient satisfaction. These dimensions include assurance, empathy, responsiveness, outward appearance and medical care [1].

### Statement of the problem

Patient satisfaction is crucial in evaluating dental care quality. Alghanem et al. found that over 50% of patients in rural and remote areas of Saudi Arabia were satisfied with dental services, though accessibility issues caused significant dissatisfaction. Education and age were key factors affecting satisfaction, with more educated patients often less satisfied. Meanwhile, Mahrous and Hifnawy reported a high satisfaction rate of 79.5% at the College of Dentistry at Taibah University, noting positive views on patient-dentist interactions and clinic environment but highlighting significant satisfaction differences between Saudi and non-Saudi patients [2].

Despite these insights, research specific to Jeddah's National Guard Specialized Polyclinics remains sparse. Existing studies, such as those by Yong et al. and Klaassen et al., underscore the importance of responsiveness, empathy and assurance as crucial dimensions influencing patient satisfaction. However, these studies often explore broader contexts and may not fully capture the unique dynamics of dental care at the National Guard Specialized Polyclinics. This lack of targeted research means there is a significant gap in understanding how these dimensions responsiveness, empathy and assurance affect patient satisfaction in this specific setting [3].

### Research aim and objectives

This study aims to assess the influence of critical dimensions of dental care quality (responsiveness, empathy and assurance) on patient satisfaction at the National Guard Specialized Polyclinics in Jeddah. This research aims to analyze the impact of these dimensions on patient experiences and to pinpoint areas for improvement that could elevate overall patient satisfaction.

This research utilizes the Siripipatthanakul model, a recognized theoretical framework for assessing service quality in multiple sectors, including healthcare. The model examines the disparity between patient expectations and their perceptions of services received, offering a systematic framework to evaluate the roles of responsiveness, empathy and assurance in influencing patient satisfaction within dental care environments [4].

### Research objectives

- To assess the impact of responsiveness on patient satisfaction.
- To evaluate the role of empathy in patient satisfaction.

- To investigate the influence of assurance on patient satisfaction.
- To identify areas for improvement in quality of dental service.

### Significance of the study

Understanding the impact of dental service quality on patient satisfaction at the National Guard Specialized Polyclinics in Jeddah is crucial for several reasons. A cross-sectional study focused on this topic will offer a detailed examination of how various aspects of dental care such as responsiveness, empathy and assurance affect patient satisfaction within this specific healthcare setting.

The significance of this research lies in its ability to provide comprehensive insights into the quality of dental care delivered at the National Guard-affiliated clinics. By evaluating patient satisfaction in this context, the study aims to identify key areas where the quality of care meets or falls short of patient expectations. This will help in understanding the extent of patient satisfaction with the services provided.

### Methodology and data collection

This study employs a cross-sectional research design to evaluate the impact of responsiveness, empathy and assurance on patient satisfaction with dental services at the National Guard Specialized Polyclinics in Jeddah. Utilizing a quantitative approach, the study will gather primary data through a structured questionnaire adapted from Siripipatthanakul. The target population includes adult patients who have received dental care at these polyclinics within the past three months. Data analysis will involve descriptive statistics to summarize demographic details and inferential statistics such as mean ratings, standard deviations, correlation analysis, regression analysis and *chi-square* tests to examine the relationships between responsiveness, empathy, assurance and patient satisfaction to examine the association between variables [5].

## MATERIALS AND METHODS

Research methodology typically serves as a detailed blueprint outlining the methods, procedures and techniques employed in conducting a research study. This pivotal chapter lays the groundwork for the entire research endeavour, providing a systematic approach to gathering, analysing and interpreting data. In essence, it elucidates the path taken by researchers to address the research questions or objectives set forth in the study [6,7].

### Research approach

A quantitative approach was employed in this research to collect numeric data on the quality of dental services and levels of patient satisfaction. Specifically, the study utilized a well-organized questionnaire to gather data from the specific group of people being studied, with a

particular emphasis on different factors associated with excellent dental care and the satisfaction of patients.

### Study design and sample

To investigate the impact of responsiveness, empathy and assurance on patient satisfaction with dental services at the National Guard Specialized Polyclinics in Jeddah, this study used a cross-sectional research design. This design allows for capturing a snapshot of the relationship between these service quality dimensions and patient satisfaction at a single point in time.

Convenience sampling has been employed to select participants from the target group. This sampling method was chosen due to its practicality and efficiency in accessing a readily available population within the constraints of time and resources [8-10].

### Study instrument

For this study, primary data has been collected to assess patient satisfaction with dental services at the National Guard Specialized Polyclinics in Jeddah. Primary data collection is appropriate as it allows for a direct understanding of patient experiences.

The study used a questionnaire developed by Siripipathanakul, which includes items categorized into three main dimensions: Responsiveness, assurance and empathy, along with a measure of patient satisfaction. To ensure the tool's appropriateness for the target population, the questionnaire was pre-tested with a small sample of participants from the National Guard

Specialized Polyclinics in Jeddah. This pre-testing phase helped identify any ambiguities or cultural mismatches in the wording and content [11].

Based on the feedback from the pre-test, minor adjustments were made to adapt the questionnaire for cultural relevance, ensuring clarity and comprehension for the participants. These adaptations included modifying certain phrases and examples to align with the local healthcare context and patient expectations in Saudi Arabia. This process helped enhance the validity and reliability of the instrument in capturing accurate data reflective of patient experiences in the study setting.

### Data collection methods

The questionnaire was distributed to patients in the reception area of the dental clinics at the National Guard Specialized Polyclinics in Jeddah using the QR code and WhatsApp contacts obtained from the admission department from 20 September 2024 to 21 November 2024, ensuring high accessibility and promoting participation among patients [12].

### Reliability

Table 1 presents the case processing summaries and reliability statistics for both the study variables included 303 valid cases with no exclusions. The high Cronbach's Alpha values of for the variable's indicate excellent internal consistency, suggesting that the items effectively measure their respective constructs.

**Table 1: Case processing and reliability statistics.**

Variables	Valid cases	Cronbach's alpha	No. of items
Responsiveness	303	0.91	6
Assurance	303	0.919	4
Empathy	303	0.901	4
Patient satisfaction	303	0.905	3

### Analysis methods

The collected data has been analyzed using SPSS 22 to address the study's objectives and to gain a comprehensive understanding of how responsiveness, empathy and assurance affect patient satisfaction with dental services.

The study employed both descriptive and inferential statistical methods to analyze the collected data. Descriptive statistics, including means, standard deviations, frequencies and percentages, were used to summarize demographic information and general trends in patient satisfaction and service quality perceptions [13].

For inferential statistics, several models and tests were applied. Pearson correlation coefficients were used to assess the strength and direction of relationships between the dimensions of service quality (responsiveness, empathy, and assurance) and patient satisfaction. This method was chosen to determine

whether higher levels of service quality are associated with increased patient satisfaction. Additionally, multiple linear regression models were employed to evaluate the extent to which responsiveness, empathy and assurance predict patient satisfaction. This method provides insights into the relative contribution of each dimension to overall patient satisfaction, helping to identify key areas for service improvement.

### Ethical considerations

The study abides by ethical standards, guaranteeing voluntary participation, informed consent and confidentiality. Before commencing the study, the researcher obtained authorization from the National Guard Specialized Polyclinics in Jeddah. Participants will also learn about the study's goals, rights and data privacy. The Institutional Review Board (IRB) approved the study to ensure ethical conduct in approval No (0000058324).

## RESULTS

This chapter presents the results obtained from the data analysis conducted in this study, which explores the impact of dental health services quality based on the dimensions of responsiveness, empathy and assurance

on dental services patient satisfaction at national guard specialized polyclinics, Jeddah (Table 2) [14].

**Table 2: Distribution of sample by demographic variables.**

Demographic variables	Frequency	Percentage
<b>Gender</b>		
Male	160	52.8
Female	143	47.2
<b>Age</b>		
18 to 25	59	19.5
26 to 35	110	36.3
36 to 40	53	17.5
More than 40	81	26.7
<b>Frequency of visit</b>		
First time	67	22.1
Twice	49	16.2
More than twice	187	61.7
<b>Educational status</b>		
No formal education	22	7.3
High school graduate	96	31.7
Undergraduate degree	31	10.2
Postgraduate degree	144	47.5
Other	10	3.3
<b>Occupation</b>		
Student	47	15.5
Employed	140	46.2
Self-employed	15	5
Unemployed	73	24.1
Retired	28	9.2

Table 2 presents illustrating the frequency and percentage distribution across a number of different factors, including gender, age, frequency of visits, educational status, occupation and distance to the service center for health care. The proportion of male participants (52.8% of the total) and female participants (47.2% of the total) is relatively equal. The age group that is the greatest is those who are between the ages of 26 and 35 (36.3%), followed by those who are older than 40 (26.7%). The combined percentage of people in these two age groups is a sizeable chunk of the sample, which

is 63%. Those between the ages of 18 and 25 make up the smallest group (19.5%). The fact that 61.7% of respondents have been to the clinic more than twice indicates that the clinic has a patient base that is relatively satisfied with its services. There are only 22.1% of participants who are doing it for the very first time (Table 3) [15].

**Table 3: The impact of responsiveness on patient satisfaction.**

Component	Result
R (Correlation coefficient)	0.839
R <sup>2</sup> (Coefficient of determination)	0.704
Adjusted R <sup>2</sup>	0.703

Std. error of the estimate	0.4104
F-statistic	714.431
Significance (p-value)	0
Unstandardized coefficient (constant)	0.524
Unstandardized coefficient (responsiveness)	0.898
Standardized coefficient (beta)	0.839
t-Statistic (responsiveness)	26.729
Significance (p-value) (responsiveness)	0

### The impact of empathy on patient satisfaction

To assess the impact of impact of empathy on patient satisfaction at National Guard Specialized Polyclinics, Jeddah, regression analysis was used to explore the degree to which changes in empathy are associated with changes in patient satisfaction. Table 4 displays the regression analysis results, as a result of the findings, it has been established that an increase of one unit in empathy is associated with an increase of 0.841 units in patient satisfaction. This suggests that a correlation exists between empathy to the requirements of patients and greater levels of patient satisfaction on the part of patients. According to the  $R^2$  value of the model, which is 0.743, approximately 74.3% of the variability in patient satisfaction can be attributed to empathy. The fact that this proportion is so high suggests that empathy is an essential component in determining the level of patient satisfaction they experience at these healthcare

institutions. The model has an adjusted  $R^2$  value of 0.743 demonstrates that it is robust. It is able to successfully account for the number of predictors that are included and explain the variation in patient satisfaction. There is a substantial positive relationship between empathy and patient satisfaction, as indicated by the beta coefficient, which is 0.862. As a result of the statistical significance of the model ( $F=871$ ,  $p<0.000$ ), the validity of the findings is emphasized, showing that it is highly improbable that the results may be attributed to random chance. According to the t-statistic for empathy, which showed a value of 29.513 and the p-value that was linked with it, which was 0.000, empathy was shown to be a significant predictor of patient satisfaction in this study (Tables 4 and 5) [16,17].

**Table 4: The impact of empathy on patient satisfaction.**

Component	Result
R (Correlation coefficient)	0.862
$R^2$ (Coefficient of determination)	0.743
Adjusted $R^2$	0.742
Std. error of the estimate	0.382
F-statistic	871
Significance (p-value)	0
Unstandardized coefficient (constant)	0.8
Unstandardized coefficient (empathy)	0.841
Standardized coefficient (beta)	0.862
t-Statistic (empathy)	29.513
Significance (p-value) (empathy)	0

**Table 5: The impact of assurance on patient satisfaction.**

Component	Result
R (Correlation coefficient)	0.895
$R^2$ (Coefficient of determination)	0.802
Adjusted $R^2$	0.801



Std. error of the estimate	0.33561
F-statistic	1217.382
Significance (p-value)	0
Unstandardized coefficient (constant)	0.15
Unstandardized coefficient (assurance)	0.967
Standardized coefficient (beta)	0.895
t-Statistic (assurance)	34.891
Significance (p-value) (assurance)	0

## DISCUSSION

This chapter presents a detailed analysis of the study's findings concerning the effects of responsiveness, empathy and assurance on patient satisfaction with dental services at the National Guard Specialized Polyclinics in Jeddah. This chapter analyzes the results in relation to current literature [18].

### The impact of responsiveness on patient satisfaction

The robust correlation between responsiveness and patient satisfaction is consistent with previous studies highlighting the significance of prompt and effective healthcare services. Siripipatthanakul observed that timely attention to patient concerns and rapid provision of care markedly improve patient experiences in dental environments. Parasuraman et al. identified responsiveness as a critical determinant of service quality in their SERVQUAL model, emphasizing its importance in fulfilling patient expectations. Research conducted by Alrubaiee and Alkaa'ida demonstrated that prompt responses and efficient service delivery enhance patient satisfaction in healthcare settings [19-21].

Research by Brahmabhatt et al. indicated that responsiveness encompasses not only the speed of service but also the capacity of healthcare providers to effectively address patient concerns and deliver clear, comprehensible information. This finding is supported by Andaleeb, who highlighted that patient satisfaction is significantly affected by the healthcare provider's readiness to address questions and engage with patient concerns.

## CONCLUSION

This chapter summarizes the key findings from the study regarding the effects of responsiveness, empathy and assurance on patient satisfaction with dental services at the National Guard Specialized Polyclinics in Jeddah. This chapter outlines conclusions derived from the research, emphasizing the practical implications for dental healthcare providers and policymakers. Additionally, targeted recommendations are presented to improve the quality of dental services, accompanied by proposals for future research to fill the gaps identified in the study.

## STRENGTHS AND LIMITATIONS OF THE STUDY

The research employed a meticulously designed questionnaire demonstrating high reliability (Cronbach's  $\alpha > 0.9$ ), thereby facilitating effective data collection. The emphasis on responsiveness, empathy and assurance provides a thorough assessment of essential service quality dimensions in dental care. A cross-sectional design facilitated data collection from a diverse patient population, yielding a snapshot of patient satisfaction. This study contributes to the sparse literature on dental healthcare service quality in Saudi Arabia, providing important localized insights.

The study's limitations include convenience sampling can lead to selection bias, thereby restricting the generalizability of the results to the wider patient population. The research was performed at a single institution in Jeddah, potentially limiting the generalizability of patient experiences to other regions or healthcare environments. The cross-sectional design captures patient experiences at a specific moment, which restricts the assessment of temporal changes or the establishment of causal relationships. Self-reporting bias may compromise response accuracy, as participants might offer socially desirable answers.

## IMPLICATIONS AND RECOMMENDATIONS

Dental clinics must focus on improving responsiveness through the reduction of waiting times and the enhancement of communication clarity. Implementation of training programs that emphasize empathy and emotional intelligence is essential for enhancing patient-provider relationships. Ongoing professional development and commitment to evidence-based practices are essential for sustaining high levels of assurance and trust. Investment in contemporary dental technologies and enhancement of the physical environment can significantly improve patient satisfaction.

Implement advanced appointment management systems to optimize patient flow and minimize wait times. Create individualized care plans and establish follow-up protocols specific to each patient's requirements. Systematically gather and evaluate patient feedback to pinpoint opportunities for ongoing enhancement. Broaden the research to encompass various dental clinics

across diverse regions to enhance the generalizability of the findings.

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