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# The Impact of the Pandemic on Service Quality and Dental Patient Satisfaction

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#### ARTICLE INFO

#### **ABSTRACT**

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## Keywords:

Coronavirus pandemic; Dental care; Service performance; Patient experience; Public health service. The quality of health services plays a crucial role in determining patient satisfaction. During the Covid-19 pandemic, dental services faced additional challenges due to limited access and the risk of infection, which could affect patient satisfaction. This study aims to analyze the relationship between dental service quality and patient satisfaction during the Covid-19 pandemic. A correlational analytic design was applied with a purposive sample of 40 patients who visited the dental polyclinic. Data were collected using a service quality questionnaire that covered five dimensions (tangibles, reliability, responsiveness, assurance, and empathy) and the Patient Satisfaction Questionnaire (PSQ-18), which assessed seven aspects of satisfaction. Data analysis used the Pearson correlation test. Results showed that service quality was perceived as low in the tangible dimension (27%), but high in responsiveness (47.5%), assurance (49%), and empathy (48%). Patient satisfaction was mostly reported as being generally satisfied in terms of technical quality (47.5%), interpersonal manner (47.5%), financial aspects (46.2%), communication (40%), and time with the doctor (52.5%), while accessibility was rated as neutral (38.75%). Statistical analysis revealed a strong positive relationship between service quality and patient satisfaction (r=0.772; p<0.05). Dental service quality has a significant impact on patient satisfaction, with the tangible dimension requiring further improvement. It is recommended that healthcare providers enhance facility cleanliness, equipment maintenance, and overall comfort to better meet patient expectations. Future research should include larger samples and different settings to allow broader generalization.



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## INTRODUCTION

A community health center (Puskesmas) is a primary healthcare facility that provides promotive, preventive, curative, and rehabilitative services to improve the community's health status. All healthcare efforts at the Puskesmas are closely related to the role of healthcare workers (Kementerian Kesehatan Republik Indonesia, 2019). Patients and doctors have a relationship that can influence patients' satisfaction and loyalty in receiving services to address and manage health problems (Szabó et al., 2023). Satisfaction is measured using the Patient Satisfaction Questionnaire (PSQ-18), which consists of seven aspects: general satisfaction, technical quality, interpersonal manner, communication, financial aspects, time spent with the doctor, and accessibility and convenience (Sakti et al., 2022).

The quality of healthcare services refers to the level of excellence in providing healthcare services with the expectation of patient satisfaction. The better the healthcare service provided, the higher the patient satisfaction (Misngadi et al., 2020). To assess service quality, it is differentiated into five dimensions: tangible, assurance, reliability, responsiveness, and empathy (Chandra & Tjiptono, 2016). The COVID-19 pandemic has had a significant impact on various healthcare professions, including those working in dental health, such as dentists and dental nurses. These two professions are highly vulnerable to cross-infection of various contagious diseases due to frequent exposure to blood and saliva (Laheij et al., 2012).

SARS-CoV-2 is the virus that causes COVID-19 and can be transmitted during procedures performed by dentists, due to the possibility of inhaling droplets or aerosols, as well as the use of contaminated instruments (Asriawal et al., 2021). This has led to a continuous decline in the number of patient visits to healthcare facilities. The 2018 Basic Health Research (Riskesdas) reported that the incidence of dental and oral problems in Indonesia was 57.6%, and the Ministry of Health of the Republic of Indonesia (2018) noted that only 10.2% of individuals had received dental care from healthcare professionals (Kementerian Kesehatan Republik Indonesia, 2018). As a result, the prevalence of dental and oral problems recorded in Indonesia remains very high. An unpublished preliminary observation on 3 November 2022 revealed that the most frequently treated cases in dental services were dental abscesses due to infection and tooth extractions, affecting both children and adults.

Ideally, such treatments require at least two patient visits for optimal outcomes; however, some patients did not attend the second or follow-up visit. This suggests issues with either the quality of services provided or patient adherence, which may reflect patients' perceptions of service quality and satisfaction levels. Therefore, this study is important as it provides new insights into how dental service quality affects patient satisfaction during the Covid-19 pandemic, a period when all healthcare services underwent changes based on pandemic-related regulations. The objective of this study is to determine the relationship between service quality and patient satisfaction in dental health services during the Covid-19 pandemic.

## **METHOD**

The study was conducted from 24 April to 24 May 2023 at the Dental and Oral Polyclinic of Puskesmas Sanden, Bantul, Yogyakarta. Using a purposive sampling technique, we selected a total of 40 respondents who met the inclusion criteria, which included patients at the Dental and Oral Clinic of Puskesmas Sanden, patients willing to complete the questionnaire, those aged 20 years or older, and individuals who fully completed the questionnaire. To understand the characteristics of the respondents, we included questions in the questionnaire covering age, gender, education level, occupation, and frequency of visits to the Dental and Oral Clinic of Puskesmas Sanden. Data collection was conducted using a service quality questionnaire, which consisted of five indicators: tangibles, reliability, responsiveness, assurance, and empathy. Additionally, patient satisfaction was measured using the Patient Satisfaction Questionnaire (PSQ-18), which includes seven indicators: general satisfaction, technical quality, interpersonal manner, communication, financial aspects, time spent with doctor, and accessibility–convenience. After data collection, statistical analysis was performed to determine the relationship between the dependent variable (patient satisfaction level) and the independent variable (service quality).

The research findings will be analyzed using univariate analysis to determine the frequency distribution of each research variable or to assess the socio-demographic distribution, including gender, age, education, occupation, service quality, and patient satisfaction levels. The results of the analysis will be presented as percentages for each categorical variable. In addition to describing the characteristics of respondent data, univariate analysis will also be used to determine the percentage of each aspect of the two studied variables based on the Service Quality Questionnaire and the Patient Satisfaction Questionnaire (PSQ-18). Both questionnaires use a Likert scale (1-5) and contain only positive questions, ensuring consistency in scoring. The response categories are divided as follows: strongly agree (SA), agree (A), neutral or uncertain (N), disagree (D), strongly disagree (SD) (Krishnan & Dharmadi, 2017). Meanwhile, for the patient satisfaction variable, following Nurjanah's (2017) study, the response categories were modified as follows: very satisfied (VS), satisfied (S), uncertain or neutral (N), less satisfied (LS), and dissatisfied (D).

Bivariate analysis is conducted to determine whether a correlation or relationship exists between the two variables being studied. The collected data will undergo a normality test using the Kolmogorov-Smirnov or Shapiro-Wilk test to assess the distribution of the data (Hanusz & Tarasińska, 2015). In this study, the Shapiro-Wilk test is more appropriate since the sample size is less than 50 (Mishra et al., 2019). If the test result shows P > 0.05, the null hypothesis is accepted, indicating that the data follow a normal distribution. If both the dependent and independent variables are normally distributed, the data will be analyzed using the Pearson correlation test.

This correlation test is conducted to determine the relationship between the two variables being studied. In this study, bivariate analysis is performed to assess the relationship between service quality and patient satisfaction levels.

## **RESULTS**

**Table 1. Characteristics of respondents** 

	Category	n	%
	21-30 years	6	15
Λαο	31-40 years	12	30
Age	41-50 years	20	50
	51-60 years	2	5
Gender	Male	19	47,5
	Female	21	52,5
	Elementary School	7	17,5
Education	Junior High School	8	20
Education	Senior High School	16	40
	Academy/Bachelor's/Master's	9	22,5
Employment status	Employed	22	55
Employment status	Unemployed	18	45
Visit frequency	<2 times	11	27,5
	2 times	16	40
	3 times	10	25
	More than 3 times	3	7,5

The analysis results show that the majority of respondents were aged 41-50 years (20 people), with 21 respondents being female. The most common educational background was high school (SMA), with 16 respondents. Additionally, 22 respondents were employed, and the most frequent number of visits to the Dental and Oral Clinic of Puskesmas Sanden was twice.

Table 2. Description of respondents' answers on service quality

Aspects	Question	SA (%)	A (%)	N (%)	D (%)	SD (%)
Tangibles	1	15	12,5	20	47,5	5
	2	15	17,5	15	20	32,5
	3	10	20	32,5	10	27,5
	4	5	30	15	17,5	32,5
	5	0	25	15	22,5	37,5
	1	37,5	55	2,5	5	0
	2	45	50	5	0	0
Reliability	3	37,5	45	17,5	0	0
	4	50	42,5	7,5	0	0
	5	37,5	42,5	20	0	0
Responsiveness	1	37,5	60	2,5	0	0
	2	52,5	40	7,5	0	0
	3	52,5	37,5	10	0	0
	4	52,5	32,5	15	0	0
	5	42,5	45	7,5	5	0
Assurance	1	42,5	52,5	5	0	0
	2	57,5	42,5	0	0	0
	3	55	37,5	7,5	0	0
	4	40	30	25	5	0
	5	50	47,5	0	2,5	0
Emphaty	1	37,5	57,5	2,5	2,5	0
	2	47,5	47,5	5	0	0
	3	40	45	15	0	0
	4	50	45	5	0	0
	5	37,5	45	17,5	0	0

Table 2 shows that the majority of respondents' answers regarding the service quality of dentists at Puskesmas Sanden are as follows: for the tangibles aspect, most respondents answered 'strongly disagree'; for the reliability and empathy aspects, the majority answered 'agree'; for the responsiveness and assurance aspects, most respondents answered 'strongly agree'.

Table 3. Description of respondents' answers on patient satisfaction

Aspects	Question	SA (%)	A (%)	N (%)	D (%)	SD (%)
General satisfaction	1	50	40	7,5	2,5	0
	2	37,5	55	7,5	0	0
	3	42,5	30	25	2,5	0
The above and any olders	4	37,5	40	17,5	5	0
Technical quality	5	27,5	57,5	10	5	0
	6	27,5	62,5	10	0	0
Interpersonal manner	7	35	55	10	0	0
	8	42,5	40	17,5	0	0
Communication	9	47,5	32,5	20	0	0
Communication	10	25	47,5	25	2,5	0
Financial aspects	11	32,5	50	17,5	0	0
	12	25	42,5	30	2,5	0
Time spent with the	13	10	62,5	20	5	2,5
doctor	14	45	42,5	7,5	2,5	2,5
	15	22,5	37,5	32,5	7,5	0
Accessibility -	16	10	32,5	40	17,5	0
convenience	17	5	40	40	12,5	2,5
	18	7,5	15	42,5	32,5	2,5

Table 3 shows that the majority of respondents' answers regarding the patient satisfaction variable are as follows: for the aspects of general satisfaction, technical quality, interpersonal manner, communication, financial aspects, and time spent with doctor, most respondents answered agree, and for the accessibility indicator, the majority of respondents answered neutral.

Table 4. Normality test results

Variable	Sig.
Service Quality	0,433
Patient Satisfaction	0,061

The normality test results indicate that both studied variables, service quality (independent variable) and patient satisfaction (dependent variable), have a significance value greater than 0.05 (sig>0.05). Therefore, the data for both variables follow a normal distribution.

**Table 5. Pearson correlation test results** 

<b>Correlation Table</b>	r-value	p-value	
Service quality -	0.772	0,000	
patient satisfaction	0,772		

The results of the Pearson correlation test indicate that the calculated correlation coefficient (r) has a positive direction, with a value of 0.772 and a p-value of 0.000 (p<0.05). This indicates a positive and significant relationship between the service quality of dentists and patient satisfaction levels during the Covid-19 pandemic at the Dental and Oral Clinic of Puskesmas Sanden. With an r-value of 0.772, the strength of the relationship, based on Pearson's correlation coefficient criteria, falls into the strong category.

## **DISCUSSION**

# Overview of service quality at the dental and oral clinic

The analysis results show that the majority of respondents rated the tangible dimension of service quality as poor. This is evidenced by most respondents expressing dissatisfaction with aspects such as location, cleanliness, organization, and comfort of the environment, as well as the cleanliness of medical equipment, completeness of administrative procedures, and the appearance of healthcare personnel, which did not meet patient expectations. The poor tangible results may be attributed to patient complaints regarding the condition of facilities and equipment, indicating a need for further improvements (Setiani, 2017). The quality of healthcare facilities must be maintained to ensure the provision of high-quality services to the community (Tambaip et al., 2023).

The reliability dimension falls into the good category, as evidenced by the majority of respondents expressing satisfaction with service speed, compliance with registration queue numbers, adherence to operational hours, and the punctuality of medical personnel, which have met patient expectations. Reliability is measured based on the clarity of administrative requirements and service procedures, the examination process, the recording of patient medical history, and the provision of care by doctors and nurses according to the registration queue order, as well as the timely arrival of healthcare professionals (Taekab *et al.*, 2019).

The responsiveness dimension falls into the very good category, as evidenced by the majority of respondents expressing satisfaction with the dentist's ability to address patient complaints, clarity of information provided by the doctor, comfort during examinations, and the accuracy of medical procedures at the Dental and Oral Clinic of Puskesmas Sanden, all of which have fully met patient expectations. Responsiveness is measured by the doctor's ability to respond to patient complaints, the promptness of doctors and nurses in providing appropriate treatment, and the healthcare staff's responsiveness to patient inquiries or information needs (Tris et al., 2019).

The assurance dimension falls into the very good category, as evidenced by the majority of respondents expressing satisfaction with the doctor's competence, friendliness of medical personnel, communication skills, assurance of recovery, and completeness of services, all of which have fully met patient expectations. In the assurance aspect, healthcare providers must ensure safety and confidence in the services they deliver by maintaining professionalism, high-quality care, and adherence to service standards. Good assurance is demonstrated when healthcare professionals treat patients with politeness and respect (Ramadhan et al., 2021).

The empathy dimension falls into the good category, as evidenced by the majority of respondents expressing satisfaction with the doctor's ability to provide reassurance to patients, the delivery of information regarding patient complaints, fulfillment of patient needs, and the overall service provided by the medical team, all of which have met patient expectations. Healthcare providers must demonstrate empathy in delivering care by understanding patients' concerns and providing clear information about their conditions. Since healthcare professionals play a crucial role in patient care, they must remain committed to attending to patients' needs, as failing to do so may lead to a decline in patient satisfaction (Andriani, 2017).

# Overview of patient satisfaction at the dental and oral clinic

The analysis results indicate that the majority of respondents rated the general satisfaction dimension as 'satisfied'. This is evidenced by most respondents stating that the medical care provided at the Dental and Oral Clinic of Puskesmas Sanden has met their expectations. Patient satisfaction can be defined as the feeling of happiness or disappointment that results from comparing one's expectations with the actual services received. Patient satisfaction tends to be higher when they perceive that the medical services provided are of high quality and effective in addressing their health concerns (Tris et al., 2019).

The technical quality dimension falls into the satisfied category, as evidenced by the majority of respondents stating that the availability of medical equipment and the carefulness of the medical team at the Dental and Oral Clinic of Puskesmas Sanden in providing treatment have

met patient expectations. The technical quality aspect reflects the competence of healthcare providers and their adherence to diagnostic and treatment procedures. It includes accuracy, precision, and error prevention, ensuring that unnecessary risks are minimized (Imaninda & Azwar, 2016).

The interpersonal manner dimension falls into the satisfied category, as evidenced by the majority of respondents stating that the medical team at the Dental and Oral Clinic of Puskesmas Sanden is friendly and polite, meeting patient expectations. This aspect is influenced by how patients perceive the tone and clarity of communication from healthcare providers. A proper intonation ensures that information is clearly heard, while an appropriate speaking pace-neither too fast nor too slow-helps maintain friendliness and politeness in interactions (Firdaus & Dewi, 2015).

The communication dimension falls into the satisfied category, as evidenced by the majority of respondents stating that the medical team at the Dental and Oral Clinic of Puskesmas Sanden provides clear explanations regarding medical procedures, meeting patient expectations. Several factors contribute to patient satisfaction in this aspect, including the perception that patients receive complete information about their health conditions and the reasons for undergoing medical tests. Additionally, healthcare providers are responsive to patient inquiries, ensuring that their responses align with patients' needs and expectations (Caresya et al., 2015).

The financial aspects dimension falls into the satisfied category, as evidenced by the majority of respondents stating that the cost of medical care at the Dental and Oral Clinic of Puskesmas Sanden is affordable and has met patient expectations. This condition is influenced by several factors related to medical service payments, including reasonable costs, alternative payment arrangements, and the availability of insurance coverage (Imaninda & Azwar, 2016).

The time spent with the doctor falls into the satisfied category, as evidenced by the majority of respondents stating that medical care was not rushed, and the doctors took sufficient time to examine patients at the Dental and Oral Clinic of Puskesmas Sanden, thereby meeting patient expectations. When doctors take the time to provide thorough treatment, it enhances patient confidence in the care they receive. This creates a positive perception, making patients feel respected, heard, and treated with patience (Mamengko et al., 2021).

The accessibility-convenience dimension falls into the neutral or uncertain category, as evidenced by the majority of respondents expressing uncertainty regarding access to dental care, the quality of treatment received, doctors' capabilities, and the availability of care at all times at the Dental and Oral Clinic of Puskesmas Sanden. Patients felt that the comfort provided could not be definitively categorized as satisfactory or unsatisfactory. Their uncertainty indicates that they are not entirely convinced about the level of comfort and accessibility offered by the services or facilities. A neutral response may reflect two possibilities: respondents are genuinely uncertain, or the uncertainty may also stem from patients' reluctance to provide a definitive answer (Young et al, 2024).

# The relationship between dental service quality and patient satisfaction

The Pearson correlation test results show a p-value of 0.000 (p<0.05), indicating a significant relationship between dental service quality and patient satisfaction during the COVID-19 pandemic at the Dental and Oral Clinic of Puskesmas Sanden (Sugiyono, 2018). The better the quality of dental services, the higher the level of patient satisfaction during the COVID-19 pandemic at the Dental and Oral Clinic of Puskesmas Sanden. Conversely, the lower the quality of dental services, the lower the level of patient satisfaction during the same period.

## **CONCLUSION**

The conclusion drawn from the two variables studied is that there is a significant relationship between service quality and patient satisfaction at the Dental and Oral Clinic of Puskesmas Sanden during the COVID-19 pandemic. Additionally, one aspect of service quality (tangible) has not yet met patient expectations.

The Puskesmas Sanden is expected to enhance service quality at the dental and oral clinic, particularly in the tangible dimension, by: enhancing the cleanliness and tidiness of the health

center environment, ensuring medical equipment cleanliness by adhering to applicable policies and protocols, strengthening administrative completeness, and maintaining and improving the clean and neat appearance of healthcare personnel. By implementing these improvements, patients are expected to receive services that align with their expectations. Additionally, future researchers are encouraged to include samples from other dental clinics at different health centers, allowing for broader generalization of findings or comparative analysis of patient satisfaction across different dental and oral clinics.

## **AUTHOR'S DECLARATION**

# Authors' contributions and responsibilities

**HA:** Formulated the research problem, designed the research framework, collected and processed data, and conducted the discussion; **MMSH:** Reviewed the research site and workflow, as well as examined the discussion and data analysis; **DCAN:** Evaluated the research findings, reviewed the data analysis, and examined the citation and reference writing.

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# Availability of data and materials

All data are available from the authors.

## **Competing interests**

The authors declare no competing interests.

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