

## ORIGINAL ARTICLE

# Relationship between oral health service quality and patient satisfaction at community health centers in Kupang city during COVID-19 pandemic

Friska Delianti Simamora<sup>1\*</sup>  
Jacob Matheos Ratu<sup>2</sup>  
Anderias Umbu Roga<sup>2</sup>  
Pius Weraman<sup>2</sup>  
Hotlif Arkilaus Nope<sup>2</sup>

<sup>1</sup>Departemen of Dental Health, Health Polytechnic of Health Ministry Kupang, Indonesia

<sup>2</sup>Master of Public Health Sciences, Faculty of Public Health, Universitas Nusa Cendana, Indonesia

\*Correspondence:  
[friskasimamora3@gmail.com](mailto:friskasimamora3@gmail.com)

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## ABSTRACT

**Introduction:** Oral health service quality has been severely impacted by the COVID-19 pandemic, including in Kupang, one of the cities in the east part of Indonesia. Like in other cities, community health centers (Puskesmas) are the frontline to provide dental healthcare, including avoiding the spread of COVID-19. The objective of this study therefore is to analyze the correlation between oral health service quality (patient safety, effectiveness, patient centeredness, waiting time, efficiency, and equity) and patients' satisfaction during COVID-19 pandemic. **Methods:** Cross sectional design was used to investigate the correlation of oral health services quality and patients' satisfaction. Structured questionnaire was used to measure patients' satisfaction. The number of samples involved in this study were fifty people. This study employed a non-probability sampling technique known as incidental sampling. The results of this research were obtained using multivariate multiple logistic regression analysis. **Results:** Patients involved in this study consist of women (60%), teenager (50%), adult (40%), educational background is senior high school (56%), junior high school (20%), employment statuses are farmer (30%) and student (28%), monthly average income is < 2 million rupiahs (and government insurance user accounting for 70%). Based on statistical analysis, there is a significant relationship between oral health service quality and patients' satisfaction ( $p = 0,002$ ). **Conclusion:** Patients are satisfied with oral health service quality in Kupang city during COVID-19 pandemic particularly on an equity aspect.

## KEYWORDS

oral health service quality, patient satisfaction, community health center, COVID-19 pandemic

## INTRODUCTION

The role of community health centers (Puskesmas) in the COVID-19 pandemic become more important, particularly in terms of prevention, detection, and response in controlling and preventing the spread of COVID-19. Puskesmas must be able to effectively manage their resources in terms of breaking the chain of transmission at the individual, family, and community levels. Community health centers, as healthcare provider, should also develop stricter security procedures that abide to infection prevention and control protocols (PPI).<sup>1-3</sup>

Oral health services are a type of individual service provided at the community health centers, which has been severely impacted by the COVID-19 pandemic conditions. During the COVID-19 pandemic, dental health service facilities were routinely closed temporarily at health center, hospitals, and private dental practices, except for emergency cases handled by an appeal issued by PB PDGI on 3 July 2021 based on Circular No. 4072/PB/PDGI/VII-2/2021.<sup>4,5</sup>

High performance and service quality are the most important factors in achieving quality health services. Service quality is a concept of a measurement of the quality of health services which consists of reliability, responsiveness, assurance, empathy, and physical appearance or tangibles.<sup>6,7</sup> There may be limitations on healthcare workers and equipment in Kupang City during the COVID-19 pandemic, it is crucial that healthcare workers continue to provide high-quality healthcare services to the best of their ability. Healthcare workers play a critical role in ensuring the health and well-being of the community, and clear communication is essential for building trust and ensuring that patients receive the best possible care.<sup>5</sup>

According to data from the Kupang City Health Office in 2018, only 21,543 people received dental health services from a population of 423,800 people in eleven community health centers, while during the COVID-19 pandemic in early March, oral health services at the community health centers were still postponed or only served emergency cases or direct referral to a general hospital.<sup>1,8</sup> The COVID-

19 pandemic will also reduce visits to the health centers due to delays in dental and oral services, and it is feared that patient satisfaction will suffer as a result.<sup>9</sup>

The objective of quality health services is to provide patients with a sense of satisfaction; however, satisfaction is a subjective concept; each person may have a different level of satisfaction with the same health service. The quality of a healthcare system is deemed sufficient, if the health service can create a sense of satisfaction in each patient in accordance with the level of satisfaction of the average population, the degree of patient satisfaction is limited.<sup>10,11</sup> Health-care efforts are considered good if the procedures implementing are in accordance with established code of ethics and professional service standards, especially during the COVID-19 pandemic which hit globally. Kupang city is quite removed from the center of Indonesian government. The purpose of this study is to analyze the quality of oral health services and their impact on patient satisfaction at the Kupang city community health centers during the COVID-19 pandemic.<sup>12</sup>

## METHODS

This was an analytic study with a cross sectional design in which observations are made on the data of the independent and dependent variables at the same time using quantitative methods. The researcher investigated the relationship between the independent variable, namely the quality of oral health services (patient safety, effectiveness, patient centeredness, waiting time, efficiency, and equity), and the dependent variable, namely patient satisfaction. The questionnaire used in this study proved to be valid and reliable, as shown by consistent results and a high level of internal consistency and repeated reliability tests. Testing the validity in this study using *pearson's correlation* with sig. 0.01 to 0.05 and the reliability test results with *cronbach's alpha* values are > 0.775. The sampling method was applied non-randomly (non-probability sampling), and therefore samples that met the inclusion criteria in this study were patients who visited the Kupang city community health centers. Patients who received oral health services at the time of the study were 50 people. The exclusion criteria for this study are patients under the age of 17 and patients who are unwilling to participate in the interview. Data was collected by distributing questionnaires to patient respondents in 4 Kupang city community health centers (Pasir Panjang, Kupang Kota, Oesapa and Bakunase). The analysis used in this study was the multiple logistic regression test.

## RESULTS

The table 1 shows the characteristics of patients in this study were dominated by women (60%), age range 12-45 years (94%), high school education (56%), occupation of farmer/IRT (30%), income less than 2 million (62 %), BPJS patients (70%) and visits to the first dental clinic (62%).

**Table 1.** Distribution of Patient Characteristics who visited during the COVID-19 pandemic

Variable	Frequency n	Percentage (%)
<i>Gender</i>		
Male	20	40
Female	30	60
<i>Age</i>		
Teenager (12-25 yrs)	25	50
Adult (26-45 yrs)	22	44
Elderly (46-65 yrs)	3	6
<i>Education</i>		
Primary School	1	2
Junior High School	10	20
Senior High School	28	56
Diploma	6	12
Bachelor	5	10
<i>Work</i>		
Student	14	28
PNS/TNI/POLRI	5	10
Self-employed	11	22
Private Servant	5	10
Farmers/IRT/Fishermen	15	30
<i>Income/month</i>		
< 2 M	31	62
2 M – 4 M	15	30
> 4 M	4	8
<i>Source of fund</i>		
Health Insurance (BPJS)	35	70
Personal	15	30
<i>Visit to Dental Clinic</i>		
First	31	62
Second	14	28
Third	5	10

Table 2 shows the majority of respondents in all service quality (patient safety, effectiveness, patient centeredness, efficiency and equity) answered strongly agree and agree, especially on the service quality dimension of equity respondents answered strongly agree as many as 48 people (96%), the least respondents stated strongly agree on the quality of service dimensions of waiting time as many as 32 people (64%).

**Tabel 2.** Overview of Health Service Quality during the COVID-19 pandemic

No	Health service quality	Strongly Agree		Agree	
		n	%	n	%
1	Patient Safety	37	74.0	13	26.0
2	Effectiveness	42	84.0	8	16.0
3	Patient Centeredness	46	92.0	4	8.0
4	Waiting Time	32	64.0	18	36.0
5	Efficiency	45	90.0	5	10.0
6	Equity	48	96.0	2	4.0

After conducting research and collecting data, a bivariate analysis was carried out in this study which was useful to determine the relationship between the role of the quality of oral health services with patient satisfaction. The analysis between variables was said to be statistically significant with  $p < 0.05$ . The result is that the quality of health services quality in the waiting time dimension has been a stronger bivariate test result on the effect of patient satisfaction (NSpearman's = 0.687).

**Table 3.** Results of Bivariate Analysis of the Spearman's rho Correlation test between Independent and Dependent Variables during the COVID-19 pandemic

Variables of health service Quality	Patient satisfaction Y		
	n	NSpearman's rho	np
Patient safety	50	0.540	0.000
Effectiveness	50	0.608	0.000
Patient centeredness	50	0.514	0.000
Waiting time	50	0.687	0.000
Efficiency	50	0.676	0.000
Equity	50	0.677	0.000

The results of the multivariate logistic regression analysis between the independent variable and the dependent variable can be seen in the table below:

**Table 4.** Results of Multiple Logistics Regression Multivariate Analysis between Independent and Dependent Variables during the COVID-19 pandemic

Variabel	B	S.E	Wald	Df	Sig.	Exp(B)	95% C.I.for EXP	
							Lower	Upper
Patient Safety	0.439	0.213	4.243	1	0039	1.552	1.022	2.357
Effectiveness	0.672	0.298	5.102	1	0.024	1.959	1.093	3.510
Equity	0.971	0.316	9.418	1	0.002	2.639	1.420	4.906
Constant	-	13.763	12.383	1	0.000	0.000		
	48.432							

Table 4 above shows that the results of the multivariate analysis of oral health service quality variables that affect patient satisfaction during the COVID-19 pandemic at the Kupang City Health The results of the statistical test of the health service quality variable on the patient safety dimension showed a p-value of 0.039 ( $p < 0.05$ ), the effectiveness dimension showed a p-value of 0.024 ( $p < 0.05$ ) and the equity dimension showed a p-value of 0.002 ( $p < 0.05$ ). Of the three variables, the equity dimension of health service quality is the most dominant variable with a 2.64 times effect on patient satisfaction during the COVID-19 pandemic at the Kupang city community health centers.

## DISCUSSION

In table 1 distribution of patient characteristics who visited during the COVID-19 pandemic show that, the characteristics of the patients in this study were predominantly female (60%), aged between 12-45 years old (94%), had a high school education (56%), worked as farmers/housewives/laborers (30%), had an income of less than 2 million rupiahs (62%), were covered by BPJS (70%), and made their first visit to the dental clinic (62%). This study indicates that most participants are government insurance users with low income. People with low income and government insurance users tend to have low expectation.<sup>13</sup> This is also like a study conducted by Imran Ali in 2017, which found that women dominated the study sample. It was found that out of 94 respondents, the highest age group was above 46 years old with 33 individuals (35.1%), and the highest gender group was female with 50 individuals (53.2%).<sup>14</sup>

Table 2 illustrates that equity is the most felt aspect of patient satisfaction by patients visiting government health facilities. This shows that almost all patients feel treated the same regardless of ethnicity, race, religion and socioeconomic status.<sup>15</sup>

Table 3, shows that the sample in this study stated that health services at government health facilities opened and closed on time with patient waiting times not long, especially during a pandemic. Before the covid pandemic, the number of patients at the community health centers (Puskesmas) was not limited like during the pandemic.

This allows patients to get services with shorter waiting times. The number of patient visits during covid to health facilities was very small during the covid pandemic, many patients postponed visits to health facilities for fear of the spread of covid.<sup>16</sup> Table 4, shows that, multivariate analysis shows that the aspects of equity, effectiveness and safety are the most dominant aspects of patient satisfaction. Patients feel that they are treated equally, receive services that can address oral health problems they are experiencing and receive adequate protection regarding the prevention of COVID-19. The use of adequate personal protective equipment in health facilities during a pandemic can overcome patients' concerns about the transmission of COVID-19. In fact, the use of adequate PPE is expensive and hard to apply to governmental health facilities. To solve this problem, reducing the number of patients is a very appropriate solution to save operational costs.<sup>17</sup>

During the COVID-19 pandemic, health workers must be able to encourage the public to keep their distance when visiting the Puskesmas. The rules for wearing masks, initial screening and controlling sources of infection have an impact on changing the flow of services to patients, making patients feel more secure. This is also in accordance with the quality dimensions proposed by the World Health Organization<sup>18</sup>, since safety is an indicator that can be used to see service quality. Whereas service security means that health services are able to minimize or reduce the risk of injury, infection, side effects or complications. Other hazards associated with the services received by the patient.

The results of this study indicate the effectiveness dimension with a p-value of 0.024 ( $p < 0.05$ ) which means it has a significant influence on the quality of health services at the Kupang city community health centers. This study is in accordance with research conducted by Aisah<sup>19</sup> who found that service effectiveness is an aspect of service quality that affects patient satisfaction and has an impact on the desire to reuse services. The COVID-19 pandemic has not only caused anxiety for the public and patients but has also placed a significant burden on the healthcare system, resulting in drastic changes in the way healthcare is delivered, as stated.

The results of this study indicate the dimension of equity with a p-value of 0.002 ( $p < 0.05$ ) which means that the dimension of equity has a significant influence on the quality of health services at the Kupang city community health centers. According to Atinga et al.<sup>20</sup> in addition to poor communication between doctors and patients, another unpleasant experience is the unfair attitude of doctors and nurses towards patients while providing care. Poor interpersonal relationships and discrimination (equity) against patients have the potential to result in non-adherence to treatment. In addition, the attitude of officers who are rude and indifferent can reduce patient satisfaction with the services they receive and interest in reusing services in the future. This shows that during the COVID-19 pandemic the Kupang city community health centers were able to achieve quality health services, especially the equity dimension.<sup>20</sup>

## CONCLUSION

Patients are satisfied with oral health service quality in Kupang city during COVID-19 pandemic particularly on an equity aspect.

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**Author Contributions:** This research article is the result of collaborative work by several authors. Ratu JM and Roga AU, conceptualized the study and developed the methodology. Simamora FD, Ratu JM, and Roga AU, contributed to the validation and formal analysis of the data. Simamora FD, curated the data and wrote the original draft of the paper, while. Simamora FD, Ratu JM, and Roga AU reviewed and edited it. Simamora FD, also contributed to the visualization of the data. Ratu JM and Roga AU, supervised the research project, while Simamora FD, was responsible for the project administration and funding acquisition. All authors have read and approved the final version of the manuscript.

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**Institutional Review Board Statement:** The research was conducted in accordance with the ethical principles for medical research involving human subjects and was approved by the Institutional Review Board of the Faculty of Medicine, University of Nusa Cendana with the approval number 105/UN15.16/KEPK/2021.

**Informed Consent Statement:** Written informed consent was obtained from all study participants prior to their inclusion in the research. The purpose and procedures of the study were explained in detail to the participants, and they were given the opportunity to ask questions and clarify any doubts they may have had. Participants were informed that their participation was voluntary and that they could withdraw from the study at any time without any consequences.

**Data Availability Statement:** The data that support the findings of this study are available upon request from the corresponding author. Restrictions apply to the availability of these data, which were used under license for this study and so are not publicly available. However, data are available from the authors upon reasonable request and with permission of the data provider.

**Conflicts of Interest:** The authors declare no conflicts of interest related to this study.

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