

THE RELATIONSHIP BETWEEN SERVICE QUALITY AND INDIVIDUAL CHARACTERISTICS WITH PATIENT SATISFACTION OF TELEDENTISTRY SERVICE USERS AT RSGM UNIVERSITAS MUHAMADIYAH YOGYAKARTA

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Abstract

Teledentistry is the use of information and communication technology in treatment, counseling, education, to improve dental and oral health during the COVID-19 pandemic. Teledentistry services as a medium for dental and oral health consultation need to pay attention to the quality of service and individual characteristics which are the main determinants of health services. The purpose of the study was to identify the relationship between service quality and individual characteristics with patient satisfaction of teledentistry service users. Cross sectional type of research. The technique of taking subjects using simple random sampling. The number of respondents was 125 respondents. The research instrument uses servqual with Likert scale and patient satisfaction instrument with Likert scale. Respondents filled in individual characteristic data consisting of age, gender, education level and occupation. Data analysis in this study used pearson correlation test and multiple linear regression test. The Pearson correlation test showed that there was a relationship between service quality ($p = 0.001$) and age with patient satisfaction ($p = 0.001$) and there was no relationship between sex ($p = 0.076$), education level ($p = 0.542$) and occupation ($p = 0.363$) with patient satisfaction using teledentistry services. The results of multiple linear regression tests showed a significant relationship between service quality ($\beta = 0.126$; $p = 0.001$) and age ($\beta = -0.044$; $p = 0.025$) with patient satisfaction using teledentistry services at RSGM Universitas Muhammadiyah Yogyakarta. The better the quality of service, the higher the level of patient satisfaction, the younger the age, the higher the level of patient satisfaction. There is no influence of gender, education level and occupation on patient satisfaction of teledentistry service users at RSGM Universitas Muhammadiyah Yogyakarta.

Keywords: Quality of service, individual characteristics, patient satisfaction, teledentistry

INTRODUCTION

The World Health Organization (WHO) declared *corona virus disease 2019* (covid-19) as the first pandemic to hit global healthcare systems in March 2020 (Lin et al., 2022). Solutions that can be provided to overcome dental and oral health problems during the COVID-19 pandemic are conducting consultations, *screening*, and online remote education through *teledentistry*. Dental health promotion activities using *teledentistry* can facilitate the limitations of face-to-face directly in accordance with health protocols during the COVID-19 pandemic, namely reducing crowds and maintaining distance (Hervina et al., 2021).

Research states that 82% of *teledentistry* use using *whatsapp* is the best choice as support in oral diagnosis (Petruzzi & De Benedittis, 2016). *Teledentistry* has proven effective in answering the challenges of dental and oral health problems during the COVID-19 pandemic, in the journal it was stated, there were 97% of respondents who expressed satisfaction in the *teledentistry service system* (Rahman et al., 2020).

The effectiveness of *teledentistry services* turns out that there are still perceived obstacles, thus affecting patient satisfaction. The perceived barriers are that as many as 48.73% of patients still require the physical presence of a dentist, as many as 48.41% violations of patient privacy, and low education of the population 47.77% (Aboalshamat, 2020). Other obstacles are in taking photos of teeth 54.3% and internet connection 48.6% (Aboalshamat et al., 2022).

Some individual characteristics are the main determinants or priority determinants of health service quality indicators are age, sex, length of treatment, source of costs to be incurred, disease diagnosis, occupation, income, education, ethnicity, place of residence, class of care, marital status, and religion (Sangadji & Sopiah, 2013). The quality of information systems in the context of online-based services, has an influence on user satisfaction and the benefits felt by users of services. The modification of SERVQUAL measuring instruments consisting of tangible, *reliability*, *responsiveness*, *assurance* and *empathetic* dimensions is an evaluation system that reflects the perception of service quality for the services received (Lu et al., 2021). Based on the above background, the author is interested in conducting research on the relationship between service quality and individual characteristics with patient satisfaction of *teledentistry service users*.

RESEARCH METHODS

This study was an analytical observational study with a cross sectional design. This study was conducted on patients using *teledentistry* services during February-April as many as 125 respondents.

This research has been approved by the Ethics Commission of the Faculty of Dentistry, Universitas Gadjah Mada (21/UN1/KE/FKG-RSGM/EC/2023). Researchers distributed *informed consent* to respondents, researchers distributed questionnaires via smartphones or computers containing 18 questions about service quality and 3 questions about patient satisfaction using *teledentistry* services adopted from previous studies (Lu et al., 2021). Bivariate analysis test using Pearson Product Moment correlation and multivariate test with Multiple Linear Regression analysis test

RESULT AND DISCUSSION

The characteristics of respondents based on Patient Satisfaction of *Teledentistry* Service Users at RSGM Universitas Muhammadiyah in this study can be seen in table 1

Table 1 Distribution of Respondent Characteristics based on Patient Satisfaction of *Teledentistry* Service Users at RSGM Universitas Muhammadiyah Yogyakarta.

Variabel	Low		Midle		High	
	n	%	N	%	n	%
Age						
18-25	0	0	1	0,8	36	28,8
26-35	0	0	6	4,8	62	49,6
36-55	1	0,8	6	4,8	13	10,4
Gender						
Man	1	0,8	10	8,0	49	39,2
Girl	0	0	3	2,4	62	49,6
Education						
Senior Higt Scool	0	0	1	0,8	21	16,8
Diploma3	0	0	7	5,6	12	9,6
Bachelor	1	0,8	17	13,6	67	53,6
Magister	0	0	2	1,6	11	8,8
Work						
Does not work	0	0	1	0,8	4	3,2
Private employees	0	0	9	10,4	77	61,6
Civil state officials	1	0,8	2	1,6	23	18,4
Police	0	0	1	0,8	7	5,6

Desciption : n= total respondent %= persentase

Table 1 shows that the majority of respondents, namely the age range of 26-35 years, have a satisfaction level in the high category of 49.6%. The majority of female respondents had a high satisfaction level of 49.6%. The majority of education levels of Bachelor (S1) graduates have a satisfaction level in the high category of 53.6%. Based on the type of work, the majority as self-employed have a satisfaction level in the high category of 61.6%.

Table 2. The Relationship Between Service Quality based on Patient Satisfaction of *Teledentistry* Service Users

Quality of service	Law		Middle		Higt	
	n	%	n	%	N	%
Bad	0	0,0	0	0	0	0
Middle	1	0,8	12	9,6	2	1,6
Good	0	0,0	1	0,8	109	87,2
Total	1	0,8	13	10,4	111	88,8

Table 2 shows that the majority of service quality has a high level of satisfaction with teledentistry services (88,8%).

Table 3. Relationship between Service Quality and Respondent Characteristics with Patient Satisfaction of *Teledentistry Service Users*

Variable Free	Correlation coefficient	p*
Quality layanan	0,680	0,001
Age	-0,400	0,001
Gender	0,159	0,076
Education	0,055	0,542
Work	0,082	0,363

description: *Uji Product Moment Pearson

Table 3 shows that there is a significant relationship between service quality and patient satisfaction with p value = 0.001 and age with patient satisfaction (p = 0.001). Gender, education and occupation were not significantly associated with patient satisfaction with services *teledentistry* (p>0,05).

Table 4. Results of Multiple Linear Regression Analysis Between Service Quality and Age with Patient Satisfaction of *Teledentistry Service Users*

Variabel Bebas	<i>Unstandardized coefficient B</i>	p*
Quality service	0,126	0,001
Age	-0,044	0,025
Constanta	4,230	0,003
R square = 0,484		
Uji F = 57,111		
P sig = 0,001		
Bound variables = Patient satisfaction of <i>teledentistry service users</i>		

Description: *Multiple Linear Regression Analysis Test

Table 4 shows that there is an effect of service quality and age on patient satisfaction using *teledentistry services* (p = 0.001 and p = 0.025). The F test results show a significance level of P<0.05, so it can be concluded that service quality and age together affect patient satisfaction of *teledentistry* service users on dental and oral health. A summary of the calculation of the constants and beta coefficients of each variable with multiple linear regression equations obtained the equation, namely:

$$Y = 4,230 + 0,126 \text{ Quality of Service} - 0,044 \text{ Age.}$$

The value of the R-squared coefficient of determination is 0.484. This shows that the independent variables of service quality and age simultaneously affect patient satisfaction of *teledentistry* service users by 48.4% while the remaining 51.6% of dependent variables are influenced by other variables such as consultation costs, knowledge, time-saving, ease of use, internet connection, communication and convenience.

Service quality has a relationship with respondents' satisfaction with *teledentistry* services with a value of p = 0.001. One that affects satisfaction in the health sector is

the quality of service, the use of health applications can affect the continuity of use of health applications. Quality of service and trust generate positive behavioral intentions thus playing an important role in promoting the continued use of app-based healthcare (Meng et al., 2022).

This is based on the theory that states good service quality can help hospital management in designing problem-solving programs, improving quality, allocating resources to be more effective so as to ensure patient satisfaction (Alrubaiee & Alkaa'ida, 2011). This study is in line with previous research which stated that there is a relationship between service quality and patient satisfaction using *telemedicine applications*¹¹. This study shows that patient satisfaction is strongly influenced by the quality of service and the ability to communicate between dentists and patients, and the reality is in accordance with patient expectations.

Online consultation health services using *teledentistry* require effective communication between dentists and patients during ongoing dental health consultations. This is based on a theory that states communication is one of the predictors of patient satisfaction, effective communication related to complaints felt by patients can be conveyed to dentists through *teledentistry* services to obtain information and treatment plans so as to meet the basic needs of patients (Amtha et al., 2021).

This is in line with previous research which stated that dentists cannot completely replace direct consultations during the covid 19 pandemic, but with the existence of health consultations through *teledentistry* this can meet the needs of consultations related to dental and oral health in the era of the covid 19 pandemic (Ghai, 2020). Previous research also stated that consultation and education on dental and oral health problems during this pandemic to stay safe is using *the teledentistry* service method. Communication can be done remotely using the "*surbo chat*" and "*dashboard*" platforms, the results of this activity found that the most cases are tooth pain and cavities (Hervina et al., 2021).

Quality of service focuses on a two-dimensional model i.e., functional quality and technical quality (Grönroos, 1984; Parasuraman et al., 1988). Functional quality is defined as the patient's perception of the interaction during the service delivery process between the service provider and the service recipient (Alwan & Rajab, 2021). The quality of service from the interaction between the service provider and the recipient of the service provided depends on aspects such as timing, absence of errors and safety in the service (Kowalik & Klimecka-Tatar, 2018). Functional quality using modification measuring instruments *servqual* terdiri dari *tangible, reliability, responsiveness, assurance, dan emphaty*¹⁵. Technical quality refers to components related to the results of the quality of services received by patients. Output-related health care outcomes that include what patients receive or feel (Fiala, 2012).

Age has a relationship with respondents' satisfaction with *teledentistry* service users. The results of negative correlations ($p = 0.025$ and $r = -0.044$) on age showed

that the younger the patient, the higher the patient's satisfaction with *teledentistry* services related to oral and dental health. Dental health consultation using *teledentistry* services is also influenced by age because as you get older, the need for the use of online health consultation services is getting higher. Inversely proportional to old age because the older the age, the more consideration in using online health consultation technology (Cantor et al., 2021).

The majority of the age range of 26-30 years have satisfaction scores in the high category of *teledentistry* services. This is in accordance with previous research which states that the age range of 26-35 years is more influential on the use of online health consultation services than the age of >36 years in conducting online health consultations. This is in accordance with the theory that states the use of *teledentistry*, mostly teenagers and young adults, this age group is familiar with digital use thus facilitating a virtual approach to dental and oral health education (Cantor et al., 2021). Older people will be less likely to use online consultation media than younger people, because older people are more conservative users and cannot use advanced technology (Maulana et al., 2022).

Other studies also state that in old age there are still concerns about their personal data that will be spread so they are reluctant to conduct examinations using online health consultation services (Cimperman et al., 2013). Older people do not believe the service providers they meet online have the competence or professionals such as doctors in face-to-face meetings and fear of technology makes older people less likely to use online health consultation services than younger people who are more enthusiastic (Terencia et al., 2023).

Gender was not associated with respondents' satisfaction with a value of $p = 0.076$. The female gender in this study had satisfaction with the high category. The results of this study are not in line with research that states that men are significantly more satisfied with health services, because men in the way they manage their relationships tend to be more indifferent to what is stated by women, therefore they are considered more flexible than women. Women look more at appearance in detail, while men do not pay attention to it (Oroh et al., 2014). This is according to the theory that states there is no consistent difference between men and women. Men and women tend to have the same level of satisfaction with a health service (Rahmqvist & Bara, 2010).

Education level was not associated with respondents' satisfaction with a value of $p = 0.542$. All levels of education (SMA, D3, S1, and S2) feel satisfaction that is not much different, namely satisfaction in the high category. The level of education can affect a person's rational and irrational mindset in making decisions, using, or utilizing a health service (Rizal & Jalpi, 2018). This is in accordance with the theory that states a person with a higher education, the wider the knowledge of something, including the optimization of existing technology as part of meeting his needs, for information and access to appropriate health services (Irianti et al., 2021). This study is not in line with research that states patients with low levels of education tend to

feel satisfied quickly compared to patients who are highly educated, it is related to different levels of knowledge between low education and higher education (Rizal & Riza, 2014).

Work was not related to respondents' satisfaction with *teledentistry* service users with a value of $p = 0.363$. All types of self-employed jobs, civil servants, and others feel the same service, namely satisfaction in the high category. This is in line with research that states someone who works tends to be more demanding and critical of the service he receives if it is not satisfactory for him compared to someone who does not work (Rizal & Jalpi, 2018). The level of satisfaction with health services is very subjective in nature and is influenced by many factors that play a role in individuals. Work is one of the factors of social structure, so that the existence of this job will affect someone in utilizing existing health services

CONCLUSION

The better the quality of service, the higher the patient's satisfaction with *teledentistry* services and the younger the patient's age, the higher the satisfaction of patients using *teledentistry* services. There was no relationship between gender, education level and occupation and patient satisfaction using *teledentistry services*.

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