

## Knowledge of Teledentistry Among Lecturers of Faculty of Dentistry Universitas Prof Dr Moestopo (Beragama)

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### ABSTRACT

**Introduction:** There are many advantages to dentistry when combined with internet and telecommunications technology. Teledentistry facilitates communication between patients and various healthcare providers. The goal is to find out how knowledgeable and how the dentistry faculty lecturers feel about teledentistry. **Materials and Procedures:** Making use of a self-administered structured questionnaire, descriptive Prof. Dr. Moestopo (Beragama) University's faculty of dentistry conducted a cross-sectional study with 11 items. **Findings:** A total of sixty people answered the survey. According to the results of the current study, there are 45 lecturers (75%) who have good knowledge of teledentistry, 12 lecturers (20%) who have fair knowledge, and 3 lecturers (5%), who have poor knowledge. **In conclusion,** the majority of the lecturers at the Prof. Dr. Moestopo (Beragama) University Dentistry Faculty were well-versed in teledentistry.

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## **INTRODUCTION**

Telehealth is defined as a set of means or methods to health, public health, and health education processes and supported by the use of communication technology. Teledentistry is part of telemedicine that uses technology (such as digital images or videos, electronic medical records, dental x-rays, and the Internet) to facilitate oral health services and health education between patients and dentists in different locations. Teledentistry is defined by the American Dental Association (ADA) as the use of telehealth systems and methodologies in dentistry that make extensive use of wide-ranging tactics and technology (such as digital photographs or video, dental radiography, electronic medical records, and the internet) to provide comprehensive medical, health, and educational services virtually.

Teledentistry consultations take place over the phone or via a private video conferencing platform that the patient has authorized. Dentists are not required to be physically present at the clinic, and the communications method selected must ensure compliance with civil law and medical requirements. Real-time teledentistry entails video chats between patients and medical staff who are in different places. The dentist gathers and stores immovable images for consultation and treatment planning using the store and forward method, which uses the exchange of clinical data. Web pages and asynchronous communications are frequently the best options for both patients and dentists. Teledentistry is used for When it comes to dental screening in remote, rural, and inaccessible areas, teledentistry can be a great substitute for kids who are afraid of the dentist because it lessens their fear and anxiety when compared to in-person clinical examinations.

E-learning, internet-based instruction, online libraries, search tools, computer-based student-professor interaction, and students turning online processes into academic processes are currently popular forms of teledentistry consultation among students and aspiring dentists. In this instance, information and communication technology, when combined with the internet, has taken center stage in academic life on campuses and in colleges across many developed nations. As an archipelagic nation, Indonesia has a small number of dental specialists and dentists concentrated in its major cities. In addition to saving money and time for consultations, teledentistry plays a critical role in meeting the oral health needs of people living in remote, rural, and/or island areas and improving the accessibility of specialist dentists to these areas. Dentists will be able to make decisions and share patient context more easily when they use teledentistry for specialist consultation, diagnosis, treatment planning, coordination, and continuity of care. The knowledge and attitudes of the dentists who teach at the Indonesian dental faculty have not yet been the subject of any studies. Thus, the purpose of this study is to ascertain the lecturers' degree of teledentistry knowledge at the Faculty of Dentistry, Universitas of Prof. Dr. Moestopo (Beragama) (FKG UPDMB).

## LITERATUR REVIEW

Telehealth is defined as a set of means or methods to health, public health, and health education processes and supported by the use of communication technology. Teledentistry is part of telemedicine that uses technology (such as digital images or videos, electronic medical records, dental x-rays, and the Internet) to facilitate oral health services and health education between patients and dentists in different locations. Teledentistry consultations take place over the phone or via a private video conferencing platform that the patient has authorized. Dentists are not required to be physically present at the clinic, and the communications method selected must ensure compliance with civil law and medical requirements. Real-time teledentistry entails video chats between patients and medical staff who are in different places.

## METHODOLOGY

### **Ethical concern and sample selection**

The Faculty of Dentistry Ethical Committee of University Prof. Dr. Moestopo (Beragama) approved the research in terms of science and ethics (Protocol No:3/KEPK/FGKUPDM/II/2022), and all searches were finished on 10.24.2021. Every participant signed an informed consent form as well. From July to October of 2021, lecturers at the Faculty of Dentistry, Prof. Dr. Moestopo (Beragama) University, participated in this cross-sectional questionnaire study. Following an explanation of the study's goals and procedures, the participants gave their informed consent. The clear statement was that they would only participate voluntarily. Filling out the questionnaires via Google Form was required of the respondents.

The respondents' level of knowledge was gauged using a closed-ended, structured questionnaire with only one possible response. Completing the questionnaire requires answering all of the questions. Eighty lecturers with practice licenses received questionnaires. 30 respondents completed an online administration of each questionnaire to test its validity and reliability. Following a questionnaire validation test, some questions were changed in response to participant feedback, and the survey was then electronically distributed using a Google form. In addition to questions about age, gender, and study year, the questionnaire asked dentists about their length of clinical experience and the number of cases they treat on a regular basis. An assessment of knowledge regarding standard oral medicine practice consisted of eight questions. Respondents were required to select a single choice between "Agree" and "Disagree." The questions were constructed in a way that made "Agree" the right response for every item, earning 1 point, while the incorrect response received no points. By adding up all of the item scores, dividing that total by 11, and expressing the result as a percentage, the participants' knowledge was determined. The respondents' knowledge was rated as "fair" (56-75%), "bad" (<56%), and "good" (>75%).

### Data analysis

Version 23.0 of the Statistical Package for the Social Sciences (SPSS) (SPSS Inc.) was used to upload the data into the statistical analysis program. We used descriptive statistics, such as mean, percentages, and frequencies, to summarize the data. The significant difference in proportions was tested using the chi-square test. After confirming that each assumption met the statistical significance threshold of 5%, each test was run with a 95% confidence interval and a probability level of less than 0.05.

### RESEARCH RESULT

Of the sixty respondents who work at RSGM FKG UPDM(B), sixteen are female (consisting of seven master's degree holders, eighteen specialists, one sub-specialist, six master's degree holders, and seven doctoral degree holders or equivalent); the remaining sixteen are male (Table 1). Table 2 displays the lecturers' mean age, along with their oldest and youngest ages.

**Table 1. Demographic Characteristics of Lecturers**

Gender	Last Educational Background			
	Master	Specialist	Sub-specialist	Doctoral
Male	7	18	1	1
Female	6	19	1	7

**Table 2. Age Frequency Distribution of Lecturers**

Variabel	Mean	Median	Modus	Standard Deviation	Minimum-Maximum
Age of Respondent	44.8	43	37	9.63	30-68

Table 1 displays the distribution of lecturers' years of experience at FKG UPDM(B) in terms of frequency in 2022. Thirteen (21.7%) master's dentists have worked for more than ten years; four (6.7%) are specialists who have worked for five to ten years; thirty-three (55%) have worked for more than ten years; two (3.3%) are sub-specialists who have worked for more than ten years; and eight (13.3%) are doctoral dentists who have worked for more than ten years.

**Table 2. Lecturers' Distribution Frequency of Length of Practice Experience**

Last Education Background	Length of Practice Experience (n)		
	1-5 years	5-10 years	>10 years
Master	0	0	13
Specialist	0	4	33
Sub-specialist	0	0	2
Doctoral	0	0	8

In terms of hours spent online, Table 2 displays the frequency distribution of lecturers. One male sub-specialist dentist uses the internet for 4-6 hours, nine male specialists use it for 4-6 hours, and three male master's degree holders use it for 2-4 hours. Six (10%) doctoral female dentists and seven (11.7%) specialist female dentists work for every four to six hours and longer.

**Table 3. Frequency Distribution of the Lecturers in using Internet Access in Hours**

Gender		Length of time using Internet (hours)	Last Educational Background			
			Master	Specialist	Sub-specialist	Doctor
Male		2-4	3	3	0	0
		4-6	2	9	1	0
		> 6	2	6	0	1
Female		2-4	1	5	0	0
		4-6	3	7	1	6
		> 6	2	7	0	1

Table 3 displays the frequency distribution of RSGM FKG UPDM(B) lecturers' knowledge about teledentistry. There are eleven questions in the questionnaire, and all but number two have accurate answers.

**Table 4. Frequency of Lecturers' Knowledge in Teledentistry**

No.	Questions (Correct Answer)	Scale	n	%
1	The practice of dentistry known as teledentistry uses intraoral camera technology, computers, and the internet to conduct consultations from a distance. (Concur)	Agree	55	91.7
		Not Agree	5	8.3
2	Using intraoral cameras, computers, and internet technology, teledentistry provides accurate dental and oral examinations. (Disagree)	Agree	24	40
		Not Agree	36	60
3	When diagnosing oral soft tissue disease, general dentists receive assistance from teledentistry. (Concur)	Agree	47	78.3
		Not Agree	13	21.7
4	Teledentistry facilitates consultation regarding oral health issues with specialists or based on the patient's overall health. (Concur)	Agree	55	91.7
		Not Agree	5	8.3
5	In light of patients' complaints and conditions, teledentistry has assisted general dentists in appropriately referring patients to other dentists or specialists. (Concur)	Agree	58	96.7
		Not Agree	2	3.3
6	Every area of dentistry has used teledentistry. (Concur)	Agree	30	50.0
			30	50.0

		Not		
		Agree		
7	One great resource during a pandemic is teledentistry. in an effort to lower the chance of the Covid-19 virus spreading. (Concur)	Agree	58	96.7
		Not	2	3.3
8	There are drawbacks to teledentistry and integration challenges with existing dental services, particularly in light of the Covid-19 pandemic. (Concur)	Agree	40	66.7
		Not	20	33.3
9	During the Covid-19 pandemic, dentists have used teledentistry as an educational tool. (Concur)	Agree	59	98.3
		Not	1	1.7
10	In order to provide oral health care, teledentistry makes general dentists and specialists (specialists) more accessible to underserved and rural areas. (Concur)	Agree	51	85
		Not	9	15
11	By enabling general dentists to communicate with specialists during the Covid-19 pandemic, teledentistry helps them overcome their isolation. (Concur)	Agree	59	98.3
		Not	1	1.7
		Agree		

Frequency distribution analysis of knowledge about teledentistry with dentists RSGM FKG UPDM (B) showed that the first question was answered with a is "Yes", it can be seen in Table 4. shows that respondents chose the answer "Yes" as many as 55 people (91.7%) and the answer "No" as many as 5 people (8.3%). In the second question where the correct answer is "No", shows that dentists chose the answer "Yes" as many as 24 people (40%) and the answer "No" as many as 36 people (60%). In the third question with the correct answer being "Yes", the majority of dentists chose the answer "Yes" as many as 47 people (78.3%) and the answer "No" as many as 13 people (21.7%). In the fourth question with the correct answer is "Yes", showed the majority of dentists chose the answer "Yes" as many as 55 people (91.7%) and the answer "No" as many as 13 people (8.3%). The majority of dentists answered "yes" with 58 people (96.7%) and the answer was "no" with 2 people (3.7%).

For the fifth question, 2 people (3.7%) answered "no" when the correct answer is "yes".The correct answer is "Yes". In the sixth question, where the correct answer is "Yes" and dentists showed the same results between choosing "Yes" and "No" and "No" for 30 people (50%). The seventh question with the correct answer the correct answer is "Yes", the majority of dentists chose the "Yes" answer. 58 people (96.7%) and the answer "No" 2 people (3.3%). In the eighth question where the correct answer is "No", showed that the majority of general dentists answered "Yes" as many as 40 people (66.7%) and the answer "No" as many as 2 people (3.3%). On the ninth question, where the correct answer was "Yes", dentists 59 people (98.3%) answered "yes" and 1 person (1.7%) answered "no". The tenth question with the correct answer shows that the majority of dentists answered "Yes" with 51 people (85%) and the answer "No" were 9 people

(15%). The eleventh question with the correct answer the correct answer is "Yes", the majority of dentists answered "Yes" as many as 59 people (98.3%) and the answer "No" was 1 person (1.7%).

Arikunto, cited by Wawan (2010), classifies knowledge into three categories: good (76–100%), fair (56–75%), and poor (0–55%). 27 There were 11 questions in this study, with the correct answers going to the categories of good knowledge, which can answer 9–11 questions, fair knowledge, which can answer 7–8 questions, and poor knowledge, which can only answer 0–6 questions. The study's method of determining knowledge divided the response categories into two categories: agree and disagree. The right answer receives a value of 1, while incorrect answers receive a value of 0. Based on Arikunto's theory (2006), Table 6 presents the findings of an analysis of the frequency distribution of knowledge categories regarding teledentistry during the Covid-19 pandemic. Of the 60 lecturers working in the RSGM FKG UPDM(B) area, 45 lecturers (75%) had good knowledge of teledentistry, 12 lecturers (20%) had fair knowledge, and 3 lecturers (5%) had poor knowledge.

**Table 5. Category of General dentists' Knowledge of Teledentistry**

Category	Quantity (n)	Percentage (%)
Good	45	75
Fair	12	20
Poor	3	5

## DISCUSSION

This study aims to determine the level of knowledge of dentists practicing in RSGM FKG UPDM(B) regarding teledentistry during the Covid19 pandemic. RSGM FKG UPDM (B) regarding teledentistry during the Covid19 pandemic. In this study, 60 dentists were interviewed, consisting of 27 males (45%) and 33 females (35%). The majority of respondents in the majority of study participants were female. The age range of the study's participants was 30 to 68 years old, with the bulk of respondents being 37 years old respondents. At FKG UPDM(B), the majority of the lecturers have more than ten years of practical experience. According to research by Nagarajappa et al. (2013), dentists with more than ten years of experience in the field knew less than dentists with fewer than five and five to ten years of experience. As teledentistry is a relatively new concept, it is understandable that dentists with more practice experience might not be conversant with the new technology.<sup>7</sup>

The majority of study participants use the internet four to six hours a day, with access exceeding six hours. The reason is that, in the midst of the Covid-19 pandemic, dentists limited their patient base, only took appointments over the phone or through other private video conferencing platforms, and only took cases that qualified as dental emergencies.<sup>8</sup> Studies on 60 dentists at RSGM FGK UPDM (B) with the majority of the length of time. Internet access in this study was 4–6 hours, then more than 6 hours each day of access. This is because dentists imposed restrictions and would only take cases classified as dental emergencies

during the Covid-19 pandemic. Prior to the Covid-19 pandemic, research by Nagarajappa et al. (2013) indicates that most respondents used the internet for health-related reasons for less than two hours.

The researcher believes that because the quality of the camera and the internet network can affect the image results, teledentistry is less accurate when performing dental and oral exams. According to a study by Nagarajappa et al. (2013), conducted in July 2012, 105 dentists in Udaipur, India, expressed disagreement with the accuracy of dental examinations conducted using computers and intraoral cameras. Approximately 43% of the dentists disagreed, and 39 respondents thought teledentistry would not become a standard method of providing oral health care. The majority of the lecturers in this study also concur with the findings of Nagarajappa et al.'s (2013) research, which shows that teledentistry is beneficial for consultation, diagnosis, and treatment of orofacial disorders and oral diseases. According to Dar-Odeh et al. (2020) research, professional dentist WhatsApp groups were a very useful tool for dentists to consult with colleagues about patient complaints, particularly those pertaining to infections, during the Covid-19 pandemic lockdown.<sup>9</sup> This condition is comparable to the findings of this study, which showed that teledentistry can help general dentists consult specialists or experts regarding oral soft tissue disease, depending on the patient's systemic condition.

Merely half of the participants concur that teledentistry has applications in all areas of dentistry. This is consistent with a study by Murererehe et al. (2017), which found that 92 dentists accepted the use of teledentistry in all areas of dentistry, including orthodontics, endodontics, prosthodontics, periodontics, pediatric dentistry, oral and maxillofacial surgery, preventive dentistry, and dental education. Most instructors concur that using telemedicine to treat patients during a pandemic can significantly lower the chance of the Covid-19 virus spreading. As per the findings of Dar-Odeh et al (2020), the best approach for dentists to curb the spread of viruses amidst a pandemic such as this one is through teledentistry. Merely forty participants (66.7%) concurred that the integration of teledentistry into extant dental services would pose challenges, particularly amidst the Covid-19 pandemic. The right response to this query is "No." The Covid-19 pandemic has forced social and travel restrictions as a means of containing the disease's spread and increasing the potential applications of telehealth, including teledentistry, in numerous nations.

In response to a question about teledentistry – a tool for dentist education during the Covid-19 pandemic – nearly all responders provided accurate answers. This is consistent with earlier research by Murererehe et al. (2017), who employed the quantitative method to conduct a cross-sectional study on 157 dental professionals. Of them, 95 (92.2%) selected teledentistry as a tool for training and education. The primary advantages of teledentistry, according to Costa et al. cited in the study by Murererehe et al. (2017), are increased access to primary healthcare, more resources available for health professional education, and increased primary healthcare care. When asked whether the goal of teledentistry is to increase the accessibility of general dentists and specialists (specialists) to rural communities, more than 75% of respondents correctly

answered "Agree." This is consistent with the view of Glassman et al., referenced in the study by Murererehe et al. (2017), which states that dental practitioners in isolated locations can interact virtually with more experienced dental specialists or practitioners through teledentistry.

The majority of participants concur that teledentistry helps general dentists feel less alone during the COVID-19 pandemic by connecting them with specialists. According to Murererehe et al. (2017), one of the key components of teledentistry is communication (consultation and referral) with experts (specialists), as this can help break down the barrier of isolation among dental practitioners. The majority of 51 respondents (85%) answered "Yes" as the correct answer. The correct answer to the question, so it can help improve access to providing general and specialized dentistry to rural areas. This is consistent with the view of Glassman et al., referenced in the research of Murererehe et al. (2017), which states that teledentistry allows dentists in isolated locations to consult with specialists or more experienced dentists remotely. 59 respondents (98.3%) answered "yes" as the correct answer to the question of being underserved for oral health care and reduce the isolation of general dentists by providing contact with specialists during the Covid-19 pandemic.

With specialists as a result of their interaction with experts (specialists), 86 out of the respondents to a study by Murererehe et al. (2017) expressed agreement with the statement that teledentistry can lessen dentists' isolation during the Covid-19 pandemic. According to Jain et al. cited by Murererehe et al. (2017), who supported these findings and emphasized that contact with a specialist is among the most significant features of teledentistry since it has the potential to reduce dental professionals' isolation.

## **RECOMMENDATIONS**

The majority of the professors at the Prof. Dr. Moestopo (Beragama) University Faculty of Dentistry were well-versed in teledentistry. Adequate internet access, telecommunications equipment, and dentistry curricula are necessary for teledentistry to function and teledentistry can be used in various conditions to improve the oral health of the Indonesian people.

## **ADVANCED RESEARCH**

Still conducting further research to find out more about Knowledge of Teledentistry Among Lecturers of Faculty of Dentistry Universitas Prof Dr Moestopo (Beragama)

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