

# Knowledge, Attitudes, Awareness towards the Prevention and Control of COVID-19 at the Dental Clinic of RSGM UNSOED

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## ABSTRACT

The increasing number of COVID-19 cases in the last three years has a high potential for the risk of COVID-19 transmission to dentists and dental therapists in health care facilities, including at the UNSOED Dental and Oral Hospital (RSGM). One of the health services at RSGM UNSOED that is at high risk of COVID-19 transmission is a dental clinic. Three-year data (2020-2022) shows that 16 out of 31 people or around 51.6% of dentists and dental therapists at UNSOED Hospital have been confirmed positive for COVID-19. Therefore, the Prevention and Control Covid 19 of COVID-19 infection is very important to be applied as a reference for infection control in and dentists and dental therapists. The purpose of this study is to determine effect of knowledge, attitudes, and awareness about COVID-19 on dentists and dental therapists on the Prevention and Control of COVID-19 infection at the dental clinic of RSGM UNSOED. This type of research is survey with regression analysis. Sampling using non probability sampling technique with saturated sampling, by distributing questionnaires to research samples. The level of significance was set at P values < 0.05. Total participants were 31 people consisting of dentists as much as 71% and dental therapists as much as 29%. The findings of this study are that knowledge variable has a p-value of 0.003 The Attitude variable has a p-value of 0.000. Awareness variable has a p-value of 0.006. The findings of this study are that knowledge, attitudes, and awareness about COVID-19 in dentists and dental therapists at the dental clinic RSGM UNSOED have a positive effect on the Prevention and Control of COVID-19.

**Keyword** : COVID-19, Knowledge, Attitude, Awareness, Dentists and dental therapists, Prevention and Control Covid 19 of COVID-19

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## 1. Introduction

### 1.1 Background of Study

According to WHO in 2022 Coronavirus Disease 19 (COVID-19) is an infectious disease caused by the SARS CoV-2 virus. COVID-19 spread very quickly around the world causing high cases and deaths in a short period of time, and was declared a pandemic by the WHO on 09 March 2020.

Many messages are made to the public through the media (both mass media and social media) for preventive measures such as hand hygiene, cough ethics, social distancing, temperature screening and wearing masks in public places to limit the spread of the COVID-19 disease (Umeizudike et al, 2020). However, as of September 2, 2022, there are 601,189,435 who data. Of these, 6,475,346 died from COVID-19. For Indonesia in 2022 there were 6,366,518

confirmed cases of COVID-19, of which 157,608 died. Especially for dentists and dental therapists in Indonesia as of September 14, 2022, there were 2087 Indonesian dentists and dental therapists who died due to COVID-19, including 46 dentists, and 8 dental therapists ((health workers reported Covid,2022). Meanwhile, data from the dental clinic of RSGM UNSOED from 2020 to September 2022 there were 16 out of 31 people or 51.6% of dentists and dental therapists who had been confirmed positive for COVID-19.

In hospital activities, including the Dental and Oral Hospital (RSGM) of Jenderal Soedirman University (UNSOED) organizes individual health services plenary to provide inpatient, outpatient, and emergency services (Regulation of the Minister of Health of the Republic of Indonesia: 2020) When RSGM UNSOED organizes health services, UNSOED Hospital can be a source of infection for health workers, patients and visitors. Health Care Associated Infections hereinafter abbreviated as HAIs, one of which is infection due to work in hospital staff and dentists and dental therapists related to the health service process in health care facilities (2017).

The human mouth is a fertile environment for the transmission, inoculation, and growth of various infectious and harmful microorganisms (Kohn , 2003; Abreu, 2009). One of the harmful microorganisms is COVID-19 whose transmission method can be through droplets or splashes of saliva from people who are confirmed positive for COVID-19 when coughing and sneezing (Guidelines for Prevention and Control Covid 19 of Coronavirus Disesease (COVID-19) 4th Revision, Ministry of Health of the Republic of Indonesia Director General of P2P, 2020). In carrying out their profession, dentists and dental therapists are inseparable from the possibility of contact directly or indirectly with microorganisms in the patient's saliva and blood. Transmission can be through direct contact with blood, saliva, and other secretions or indirect contact with instruments, equipment, and surface-contaminated environments or contact with air contaminants (SC Deogade, 2018).

Dental clinics make it possible to transmit and obtain infections between staff or individuals, and dental clinic environments can have a higher risk of transmission of COVID-19. In dental clinics, dentists and dental therapists are often exposed to the patient's blood and blood-contaminated saliva during dental treatment, close contact with the patient and the nature of the dental services provided. This allows the transmission of microorganisms, including COVID-19 between dentists, dental therapists and patients (Hader, 2020; Zemouri, 2017). Equally important in the risk of transmission of COVID-19 is emergency measures. although patients diagnosed with COVID-19 are not supposed to receive dental care, dental emergencies may occur, and close contact between patients, dentists and dental therapists is inevitable (Mingyu, 2020).

Therefore, dentists, and dental therapists need to have knowledge, attitudes, and awareness in the Prevention and Control Covid 19 of COVID-19 in carrying out dental services so as to be able to prevent and control the spread of COVID-19 in dental clinics.

### *1.2 Research Question*

Prevention and Control Covid 19 of COVID-19 has an important role in breaking the chain of transmission of COVID-19 so as not to cause new sources of transmission. Given the method of transmission based on small droplets (droplets) from the nose or mouth when coughing or sneezing from individual to individual, transmission can occur anywhere including at a dental clinic.

Based on the factors that affect the Prevention and Control Covid 19 of COVID-19 in hospitals, researchers are interested in researching the following problems:

- Does the knowledge of dentists and dental therapists about COVID-19 have a positive effect on the Prevention and Control Covid 19 of COVID-19 at the dental clinic of RSGM UNSOED?
- Does the attitude of dentists and dental therapists have a positive effect on the Prevention and Control Covid 19 of COVID-19 at the dental clinic RSGM UNSOED?
- Does the awareness of dentists and dental therapists have a positive effect on the Prevention and Control Covid 19 of COVID-19 at the dental clinic of RSGM UNSOED?

## **2. Literature Review**

### *2.1 Knowledge*

According to Dewey (1997) knowledge arises based on his experience. The experiences in question are active-passive interaction, educational experience, continuous principle, quality principle, and interaction principle. Knowledge is not on an intellectual level alone but how it is ultimately able to lead people to act and produce benefits for life. According to Notoatmodjo (2018) Knowledge is the result of a person's knowledge of objects through the senses they have. Knowledge of a person who is not absolutely effected by education because knowledge can also be obtained from past experiences, but the level of education also determines whether or not a person absorbs and understands the information received which then becomes understood

### *2.2 Attitude*

The definition of attitude according to Kotler and Keller (2016 ), attitude is the evaluation, feeling, emotion and tendency of actions that are liked or disliked and persist in a person for a long time towards a certain object or idea. Attitude according to Chaplin (2014) as a predisposition or tendency that is relatively stable and persistent to behave or react in a certain way to a particular object, institution, or problem.

### *2.3 Awareness*

The definition of awareness in the Cambridge international dictionary of English (2014), among others: first, know and be able to express the impact of a behavior. Second, know and be able to express about various settlements. In Humanistic theory, (McLeod: 2007). states that self-awareness is how the individual's attitude in understanding himself, who he is, how to be himself, the potential possessed in himself, the preferred style, the steps that need to be taken, the feelings, the values believed as well as the direction of development perceived. Self-awareness is how a person can understand his own state correctly and as it is.

### *2.4 Prevention and Control Covid 19 of COVID-19*

According to the Regulation of the Minister of Health of the Republic of Indonesia Number 27 of 2017 concerning Guidelines for Infection Prevention and Control Covid 19 in Health Service Facilities, Infection Prevention and Control Covid 19 (hereinafter abbreviated as PPI) is an effort to prevent and minimize the occurrence of infections in patients, officers, visitors, and the community around health service facilities. Based on this, the Prevention and Control Covid 19 of COVID-19 is an effort to prevent and minimize the occurrence of COVID-19 infection in patients, officers, visitors, and the community around health service facilities

### 3. Research Methodology

This type of research is survey with regression analysis. Neuman W Lawrence (2003) states that survey research is quantitative research. In survey research, the researcher asks several people (respondents) about past or present beliefs, opinions, characteristics of an object and attitudes. Methods Survey research deals with questions about one's own beliefs and behavior. Survey research uses questionnaires as the main data collection tool, and in this study no treatment was carried out on respondents. Meanwhile, according to Nawari (2010), regression analysis is a simple method to investigate the functional relationship between several variables. The relationship between these variables is realized in a mathematical model. In the regression model, the variables themselves are divided into 2 (two) parts, namely the response variable or also known as the dependent variable and the predictor variable or also known as the independent variables.

The target population in this study was dentists and dental therapists who worked in the dental clinic of RSGM UNSOED which amounted to 31 people, Sampling the number of samples using non-probability sampling techniques with saturated sampling. Saturated sampling is a sample determination technique if all members of the population are used as samples (Sugiyono, 2013).

#### 3.1 Hypothesis

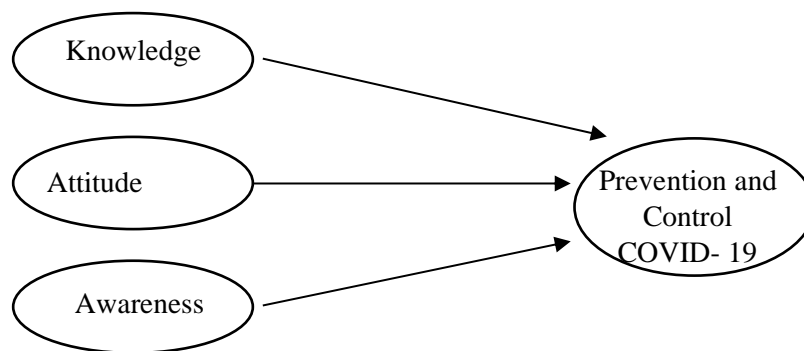


Figure 1. The image of this research model is

### 4. Results

Descriptive statistics provide information about the minimum value (min), maximum value (max), average value (mean) and standard deviation (std.deviation) of each variable which is presented in the table below.

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Knowledge	31	1.000	2.000	1.904	.0455707
Attitude	31	1.000	5.000	4.571	.5267189
Awareness	31	1.000	5.000	3.705	.8181046
Prevention & control	31	1.000	5.000	4.286	.1085203
Valid N (listwise)	31				

In the results above, it is concluded that the knowledge variable has the smallest standard deviation value of 0.04557 which indicates that the variable with a small random error rate. In

contrast to the awareness variable, it has the largest random error potential of 0.8181. The normality test used in this study was the One-Sample Kolmogorov-Smirnov test (1 Sample K-S). The following are the results of the normality test from data processing using the test.

Table 2. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		31
Normal Parameters <sup>a,b</sup>	Mean	.0000000
	Std. Deviation	.10747070
Most Extreme Differences	Absolute	.104
	Positive	.104
	Negative	-.091
Test Statistic		.104
Asymp. Sig. (2-tailed)		.057 <sup>c</sup>

- Test distribution is normal.
- Calculated from data.
- Lilliefors Significance Correction.

Obtained a p-value of 0.057 which is greater than the level of confidence, namely = 5% or 0.05. So it can be concluded that the data in this study were normally distributed. The test results of multiple linear regression analysis are as follows

Table 3. Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.181	.032		5.660	.000
	Knowledge	.440	.239	.019	4.186	.003
	Attitude	.511	.021	.054	3.527	.000
	Awareness	.638	.014	.116	4.118	.006

- Dependent Variable: Prevention & control COVID-19

Based on the above, the multiple linear regression equation model in this study is as follows:

$$\text{Prevention \& control} = 0.181 + 0.440 x_1 + 0.511 x_2 + 0.638 x_3 + e$$

$$Y = \text{Prevention \& control COVID-19}$$

$$X_1 = \text{Knowledge}$$

$$X_2 = \text{Attitude}$$

$$X_3 = \text{Awareness}$$

Test the coefficient of determination to measure how far the ability of the independent variables in explaining the dependent variable. The value used in the coefficient of determination is 0 to 1. The following table of Coefficient of Determination.

Table 4. Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.939 <sup>a</sup>	.919	.970	.1090551

- Predictors: (Constant), Awareness, Knowledge, Attitude

- Dependent Variable: Prevention & control COVID-19

From the output in the table above, it is explained that the adjusted R square value (coefficient of determination) is 0.970, which means that the effect of the independent variables, namely Knowledge, Attitude, and Awareness, is able to explain Prevention & control COVID-19 of 97.0%. Meanwhile, the remaining 3.0% is explained by other variables outside the research model.

The F statistic test is used in hypothesis testing with the aim of knowing whether the independent variables jointly affect the dependent variable. The F statistic test uses a test tool in the form of Analysis of Variance (ANOVA).

Table 6. ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.024	3	.008	6.661	.008 <sup>b</sup>
	Residual	1.201	101	.012		
	Total	1.225	104			

- Dependent Variable: Prevention & control COVID-19
- Predictors: (Constant), Awareness, Knowledge, Attitude

In the table it can be seen that the significance value is 0.008 and this value is smaller than the confidence level of 5%. Thus, it can be concluded that the independent variables, namely Knowledge, Attitude, and Awareness simultaneously affect the dependent variable, namely Prevention & control COVID-19.

## 5. Discussion

This study conducted a test between the independent variables on the dependent variable. Based on the test results using the Statistical Package for the Social Sciences (SPSS) version 22.00 program, simultaneously Knowledge, Attitude, and Awareness affect the dependent variable Prevention & control. In addition, it is known from the t test to prove that the variables Knowledge, Attitude, and Awareness, has partial effect on the dependent variable Prevention & control COVID-19.

From the observation table, the Knowledge variable has a p-value of 0.003 where this value is smaller than the 5% confidence level. Then Unstandardized beta is positive (0.440). This means that H1 is rejected and H0 is accepted. Thus it can be said that Knowledge has a positive and significant effect on the Prevention & Control of COVID-19. This is in accordance with research conducted by Mustafa (2020) on Dentists in Saudi Arabia which states that knowledge and attitudes are positive towards COVID-19.

The Attitude variable has a p-value of 0.000 where this value is smaller than the 5% confidence level. Thus, it can be concluded that Attitude has a positive and significant effect on COVID-19 Prevention & Control. This result is supported by previous research conducted by Umeizudike (2020) which stated that clinical dentistry students had positive attitudes towards infection control practices against COVID-19.

The awareness variable has a p-value of 0.006 where this value is smaller than the 5% or 0.05 confidence level. Then the non-standardized beta is positive (0.638). This means that H1 is rejected and H0 is accepted. Thus, it can be said that Awareness has a positive effect on the Prevention & Control of COVID-19. The results as done by Widyanman (2020) which stated that Knowledge and awareness about COVID-19 among Indonesian dentists was quite good.

## 6. Conclusion

The findings of this study are that knowledge, attitudes, and awareness about COVID-19 in dentists and dental therapists at the dental clinic RSGM UNSOED have a positive effect on the Prevention and Control of COVID-19. However, further improvements to these three variables, such as attending education and training on COVID-19 prevention and control, will be beneficial for improving the quality of dental services.

## References

- Abreu MH, Lopes-Terra MC, Braz LF, Rímulo AL, Paiva SM, Pordeus IA. (2009) *Attitudes and behavior of dental students concerning infection control rules: A study with a 10-year interval*. Braz Dent J 2009;20:221-5.
- Chaplin, J.P. (2014). *Kamus Lengkap Psikologi*. Depok: Rajawali Pers. Cambridge international dictionary of English (2014), Published March 31st 1995 by Cambridge University Press.
- Dewey, John, (1997). *Experience and Education*. New York (1997) Hader Y, Al Nsour M, Al-Batayneh O, Saadeh Rami, Bashier H, Alfaqih M, Al-Azzam S, AlShurman B.(2020). *Dentists' Awareness, Perception, and Attitude Regarding COVID-19 and Infection Control: Cross-Sectional Study Among Jordanian Dentists*. JMIR Public Health Surveill 2020;6(2):e18798. doi: 10.2196/18798
- Informasi definisi Covid 19 menurut WHO website. [https://www.who.int/health-topics/coronavirus#tab=tab\\_1](https://www.who.int/health-topics/coronavirus#tab=tab_1)
- Informasi angka kasus dan angka kematian akibat COVID-19 diseluruh dunia oleh WHO website. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
- Informasi jumlah tenaga kesehatan di Indonesia yang gugur akibat COVID-19 website: <https://nakes.laporcovid19.org/statistik>
- Kementerian Kesehatan Republik Indonesia mengenai kasus terkonfirmasi, Kasus Sembuh, Kasus Meninggal, Kasus Aktif pasien COVID-19 website. <https://infeksiemerging.kemkes.go.id/dashboard/COVID-19>
- Kohn WG, Collins AS, Cleveland JL, Harte JA, Eklund KJ, Malvitz DM; (2003) Centers for Disease Control and Prevention (CDC). Guidelines for infection control in dental health-care settings- MMWR Recomm Rep 2003;52:1-61
- Kotler, Philip and Kevin Lane Keller, (2016): *Marketing Management*, 15th Edition New Jersey: Pearson Prentice Hall, Inc.
- McLeod, S. A. (2007). Maslow's Hierarchy of Needs. Retrieved from <http://www.simplypsychology.org/maslow.html>
- Mingyu W, Shizhong L, Yibo W.(2020). *Overview of Emergency Management and Disaster Medicine in the Context of COVID-19*. Journal of Emergency Management and Disaster Communications, Vol. 1, No. 1 DOI: 10.1142/S2689980920400059
- Notoatmodjo, S. (2018) *Metodologi Penelitian Kesehatan*. Jakarta : Rineka Cipta, *Peraturan Menteri Kesehatan Republik Indonesia Nomor 3 (2020) Tentang Klasifikasi Dan Perizinan Rumah Sakit*.

- Peraturan Menteri Kesehatan Republik Indonesia Nomor 27 (2017) *Tentang Pedoman Pencegahan Dan Pengendalian Infeksi Di Fasilitas Pelayanan Kesehatan*
- SC Deogade, Suresan V, A Galav, J Rathod, SS Mantri, SM Patil.(2018). *Awareness, Knowledge, and Attitude of Dental Students toward Infection Control in Prosthodontic Clinic of a Dental School in India*. *Nigerian Journal of Clinical Practice* | Volume 21 | Issue 5 | May 2018
- Sterman, John D. (2000). *Business Dynamics: Systems Thinking and Modelling for a Complex World*. McGraw-Hill Inc.
- Sugiyono (2013). *Metode penelitian kuantitatif, Kualitatif, dan R and D*. Bandung: Alfabeta
- K, Isiekwe I, Fadeju A, Akinboboye B, Aladenika E.(2020). *Nigerian undergraduate dental students' knowledge, perception, and attitude to COVID-19 and infection control practices*. *J Dent Educ*. (2021) ;85:187–196 DOI: 10.1002/jdd.12423.
- Zemouri C, de Soet H, Crielaard W, Laheij A.(2017) *A scoping review on bio-aerosols in healthcare and the dental environment*. *PLoS One* 2017;12(5):e0178007.[doi: 10.1371/journal.pone.0178007] [Medline: 28531183]
- Al-Hanawi, M. K., Angawi, K., Alshareef, N., Qattan, A. M., Helmy, H. Z., Abudawood, Y., ... & Alsharqi, O. (2020). *Knowledge, attitude and practice toward COVID-19 among the public in the Kingdom of Saudi Arabia: a cross-sectional study*. *Frontiers in public health*, 8, 217.
- Ferdous, M. Z., Islam, M. S., Sikder, M. T., Mosaddek, A. S. M., Zegarra-Valdivia, J. A., & Gozal, D. (2020). *Knowledge, attitude, and practice regarding COVID-19 outbreak in Bangladesh: An online-based cross-sectional study*. *PloS one*, 15(10), e0239254.
- Maheshwari, S., Gupta, P. K., Sinha, R., & Rawat, P. (2020). *Knowledge, attitude, and practice towards coronavirus disease 2019 (COVID-19) among medical students: A cross-sectional study*. *Journal of Acute Disease*, 9(3), 100.
- Maude, R. R., Jongdeepaisal, M., Skuntaniyom, S., Muntajit, T., Blacksell, S. D., Khuenpetch, W., Maude, R. J. (2021). *Improving knowledge, attitudes and practice to prevent COVID-19 transmission in healthcare workers and the public in Thailand*. *BMC Public Health*, 21(1), 1-14.
- Mustafa, R., Alsahli, R., Bukhary, D. (2020). *Dentists' Knowledge, Attitudes, and Awareness of Infection Control Measures during COVID-19 Outbreak: A Cross-Sectional Study in Saudi Arabia* *Int. J. Environ. Res. Public Health* 2020, 17(23), 9016; <https://doi.org/10.3390/ijerph17239016>.
- Ngwewondo, A., Nkengazong, L., Ambe, L. A., Ebogo, J. T., Mba, F. M., Goni, H., Oyono, J. L. E. (2020). *Knowledge, attitudes, practices of/towards COVID 19 preventive measures and symptoms: A cross-sectional study during the exponential rise of the outbreak in Cameroon*. *PLoS neglected tropical diseases*, 14(9), e0008700.
- Reuben, R. C., Danladi, M., Saleh, D. A., & Ejembi, P. E. (2021). *Knowledge, attitudes and practices towards COVID-19: an epidemiological survey in North-Central Nigeria*. *Journal of community health*, 46(3), 457-470.
- Widyarman, S., Bachtiar, E., Theodorea, C-, Rizal, M., Roeslan, M., Djamil M., Santosa, D., Bachtiar, B.(2020). *COVID-19 Awareness Among Dental Professionals in Indonesia*. <https://doi.org/10.3389/fmed.2020.589759>.



- Wolf, T., De Col, L., Rad, S., Castiglia, P., Arghittu, A., Cannavale, M., Campus, G. (2022). *How the COVID-19 Pandemic Affects Risk Awareness in Dentists: A Scoping Review*. *nt. J. Environ. Res. Public Health* 2022, 19(9), 4971; <https://doi.org/10.3390/ijerph19094971>.
- Yang, K., Liu, H., Ma, L., Wang, S., Tian, Y., Zhang, F., Jiang, X. (2021). *Knowledge, attitude and practice of residents in the Prevention and Control Covid 19 of COVID-19: An online questionnaire survey*. *Journal of advanced nursing*, 77(4), 1839-1855.
- Yue, S., Zhang, J., Cao, M., & Chen, B. (2021). *Knowledge, attitudes and practices of COVID-19 among urban and rural residents in China: a cross-sectional study*. *Journal of community health*, 46(2), 286-291.