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Predisposing Factors in Dental and Oral Health Care During COVID-19

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Abstract

Background: Until this study was designed, there have been no studies related to internal risk factors from the patient's side in carrying out oral health care during the COVID-19 period, especially in Malang City. The purpose of this study was to determine the relationship between internal determinants of visitors to the Malang City Health Center in carrying out dental health care during the covid 19 period.
Methods: The research design in this study was quantitative observational with a cross sectional approach. In this study cluster, random sampling was conducted in 4 sub-districts in Malang. The number of samples is 343 respondents. The instrument used was a questionnaire with the variables measured were attitudes, motivations, knowledge, perceptions and actions to take care of. The analysis used was univariate using percentages, bivariate using chi-square test and multivariate using logistic regression.
Result: The results of the analysis obtained that the influence on the act of performing treatment can be explained by 23.5 percent by perceptions, motivations, knowledge, and attitudes, while the rest of the other influences are explained by other factors.
Conclusion: The motivation and attitude variables of the respondents showed a significant influence. Meanwhile, the respondent's perception and knowledge variable did not show any significant effect.

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INTRODUCTION

Dental and oral health is a leading indicator of health, well-being and overall quality of life (World Health Organisation (WHO), n.d.). Globally, an estimated 2.3 billion people suffer from permanent dental caries and more than 530 million children suffer from primary dental caries (James et al., 2018)Meanwhile, according to the 2018 Basic Health Research (Riskesdas) it was stated that the largest proportion of dental problems in Indonesia was damaged/cavities/sick teeth (45,3%) (Kementerian et al., n.d.) . In East Java itself, Riskesdas data in 2018 shows that Malang ranks first with 55.64% of the population having damaged/cavities/sick teeth problems (Tim Riskesdas, 2019).

Covid-19 (Corona Virus Disease 2019) is now a world health problem due to the increasing number of confirmed cases with the rapid spread of the virus (Hadumaon Siagian, 2020). Indonesia is currently faced with the threat of a third wave of Covid due to a new variant of the Covid-19 virus (Infeksi Emerging Kementerian Kesehatan RI, n.d.). The latest is the Omicron variant which is known to have a faster transmission rate than the Delta variant (Duong et al., 2022; Infeksi Emerging Kementerian Kesehatan RI, n.d.; Sofonea et al., 2022). Based on epidemiological and virological studies, generally Covid-19 is transmitted through droplets (Kampf et al., 2020) from symptomatic (symptomatic) people to other people who are nearby (Kementerian Kesehatan RI, 2020). According to the ministry of health, visits to the dentist for treatment or other measures decreased during the COVID-19 pandemic (Sari, 2021). This is understandable because people are worried about the risk of contracting COVID-19 as well as dentists in providing services. Internal factors have an important role in making a person's decision to take an action, especially in the management of dental and oral health services. This is for the success of dental and oral health services during the COVID-19 pandemic.

However, until this study was designed, there have been no studies showing the role of internal risk factors from the patient's perspective in performing oral health care during the COVID-19 period, especially in the city of Malang. Even though this information is very important to synergize the problem of decreasing visits to dentists in Malang City during the Covid 19 period with what policies are appropriate and safe to do for dental and oral health services during the Covid 19 period. Therefore, it is necessary to immediately conduct a study on the factors of internal risks of dental and oral health management during the covid 19 period in Malang City. The purpose of this study was to determine the relationship between internal determinants of visitors to the Malang City Health Center in carrying out dental health care during the COVID-19 period.

METHODS

The research design used in this study was quantitative observational with a cross sectional approach. This research was conducted in August 2022 at the Malang City Health Center. The population of this study were all patients who visited the Malang City Health Center, namely 1918 patients. This study used cluster random sampling. In this study, cluster random sampling was conducted in 4 sub-districts in Malang by taking one health center in each sub-district, so that 4 health centers were taken. The selected health centers are Dinoyo Health Center, Bareng Health Center, Janti Health Center and Gribig Health Center. Based on calculations using the Slovin formula, a minimum sample size of 343 respondents was obtained. Data collection techniques in this research used a questionnaire to conduct interviews with respondents.

The instrument used is a questionnaire with independent variables being attitudes, motivations, knowledge and perceptions of visitors to Public Health Center in Malang City. Meanwhile, the dependent variable measured was the act of performing dental and oral health care at the Malang City Health Center. Before distributing the questionnaire to the sample, a construct validity test was conducted which consisted of expert validity and item validity (question items). Expert validity is carried out by 1 lecturer who is an expert in the field of health behavior science. Item validity was calculated using Pearson's Product Moment test, while Cronbach's Alpha technique was a

technique used to perform reliability tests. The rating scale on the questionnaire uses a Likert scale with a score of 1-4. The variable statement of each respondent who has been given a score will be cumulative and the cumulative value will be divided by the maximum score of answers per variable and will be multiplied by 100%. The value is then categorized as high if the value is >50% and will be categorized as low if the value is 50%. Data analysis was performed using univariate analysis using percentages, bivariate using chi-square test and multivariate using logistic regression. This research has conducted an ethical test at the ethics commission at the Health Polytechnic of the Ministry of Health of Malang with certificate number Reg. No.: 568/KEPK-POLKESMA/2022.

RESULT AND DISCUSSION

The Association between internal determinants of oral health management during the covid 19 period

Based on bivariate and multivariate data analysis, the results are presented in the tabulation. The results of the bivariate analysis using the chi-square test are as follows:

Table 1. The association between internal risk factor variables and the act of performing oral health care during the COVID-19 period

Components	Doing Treatment				Total		*Sig.*
	No		Yes				
	n	%	n	%	n	%	
Perception							
Low	11	3,2	15	4,4	26	7,6	0,012
High	212	61,8	105	30,6	317	92,4	
Motivation							
Low	16	4,7	29	8,5	45	13,1	0,000
High	207	60,3	91	26,5	298	86,9	
Knowledge							
Low	8	2,3	8	2.3	16	4,7	0,197
High	215	62,7	112	32,7	327	95,3	
Attitude							
Low	62	18,1	80	23,3	142	41,4	0,000
High	161	46,9	40	11,7	201	58,6	

The cross tabulation between perception and treatment was obtained from 26 people who had low perception, the majority of whom did treatment as many as 15 people or 4.4 percent of all respondents. Then from 317 people who have a high perception, the majority do not take care of 212 people or 61.8 percent of all respondents. The chi-square test between perception and treatment obtained a significance value of 0.012. These results indicate a significance value of less than 0.05 (sig < 0.05) so it is stated that there is a significant relationship between perception and treatment.

The cross tabulation between motivation and treatment was obtained from 45 people who had low motivation, the majority of whom did treatment as many as 29 people or 8.5 percent of all respondents. Then from 298 people who have high motivation, the majority do not take care of 207 people or 60.3 percent of all respondents. The chi-square test between motivation and treatment obtained a significance value of 0.000. These results show a significance value of less than 0.05 (sig < 0.05) so it is stated that there is a significant relationship between motivation and treatment.

The cross tabulation between knowledge and treatment was obtained from 16 people who had low knowledge, the majority of whom did the treatment as many as 8 people or 2.3 percent of all respondents. Then from 327 people who have high knowledge, the majority do not take care of 215 people or 62.7 percent of all respondents. The chi-square test between knowledge and treatment obtained a significance value of 0.197. These results show a significance value of more than 0.05 (sig > 0.05) so it is stated that there is no significant

relationship between knowledge and treatment.

Cross tabulation between attitude and treatment was obtained from 142 people who had a low/negative attitude, the majority of them were 80 people or 23.3 percent of all respondents. Then from 201 people who have a high/positive attitude, the majority do not take care as many as 161 people or 46.9 percent of all respondents. The chi-square test between attitude and treatment obtained a significance value of 0.000. These results indicate a significance value of less than 0.05 (sig < 0.05) so it is stated that there is a significant relationship between attitude and treatment.

In the results of multivariate data analysis using logistic regression, the following results were obtained:

Table 2
Multivariate test results of internal risk factor variables on actions to perform oral health care during the covid 19 period

Independent Variable	regression coefficient	Wald	Sig.	Desc.
Perseption	-0.534	1.242	0.265	Not significant
Motivation	-1.235	11.109	0.001	Significant
Knowledge	0.288	0.268	0.605	Not significant
Attitude	-1.621	39.655	0.000	Significant

The effect of perception on the action of taking care obtained a regression coefficient of -0.534 with a significance value of 0.265. These results indicate a significance value of more than 0.05 (sig > 0.05) so it is stated that there is no significant effect between perceptions of the treatment action, meaning that the higher the respondent's perception will not have a significant effect on the treatment action.

The effect of motivation on the action of taking care obtained a regression coefficient of -1.235 with a significance value of 0.001. These results indicate a significance value of less than 0.05 (sig < 0.05) so it is stated that there is a significant negative effect between the motivation to perform treatment, meaning that the higher the respondent's motivation will have a significant effect on not taking care.

The effect of knowledge on the action of taking care obtained a regression coefficient of 0.288 with a significance value of 0.605. These results show a significance value of more than 0.05 (sig > 0.05) so it is stated that there is no significant effect between knowledge on the action of performing a treatment, meaning that the higher the respondent's knowledge will not have a significant effect on the action of performing the treatment.

The effect of attitude on the action of taking care obtained a regression coefficient of -1.621 with a significance value of 0.000. These results show a significance value of less than 0.05 (sig < 0.05) so it is stated that there is a significant negative effect between attitudes towards the act of taking care, meaning that the higher/positive the respondent's attitude will have a significant effect on not taking care.

Table 3
Coefficient test results of internal risk factor variables on the action of performing oral health care during the covid 19 period

Independent Variable	Dependent Variable	R Square
Perseption Motivation Knowledge Attitude	Action Performing Treatment	0.235

The results of the coefficient of the determination indicate the large influence between the independent variables on the dependent variable. The results of the analysis obtained an R Square value of 0.235, which means that high perceptions, motivations, knowledge, and attitudes contributed 23.5% to the action of taking care while the rest of the other influences were explained by other factors. Respondents with high perceptions, motivations, knowledge, and attitudes have a 23.5% chance of taking care actions.

The existence of restrictions during the pandemic has had a major impact on health services, especially in the field of dental health care. Through this study, we tried to find out the relationship between the internal determinants of visitors to the Malang City Health Center in carrying out dental health care during the COVID-19 period. In total there were four variables studied, from the results of multivariate analysis two of them showed a significant effect and the remaining two did not show a significant effect. Statistically, we found that respondents' perception and knowledge will not have a significant effect on the treatment action. The absence of a significant effect of perception on dental care may occur due to interactions with other variables, considering that the R square value of the four variables is 23.5%.

Dentists have a high risk of being infected with COVID-19 because they are exposed to droplets directly when working with patients(Fallahi et al., 2020; Spagnuolo et al., 2020; Umeh et al., 2021). The patient's awareness of contracting an infection during the handling procedure is one of the considerations in carrying out dental care in health services (Ahmed et al., 2020; Kokane et al., 2022). One study reported that patients who thought they could be infected with COVID-19 during dental treatment and were likely to be infected by other patients at the treatment site had higher anxiety scores than those who thought otherwise (Karagözoğlu & Parlar, 2021). The fear of infection at the treatment site and the absence of complaints related to dental and oral health may be a reason for patients to delay or even not do the dental treatment at a dental health facility. Another study conducted in Madrid found that 30.9% of the respondents studied were afraid to go to the dentist because of the possibility of being infected with COVID-19, although more than half of the respondents continued to go for reasons of unfinished treatment (González-Olmo et al., 2022). In line with these findings, the research conducted by Nair et al. (2021) stated that more than half of their research respondents visited the dentist only if they had dental health problems (Nair et al., 2021).

The majority of respondents in our study fall into the high category in all internal determinant variables, but most of the respondents in this category do not perform dental care in health facilities. Respondents in the low category mostly performed dental treatment at health facilities. A study in Beijing, China found that at the beginning of the COVID-19 pandemic the frequency of patient visits to emergency dental services decreased by 38% compared to before, accompanied by a significant change in the distribution of dental problems (Guo et al., 2020). During the COVID-19 pandemic, there was a decrease in the frequency of patient visits to the dentist and patients who visited usually aimed at getting emergency dental care (Erkan et al., 2021; Majeed et al., 2021). The inability to distinguish between emergency and non-emergency situations may be the reason for the respondents in this study to perform the dental treatment. Research conducted from December 2020 to March 2021 found that most of the respondents who chose to visit dental care facilities could not clearly distinguish between emergency and non-emergency conditions (Erkan et al., 2021).

The high score of the respondents in our study shows that respondents are aware of the importance of implementing health protocols. In addition to concerns about infection during treatment, the implementation of health protocols in dental health facilities is also one of the considerations for patients to come to dental health services. The implementation of the COVID-19 vaccination, the lifting of social distancing, the reopening of dental clinics as well as a statement from the government helps patients feel safe to come back to dental health facilities (Moffat et al., 2021). The application of good social distancing and the use of masks by

health workers also gives patients a feeling of calm in receiving health services (Mawardi et al., 2022). A survey involving 904 respondents from 25 countries found that after the lifting of the curfew, 48% of respondents stated that it was possible to visit a dental care facility although more than half tended to delay visits by >4 weeks and the other half tended to use tele-dental. (Mawardi et al., 2022). Another study in Germany also found that one in five people delay dental visits, especially for routine dental check-ups due to the COVID-19 pandemic (Hajek et al., 2021).

One of the stages of the dental and oral service scheme during the COVID-19 pandemic is screening through communication media or teledentistry (Kementerian Kesehatan RI, 2021). Teledentistry can be a solution for patients who are worried about direct contact during dental health services. There are four parts of teledentistry, namely teleconsultation, telediagnosis, teletriage, and telemonitoring (Ghai, 2020). During the lockdown period, consultations provided by dental health workers through teledentistry contributed to overcoming the patient's dental health problems when dental health facilities were not available or not operating (Achmad et al., n.d.; Nair et al., 2021).

CONCLUSION

Based on the results of the study, it can be concluded that high attitudes and motivation have a significant effect on the act of not taking care. Meanwhile, the variable of respondents' perception and high knowledge had no significant effect on the treatment action. Respondents with high perceptions, motivations, knowledge, and attitudes have a 23.5% chance of taking care actions. The suggestion in this study is that the use of teledentistry can be a solution during the covid 19 period to support the achievement of optimal dental health.

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