

Effectiveness of online education about actions of 3G motions to maintain children's oral health in the new normality era of the COVID-19 Pandemic

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ABSTRACT. The actions of 3G are three motions to maintain oral health: brushing teeth, using mouthwash, and changing the toothbrush once in 3 months. People have to brush their teeth twice a day in the morning and night before sleeping, using mouthwash, and evolving their toothbrush once in 3 months is the third movement of 3G. These actions can clean teeth from bacteria and viruses. This study aims at analyzing the effectiveness of online education about the actions of 3G to maintain oral health during the COVID-19 Pandemic. This research is a cross-sectional analytical study with data collection using a questionnaire conducted online through an electronic questionnaire form held on June 17, 2021. Respondents in this study were 52 fourth-grade SD Kartika 1-11 Padang students selected by purposive sampling technique. The research data were processed with SPSS statistical software. This study reveals education about 3 G increase the knowledge of children about the importance of brushing teeth, using mouthwash, and changing toothbrush once in 3 months, besides the low effectiveness of online education about 3 G. This study concludes that online education was not effective to increase respondent's knowledge about actions of 3 G to maintain oral health during the Covid 19 pandemic.

KEYWORDS: Oral health education, toothbrush, mouthwash, 3G, COVID-19 virus

INTRODUCTION

The 3 G motions consist of three motions; the first is brushing your teeth twice daily. Brushing your teeth twice a day is a must. However, many students still do not understand the right time and technique for brushing their teeth, so oral hygiene has not been achieved optimally. Brushing your teeth using a toothbrush is a form of mechanical plaque removal.

Many toothbrushes are available in various sizes, shapes, textures, and designs with varying degrees of hardness from the bristles. One of the causes of the many forms of toothbrushes available is the variation in brushing time and toothbrushing motion ².

The second 3G motion is using mouthwash. During the COVID-19 Pandemic, Povidone-Iodine (PVP-I) is one of the ingredients in mouthwash that is believed to reduce the risk of infection during the COVID-19 Pandemic. PVP-I is a safe therapy when used as a mouthwash.

Research by Eggers et al. In 2018, it was known that the decrease in coronavirus titers reached more than 99.99% after the use of Povidone iodine mouthwash. According to the PDGI recommendations, using Povidone-Iodine in children has rules for children aged six years and over ^{6,8}.

The third 3G motion is replacing your toothbrush every three months. Both the American

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Dental Association (ADA) and the Centers for Disease Control and Prevention (CDC) replace toothbrushes every three months. In addition to brushing your teeth, using mouthwash, and changing your toothbrush are essential in maintaining dental and oral health because the bristles that are damaged and forced to brush your teeth can harbor more bacteria. It can cause bacteria to re-accumulate in the oral cavity and cause repeated infections, gum inflammation, and tooth decay⁶.

The COVID-19 Pandemic affects people, including children in Indonesia, because the COVID-19 virus is a virus that is transmitted efficiently. One way of transmitting the COVID-19 virus is through droplets when someone coughs or sneezes.

Many assume that children are more resistant when exposed to the coronavirus (COVID-19) than at other ages. Still, the results of a study conducted by the Cipto Mangunkusumo Hospital (RSCM) Jakarta team showed otherwise.

The study's results stated that 40% of pediatric patients infected with COVID-19 were at high risk of death. The study was conducted in March-October 2020 by examining 490 pediatric patients treated for COVID-19^{1,8}.

MATERIALS AND METHODS

Research on the effectiveness of online education about 3G motions to maintain children's oral health in the new standard period of the Covid 19 pandemic is an effort from the Faculty of Dentistry, Andalas University, to find out the effectiveness of online education on how to maintain dental and oral health with the 3G motions during the COVID-19 Pandemic.

This research is a sectional with data collection using a questionnaire conducted online through an electronic questionnaire form held on June 17, 2021, with the participation of 16 lecturers from the Faculty of Dentistry, Andalas University.

RESULTS

Based on the frequency distribution table for each of the questions above, it can be concluded that there was an increase in the score between 1.9-17.3% for each question. In the pretest, almost half of the respondents (40.4%) said they did not know that povidone or betadine mouthwash effectively

Effective prevention that can be done is to apply cough and sneeze etiquette, wear masks and improve PHBS, namely Clean and Healthy Life Behavior, such as diligently washing hands with soap or cleaning hands with a disinfectant liquid which is often called a hand sanitizer. Besides that, it is also essential to maintain oral and dental health, especially during this COVID-19 Pandemic. The mouth is the entry point for bacteria and viruses, including the COVID-19 virus^{6,7}.

Students' knowledge about healthy living behavior, including dental and oral health, is essential because high student knowledge of healthy living behavior will be a driving force for students' conscious efforts to maintain and improve their health through healthy living behavior. Knowledge is the most critical domain for the formation of one's actions.

Based on the Competence standard at the elementary school level, education on healthy living behaviors to maintain and improve health in schools is one for maintaining oral health. Therefore, knowing children's knowledge about the 3G motions is essential.

The respondents in this study were 52 fourth-grade SD Kartika 1-11 Padang students selected by purposive sampling technique. The number of questions in the questionnaire is ten closed questions with a value of 1 if the answer is correct and 0 if the answer is incorrect.

The research data were processed with SPSS statistical. The respondent carried out a pretest before the intervention was implemented, namely in the form online, by explaining an explanation of the 3G Motions. The posttest was conducted after providing online education to determine the respondent's understanding after the intervention was given.

reduced COVID-19 infection, and (50%) knew how long the duration of gargling. All respondents (100%) in the posttest knew good brushing motions. It can be seen that the frequency distribution for each question in the pretest ranges from 40%-98%, while in the posttest, it increases from 42%-100%.

Table 1. Frequency Distribution of Pretest and Post-test

No.	Questions	Pretest		Post-Test		Increase
		True	%	True	%	%
1	Do you brush your teeth after breakfast?	31	59.6	40	76.9	17.3
2	Do you brush your teeth before going to bed?	47	90.4	48	92.3	1.9
3	Do you brush all areas of your mouth from the outside to the gums?	50	96.2	49	94.2	-2
4	Do you always brush your tongue?	28	53.8	30	57.7	3.9
5	Is a good brushing motion fast and coarse?	51	98.1	52	100	1.9
6	Have you ever used mouthwash?	23	44.2	22	42.3	-1.9
7	Do you know how long gargling lasts?	26	50	29	55.8	5.8
8	Do you know how many times to rinse your mouth in a day?	32	61.5	35	67.3	5.8
9	Do you know that povidone iodine or betadine mouthwash effectively reduces covid 19 virus infection?	21	40.4	22	42.3	1.9
10	Do you change your toothbrush every three months?	46	88.5	50	96.2	7.7

From Table 2, it can be seen that the average increase in respondents' knowledge was 0.42, from 6.83 during the pretest to 7.25 posttest.

Table.2 Table of Student Knowledge Description Knowledge

Mean	Min	-Max
Pre Test	6.83	4-10
Post Test	7.25	4-10
0.42		

From Table 3, it can be seen that there was an increase in the average knowledge of respondents when the pretest 6.83 ± 1.530 increased becomes 7.25 ± 1.781 . The statistical test results obtained a p-value of 0.191, meaning a significant relationship exists between the pretest before intervention and the

posttest. It has been proven that there is an increase in students' understanding of the 3G motions to brush their teeth, use mouthwash, and replace toothbrushes every three months to maintain dental and oral health during the COVID-19 Pandemic.

Table.3 Table of Increase in Average Knowledge of Respondents

Knowledge	Mean	SD	SE	P-value	n
Pre Test	6.83	1,530	.212	.191	52
Post Test	7.25	1.781	.247	.191	52

To assess the effectiveness of the intervention was carried out

$$\begin{aligned} \text{Gain Score Test} &= \frac{\text{post test score} - \text{pre test score}}{\text{pretest score}} \\ &= \frac{7.25 - 6.83}{6.83} \\ &= 0.13 \end{aligned}$$

Gain Score Index

0.7 : High Effectiveness

$0.7 > g \ 0.3$: Medium Effectiveness

< 0.3 : Low Effectiveness

Based on the treatment effectiveness test/gain score results, the result is 0.13. So it can be

concluded that the given intervention has low effectiveness.

DISCUSSION

The behavior of brushing teeth in children must be carried out in daily life without feeling forced. Brushing teeth correctly and adequately is essential for dental and oral health care. The most important thing in choosing a time to brush your teeth is in the morning after eating and before bed⁵. The research results on brushing teeth showed an increase in children's knowledge about brushing their teeth, especially the score established in the question of the right time to brush their teeth. The percentage of respondents who answered correctly on the pretest that they brushed their teeth after breakfast increased from 56.9 percent to 76.9 percent on the posttest. The right time to brush your teeth is the most important thing to get optimal oral hygiene. The opinion Juniarti also supports this et al. in 2017 in their writing, which states that the recommended habit of brushing teeth is at least twice a day, in the morning after eating and before going to bed. The right time to brush your teeth a few moments after eating is to give the digestive enzymes a chance in the oral cavity to work and before going to bed^{3,4}.

The PCR assay technique shows that the nasopharynx has a higher viral load than the oropharynx. Prevention of the spread of the virus through the oral cavity can be done by using mouthwash.¹² Mouthwash is a cosmetic product used to care for the mouth, gums, and teeth. According to the American Dental Association (ADA), mouthwash is to eliminate bad breath, kill germs, reduce plaque, prevent tooth decay, reduce gum inflammation, and treat and freshen the mouth. Povidone-Iodine (PVP-I) is one of the ingredients in mouthwash that is believed to reduce the risk of infection during the coronavirus pandemic, and Povidone-iodine (PVP-I) is one of the most widely available broad-spectrum antimicrobial mouthwashes to reduce pathogens. PVP-I has been proven to be a safe therapy when used as a mouthwash^{6,12,13,14}.

PVP-I formulations have been widely used for 60 years due to their broad-spectrum antimicrobial activity and well-established safety profile. PVP-I works by releasing free iodine, which interferes with microbial metabolic pathways, disrupts structural components of cell membranes, and causes permanent damage to pathogens. The use of PVP-I as a mouthwash is recommended to reduce viral load in the oral cavity, and nasopharynx and thus prevent systemic infection and speed up recovery of

COVID-19 patients^{15,16}. In the pretest, almost half of the respondents (40.4%) stated that they did not know that povidone or betadine mouthwash effectively reduced COVID-19 infection, whereas, in the posttest, there was an increase to 42.3%. Likewise, only 50% of respondents who knew how long the duration of gargling during the pretest increased in the posttest to 55.8%.

The results of the pretest of respondents showed that 88.5% changed their toothbrush once in 3 months. These results indicate that not all respondents have changed their toothbrushes in 3 months. According to the statement of the American Dental Association (ADA) and the Center for Disease Control and Prevention (CDC), replacing toothbrushes should be done every three months. However, if prematurely the bristles start to wear out, replace your toothbrush immediately for effective cleaning. Toothbrushes that are rarely replaced and continue to be used for more than three months become a breeding ground for bacteria. If the lazy habit is left for a long time, brushing your teeth can move bacteria into the mouth. The American Society of Microbiology journal in 2015 announced the spread of coliform bacteria in feces up to the toothbrush⁶. According to an article from the research of Desi Junarti et al. in 2017, only straight toothbrush bristles can clean plaque on teeth. If the toothbrush is three months old, it loses its ability to clean teeth properly. Therefore, at least replace your toothbrush at least once every three months.

Based on the results of the treatment effectiveness test/gain score, the result was 0.13. So it can be concluded that the given intervention has low effectiveness. The percentage of the level of understanding of each student varies depending on the teaching method used. Learning techniques with adequate exposure can be remembered as much as 10%-30% of the information. Health education can be less effective if it encounters obstacles during the process, such as the lack of ability to educate and understand the characteristics of the respondent's understanding of language, cultural, economic, and social factors^{8,9,10}. In addition, the constraints of the internet access used to support students for online education also affect the effectiveness of the information received by respondents¹¹. It can be a triggering factor for the low efficacy of this study

CONCLUSION

Knowledge of the 3G motions in the form of brushing teeth, using mouthwash, and changing toothbrushes once in 3 months is important for students to understand because dental and oral hygiene must be maintained from an early age. This study aims to determine the effectiveness of online 3G motions education in maintaining dental and oral health in children during the new normal period of the COVID-19 pandemic era. Based on the results of the research on 3G Motions Education in the New Normal Period of the COVID-19 Pandemic Era for

the 4th Graders of SD Kartika 1-11, it showed low effectiveness. This could happen because the constraints caused by the percentage of the level of understanding of each student varies depending on the teaching method used. Learning methods with effective exposure can be remembered as much as 10%-30% of the information heard. Inadequate internet access makes communication disrupted because the information that respondents get is not perfect.

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