The effectiveness of dental and oral health education for youth through online media

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ABSTRACT Dental and oral health is essential for human life and is part of general health. However, many still do not know that the oral cavity plays a critical role in health. The COVID-19 pandemic has hampered teaching and learning in class, but this can be solved virtually through online media. This study aims to determine youth's knowledge about dental and oral health problems. The research is a cross-sectional analytic study conducted on 57 students of X1 IPA class - SMA Pembangunan Laboratorium UNP - Padang, which met the inclusion and exclusion criteria. A purposive sampling technique was used to select respondents. The educational process was done virtually with an online meeting application. The activity stages consist of answering the pre-test, the educational process, and answering the post-test. Students’ background knowledge was measured using a questionnaire consisting of 10 closed questions, giving one score when the answer was correct and 0 when the answer was incorrect. The research data were processed with SPSS statistical software. The results showed a significant increase in the average knowledge of respondents from 5.11 ± 2.059 at pre-test to 9.14 ± 1.453 (p < 0.05). Based on the treatment and effectiveness test/gain scores, the average gain score was 69.9%. This study concludes that dental and oral health education through online media is positively effective for youth.

KEYWORDS: Dental and Oral Health, Educational process, Online

INTRODUCTION

Dental and oral health is part of body health that cannot be separated from one another because they will affect the body’s overall health. Teeth are part of the body that functions to chew, speak and maintain the shape of the face. Maintaining dental health as early as possible is essential to last a long time in the oral cavity.1

The percentage of the population who had dental and oral health problems, according to Riskesdas in 2007 and 2013, increased from 23.2% to 25.9%. The proportion of dental and oral health problems according to the characteristics of Riskesdas in 2018 stated that the age group 15-24 had damaged teeth, cavities, or toothache as much as 36.2%.2 Several epidemiological studies have shown that dental and oral hygiene and gingival status of various severity levels are generally found in children and teens.3

The 2013 Basic Health Research results showed a gradual increase in dental caries during adolescence in 12-18 years. Gingival inflammation is a dental and oral health problem often found in children and adolescents and tends to increase every decade in Indonesia.

Dental and oral health for children is an essential factor that must be considered as early as possible. Therefore, knowledge of oral hygiene for children, especially learning about malocclusion, must be paid more attention to because when a child has malocclusion, it can affect the growth of teeth at a later age as well as the psychology of the child. The World Health Organization (WHO) recommends that school students are the right...
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The increased knowledge about dental and oral health can be done by conducting counseling. It is an activity of a two-way communication process between the communicator (instructor) and the communicant in an interaction.

The COVID-19 pandemic situation hinders the provision of teaching and learning in class. However, this can be solved virtually through online media. The selection of the right method in the process of delivering extension materials extensively to help the achievement of efforts to increase knowledge and change the behavior of the target. Online counseling is a method that is considered the most effective and efficient during the outbreak of the COVID-19 virus.

In addition, online counseling activities are also a form of support for the government's efforts to immediately end the COVID-19 pandemic, which has been going on for quite a while.

MATERIALS AND METHODS

The type of research used is experimental research with pre-test and post-test group design, which was conducted in December at Pembangunan Laboratorium UNP High School, Padang. Research respondents were 57 students from the XI IPA class of Laboratorium UNP High School selected by purposive sampling technique. Inclusion criteria were students aged 15-18 years, cooperative, and willing to become respondents by agreeing on informed consent. The exclusion criteria were; that students were sick and not present when the research was conducted. Students' knowledge was measured using a questionnaire consisting of 11 closed questions, scoring 1 when the answer was correct and 0 when the answer was incorrect.

RESULTS

Education on dental and oral health was virtually held on December 4, 2021, through the Zoom application for XI IPA class of Laboratorium UNP High School Padang. There were no significant obstacles during the implementation of this research. All parties help in its performance. Students actively listened to the session and filled out the pre-test and post-test links (Table 1).

Table 1. Frequency Distribution of Pre-test Questionnaire

<table>
<thead>
<tr>
<th>No</th>
<th>Questions</th>
<th>Pre Test</th>
<th>Post Test</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Correct</td>
<td>%</td>
<td>Correct</td>
</tr>
<tr>
<td>1</td>
<td>Do you Bush your teeth after breakfast?</td>
<td>31 54,4</td>
<td>56 98,2</td>
<td>43,8</td>
</tr>
<tr>
<td>2</td>
<td>Do you brush before bed?</td>
<td>41 71,9</td>
<td>57 100</td>
<td>28,1</td>
</tr>
<tr>
<td>3</td>
<td>Have you ever visited a dentist?</td>
<td>27 47,4</td>
<td>57 75,4</td>
<td>28</td>
</tr>
<tr>
<td>4</td>
<td>Have you ever had a toothache?</td>
<td>33 57,9</td>
<td>57 82,5</td>
<td>24,6</td>
</tr>
<tr>
<td>5</td>
<td>Do your teeth have cavities?</td>
<td>22 38,6</td>
<td>42 73,7</td>
<td>35,1</td>
</tr>
<tr>
<td>6</td>
<td>Do you know there is the treatment for cavities?</td>
<td>36 63,2</td>
<td>53 93,0</td>
<td>29,8</td>
</tr>
<tr>
<td>7</td>
<td>Do you often/ever bleed when you brush your teeth??</td>
<td>28 49,1</td>
<td>46 86,7</td>
<td>37,6</td>
</tr>
</tbody>
</table>
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 28-65.5% for each question. In the pre-test, less than half of the respondents (31.0%) stated that they did not know that crowding of teeth can accelerate the buildup of plaque/tartar. In the post almost all respondents (96.5%) answered correctly. It can be seen that the frequency distribution for each question in the pre-test ranges from 28.1%-63.2%, increasing to 50.9%-98.2% in the post-test after the intervention. Descriptions of student knowledge are listed in Table 2 of the definition of Student Knowledge below.

Table 2. Description knowledge of student

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Mean</th>
<th>Min-Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>6.21</td>
<td>1-10</td>
</tr>
<tr>
<td>Post-test</td>
<td>7.18</td>
<td>4-10</td>
</tr>
<tr>
<td>Δ</td>
<td>0.97</td>
<td></td>
</tr>
</tbody>
</table>

The table above showed that respondents' average knowledge increased by 0.97 from 6.21 during the pre-test to 7.18 in the post-test. The increase in knowledge is described in Table 3. The increase in the average understanding of elementary school students is below.

Table 3. The increase in the average knowledge of elementary school students

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>n</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>5.11</td>
<td>2.059</td>
<td>.312</td>
<td>57</td>
<td>.000</td>
</tr>
<tr>
<td>Post-test</td>
<td>9.14</td>
<td>1.453</td>
<td>.174</td>
<td>57</td>
<td></td>
</tr>
</tbody>
</table>

From the table above, it can be seen that there was an increase in the average knowledge of respondents at pre 5.11 ± 2.059, which increased to 9.14 ± 1.453. The statistical test results obtained a p-value of .000, meaning a significant relationship exists between pre-test and post-test knowledge after the intervention. It proves that there is an increase in students' understanding and knowledge of maintaining dental and oral health among Padang Laboratory Development High School Students.

A gain score test was performed to assess the intervention's effectiveness. N-Gain Test Effectiveness interpretation category: Not Effective; Less effective; Effective enough; Effective. Based on the results of the treatment effectiveness test/gain score, it shows that the average N-gain score is 69.9%. So it can be concluded that the intervention is quite effective.
DISCUSSION

Dental and oral health education for children aged 10-14 years is essential in terms of various health problems that often arise in children, such as canker sores, cavities, broken teeth, inflammation of the gums, and misaligned teeth. So that it requires various methods and approaches to produce knowledge, attitudes, and healthy behavior, especially in children's teeth and mouth. Adolescence is a transition period from child to adult, known as puberty. At this age, teenagers often experience health problems, one of which is dental and oral problems.

The most common dental and oral health problem in school-age children is dental caries. Dental caries is an infectious disease caused by a progressive demineralization process in the hard tissues of the crown and teeth roots. Gingival inflammation is a dental and oral health problem often found among children and teenagers and tends to increase every decade in Indonesia.

The results showed that 80% of children and teenagers suffer from gingivitis. Cavity or dental caries is a disease on the teeth' hard tissues, which is enamel, dentin, and cementum, caused by the activity of a microorganism on fermented carbohydrates.

Dental caries is characterized by the demineralization of the teeth' hard tissues, followed by the destruction of organic materials. As a result, microorganism invasion, pulp death, and spread of infection occur at the periapical tissue that can cause pain.

The process of dental caries is due to the interaction of various factors involving the presence of microorganisms (agent), host (teeth), and environment (diet) in the oral-facial system until the occurrence of dental caries requires time factor. The main factors that cause caries are teeth, saliva, microorganisms that cause dental caries, substrate (food), and time. Irregular teeth (crowding), large amounts of saliva, and thick consistency cause caries evenly.

Inflammation of the soft tissue around the teeth or gingival tissue is called gingivitis. Gingivitis results from a gingival inflammatory process caused by primary and secondary factors. The primary factor of gingivitis is plaque, while the secondary characteristics are divided into 2, they are local factors and systemic factors. Local factors include poor oral hygiene, food debris, and accumulation of plaque and microorganisms, while systemic factors such as genetic, nutritional, hormonal, and hematological factors. Gingival inflammation is associated with plaque accumulation around the marginal gingiva. This condition causes changes in plaque composition from streptococci microflora to Actinomyces spp. During the development of gingivitis, the microflora increase in the number of species. Several studies stated a rise in the microbes Fusobacterium nucleatum, P. intermedia, Capnocytophaga spp., Eubacterium spp., and spirochetes on the inflamed gingiva.

Counseling or educational process is a deliberate effort to influence other people, whether individuals, groups, or communities consequently do what counselors or experts expect. Education is a learning process from not knowing to know.

The primary purpose of health education is to provide a community that can apply their problems and needs, understand how they solve the problem, with their own resources and external support, and decide on appropriate activities to improve healthy living standards and community welfare.

Therefore, health education aims to gain knowledge and understanding of the importance of health to achieve healthy living behaviors that improve physical, mental, and social health so that they are economically and socially productive.

The Corona Virus Disease (COVID-19) pandemic that hit the world at the end of 2019 made the world, including Indonesia, struggle to deal with the pandemic. COVID-19 infection prevention and control activities are implemented through the implementation of health protocols, one of which requires crowd prevention and restrictions on face-to-face meetings. It causes health education usually carried out by visiting the target of direct counseling, which could not be held during this pandemic.

The dental and oral health program modifies the implementation of counseling by conducting online dental and oral health counseling using online media. The advantage of using online media as a solution for dental health services is that it is easy to access, can be viewed repeatedly, and can connect one person to another from all different places.
CONCLUSION

Dental and oral health education through online media is appropriate in the COVID-19 pandemic conditions. This method is effective and can reach all levels of society, especially school-age teenagers as a group that is vulnerable to dental and oral health problems such as caries and periodontal disease. This research is expected to contribute to data on the effectiveness of the educational process through online media. Remarkably, it can be considered a means of outreach to the public as a preventive effort in maintaining dental and oral diseases.

REFERENCES


