Criteria for Knowledge of Fissure Sealant Material Before and After Using Online Leaflets

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Abstract

Health problems, especially dental health, are a problem that is quite serious in Indonesia. In overcoming this dental health problem, material regarding fissure sealants can have quite an important role. This is because the presence of fissure sealant can protect teeth from caries. This research was carried out to see the level of knowledge of parents about fissure sealants through the use of online leaflets. This research will be carried out using a quantitative approach. The data used in this research was obtained through filling out a questionnaire. The results of this research then found that parents' knowledge regarding fissure sealants is still relatively low. To be able to overcome this problem, education can be carried out for parents of students. Through the results of the outreach that has been carried out, it was found that there was a significant increase in understanding regarding fissure sealant materials among parents.

Keywords: *Knowledge, Fissure Sealant, Online Leaflets, MI Nurul Huda.*

A. INTRODUCTION

Dental and oral health issues represent a major concern within Indonesia's public health landscape. As per findings from the 2018 Fundamental Health Research, the most prevalent dental health concerns in Indonesia consist of issues like tooth damage, cavities, or dental ailments, affecting 45.3% of the population. In contrast, a significant portion of Indonesians, approximately 14%, encounter oral health problems characterized by swollen gums and/or ulcerations (abscesses). These statistics underscore the ongoing significance of dental and oral health challenges within the country (Hariyani et al., 2019).

In this context, caries in dental pits and fissures play a significant role. The 2011-2012 National Health and Nutrition Examination Study (NHANES) showed that caries in dental pits and fissures accounted for approximately 90% of total caries in permanent posterior teeth and 44% of total caries in primary teeth in children and adolescents. Therefore, efforts to prevent caries in dental pits and fissures are important (Singh et al., 2020).

Fissure sealant is an effective preventive method for protecting teeth from caries in pits and fissures. However, the application of fissure sealant must be done selectively in patients who are at high risk of developing caries. The highest priority for giving fissure sealants is usually given to permanent first molars between the ages of 6-8 years, permanent second molars between the ages of 11-12 years, and permanent premolars and milk molars. Therefore, adequate knowledge about fissure sealant is key in ensuring that it is provided to those who need it (Zhang et al., 2019).

School-aged children, who are generally aged between 6-12 years, are one of the groups at high risk of experiencing caries in pit and fissure teeth. Therefore, maternal knowledge is very important in underlying children's behavior and determining their children's dental health status in the future. Mothers must have sufficient knowledge about efforts to prevent dental and oral diseases, especially caries in children so that children's teeth can be kept healthy and protected from caries (Medina-Solís et al., 2020).

However, Tahani's research results show that parents' knowledge about fissure sealants is still low. Only around 12.9% of respondents in the study had good knowledge about fissure sealants. These results indicate that further efforts are still needed to increase public knowledge, especially among parents, regarding fissure sealants. One effort that can be done is through counseling.

By understanding the low level of knowledge of the public, especially parents, about fissure sealants, this study aims to evaluate the effectiveness of using online leaflets in increasing their knowledge about fissure sealants. This research is important because adequate knowledge about fissure sealants can have a positive impact on the practice of preventing caries in the pits and fissures of children's teeth, which in turn can reduce dental and oral health problems experienced by children in Indonesia.

B. LITERATURE REVIEW

1. Knowledge Level

Knowledge arises from curiosity and is shaped by sensory experiences, primarily involving the eyes and ears when engaging with specific objects. It plays a crucial role in shaping one's behavior, fostering openness. Knowledge is essentially the product of human perception, where individuals acquire information about objects through their five senses: sight, hearing, smell, taste, and touch. The process of gaining knowledge is influenced by the degree of attention and perception dedicated to the object. In most cases, people acquire knowledge predominantly through their sense of hearing and sight (Pangalo et al., 2020).

Formal educational factors significantly impact knowledge and are intricately linked. It is anticipated that higher education will broaden one's knowledge base, but individuals with limited formal education are not devoid of knowledge altogether. Expanding one's knowledge isn't solely dependent on formal education; it can also be acquired through informal learning. Knowledge about an object encompasses both positive and negative facets, which in turn influence an individual's attitude. The greater the awareness of positive aspects and knowledge about specific objects, the more likely positive attitudes will develop toward those objects (Al-Kurdi et al., 2020).

As per Notoatmodjo, a person's understanding of an object can be categorized into six distinct levels or degrees of intensity. These levels can be broadly outlined as follows:

a. Know
   Knowing is characterized as the ability to retrieve or evoke previously stored memories after encountering a particular object or absorbing information from studied materials or received stimuli. This level of understanding, often referred to as the lowest tier, can be assessed by employing verbs such as naming, describing, identifying, stating, and similar actions to gauge a person's grasp of what they have learned (Roberts et al., 2023).
b. Understanding
   Comprehending an object extends beyond mere awareness or verbal acknowledgment; it entails the capacity to accurately interpret the object in question. Individuals who possess a genuine understanding of objects and materials must be capable of providing explanations, offering examples, drawing logical conclusions, and making predictions related to the subject of study (Lake & Murphy, 2023).
c. Application
   Application is characterized as the ability of an individual who comprehends a particular object to effectively employ the principles they have acquired in different situations or under varying conditions. It involves the practical utilization of laws, formulas, methods, principles, and program plans in alternative contexts or scenarios (Sotoudeh-Anvari, 2022).
d. Analysis
   Analysis is the capacity of an individual to deconstruct or dissect a known object or problem, subsequently identifying relationships between its constituent elements. A key indicator of a person's knowledge reaching this stage is their ability to discriminate, segregate, categorize, and create visual representations, such as diagrams or charts, depicting the knowledge related to the object or problem at hand (Hayes & Hofmann, 2021).
e. Synthesis
   Synthesis is the aptitude of an individual to consolidate or establish a coherent connection among the elements of knowledge they already possess. In simpler terms, it signifies the capability to generate fresh formulations or concepts from pre-existing ones (Montecinos & Grünfelder, 2022).
f. Evaluation
   Evaluation pertains to an individual's capacity to provide rationale or make judgments regarding a specific object. This assessment is grounded in criteria or societal norms that the person has independently established or that are generally accepted within society (Tomasso et al., 2023).

2. Fissure Sealant

Fissure sealant is a non-invasive preventive measure on the surface of pits and fissures so that teeth are not easily attacked by caries. Pit and fissure sealants are the most effective method for preventing caries on occlusal surfaces. It is based on strict isolation of the fissure from the cariogenic external environment. Fissure sealants are

considered the most effective caries preventive measure that can be offered to patients. To achieve the greatest benefit a sealant must bond properly to the enamel surface. It is agreed that adequate sealant retention will be achieved if the tooth has a large surface area, deep, irregular pits, and fissures (Baik et al., 2021).

Fissure sealant is a dental material for preventing early caries, available in the form of resin or glass ionomer cement and placed in dental pits and fissures. The use of fissure sealant is considered an excellent preventive measure against caries. Sealants are substances that can penetrate the enamel microporosite with the help of acid etching. After polymerization, the sealant forms a layer that covers the pits and fissures as a mechanical barrier that protects the teeth from plaque accumulation. The application of fissure sealants in clinics and schools proves highly efficacious in the prevention of dental cavities, resulting in a reduction of caries in the grooves and furrows of teeth by as much as 60% within the initial two to five years following the procedure (Alsabek et al., 2019).

As previously stated, fissure sealants are applied to the pits and fissures of the occlusal surfaces of teeth, functioning to create a physical barrier that protects the tooth surface from caries. The following are indications for fissure sealants based on specific clinical characteristics and patient needs, namely newly erupted teeth, with deep fissures and clinically free of caries; patients with motor disabilities that cause difficulty in maintaining oral hygiene; and adult patients who are undergoing medical treatment that causes decreased salivary flow (Kharouba et al., 2023).

The following are indications for fissure sealant in patients based on treatment needs, namely:

a. Patients with low need, namely after evaluation there is a deep pit and fissure anatomy on the occlusal surface of permanent teeth so that it is following clinical indications for fissure sealant application
b. Patients with moderate need, namely priority is given to newly erupted permanent molars, because they have a high susceptibility to caries,
c. Patients with high needs, that is, tend to increase the incidence of dental caries, so molar and premolar teeth need to be given sealants (Lygidakis et al., 2022).

The way to determine whether a patient needs fissure sealant treatment or not is based on the following three criteria:

a. Patients, namely children who have special needs such as children who have compromised medical illnesses, and mental or physical disabilities; the child has extensive caries in their deciduous teeth; and cooperative patients, making it possible to isolate the work area adequately (Ghaith et al., 2019).
b. Teeth, namely on the surface of permanent molars that have erupted and can be isolated properly; and children whose permanent first molars are affected by caries, so immediate prevention of caries in their permanent second molars is needed (Vishwanathaiah et al., 2023).
c. Radiographs, namely bitewing radiographs are indicated to determine the integrity of the occlusal surface in clinical examination; and if it does not involve the dentin structure after examination of the radiograph, then the

occlusal surface of the tooth can be applied with a sealant material (Alqareer et al., 2022).

3. Online Leaflet

Leaflets are printed paper leaflets that are 2-3 pages long. Leaflets are a medium for conveying information and advice. The use of images, colors, layout, and information conveyed are things that need to be considered in leaflets. Leaflets are a form of communication media that includes short publications in the form of leaflets. Leaflets contain information or information about companies, products, organizations, and services for general information purposes. Leaflets are also information that can influence a person's knowledge. Leaflets can also be a learning medium in the world of education (Zhang et al., 2022).

It is hoped that the use of leaflets as a learning medium can help students understand the lesson material. Leaflets are prepared from various learning sources, in simple language that is easy for students to understand, and illustrations are added to support the learning material so that in the learning process students can be interested in reading them. Students are expected to be motivated to learn and have a high curiosity (Syamsurizal et al., 2021).

According to Notoatmojo, the advantages of Leaflets are that they are long-lasting, reach many people, terms of cost they are relatively low, easy to carry anywhere, display aesthetic beauty, make understanding easier with short language, and can also increase interest. Another advantage in the world of education, leaflets are one of the teaching materials that are more attractive than textbooks, because leaflet teaching materials are very simple and more attractive in terms of appearance. Apart from that, according to Purnomo, the leaflet also provides an easier understanding for students that mathematics is not as complicated as a thick printed book, but mathematics can be summarized into something beautiful and interesting (Korenkova et al., 2020).

Apart from the advantages, the requirements for making leaflets also need to be considered. According to Agustiansyah, the requirements for making a leaflet include: (1) the leaflet must be made using simple language and easy for the reader to understand, (2) the title must be made as interesting as possible to attract the reader's interest, (3) there is not a lot of writing that will bore the reader, (4) combine writing, images and appearance to create an attractive impression for readers, and (5) the material must be appropriate to the intended target audience (Madden et al., 2020).

There are 3 categories that leaflets have, namely:

a. Persuasive Leaflet

   This persuasive leaflet is used to change or influence someone's beliefs, attitudes, and behavior so that they act following what the leaflet maker expects.

b. Informative leaflet

   This informative leaflet is used to provide information or explain the material that you want to convey.

c. Directive Leaflet

This directive leaflet aims to direct and control a person's actions (Arvianto & Lein, 2022).

There are 3 ways to present leaflets, namely:

a) Headings

The postal leaflet is usually the most important part of the leaflet because it is the part that first catches the eye. In preparing the title, the propaganda writer must be brief, summarize the theme, and use short words.

b) Subheadings

Leaflet subheadings are used when it is not possible to summarize the text in the main heading and further explanation is needed to demonstrate the importance of the message.

c) Text

To gain the interest of the target audience in the first few words, the first or second sentence of the text must contain the substance of the message with facts and details of facts that are credible and profitable or not and there are images and text that must complement each other (Zhao et al., 2020).

C. METHOD

This research was carried out using quantitative methods. This method was chosen because the research aims to obtain numerical data that can measure mothers' knowledge criteria before and after using online leaflets about fissure sealants on grade 3 students at MI Nurul Huda, Cilandak District, South Jakarta. The target of this research is mothers who are respondents in this research. The data used is primary data obtained directly from respondents through the use of an instrument in the form of a questionnaire. This questionnaire was designed to collect information about mothers' knowledge regarding fissure sealants before and after they were given access to the online leaflet. By using quantitative methods, this research can produce data that can be analyzed statistically to evaluate the effectiveness of online leaflets in increasing mothers' knowledge about fissure sealants.

D. RESULT AND DISCUSSION

1. Criteria for Respondents' Knowledge About Fissure Sealants Before Using Online Leaflets

Before counseling was carried out using online leaflets, respondents were first given a pretest questionnaire. The questionnaire does not provide any understanding of the existing material, it only explains the procedure for filling it out. Criteria for respondents' knowledge before being given counseling can be seen in Table 1.

Table 1. Frequency Distribution of Respondents' Knowledge Criteria About Fissure Sealants Before Using the Online Leaflet

Knowledge Criteria	Frequency (n)	Percentage (%)
Good	15	37.5%
Enough	19	47.5%
Not enough	6	15%
Total	40	100%

Table 1 shows the results of measuring knowledge before being given education with online leaflets about fissure sealants. The table above shows that it turns out that 15 respondents had good knowledge of Fissure Sealant material with a percentage of 37.5%; 19 respondents had sufficient criteria with a percentage of 47.5%; Meanwhile, 6 people are included in the criteria for lacking knowledge with a percentage of 15%.

2. Criteria for Respondents' Knowledge About Fissure Sealants After Using Online Leaflets

The results for measuring knowledge criteria after providing counseling (post-test) for parents of grade 3 students regarding fissure sealants can be seen in Table 2.

Table 2. Frequency Distribution of Respondents' Knowledge Criteria About Fissure Sealants After Using the Online Leaflet

Knowledge Criteria	Frequency (n)	Percentage (%)
Good	33	82.5%
Enough	7	17.5%
Not enough	0	0%
Total	40	100%

Table 2 shows that the results of measuring respondents' knowledge criteria about fissure sealants after using the online leaflet. It was proven that respondents who had good knowledge criteria increased to 33 people with a percentage of 82.5%, while those who had adequate criteria were 7 people with a percentage of 17.5%, and there was not a single respondent who had poor knowledge criteria or a percentage of 0 %.

3. Criteria for Respondents' Knowledge About Fissure Sealants Before and After Using Online Leaflets

The use of online leaflets shows changes, as in the table above. Below is the distribution of the frequency of respondents' knowledge criteria before and after using the online leaflet regarding their understanding of Fissure Sealant.

Table 3. Frequency Distribution of Respondents' Knowledge Criteria Before and After Using Online Leaflets About Fissure Sealants

Knowledge Criteria	Pretest		Post-Test	
	n	%	n	%
Good	15	37.5%	33	82.5%
Enough	19	47.5%	7	17.5%
Not enough	6	15%	0	0%
Total	40	100%	40	100%

Table 3 shows the differences in results before intervention compared to after-intervention by intervention-researchers. It was proven that there was an increase in respondents' knowledge criteria regarding fissure sealant material after treatment compared to before.

4. Average Criteria for Respondents' Knowledge About Fissure Sealants Before and After Using Online Leaflets

The average knowledge criteria of respondents before and after using the online leaflet about fissure sealants can be seen in Table 4.

Table 4. Average Frequency Distribution of Respondents' Knowledge Criteria About Fissure Sealants Before and After Using Online Leaflets

Respondents' Knowledge Before Counseling			Respondents' Knowledge After Counseling		
Total Correct Answers	Frequency (n)	Average	Total Correct Answers	Frequency (n)	Average
567	40	14.175 (Enough)	685	40	17.125 (Good)

Based on table 4, shows that the average knowledge criteria for respondents before using online leaflets was 14,175 and was included in the sufficient criteria with a total of 567 correct answers out of a total of 800 questions; while the average knowledge of respondents after using the online leaflet was 17.125 and fell into the good criteria with a total of 685 correct answers out of a total of 800 questions. The average difference between the knowledge criteria before and after using the online leaflet was 2.95.

Research conducted on the guardians of class 3 students at MI Nurul Huda, Cilandak District, South Jakarta was intended to obtain criteria for respondents' knowledge about fissure sealant material before and after using the online leaflet. The number of samples in this study was 40 people. The research results showed that there was a change in the respondents' knowledge criteria after being given exposure to material about fissure sealants using online leaflet demonstration tools. In the pretest activity, some respondents were mothers and guardians of students who fell into the criteria of lacking knowledge because the respondents had not been exposed to material about fissure sealants at all. Apart from education which influences a person's knowledge criteria, there is also a person's intelligence, attention, and

interests. Table 1 shows that the knowledge of the guardians of class 3 students before the counseling was carried out was 15 people who fell into the good criteria with a percentage of 37.5%; sufficient criteria were 19 people with a percentage of 47.5%; and 6 people fell into the deficient criteria with a percentage of 15%. Based on supporting theory, researchers believe that a person's curiosity, attention, and interest are fundamental things that can influence a person's knowledge criteria. Then, if someone does not have the attraction and interest in knowing something, that person will not read and study it. However, if someone has a greater desire to know something, then that person will search, read, and learn about what they want to find out so that they can increase their knowledge criteria. The posttest was carried out after the parents were given an online leaflet about fissure sealant material to study and were given 7 days.

The results of the post-test activities obtained an increase in criteria. In this activity, there was an increase in knowledge after being given the online leaflet, because the parents had an interest in knowing about fissure sealants and studied the online leaflet that had been given. Extension media is a means or effort to display messages or information that the communicator wants to convey, either through print, electronic, or outdoor media, so that targets can increase their knowledge. Table 4 shows that the knowledge criteria for the guardians of grade 3 students increased after being given an online leaflet about fissure sealants. The average knowledge criteria of respondents before being given the online leaflet was 14.175 with a percentage of 70.87% which was in the sufficient category, while the average knowledge after being given the online leaflet was 17.125 with a percentage of 85.63% which was in the good category. The average difference between before and after being given the online leaflet was 2.95 with a percentage of 14.75% according to researchers' supporting theory that media greatly influences the results and has a positive impact during the educational process. Educational outcomes will run well if the instructor uses the right media and adapts to the respondent and the circumstances in which the extension is carried out in conveying information. The results of this research are in line with the opinion of research conducted by Sabarudin regarding the effectiveness of providing online education via video and leaflet media on the level of knowledge of COVID-19 prevention. This research shows that there is a significant difference after providing online leaflet media. In this study, the average knowledge before giving online leaflets was 18.83, while the average knowledge after giving online leaflets was 19.43.

E. CONCLUSION

Research conducted on parents of grade 3 students at MI Nurul Huda, Cilandak District, South Jakarta, aimed to measure respondents' knowledge criteria regarding fissure sealant material before and after using online leaflets. From the results of this research, it can be concluded that there was a significant increase in the respondents' knowledge criteria after they were given exposure to material about fissure sealants using the online leaflet demonstration tool. At the pretest stage, several respondents fell into the category of lacking knowledge because they had not

been exposed to material about fissure sealants at all. However, after being given the online leaflet and given time to study it, there was a marked increase in the respondents' knowledge criteria. This shows that outreach media such as online leaflets can be effective in increasing public knowledge about fissure sealants. In the posttest activity, it was seen that the majority of respondents achieved good knowledge criteria after studying the online leaflet. The average knowledge of respondents increased significantly after being given the online leaflet. The results of this research are also in line with related research which shows that online education media can have a positive impact in increasing public knowledge about certain health topics.

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