



## **Effectiveness of Dental Health Education with Media Videos on Instagram, Facebook and Youtube on Changes in Knowledge and Attitudes of the Public about the Importance of Dental Nerve Care**

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### **ABSTRACT**

One way to improve behaviour is to provide dental health education using audio-visual media such as videos. Social media-based health education has been empirically proven to be effective in conducting health promotion efforts with the aim of increasing understanding and providing support to the community for healthy behaviour. Currently, Facebook, Instagram and YouTube are 3 of the 7 social media most accessed by Indonesians in 2023. The purpose of this study was to determine the effectiveness of dental health education with video media on Instagram, Facebook and YouTube on changes in public knowledge and attitudes about the importance of root canal treatment. This type of research is quasy-experimental without group controls, with a one group pretest-posttest design. The sample size was 60 people. Respondents filled out a google form link questionnaire that was distributed. The results showed that dental health education with videos on social media instagram, facebook and youtube was effective in changing people's knowledge and attitudes where the p value of the three social media was 0.000 where  $p < 0.005$  (wilcoxon test). Different test of 3 social media with kruskal willis where the result is that there is no difference in effectiveness between the three social media ( $p \text{ value} > 0.005$ ). The conclusion of this study is that educational videos on social media Instagram, Facebook and YouTube are effective in changing people's knowledge and attitudes, but there is no difference in effectiveness between the three social media. The results of this study can be a reference for using social media in dental health education so that it can be more accepted by the community. In the future, research can be developed with other types of social media and factors that affect the effectiveness of these media.

## INTRODUCTION

The most common oral health problem prevalent in the wider community is dental caries. Dental caries is a disease of the hard tissues of the teeth, including enamel, dentin, and cementum, caused by the activity of microorganisms in carbohydrates that can ferment (Marthinu & Bidjuni, 2020). The Basic Health Research (Riskesdas) results in 2018 stated that the largest proportion of dental issues in Indonesia is damaged/decayed/painful teeth (45.3%). Dental cavities or caries do not discriminate based on age, gender, social status, or economic status. Dental caries begins with enamel caries, which is cavities in the enamel layer or the outer layer of the teeth. If the condition worsens, cavities will continue to damage the dentin layer of the teeth (the layer below the enamel). If not promptly treated, it will attack the pulp or nerve of the teeth, causing pain (Kemenkes RI, 2018).

To address the pain, the appropriate treatment plan is through dental nerve care. Dental nerve care is a branch of dentistry that deals with diseases of tooth roots, tooth pulp, and tissues around the teeth in humans (Doumani et al., 2020). The goal of dental nerve care procedures is to save or repair infected or damaged teeth. Ultimately, the tooth's function can be restored, preventing more extensive damage to the surrounding tissue.

Some dental nerve care treatments require repeated visits, necessitating good cooperation with patients. Many patients are unaware of the consequences of arbitrary tooth extraction. Often, patients come to extract their teeth, even though the teeth can still be preserved. The willingness of patients to come repeatedly is still doubted, especially among patients with lower educational levels. Often, patients feel satisfied with the treatment given only a few times and do not come for follow-up treatments (Tarigan, 2013).

Good behavior begins with knowledge of oral health, followed by attitudes and actions. Knowledge is the most important domain for the formation of a person's actions; therefore, behavior based on knowledge and awareness tends to endure longer than behavior that lacks scientific knowledge and awareness (Retanigsih, 2016). One way to improve behavior, including knowledge and attitudes, is by providing dental health education using appropriate and suitable tools or media. Audiovisual media is a type of media that includes both sound and image elements. This media type has better capabilities because it encompasses both sound and visuals (Busyaeri et al., 2016). One example of audiovisual media is video. As a good communication medium, a video has three purposes: as an information tool, a learning tool, and an entertainment tool. As an information tool, a video can convey accurate information that is not manipulated, is reasonable, and is not exaggerated. As a learning tool, a video can provide positive learning experiences, improving cognitive, psychomotor, and affective aspects. As an entertainment tool, an engaging video can provide entertainment while delivering positive messages through symbols, images, or dialogues, allowing viewers to unintentionally understand the conveyed messages (Mulyana, 2019).

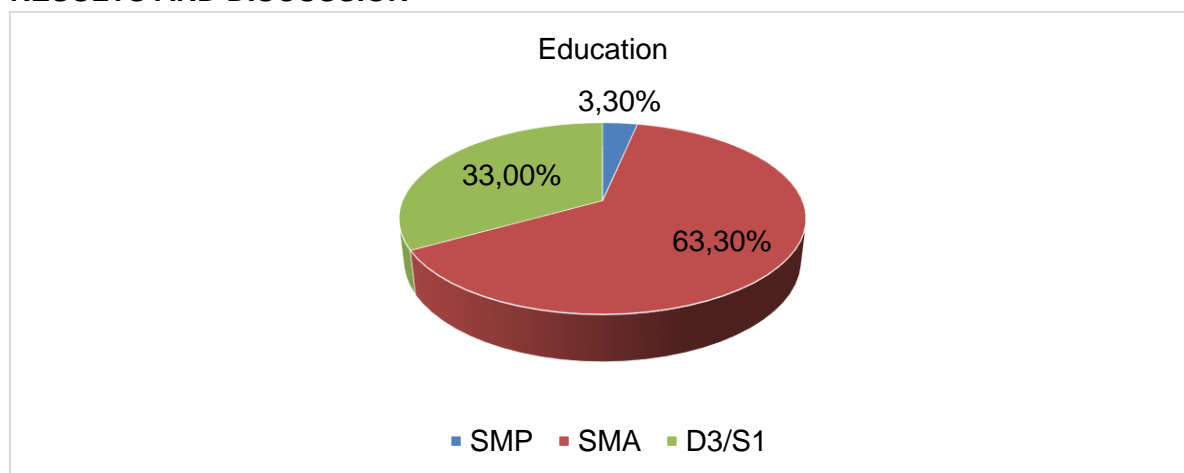
The phenomenon of social media use in society is expected to enhance information services and facilitate dental health education activities. Social media through the internet has great potential for health promotion and other health interventions, making it easier to reach targets at every level (Leonita & Jalinus, 2018). Various types of social media such as WhatsApp, Facebook, Instagram, YouTube, and Twitter allow the use of social media as a learning tool and a source of information about the importance of dental nerve care (Humaidi et al., 2020). Currently, Facebook, Instagram, and YouTube are three of the seven social media most accessed by the Indonesian public in 2023 (GoodStats, 2023). Facebook is a social media platform with various features that can be utilized, such as sharing photos, videos, statuses, and greetings. On YouTube, users can choose which videos to watch based on their interests. Each video has a different duration, allowing someone to watch videos for hours. Instagram users can share photos and videos and view content from people they follow. Additionally, there is an explore feature where users can see content based on their interests. Instagram also has the Instagram Story feature, where users can share or view stories from others (Monica & Rosari, 2020). In this study, the use of social media will be limited to Facebook, Instagram, and YouTube.

The aim of this study is to compare the effectiveness of dental health education with educational video media on Instagram, Facebook, and YouTube in changing the knowledge and attitudes of the public regarding the importance of dental nerve care in preserving teeth for as long as possible within the oral cavity.

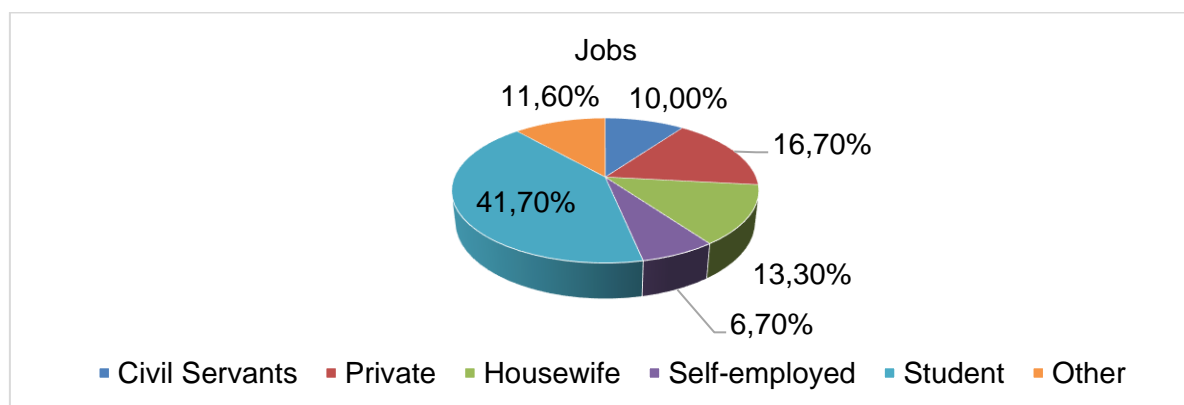
**METHOD**

This study is a quasi-experimental without group controls, employing a one-group pretest-posttest design. The research begins with an initial test (pre-test) related to knowledge about the importance of dental nerve care in preserving teeth for as long as possible in the oral cavity. After watching the educational video, a final test (post-test) is conducted based on the chosen social media. The sample in this study is determined using accidental sampling, selecting respondents who happen to be available in a location according to the research context, totaling 60 individuals. The determination of this sample size is due to the widespread use of social media, allowing 60 participants to represent the existing sample. The research location utilizes social media platforms such as Instagram, Facebook, and YouTube. The research instrument employs a Google Form, where respondents fill out the Google Form link shared on Instagram, Facebook, and YouTube, where the educational video is presented. The collected data will be analyzed using the Wilcoxon test and the Kruskal-Wallis test. The Wilcoxon test is utilized to analyze paired observation results from two data sets to determine effectiveness. The Kruskal-Wallis test follows to identify significant differences. This study has undergone ethical testing and has been deemed ethically appropriate according to the 7 WHO 2011 standards, with reference number No.LB.02.03/1/0139/2023.

**RESULTS AND DISCUSSION**



**Diagram 1.** Education Characteristics of Respondents



**Diagram 2.** Occupational Characteristics of Respondents

**Table 1.** Effectiveness of Community Knowledge Before and After Viewing Educational Videos on Instagram Social Media

Before viewing educational videos on Instagram						Total		After viewing educational videos on Instagram						Total		p-value
Good		Medium		Bad				Good		Medium		Bad				
Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	
8	40	10	50	2	10	20	100	17	85	3	15	0	0	20	100	0,000

**Table 2.** Effectiveness of community attitudes before and after viewing educational videos on Instagram social media

Before viewing educational videos on Instagram						Total		After viewing educational videos on Instagram						Total		p-value
Good		Medium		Bad				Baik		Sedang		Buruk				
Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	
8	40	10	50	2	10	20	100	17	85	3	15	0	0	20	100	0,000

**Table 3.** Effectiveness of Community Knowledge Before and After Viewing Educational Videos on Facebook Social Media

Before viewing educational videos on Facebook						Total		After viewing educational videos on Facebook						Total		p-value
Good		Medium		Bad				Good		Medium		Bad				
Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	
10	50	10	50	0	0	20	100	18	90	2	10	0	0	20	100	0,000

**Table 4.** Effectiveness of Community Attitudes Before and After Viewing Educational Videos on Facebook Social Media

Before viewing educational videos on Facebook						Total		After viewing educational videos on Facebook						Total		p-value
Good		Medium		Bad				Good		Medium		Bad				
Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	
8	40	12	60	0	0	20	100	18	90	2	10	0	0	20	100	0,000

**Tabel 5.** Efektivitas Pengetahuan Masyarakat Sebelum dan Sesudah Melihat Video Edukasi di Media Sosial Youtube

Before viewing educational videos on Youtube						Total		After viewing educational videos on Youtube						Total		p-value
Good		Medium		Bad				Good		Medium		Bad				
Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	
10	50	9	45	1	5	20	100	20	100	0	0	0	0	20	100	0,000

**Table 6.** Effectiveness of Community Attitudes Before and After Viewing Educational Videos on Youtube Social Media

Before viewing educational videos on Youtube						Total		After viewing educational videos on Youtube						Total		p-value
Good		Medium		Bad				Good		Medium		Bad				
Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	
8	40	11	55	1	5	20	100	19	95	1	5	0	0	20	100	0,000

**Table 7.** Comparison of the Effectiveness of Dental Health Education with Educational Video Media on Instagram, Facebook and Youtube on Changes in Community Knowledge and Attitudes about the Importance of Dental Nerve Care.

	Respondents' Knowledge Before	Respondents' Attitudes Before	Respondents' Knowledge After	Respondents' Attitudes After
Chi-Square	.281	.040	.022	.207
df	2	2	2	2
Asymp. Sig.	.869	.980	.989	.902

## DISCUSSION

Health promotion is inseparable from activities or efforts to convey health messages to the community, groups, or individuals. By providing information, it is expected that the community, groups, or individuals can gain better health knowledge. Health promotion aims to change the behavior of the community, groups, or individuals (Notoadmojo, 2014). The method of health promotion using social networks is perceived as relatively cheaper and easier to access for conveying and obtaining information.

### 1. Effectiveness of Dental Health Education with Educational Video Media on Instagram, Facebook, and Youtube in Changing Knowledge.

Social media are platforms or applications based on internet technology that allow users to connect with others, both known and unknown. Various social media can be accessed, including Facebook, Whatsapp, Instagram, Snapchat, LINE, Google+, Youtube, BBM, Joox, Wattpad, and Musical. The survey results show that Instagram, Line, Youtube, and Facebook are the most intensively used social media platforms by children and teenagers in Indonesia (Triastuti et al., 2017).

Social media, as popular and innovative communication and education tools, offer opportunities to change health behaviors, including knowledge. Although literature on using social media for health promotion campaigns is growing, there is a need to evaluate the approaches used to change health behaviors, not just creating awareness. Youtube is the most favored social media, followed by Facebook and Instagram (CNN Indonesia, 2023).

The method used in this research is audiovisual media. Audiovisual media is an intermediary enjoyed through sight and hearing. The specific type of audiovisual media in this study is motion audiovisual media, namely video (Duludu, 2017). In this research, video media is utilized. The video focuses on the importance of dental nerve care in preserving teeth within the oral cavity, with a duration of 19.40 minutes. Video editing is done using the Capcut application. The video is then shared on Instagram, Facebook, and YouTube, accompanied by a Google Form link for respondents to fill out questionnaires before and after watching the educational video.

Based on the research results, changes in knowledge and attitudes of the community in efforts to preserve teeth through dental nerve care can be observed on Instagram, Facebook, and YouTube, as shown in tables 1, 3, and 5. In table 1, there is a change in knowledge before watching educational videos on Instagram, with 10 people (50%) classified as having moderate criteria, increasing to 17 people (85%) with good criteria after watching educational videos. The effectiveness test using the Wilcoxon test yields a p-value of 0.000, indicating it is less than 0.05, making Instagram effective in increasing knowledge. Respondents after education are aware that dental nerve care is performed when there is a cavity affecting the nerve. Dental nerve care is better than extraction, and direct filling cannot be done on teeth that have affected nerves. The primary purpose of dental nerve care is to preserve teeth as long as possible in the oral cavity. Compliance with regular visits affects the success of dental nerve care. The treatment is carried out so that the tooth can function

again. If a decayed tooth is left untreated, subsequent treatment will be more complex and require higher costs, and toothache will not heal on its own without dental nerve care.

Similarly, with Facebook, as seen in table 3, there is a change in knowledge before watching educational videos, with 10 people (50%) having good criteria, increasing to 18 people (90%) after watching the educational video. The effectiveness test using the Wilcoxon test yields a p-value of 0.000, indicating it is less than 0.05, making Facebook effective in increasing knowledge.

In table 5, knowledge before watching educational videos on YouTube is good for 10 people (50%), increasing to 20 people (100%) after watching the educational video. The effectiveness test using the Wilcoxon test yields a p-value of 0.000, indicating it is less than 0.05, making YouTube effective in increasing knowledge.

Knowledge is the perception an individual has through their senses about an object. Most knowledge is acquired through hearing, sight, smell, taste, and touch. Good knowledge can positively influence a person's attitude and behavior, and vice versa. Knowledge can be influenced by formal education, and knowledge is closely related to education; therefore, a lack of knowledge in an individual needs to be improved by providing health education (Alvionita et al., 2019).

This is consistent with research conducted by Rinarto et al., (2022) where education on Instagram and Facebook resulted in an increase in balanced nutrition knowledge, with a significance value (2-tailed) of  $p < 0.005$ . Knowledge is one of the factors influencing behavior. If someone has good knowledge, their behavior and actions will also be good.

The increase in knowledge using social media is also evident in research conducted by Maharani et al., (2021), where the pretest results for Instagram users in the good category were 23 respondents with a percentage of 60.5%, the sufficient category was 5 respondents with a percentage of 13.2%, and the insufficient category was 10 respondents with a percentage of 26.3%. Meanwhile, the posttest results for Instagram users in the good category were 33 respondents with a percentage of 86.8%, and the sufficient category was 5 respondents with a percentage of 13.2%. In terms of improvement between before education on social media and after education with sig. (2-tailed) less than 0.005 so that it is said that there is an effect of educational videos on knowledge about physical activity.

Likewise, the results of research conducted by (Handayani, 2017) using Facebook social media, where the results showed that respondents' knowledge after health education was higher than before health education about PMS (Post Menopause Syndrom) ( $p=0.002$ ). Multivariate analysis obtained that the experience of menstrual information before health education influenced changes in respondents' knowledge about PMS ( $p=0.033$ ). Facebook was perceived as easy to use (63.6%) and useful (57.1%) as a medium for health education about PMS.

## 2. Effectiveness of Dental Health Education with Educational Video Media on Instagram, Facebook, and Youtube in Changing Attitudes.

Social media is an online platform where users can easily participate, share, and create content. The existence of social media has influenced social life in the community. With its social system, including values, attitudes, and behavior patterns among groups in society, social media has affected social life in the community (Handayani, 2017).

In this research, there is a change in attitudes before watching educational videos on social media platforms such as Instagram, Facebook, and YouTube. As seen in tables 2, 4, and 6, attitudes before watching educational videos on Instagram are considered good, then there is an increase after watching Instagram educational videos, with the result being good for 17 people (85%). The p-value is 0.00, indicating that Instagram can be considered effective in changing attitudes. In table 4, attitudes before watching educational videos on Facebook are considered good for 12 people (60%), then there is an increase after watching Facebook educational videos, with attitudes being considered good for 18 people (90%). The p-value is 0.00, indicating that Facebook is effective in changing attitudes. In table 6, attitudes before watching educational videos on YouTube are considered good for 11 people (55%),

then there is an increase, with attitudes being considered good for 19 people (95%). The p-value is 0.00, indicating that YouTube is effective in changing attitudes.

This is consistent with research conducted by Amelia, (2022), where 65% of students stated that social media influences student character. Attitudes are part of human behavior, although attitudes have other factors. Sometimes attitudes can determine a person's actions; attitudes can be divided into positive and negative attitudes. Other factors influencing a person's actions include social norms. Attitude changes can occur if the information presented is understood and accepted by the information recipient, and the information is then digested and approved by the recipient (Azwar, 2015).

### 3. Comparison of the Effectiveness of Dental Health Education with Educational Video Media on Instagram, Facebook, and YouTube in Changing the Knowledge and Attitudes of the Community in an Effort to Preserve Teeth through Dental Nerve Care.

Recognizing the benefits of health education, which can enhance individual or group health efforts, providing information through social media can increase knowledge. This aligns with the opinion of Notoadmojo, (2010), who states that health education conducted through various media fundamentally improves the knowledge, attitudes, and behaviors of the community towards their health efforts..

The research results shown in Table 7 indicate that the comparison of the effectiveness of dental health education with educational video media on Instagram, Facebook, and YouTube in changing the knowledge and attitudes of the community in an effort to preserve teeth through dental nerve care has a p-value/sig. (2-tailed) for knowledge before watching educational videos with a p-value sig. (2-tailed) of 0.869, the respondent's attitude before watching educational videos with a p-value sig. (2-tailed) of 0.960, knowledge after watching educational videos with a p-value sig. (2-tailed) of 0.989, and attitude after watching educational videos with a p-value sig. (2-tailed) of 0.902. This means that there is no significant difference among the three social media platforms, although each social media platform is effective in changing the knowledge and attitudes of the community in an effort to preserve teeth through dental nerve care.

Even though videos have a long duration, they can still be uploaded and viewed by the public through social media platforms like Instagram, Facebook, and YouTube. The research results are in line with a study conducted by Permatasari, (2017), where statistical results from the Wilcoxon test showed an increase in knowledge with both Facebook and Instagram social media, with significance values in the Facebook group at 0.006 ( $p < 0.05$ ) and the Instagram group at 0.002 ( $p < 0.05$ ). The comparison of effectiveness between the education methods of Facebook and Instagram using the Mann-Whitney test obtained a significance value of 0.480 ( $p > 0.05$ ), indicating that both methods have the same effectiveness in increasing knowledge, and there is no significant difference between them..

There are three learning aspects in health education activities: cognitive (information and understanding), affective (attitudes and feelings), and behavioral (skills). Through online media, the learning process also involves all three aspects mentioned above. The advantage of using online media, including social media, in the learning process is that users can interact with each other, so even though they are in different places, two-way communication still occurs (Sembada et al., 2022). In one journal study involving cognitive and affective aspects, the results showed that after online education activities, knowledge increased by 11% from 22.2% to 33.3%, and there was an increase in attitude scores after online education by 3.53% from 45.83% to 48.33% (Puspitasari et al., 2020). Using digital media, especially social media, can improve people's access to health information and promote positive behavior changes. Thus, social media can collaborate and complement conventional health promotions. Moreover, social media can be an excellent tool with broad reach and interactivity (Permatasari, Lolita and Chotimah, 2023).

## CONCLUSION

Educational videos on social media platforms such as Instagram, Facebook, and YouTube are effective in bringing about changes in the knowledge and attitudes of the community. However, there is no significant difference in effectiveness among these three social media platforms. It is recommended to conduct further research on the effectiveness of dental health education using other types of social media and factors that influence the effectiveness of dental health education.

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