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A B S T R A C T

Problems related to adolescent's oral hygiene are generally due to lack of information, understanding and awareness to maintain good oral hygiene. Riset Kesehatan Dasar results in 2018 showed 55.6% of adolescents aged 10-14 years and 51.9% of adolescents aged 15-19 years suffered from oral health diseases. The majority of social media users in Indonesia are adolescent, the provision of health information through social media Line can be used as a promotion media of adolescent's oral hygiene. To determine the effectiveness of social media "Line" for promoting adolescents' oral hygiene. This quasi experimental research, using the intervention group and the control group (nonequivalent control group design). The research sample were students of SMP IT Al Furqon Palembang many as 46 students. Instruments used in the form of a questionnaire and OHI-S index. Analysis data was processed using Wilcoxon test and Independent t-test. Wilcoxon test showed there were differences in the improvement of knowledge level ($p=0.007$) and OHI-S index ($p=0.005$) before and after intervention using social media "Line". Independent t-test showed there were differences in the improvement of knowledge level ($p=0.001$) and OHI-S index ($p=0.001$) between the intervention group and the control group. So it can be concluded that there were the effect of social media Line as a health promotion media in the improvement of knowledge level and OHI-S index in adolescent.

Keyword: *health promotion media; adolescent oral hygiene; social media*

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1. INTRODUCTION

Adolescent is the period of the end of childhood and the beginning of the coming maturity or known as puberty adolescent. In the development, adolescent often have an experience in health problems, one of which is oral hygiene problems. If there are problems in oral hygiene, it can affect the quality of life such as chewing, speaking and self esteem¹. Riset Kesehatan Dasar results conducted in 2018 showed 55.6% of adolescents aged 10-14 years and 51.9% of adolescents aged 15-19 years suffered oral disease². Oral diseases most commonly found in adolescents are dental caries so it becomes the main problem of oral hygiene. The high prevalence of adolescent problems with oral hygiene is due to behavioral factors and attitudes ignoring oral hygiene. One of the efforts to improve oral hygiene behavior is to increase knowledge about oral hygiene³.

Promotion of oral hygiene can be done by providing health education through social media to be able to increase knowledge in maintaining oral hygiene. Therefore, it is necessary to promote a variety of health promotion efforts consider the media that allow effective communication so that the message can be received by the target group and allows for a change in knowledge, attitudes and beliefs or intention to behave accordingly⁴. Social media can improve communication among users. Research conducted at MAN Yogyakarta showed that the use of social media is effective against improving reproductive health knowledge⁵.

According to a survey conducted by the Indonesian Internet Service Implementation Association in 2017, the use of social media amounted to 75.5% found in adolescent. This is due to a characteristic of adolescent itself. Great curiosity,

fondness for challenges and always want to try new things, tend to group, still looking for identity, easy to affect the environment as the results of typical problems arising from adolescent⁶.

Line is one of social media which uses free medium internet. Social media Line can be used in many electronic devices such as smartphones, tablets and computers. Various features found on Line makes the Line developed very rapidly among adolescent, especially those of school age children. In addition, the Line can also peer to peer students so that students can interact with each other and change their health behavior⁷.

Junior High School IT Al Furqon Palembang is a school with students that have middle to upper socio-economy background, so allowing students to have smartphones and social media accounts. There are still not many research using social media in oral hygiene and the various facilities and excellent features offered in Line trigger this research to focus on the effectiveness of social media Line as a health promotion media of adolescent oral hygiene.

2. MATERIALS AND METHOD

This quasi experimental research using the intervention group and the control group (nonequivalent control group design). Instruments used in the form of a knowledge questionnaire and OHI-s index. This research was performed in three periods, namely pretest on the first day where subjects were asked to fill out a knowledge questionnaire and conducted OHI-s examination before given intervention, and posttest in the first 7 days and the second 7 days after being given intervention in intervention group.

The intervention group was exposed to broadcast message disseminated via social media, Line. Broadcast message contain narration and image about the information of oral hygiene given about twice a day at 05.30 AM and 07.00 PM for 14 days. Broadcast message are always different every day and a discussion session if there were subjects who want to ask question or sharing their experience in maintaining oral hygiene. Meanwhile, the control group was not given any intervention. The control group was used as a comparison group to the intervention group. In addition, the researchers also provided rewards as a motivation to 5 subjects in each group with the best knowledge scoring and OHI-s index.

Sampling was carried out from all students of junior high school IT Al Furqon Palembang who had met the criteria. First, students ranked 1-10, aged 11-13 years, have smartphone with Line application. Sampling of the population who met the criteria was performed using purposive sampling technique. The total of samples obtained were 46 students divided into two groups. 23 of which were in Line group and 23 of which were in control group. Data analysis using Wilcoxon test and Independent t-test.

3. RESULTS AND DISCUSSION

The result of this research showed that the mean of knowledge before the intervention in the Line group was 40.35, while in the control group was 40.52. Those mean of knowledge then increased in both the Line and control group. The mean of knowledge on the second 7 days in Line group was 53.78 greater than in the control group, about 43.04 (Table 1). Before intervention, subjects with good level of knowledge about 10 students (43.5%) increased to 20 students (87%) within 14 days of intervention while in the control group there was no increase in the number of subjects with good level of knowledge.

Table 1. Change in the mean of knowledge and OHI-s score before and after intervention in the Line group and control group

	Group	Before Intervention	After Intervention	
			The first seven days	The second seven days
Knowledge	Line	40.35	45.65	53.78
	Control	40.52	40.74	43.04
OHI-s Score	Line	2.30	1.84	1.56
	Control	2.01	2.01	2.06

The improvement in knowledge in this study may occur due to the stimulus received, can be remembered and understood by the subjects, then the subjects can understand, explain, and infer the lesson that has been studied⁸. Giving health promotion will increase the knowledge so that practice or the implementation of attitude and behavior of adolescence are getting better⁹.

During test, subjects were realized that their abilities were being tested so that the pretest was aimed to find out which information has been taken over by subjects while posttest was aimed to find out which information has been understood by subjects¹⁰. Reward also given in this research as a motivation to the subjects to increase their interest in this study. According to Wahab (2014), extrinsic motivations if given to the subjects during the study were able to increase the interest of subjects in satisfying their curiosity from something that would be learned to encourage them to learn and to find out¹¹.

OHI-s score in the Line group decreased by 2.30 before intervention to 1.56 in the second 7 days of treatment. It was indicated the improvement in the OHI index in Line group. However, it was not showed by the control group (Table 1). Before intervention, subjects with good category of OHI-s index about 1 students (4.3%) increased to 9 students (39.1%) within 14 days of intervention while in the control group there was no increase in the number of subjects that have good category of OHI-s index.

The improvement of OHI-s index in Line group occur due to a stimulus to increase knowledge. According to Purwoko (2011), knowledge is related to OHI-s index, where knowledge about the prevention of oral hygiene's problem can generate good oral hygiene measurable as OHI-s. The control group were not have OHI-s index improvements. It was likely because control group were not given any intervention⁸.

This research used a period of 14 days or the second 7 days since it was expected that the subjects could optimize long time memory, which could affect changes in knowledge and OHI-s index. Humans can have a strong memory because of their long term memory capability¹². According to Jayani & Hastjarjo (2011), giving frequent test had effect and will improve the long term memory of the material provided by comparison without test¹³. Based on the theory, analysis data in this research was conducted with Wilcoxon tests to study the differences of knowledge and OHI-s index between before intervention and the second 7 days after intervention.

Table 2. The differences of knowledge between before and the second 7 days after intervention

Group	Result	p-Value
Line	Pre test	0.007
	Post-test 2	
Control	Pre test	0.317
	Post-test 2	

The Wilcoxon tests showed that there was significant difference of knowledge between pretest and posttest 2 in Line group ($p=0.07$), while in control group showed

that there was not a significant difference of knowledge between pretest and posttest 2 ($p=0.317$). This is possibly because the knowledge given by social media used stimulus in word, picture and audio, so allowing the use of vision and hearing by subjects (Table 2). According to Jatmika SED, et al (2019), the principle of social media was human knowledge is received by the five of senses. The more senses are used the more information is obtained. This information is a stimulus which can stimulate someone's respond which is the reaction offered to the available encouragement¹⁴. This research supported by Hamzah B & SR Hamzah (2021) that there were differences of knowledge level between pretest and posttest at students in SMA 5 Wajo ($p=0.001$). Health education is required to increase adolescent knowledge about the benefit of maintaining oral hygiene by using media that can attract adolescent so that knowledge can be easily remembered¹⁵.

The improvement of knowledge mean as many as 13.43 for 14 days after given intervention showed social media Line as a health promotion media of adolescent oral hygiene made students interested in Line which was only used for chatting but could be used as a media for having information about oral hygiene. Line can be well utilized and active by participants for discussion and expressed opinion and sharing experience in maintaining oral hygiene, so there was an improvement in the knowledge mean at posttest 2.

Table 3. The differences of OHI-s score between before and the second after intervention

Group	Result	p-Value
Line	Pretest	0.005
	Posttest 2	
Control	Pretest	1.000
	Posttest 2	

The Wilcoxon test showed that there was significant differences OHI-s score between pretest and posttest 2 in Line group ($p=0.005$), while in control group showed there was not differences between pretest and posttest 2 ($p=1.000$). This was possibly caused by the existence of the stimulus which is given to Line group so that it can improve knowledge and cause the change in behavior of maintain oral hygiene, which can be measured by OHI-s (Table 3). The success in maintaining oral hygiene could be done by good brushing teeth where the capability is gained by providing good knowledge. This research was supported by Kristianto dkk (2017), where there were differences in the OHI-s score before and after intervention using social media Whatsapp in 30 children in Jakarta ($p=0.0001$). The OHI-s decline happened to 1.0 so it was concluded that the intervention provide a video of Whatsapp with brushing teeth demonstration can increase oral hygiene¹⁶.

It was also found in this research where there were the improvement knowledge followed by the decreasing OHI-s score in 14 days as 0.74 (Table 1). The interactive communication through Line between researcher and subjects would help the subjects in maintaining oral hygiene. In the long term, if there is a change in behavior, then it will increase good oral hygiene and thus it will prevent for tooth decay and the decline of dental pain caused by caries and gingivitis.

Table 4. The result of Independent t-test

Variable	Group	Mean	p-value
Knowledge	Line	13.43	0.001
	Control	2.83	
OHI-s	Line	0.74	0.001
	Control	0.043	

There was significant differences of knowledge and OHI-s between Line group and control group using Independent t-test ($p=0.001$) so it can be concluded there was effect of the use social media Line as a health promotion of adolescent oral hygiene in improving knowledge and OHI-s index. The results were supported by Widodo, Setijanto & Sosiawan (2016) at students in SMP Banjarmasin that showed the frequency of brushing teeth of Line groups was better and increased to four week by intervention than control group⁷.

Adolescent as the subject of this research should be considered their characteristic in either information given or media selection. The process of giving the education would be effective if the informant controlled perspective, have strategy and took flexibility in applying so it required the professional skills and knowledge to learn and also the participant have good commitment and motivation¹⁷.

4. CONCLUSION

The social media Line as a health promotion media of adolescent oral hygiene was effective in improvement the knowledge and OHI-s index at IT junior high school Al Furqan Palembang. The mean of knowledge before intervention was 40.35 increased to 53.78 after second 7 days intervention in Line group. The mean of OHI-s score before intervention was 2.30 decreased to 1.56 after second 7 days intervention. The decreased of OHI-s score indicated the improvement in OHI-s index in Line group.

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