PAPER NAME

Artikel FAG

AUTHOR

Feri Ekaprasetia

WORD COUNT

3606 Words

CHARACTER COUNT

19032 Characters

PAGE COUNT

6 Pages

FILE SIZE

61.5KB

SUBMISSION DATE

Jan 24, 2023 9:05 AM GMT+7

REPORT DATE

Jan 24, 2023 9:05 AM GMT+7

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THE EFFECT OF FIRST AID GUIDELINE (FAG) APPLICATION TO STUDENT'S KNOWLEDGE, ATTITUDE, AND SKILLS ABOUT FIRST AID: A QUASY EXPERIMENT

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ABSTRACT

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First aid given by laypersons in trauma cases has more mistakes. Injuries that occur require appropriate treatments. First aid education is part of health promotion. First aid guideline application (FAG) is a new education method. This study aimed to analyze the difference in students' knowledge, attitude and skill improvement in first aid by using FAG application. The study design used quasy experiments using control and experimental group. Research location was in SMP Negeri 2 Jember. There were 120 respondents taken by purposive sampling technique with two groups. Data analysis used independent t-test. Statistic analysis using independent t-test. Variables of knowledge obtained the p-value = 0.008, meaning there is a significant increase of knowledge after getting first aid education by using the application of FAG. The attitude variable got a p-value = 0,023, meaning that there is significant attitude improvement after getting first aid education by using the application of FAG. Skill variable found that p-value = 0,035 meaning that there is significant skill improvement after getting first aid education by applying FAG. There are differences in variables of knowledge, attitudes and skills among Junior High School students between the intervention and control groups.

BACKGROUND

Injuries have a high prevalence, and therefore special attention is needed. In the USA, unintentional injuries have a high rate of around 50,000 people, ranging from age 1 to 44 years (Thygerson & Thygerson, 2005). At the national level, the prevalence of injuries reached 8.2%, with the most frequent injuries experienced by people of Indonesia being abrasions/bruises (70.9%), dislocations (27.5%) and the rest being injured (Badan Penelitian dan Pengembangan Kesehatan, 2013). Previous research indicates that the frequency of first aid given by laypersons in trauma cases is at the rate of 10.7% to 65%, and errors in providing first aid reach 83.7% of the cases (Tannvik, Bakke & Wisborg, 2012).

Injuries that occur require appropriate treatments. The American Heart Association (AHA) and American Red Cross (2015) have released a first-aid guide that aims to reduce morbidity and mortality by reducing suffering, preventing further illness or injury and improving recovery, as well as providing recommendations that first aid can be initiated by anyone, in any situation, and including self-care. Basic first-aid

training can be given to students aged 13-14 (Charlier & Fraine, 2009). A systematic review states that students aged 5-18 can learn about first aid techniques, and children aged 11-18 are willing to assist. So, education about first aid is useful to increase their confidence (Buck et al, 2015).

In the era of globalization, technology develops rapidly in various fields. In Indonesia, the number of smartphone users has grown to 100 million, and the country is ranked fourth in the world after China, India, and America (Sadeghi, Sedhagat & Ahmadi, 2014). One of the technologies used is smartphone (Yunanto, Wihastuti & Rachmawati, 2017). Besides knowledge, skills will also increase if training methods are provided by utilizing innovative technology and presenting demonstrations (Yunanto, Wihastuti & Rachmawati, 2017). Thus, the first aid guideline (FAG) application was created as a first aid education application.

This study aims to analyze differences in the increase of knowledge, attitudes, and skills about first aid using the application of first aid guidelines (FAG) with the Health Belief Model Theory approach at a Junior High School in Jember.

METHOD

The research employed a quasi-experiment with intervention and control groups.

This research was conducted at a Junior High School in Jember. The number of samples is 120 respondents recruited with a purposive sampling method and divided into two groups: the intervention group and the control group. The inclusion criteria in this study are: 1) students aged 11-14 years; 2) have had first aid education; 3) have an Android smartphone.

The tool used by the researchers was an android-based application called "First Aid Guideline (FAG)," which contains first aid materials. The researchers developed this application based on guidelines from International First Aid and Resuscitation, American Red Cross and educational pathways about first aid. The materials include emergency calls, choking, wounds, burns, and bleeding (Ekaprasetia & Susanto, 2018).

Data on respondents' knowledge, attitudes and skills about first aid were obtained using a questionnaire filled out by the respondent and an observation sheet filled out by the numerator. This research was conducted using the assistance of a numerator who had received training and carried out a common perception of research achievements to measure the knowledge, attitudes and skills of research respondents.

Validity and reliability tests were carried out on respondents with a total of 30 respondents. This test was conducted at SMP Negeri 3 Jember with the same characteristics as the research respondents. The validity test results on the knowledge questionnaire are said to be valid if r results > r table (0.361), and from 20 questions, there are 10 valid questions. The validity test results on the attitude questionnaire are said to be valid if r results are obtained > r table (0.361) and from 12 statements there are 10 valid statements.

The researcher collected data according to the inclusion criteria for the research sample. Student data collection is carried out during subject activities at school. The researcher divided the sample into 2 groups after collecting respondents' data: the intervention group and the control group. The distribution of the intervention group and the control group was done randomly by the researcher.

Respondents were divided into 2 groups in the intervention phase and placed in different classrooms. The activities of each group will be carried out in detail as follows:

Intervention Group include are: 1) respondents who entered the intervention group were given education about first aid by using the First Aid Guide application that was already installed on the respondent's smartphone; 2) a numerator accompanies the implementation to provide direction regarding the use of the application, and the numerator does not perform simulations during the learning process; 3) the duration of learning for each material lasts for 20 minutes which includes exercises using the probands; 4) respondents are allowed to view the First Aid Guide application during independent practice; 5) implementation of first aid education all materials are carried out for 100 minutes.

Control Group include are: respondents who were included in the control group were given education about first aid using the traditional method, namely lectures. The material to be delivered lasts for 20 minutes for each material.

Univariate analysis was used to collect data on respondents' characteristics (including age and sex) and each research variable: knowledge, attitudes, and skills before and after being given first aid education in the control and intervention groups. The bivariate analysis used an independent T-test to determine the increase in knowledge, attitudes, and skills in each variable.

This study has passed the ethical test held at the Faculty of Medicine, Universitas Brawijaya, with ap-

Table 1. Characteristic of Responden

Characteristic	Frequency	Presents
Age:		
12 Years	13	10,8
13 Years	40	33,3
14 Years	67	55,8
Sex:		
Male	47	39,2
Female	73	60,8

Table 2. The Increased of Knowledge, Attitude and Skill about First Aid

Variable	Group	Difference	SD	*p*
Knowledge	Control	2,12	1,648	0,008
	Intervention	2,91	1,608	
Attitude	Control	3,20	1,811	0,023
	Intervention	3,98	1,900	
Skill	Control	2,43	1,817	0,035
	Intervention	3,07	1,413	

proval number 442 / EC / KEPK-S2 / 12/2017.

RESULT

The characteristic of respondents, according to table 1 describes that most are 14 years old (55.8%), and most are female (60.8%). As the table indicates, the intervention group had a higher difference in value than the control group, with a value of 2.91 (SD = 1.608). The results of the independent t-test show that the value of p = 0.008 (p-value <0.05), which means that there is a significant difference in the inmeans that there is a significant difference in the in crease of knowledge variable after getting a first aid education using the FAG (First Aid Guidelines) application.

In the attitude variable, the intervention group had a higher difference in value than the control group, with a value of 3.98 (SD = 1,900). The results of the independent t-test showed that the value of p = 0.023 (p-value <0.05), which means that there is a significant difference in the attitude variable after getting first aid education using the FAG (First Aid Guidefirst aid education using the FAG (First Aid Guideline) application. In the skill variable, the intervention group had a higher difference in value than the control group, with a value of 3.07 (SD = 1.413). The results of the independent t-test show that the value of p = 0.035 (p-value <0.05), which means that there is a significant difference in the skill variable after getting first aid education using the FAG (First Aid Guideline) application.

DISCUSSION

This study also found several changes in respondents' answer patterns with the knowledge variable about first aid, which consisted of 5 indicators: emergency calls, choking, wounds, burns and bleeding. Before being given first aid education using the FAG (First Aid Guideline) application, many respondents experienced difficulties answering questions on indicators of emergency calls, choking, burns and bleeding. However, the respondents could correctly answer these indicators after being given first aid education.

A previous study indicates that RJP bystander knowledge can be increased using the mobile application method compared to traditional methods (Ekaprasetia & Susanto, 2018). Other studies show that nursing students who measured their knowledge of medical procedures experienced changes in knowledge variables after using technology assistance (Jenson & Forsyth, 2012). The mobile application provides a special attraction for users because of the various interactive features provided. This method will stimulate students to learn actively, unlike traditional methods that depend on instructors or speakers (Dela Pena-Bandalaria, 2007). In this case, the learning method using technology assistance is a learning video that can be used to transfer knowledge to students (Suwaryo & Kristianto, 2015).

Increasing knowledge by using the mobile-based application can be synergized with a technological approach to stimulate the human brain. A mobile ap-

plication containing texts, images, sound and video elements is an innovative application that supports the learning process. Images and videos can provide imaginary audio in the human brain. Stimulation in the brain will affect a person's long-term memory and make it easier to remember a thing learned (Delazer et al. 2003).

There are several benefits of learning media using mobile applications. The mobile application used as learning media has the advantage of being user-centered to build cognitive abilities following the goals to be achieved (Sharples, Taylor, & Vavoula, 2005). Another advantage is that students can use mobile applications to learn independently. Besides, learning using mobile applications can provide opportunities for students to repeat the material or discussion in the application (Gandhi & Mythili, 2015).

The first aid learning media used by the researchers is a mobile application called FAG (First Aid Guideline) installed on an android-based smartphone. The application has the same characteristics as the above research, which consists of writing, pictures and videos. These features can make it easier for respondents to learn about first aid, which is proven to provide a good stimulus in improving the cognitive abilities of respondents.

In this study, respondents who were given first aid education had a higher posttest score than those who were only given first aid education using traditional methods. This can happen because, in the provision of first aid education using the conventional method, the respondents were only centered on the instructor or the material provider with less interesting media, unlike the group of respondents who were given first aid education using the FAG application. In this group, hereinafter referred to as the intervention group, respondents have the opportunity to learn by using the FAG application in which there are various exciting features such as writing, pictures and videos, which are new to respondents so that the respondents are interested in knowing the contents in the application. Furthermore, the respondents can practice what is in the application.

One nursing theory that is suitable for increasing knowledge through health education is the theory of the Health Belief Model. There are several domains in theory. One of them is the domain of perceived Seriousness / Severity. This domain represents the individual's trust in the severity or seriousness of the disease. Meanwhile, the perception of seriousness is often based on health or knowledge information. It can come from someone's beliefs about the severity of the disease or affect their life in general

(Rahmayani, 2017). Increasing respondents' knowledge about first aid through first aid education with the FAG application method is expected to increase the seriousness of respondents' perceptions so that the respondents will understand first aid.

Other studies have shown that mobile app users have more confidence and good attitudes about health (Jones, 2003). Research also states that junior high school students who participate in cardiac arrest educational activities have a change in attitude to a better one before attending health education about cardiac arrest using video technology sophistication (Stroobants, 2014).

This study uses variables to measure attitudes in performing first aid with various indicators, namely attitude in using emergency calls, handling choking, handling injuries, handling burns, and handling bleeding. Based on the research results and diverse literature obtained, it is known that there is a good change of attitude in doing first aid after using the FAG (First Aid Guidelines) application.

Regarding attitudes, health education is the most appropriate theory of the Health Belief Model in the domain of perceived susceptibility. In this domain, it describes a person's attitude to a matter related to health where a person already knows the cause of illness but does not want to avoid the cause and resolve the problem of his illness (Jones, 2003). In this study, the researchers will focus on this domain by changing the respondents' attitudes about first aid to be better than before health education was conducted using the FAG application. Based on the results of the research, it was found that the average value of respondents' attitudes toward first aid education using the FAG application was higher compared to the average value of respondents who were not given first aid education using the FAG application or only given first aid education using traditional methods.

Besides knowledge, skills will also increase if training methods are provided by utilizing innovative technology and presenting demonstrations (Jenson & Forsyth, 2012). When viewed from the point of view of human physiological processes, learning methods that use technology and consist of imaginary audio effects will increase activation of the frontal and parietal cortex in the human brain. It will trigger cognitive stimulation and strengthen the memory of an individual who has studied the material (Delazer et al. 2003).

In the skill variable, there are several indicators in various treatments of first aid. One of the features of the FAG (First Aid Guideline) application is the demonstration video regarding several treatments in first

aid. This proves that the research has aligned with the applications that the researchers have designed. Based on the above research, it was found that there was a significant increase in the first aid skill variable given using the application method FAG (First Aid Guideline).

The results of the above study are supported by Lynch-Sauer et al (2011) research which shows that in the current millennial era, the use of learning media by utilizing new technology and media can improve good attitudes about the material delivered through the learning media. Meanwhile, Selvabaskar et al (2017) state that mobile app users have more confidence and good attitudes about health. Research by Sutton et al (2011) also supports the results of the above research, where the researchers used several learning methods, one of which is using audio-visual technology, which is proven to improve skills far better than other methods.

The use of technology in education will increase the activation of the frontal and parietal cortex in the human brain. Increased activation of this part of the brain will trigger cognitive stimulation and strengthen the memory of someone who has learned something (Stroobants et al., 2014). This method has advantages, such as students can focus on using the installed application on their smartphone and practice anywhere and anytime. So it is straightforward for students to do it.

Skills are one part of the theory of the Health Belief Model, which is in the domain of modifying factors in the theory of the Health Belief Model. Skills are the results that support people's perceptions of health. Someone who has a good perception of health will be supported by good skills (Rahmayani, 2017). In this study, the respondents changed their skills in doing first aid to be better by using the FAG. application.

CONCLUSION

The First Aid Guideline (FAG) application can be used as a first aid education media for children aged 11-14. There are differences in variables knowledge, attitudes and skills with the Health Belief Model Theory approach among Junior High School students between the intervention group and the group using the traditional method.

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