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Original Article

The Influence of Educational Videos in Increasing First Aid Knowledge and Skills in Village Communities

Bintari Ratih Kusumaningrum*, Suryanto, Mukhammad Fathoni, Firmananda Dwi Riwayanto, Limas Majid Karmawan, Haffa Syafana Nursuhaida, Auliya Handayani, Lintang Ilal Ayu, Eny Wulansari
School of Nursing, Faculty of Health Sciences, Universitas Brawijaya, East Java, Indonesia
*Corresponding author: bintariratih@ub.ac.id

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ABSTRACT

Education about first aid of accident in communities is important. Currently, technology for education has developed. It is not only through books or leaflets, but video is a more interesting medium for public education.Purpose. The aim of this study was to determine the effect of educational videos on first aid knowledge and skills for home injury in the village community. We used quasi experimental research design with 59 samples obtained by purposive sampling divided into 2 groups, namely control (n=30) and intervention(n=29). The intervention group was given education using video, while the control group received education using booklet. Before the intervention, a pre-test was carried out, then the video and booklet were given to respondents to read and view, after one week the post-test was measured again. The variables studied are first aid knowledge and skills. The instrument used is a questionnaire about first knowledge and skills which is filled in by the community. Data analysis used paired t test and independent t test. The results show there was a significant increase in knowledge scores in the control group (p value = 0.009), but there was no significant increase in the intervention group (p value 0.677). Meanwhile, in the skills variable, there was a significant increase in scores in the control group (p value 0.001) and in the intervention group (0.024). Between two groups measurements, they did not differ significantly between the knowledge of the control group and the intervention group (p value of knowledge 0.162; p value of skills 0.360). Even though there is no difference between the control and intervention groups, both educational methods can increase the knowledge and skills of village communities in providing home injury first aid. In conclusion, educational videos themselves do not have a significant impact on first aid knowledge. This must be combined with modules and assistance from health workers to provide education.

INTRODUCTION

Many people think that home is a safe place. However, it turns out that many dangers or accidents occur in the house, such as electrical equipment, washing materials, gas stoves, materials for garden care, domestic violence and so on.[1] Accidents that often occur in households that cause fatalities include chemical and detergent poisoning, cuts, falls, burns, electrocution, road accidents, drowning.[2] A study in Iran also states that the most common household accidents

are falls, choking, burns, drowning, and poisoning.[3]

Household accidents can result in disability and death if not handled properly and correctly at the start of the incident.[4] Therefore, early treatment is very important to prevent death and disability. In the general public, especially in rural areas, there are still many people do not understand well about handling household accidents. There are even mistakes in providing first aid for accidents. This will cause complications in the healing process. One example of inappropriate treatment is the application of toothpaste to burns. This action will cause the wound to get worse and hinder the healing process.

Seeing this phenomenon, it is necessary to provide education to the community. Several educational methods and media are widely used by nurses. Currently, technology for education has developed. Education is not only through books or leaflets, but also video is a more interesting medium for public education. Videos on first aid of emergencies are one of the media providing education that is currently developing. According to ST. john ambulance in Australia educational videos for first aid training for accidents and cardiac arrest can attract the attention of participants, they are easier to remember than reading. Seventy-five percent of training participants prefer watching videos to reading books. Studies also show that with innovative media students will be more interested and retention of training materials is better.[5] This happens because with innovative media, it is easier for training participants to imitate the skills demonstrated by the video. Apart from that, other studies show that educational videos about choking and first aid can increase mothers' knowledge in handling cases of choking in children.[6] Currently, there are lots of educational videos circulating on social media about health, but there has been no research on the effects of educational videos alone, in the sense that there are no health workers providing face-to-face education to the public. This research aims to determine the effect of educational videos on first aid knowledge and skills for home injury in Kalisongo village, Malang Regency, Indonesia.

METHODS

We used quasi experiment with pre post test control group design to conduct the study. This research was conducted in the Kalisongo village, Malang Regency, Indonesia, which is still close to urban areas in October-December 2023. The sampling technique used in this research was purposive sampling. Inclusion criteria are being able to read and write, aged 17-65 years, able to use WhatsApp social media. Meanwhile, the exclusion criterion is not being willing to be a respondent. In this study, the samples obtained were 30 people in the control group and 29 people in the intervention group.

Intervention (applies to experimental studies)

The intervention in the intervention group took the form of an educational video about handling household accidents made by the research team with a duration of 7 minutes in MP4HD format with 77 MB capacity. The content of the education is types of household accidents and their initial treatment. These types of accidents include: cuts/bleeding, nosebleeds, burns, and choking.

The educational video contains the definition, causes and first aid of bleeding, burns and choking. In the video the research team role play household accidents, then they practice the right and wrong ways to handle them. The role play video is accompanied by subtitles on the steps for handling first aid. The educational content in the booklet is almost the same as the video, but only in the form of text and pictures of how the research team handled it.

Educational videos were distributed to intervention group respondents via WhatsApp group. Meanwhile, the intervention in the control group was providing education through a manual book for first aid. Before being given the intervention, both groups of respondents were measured their knowledge dan skill about first aid through questionnaire. After that, control group respondents were given manual book to read by themselves. Meanwhile, the intervention group will be given a video to watch by themselves. After one week, respondents will be given post test questionnaire to measure their knowledge and skills.

Measurement and data collection

The questionnaire used to measure research variables consists of 3 parts. The **first part** is a demographic data questionnaire containing gender, age, education level, occupation, marital status, monthly income, emergency training attended, and experience of household injuries. **The second part** is to measure knowledge in the form of 15 true-false choice questions. Questions modify several previous research which was then adapted to cases of home injury including bleeding, burns, nosebleeds and choking.[7–12] **The third part** is a skills assessment sheet containing 10 question items on how to stop nosebleeds, treat minor burns, treat bleeding from wounds, and treat choking. The question was adopted form previous research.[13–18] The questionnaire has been tested for validity and reliability on 20 respondents in villages adjacent to the research location with a validity test value of r calculated > r table (0.361) and Cronbach's alpha (0.791) > 0.6. The time to complete the questionnaire is 10 minutes for each respondent. Data collection was assisted by six field staff, with support from village cadres and heads.

Data analysis

Data analysis was carried out univariate and bivariate. Univariate analysis to analyze demographic characteristics. The type of data obtained in the knowledge variable is interval data with a minimum score of 0 and a maximum of 100, the Skills variable is interval data with a minimum score of 0, a maximum score of 100 where a value of 100 is the best score. The results of the variable normality test before and after the intervention are normal (> 0.05) so the bivariate test used is the paired t-test.

Meanwhile, to see the differences between the control and intervention groups, the analysis used was the Independent T-test. Statistical testing uses SPSS 26 software

Ethical considerations

An ethical issue that may arise in this research is that respondents must take time to read or view videos and booklets that may cause discomfort. However, to overcome this, the researcher ensured that the respondents were those who were willing and received a reward as a thank you from the researcher. This research has also received a certificate of ethical suitability from the Faculty of Health Sciences, Universitas Brawijaya with letter number 5953/UN10.F17.10.4/TU.2023.

RESULTS

Demographic characteristics

There were 59 people who were willing to become respondents, who were divided into a control group of 30 people and an intervention group of 29 people. Every society has demographic characteristics that can influence knowledge and skills. The demographic characteristics of the respondents are presented in Table 1. Based on this table, it can be seen that most of the respondents from Kalisongo Village are adult women with secondary education, namely junior high school graduates, who work as private employees with low income levels and more than two children, and almost all of them are married. Most people have never experienced an emergency at home, have never received first aid training, and do not have first aid equipment at home.

Table 1. Demographic characteristics

Characteristics	Booklet group		Video group	
	n (30)	%	n (29)	%
Age				
Late adolescent (17-25)	4	13.33	7	23.33
Adult (26-65)	26	86.66	22	73.33
Gender				
Male	11	36.66	10	33.33
Female	19	63.33	19	63.33
Lever of Education				
Elementary	5	16.66	2	6.67
High school	20	66.66	19	63.33

Characteristics	Booklet group		Video group	
	n (30)	%	n (29)	%
Graduate/diploma	5	16.66	8	26.67
Work				
Unemployee	4	13.33	4	13.33
Government employees	1	3.33	1	3.33
Privat sector employees	8	26.66	9	30.00
Laborer	5	16.66	1	3.33
Self-employed	6	20	6	20.00
Housewives	6	20	6	20.00
Others	0	0	2	6.67
Income				
Low	13	43.33	16	53.33
Middle	12	40	4	13.33
High	5	16.66	9	30.00
Number of Children				
> 2	20	66.66	5	16.67
<2	10	33.3	24	80.00
Marital state				
Not Married yet	5	16.66	7	23.33
Married	25	83.33	22	73.33
Home injury experience				
Experienced	10	33.33	16	55.17
Never	20	66.66	13	44.82
First aid training				
Yes	10	33.33	10	34.48
Never	20	66.66	19	65.51
First aid equipment at home				
Yes	14	46.66	17	58.62
No	16	53.33	12	41.37

The influence of educational videos on knowledge about first aid in home injury in the Kalisongo village community

The results of the analysis of average knowledge before and after the posttest in the control and intervention groups are presented in table 2. Based on Table 2, it can be concluded that education using booklet media can significantly increase first aid knowledge in the control group. This can be seen that knowledge scores increasing by 8.4 points in control group. Statistically and practically booklets can increase the knowledge. This does not happen with education using videos, the knowledge score after being given an educational video only increases by 1.6 points and statistically this difference is not significant. Then there is no difference between control and intervention group (p value 0,162. Practically both intervention can improve the knowledge and the skill in first aid.

Table 2. Results of paired T test and Independent T-Test analysis in the control and intervention groups in knowledge variabel

Group	Knowlegde	Mean	Mean different	Paired T-Test p value	Independent T-Test p value
Booklet (control)	Pre test	65.57	-8.467	0.009	0.162
	Post-test	74.52			
Video (intervention)	Pretest	66.21	-1.621	0.677	
	Post-test	67.83			

The influence of educational videos on first aid skills in household emergencies in the Kalisongo village community.

The results of the analysis of the mean skills before and after the posttest in the control and intervention groups are presented in table 3. Based on table 3, it can be seen that video and booklet educational media have a significant effect in improving first aid skills in home injury in Kalisongo village. This can be seen as an increase in skill scores after being given education through booklets and videos (p value <0.05) but there is no significant differences between two groups (p value 0,360). It can be concluded that between the video and the booklet, nothing is better in having an impact on increasing skill scores, both can improve the skills of the Kalisongo village community in providing first aid.

These skills are measured using a questionnaire so that the skills here are according to the respondent's perception.

Tabel 3. Results of paired T and Independent T-Test analysis in the control and intervention groups in skill variable

Group	Skill	Mean	Mean different	Paired T-Test p value	Independent T-Test p value
Booklet (control)	Pre test	57.59	-11.5	0.001	0.360
	Post-test	70.69			
Video (intervention)	Pretest	57.41	-7.41	0.024	
	Post-test	64.83			

DISCUSSION

The influence of educational videos on knowledge about first aid in home injury

The results obtained on the knowledge variable, booklets or manual book have a significant effect on increasing first aid knowledge in the community. Meanwhile, videos do not have a significant effect in increasing people's knowledge about first aid. However, these two methods can increase knowledge. With a time span of one week, this allows for a reduction in retention or memory in the community.

At the beginning of the measurement the knowledge score in the control group showed an average of 65.57 and after being given education through booklet the knowledge score became 74.52. Meanwhile in the intervention group the pre-test score was 66.21 and the post-test score was 67.83. Knowledge of first aid for home injury that has increased is treating nosebleeds, namely by lowering the head and pinching the nostrils, treating burns by running water. Most of them are correct regarding the treatment of bleeding. However, it is still not appropriate to treat choking, namely they still perceive that first aid for adults who are choking is to pat them on the back.

This shows that there is an increase, but statistical tests in the intervention group do not show a significant effect. From these scores, there were differences between the control and intervention groups. The control group that was given intervention in the form of education through booklet media was better than the group that was given education through video media. This could be caused by the demographic characteristics of the respondents. In the control group, most of the residences were near urban areas and many students boarded in that area. This allows for openness in access to information and high interest in reading and their readiness to receive information. Whereas the intervention group located in center of the village. This is in line with previous research that there is no difference between rural and urban communities in knowledge about first aid, but urban communities are more prepared for training than rural communities. [19] The results of knowledge about first aid were not influenced by where they lived. Their knowledge can be improved through training Apart from that, the booklet provided also has an attractive design, using lay language with large writing, making it easier for readers which the range of age is 25-65 to understand the contents of the media.

In the intervention group there was also an increase in knowledge scores, but it was smaller

than the control group. This can be caused by the quality of the educational video. The educational video provided via the WhatsApp group must be downloaded first by the respondent. The video capacity provided by the researcher was considered too large, namely 77 MB, which could reduce the storage space on the respondent's smartphone. This causes everything not to be downloaded, or signal interference can affect respondents in viewing the video and taking in the educational messages in it. These results are in line with other research that providing education via WhatsApp groups is not effective in increasing knowledge.[20] This happens because to obtain information, respondents must provide sufficient quota and smartphone storage capacity so that conveying information becomes less effective. However, studies show that even using videos provided via WhatsApp, education via video can increase mothers' knowledge about preventing choking in children after one month of providing education.[6] Other research shows that learning through video media can increase school teachers' knowledge and skills in providing first aid in accidents. This shows that providing health promotion through video media has an effective impact because someone will more easily understand and remember by seeing and hearing the actions taken in the video.[21,22]

In the skills variable, both educational media can both improve skills significantly. This shows that the existence of a booklet with clear pictures and a video containing first aid for accidents can provide guidance to respondents in carrying out first aid measures. In providing skills education there must be action examples so that respondents can follow them. In this study, the skill that was improved was performing the Heimlich maneuver when someone was choking. However, there are still respondents who provide drinking water when someone is choking.

Providing education through videos or booklets still has its drawbacks, namely that respondents cannot ask or discuss with the education provider when there are things they don't understand. This can lead to errors in interpretation so, as a nurse, you must continue to accompany the community or provide education directly while still using this media. Even though there is currently a lot of education through video content on social media, nurses must still be present in their midst to clarify or straighten out when their understanding is not correct.

Limitations in this research include the large video capacity which can make it difficult for respondents to download and view it. The nursing implication that can be applied is that nurses should not only disseminate information through social media but should also continue to provide education directly to the public.

CONCLUSION

The conclusion of this research is that education via video can increase the knowledge and skills of village communities in providing first aid for household accidents, especially in stopping nosebleeds, light bleeding, treating burns and dealing with choking. This result contribute to enhance the capacity of community doing first aid in their area to build a safe community. Nurses must also be present in the community to provide education about first aid. However, further research is needed by increasing the sample size and designing appropriate educational interventions such us simulation or ongoing training in community so that respondents can easily receive information.

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