



The Effect of Video-Based Education on the Knowledge of Bone Fracture First Aid Blinds in Health Cadres in Kayubulan Village, Batudaa Pantai District

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ABSTRACT

Introduction: The use of splints for dressing is a crucial step in first aid for injuries, especially fractures. Efficient education is needed to improve health workers' understanding of this treatment method so they can provide appropriate first aid and reduce the risk of complications.

Objective: This study aims to analyze the impact of video-based education on improving health workers' knowledge regarding the use of splints as a first aid method for bone fractures in Kayubulan Village, Batudaa Pantai District.

Method: A quantitative study with a pretest-posttest quasi-experimental design was conducted on 17 health workers who met the inclusion requirements. The knowledge of the health workers was measured before and after receiving structured and easy-to-understand video-based education.

Results: Before and after (Pretest-Posttest) the video-based education, the participants obtained an average mean of -6.353 and a standard deviation of 3.020. Using the Paired T-test, the value of $p = 0.000 < \alpha = 0.05$ was obtained. Therefore, there was an increase in the understanding of health cadres regarding the knowledge of splinting for first aid for bone fractures.

Conclusion: Video-based education can improve the understanding of health cadres regarding the knowledge of splinting for first aid for bone fractures.

INTRODUCTION

Blindfold wrapping is a way to protect oneself from external trauma and to stabilize and support the joints. blinding is a form of first aid for musculoskeletal injuries or injuries that doctors, nurses, or first responders must be aware of on site. (Warouw, 2018)

According to the World Health Organization (Who, 2018), the prevalence of fractures has increased to about 13 million people in 2020, with a prevalence of 2.7% (Melinda and Bill, 2021). In Indonesia, the incidence rate of fractures was 5.8% in 2013, where the main cause was direct trauma such as land transportation accidents and falls, with incidence rates of 40.6% and 40.9% respectively. The number of people affected by sharp or blunt objects is the least 7.3% (RISKESDAS 2018).the prevalence dropped to 5.5% in 2018, but the main cause is still in the form of traffic accidents, especially motorcyclists with a prevalence of 72.7% and a maximum age of 25 to 34 years. The frequency of fractures is mostly in men, the prevalence is 80.9% and the working situation of private workers is 86.4%.

Based on data from the Gorontalo Provincial Health Office in 2018, there were 2,700 people who suffered fractures, of which 56% had physical disorders, 24% died, 15% recovered, and 5% experienced psychological disorders or depression. A case of broken bones.(Yunus, P., & Umar, 2021)

Fractures or injuries are the discontinuity of tissue that can result in common symptoms including swelling, deformities, and pain that require immediate help quickly, precisely and accurately. Blinding is first aid for parts of the body that have been injured or broken with the aim of maintaining a stable position and a sense of comfort in fracture or dislocation patients. (Febriani, 2017).

First aid using a blindfold helps minimize secondary complications due to the movement of bone fragments. (Listiana, D., & Oktarina, 2019) The purpose of the blindfold is to prevent the movement of fractures or joint dislocations (immobilization) to reduce or prevent damage to blood vessels and peripherals, peripheral nerve tissue and fractured tissues, reduce soft tissue damage near fractures, stop bleeding or swelling that may occur, prevent shock due to bleeding and reduce pain. (Listiana, D., & Oktarina, 2019)

The accuracy of providing first aid to extremity fractures is greatly influenced by a person's knowledge. Based on research (Rohman, 2022) states that knowledgeable people have Better first aid skills compared to people who don't have knowledge.

A person's level of education is also related to knowledge, so it is possible to try to improve knowledge by providing health education. Research (Gannika & Sembiring, 2020) stating that the higher the level of education, the easier it is for a person to understand something, so that his knowledge is higher.

The choice of media in the process of increasing knowledge can affect the results of knowledge. One of the media that can be used to increase one's knowledge is the use of videos. Video media can increase 94% of attention, 50% easier for people to understand than they see and hear (Puspita, 2019)

Training using video media can accelerate the improvement of knowledge of fracture management when simulating first aid in fracture patients (Etlidawati and Milinia, 2021). And according to Septiani et al., (2020), the advantage of video-based education is that the application of learning is more realistic or real and can be repeated or stopped if necessary, and video media can leave a deep impression. can affect a person's knowledge and attitude. Based on research, video media is effective and provides optimal results because the five senses that transmit the most information to the brain are the eyes (75%-87%) and the rest (25%-13%) are channeled through other senses (Setyaningrum, 2021)

Based on research (Ernasari, 2021) to find out the effect of health education and simulation on the level of knowledge in grade X students of SMK Negeri 6 Manado. This study uses the Preexperiment method with a research design of one group pre and post test and uses multiple choice questions to obtain data from respondents. The sample totaled 16 respondents using the systematic random sampling technique. The results of the study using the wilcoxon statistical test obtained a P-value of 0.000 ($< \alpha = 0.05$). The conclusion shows the influence of health education and simulation on knowledge about the first aid blindfold of long bone fractures in grade X students of SMK Negeri 6 Manado.

Based on a preliminary study conducted by the researcher on Health Cadres in Kayubulan village, interviews were conducted with 10 Health cadres. From the results of the interview, it was obtained that as many as 5 people stated that they did not have knowledge on how to properly perform first aid on accident victims, including the blinding technique. They revealed that so far they have only evacuated the victim directly to the health center without carrying out initial treatment independently at the scene. Meanwhile, 5 other people claimed to have little knowledge about first aid and blindfold wrapping techniques. They stated that they had received information or learning about it through the activities of the Youth Red Cross (PMR) organization while still in school.

Based on the results of the interview, the researcher concluded that some Health Cadres in Kayubulan Village did not have adequate knowledge about the correct first aid method, especially in the blindfold technique as an initial treatment effort in bone fracture cases. This shows the need to provide proper education so that Health Cadres are able to provide first aid quickly and correctly before being rushed to health service facilities.

Based on the above background description, it is necessary to conduct research on "The Influence of Video-Based Education on the Knowledge of Bone Fracture First Aid Blinds in the Community in Batudaa Beach". This research aims to improve the knowledge and ability of the community to provide first aid to accident victims, especially victims who have injuries and bone fractures.

RESEARCH METHODOLOGY

Place and time

This research has been completed on May 7-16, 2025 and focuses on health cadres in Kayubulan Village, Batudaa Pantai District.

Research Design

Based on the purpose of the research, which is to determine the influence of video-based education. This research is quantitative, with a design using a quasi-experimental method with one group pretest-posttest. In One-Group Pretest-Posttest Design, the bound variables are measured as a group before and after a treatment is administered. After a treatment was given to the group, the scores before and after the treatment were compared. The advantage of this experiment is that we can compare the before and after values of the same treatment in the same participant using the same measuring tool (William & Hita, 2019).

Population and sample

Population can be defined as the entire element of research, including objects and objects that have certain characteristics and characteristics (Amen, 2023). The population used in this study is health cadres located in Kayubulan Village, Batudaa Pantai District with a total of 30 people.

A sample is simply defined as a part of the population that is the actual source of information for research (Amen, 2023). Sampling is the process of selecting portions of the population that can represent the existing population. The sampling technique used in this study is purposive sampling, where the sample in this study is a health cadre in Kayubulan Village, Batudaa Beach District as many as 30 people. The purposive sampling technique is a sampling technique in which the respondents selected by the researcher are selected based on certain sampling criteria (Saragih, 2018)

Data Analysis Techniques

Univariate Analysis

Univariate analysis was used to analyze each of the variables studied to see the distribution of frequency and presentation of the effect of video-free education on the knowledge of bone fracture first aid blindfolds in health cadres in Kayubulan village, Batudaa Pantai.

Bivariate Analysis

Bivariate Analysis Bivariate analysis is an analysis used to test the influence between two variables, namely the influence between each independent (free) variable and dependent (bound) variable. Using statistical tests, namely paired t-test, the researcher determined whether the influence of video-based education and knowledge of bone fracture first aid on health cadres before treatment and after treatment.

RESULTS

Respondent Characteristics

Table 1. Frequency distribution of respondent characteristics

Age	F	%
<u>17-25 years old</u> (Teenager)	3	17,6 %
<u>26-35 years old</u> (Adult)	14	82,4 %
<u>Total</u>	17	100 %
Gender	F	%
Male	3	17,6 %
Perempun	14	82,4 %
Total	17	100 %
Education	F	%
Junior High School	8	47,1 %
High School	9	52,9 %
Total	17	100 %

Source : Data 2025

Based on table 1 The distribution of the frequency of respondent characteristics above based on age, the most is between 26-35 years old as many as 14 respondents (82.4%) while the least is between 17-25 years old as many as 3 respondents (17.6%), based on gender, the most are female gender as many as 14 respondents (82.4%) and the least male gender as many as 3 respondents (17.6%), while based on the education category, the most respondents were high school education as many as 9 respondents (52.9%) and the least junior high school education as many as 8 respondents (47.1%).

Univariate Analysis**The level of knowledge of health cadres in Kayubulan Village, Batudaa District, the beach before being given treatment**

Table 2 Pre-test frequency distribution

Knowledge Level	F	%
(Not Understood)		
40	1	5.9
44	2	11.8
52	1	5.9
(Lack of Understanding)		
56	2	11.8
60	1	5.9
64	1	5.9
68	3	17.6
72	3	17.6
76	1	5.9
(Understand)		
80	2	11.8
Total	17	100.0

Source: Data 2025

Based on Table 2, the distribution of the frequency of pre-test results to the level of knowledge of health cadres in Kayubulan Village, Batudaa Pantai District, shows that out of 17 respondents, as many as 1 person (5.9%) obtained a score of 40, and 2 people (11.8%) obtained a score of 44. Furthermore, 1 person (5.9%) got a score of 52, then 2 people (11.8%) got a score of 56, and 1 person (5.9%) got a score of 60. A total of 1 person (5.9%) obtained a score of 64, followed by 3 people (17.6%) who obtained a score of 68. Furthermore, 3 people (17.6%) obtained a score of 72, while 1 person (5.9%) obtained a score of 76, and finally 2 people (11.8%) obtained a score of 80.

From these results, it can be seen that the level of knowledge of health cadres before being given treatment is in the range of 40-80. 17 respondents tend to be in the range of knowledge and upwards, which shows that 4 health cadres have a lack of knowledge, while 11 health cadres have knowledge who do not understand, and 2 people have a level of knowledge that understands.

Table 3. Post test frequency distribution

Knowledge Level	F	%
(Not Understood)		
(Lack of Understanding)		
(Understand)		
80	1	5.9
84	6	35.3
88	4	23.5
92	3	17.6
96	2	11.8
100	1	5.9
Total	17	100.0

Source: 2025 Data

Based on Table 3, the post-test results show an increase in the level of knowledge of health cadres in Kayubulan Village, Batudaa Pantai District after being given treatment. Of the total 17 respondents, as many as 1 person (5.9%) obtained a score of 80. Furthermore, as many as 6 people (35.3%) obtained an 84 grade, and 4 people (23.5%) obtained a score of 88. Then, 3 people (17.6%) obtained a score of 92, followed by 2 people (11.8%) who

obtained a score of 96. Meanwhile, 1 person (5.9%) managed to get the highest score, which was 100.

with a post-test score that tends to be high. The majority of respondents obtained a score above 80, indicating that the training or intervention carried out succeeded in significantly improving the understanding and knowledge of health cadres.

Bivariate Analysis

Normality

Table 4 Normality Test

	Kolmogrov-smimov			Shapiro-Wilk		
	Statistic.	df	Sig.	Statistic.	df	Sig.
Pre Test	.182	17	.138	0,932	17	.231
PostTest	.205	17	.055	0,917	17	.131

Source: 2025 Data

Based on table 4, the normality test in this study used the shapiro-wilk normality test related to the level of family anxiety before and after being given treatment to find out whether the data was normally distributed or not normally distributed. The basis for decision-making for the shapiro-wilk test in SPSS is that if the sig value is > 0.05 , then the research data is normally distributed, while if the sig value is < 0.05 , then the research data is not normally distributed. The shapiro-wilk test in this study is based on the results of the normality test, the sig pre test value is 0.231 while the sig post test value is 0.131. So, it can be concluded that in this study the sig shapiro-wilk value from the pre test and post test > 0.05 , then the data is distributed normally.

After the normality test in this study was obtained with normal distribution data, then the test carried out was a T test or paired test because the main assumption that must be met in using the T test is that the data must be normally distributed. Hypothesis testing was carried out using prerequisite testing with an error level of 5% or 0.05. Decision-making in this paired t-test is seen at the significance probability value (2-tailed) < 0.05 , then it shows that there is a difference in the average results of the pre post and post test, meaning that this shows that there is an influence of the knowledge of the tBalut Bidai First Aid bone fracture on the level of knowledge of health cadres in Kayubulan village, Batudaa Pantai District and vice versa, if the probability value of significance (2-tailed) > 0.05 then it shows that there is no average value of pre results. Post and Post Test, meaning that this shows that there is no effect of the knowledge of the first aid blindfold of bone fractures on the level of knowledge of health cadres in Kayubula Village, Batudaa Pantai District.

Table 5. Paired t-test test results pre test and post test scores using SPSS

		PairedDifference			t	df	Sig (2-Tailed)	
Red	Std.Deviation	Std.Main Error	95% Convenience intervalofthe Diffrence					
			Lower	Upper				
Pair Pre - Stuart T	-6.353	3.020	732	-7.905	-4.800	-8.675	16	.000

Source: 2025 Data

DISCUSSION

Unvarnished Analysis

Previous Knowledge

The results of the pre-test on the level of knowledge of health cadres in Kayubulan Village, Batudaa Pantai District, showed that out of 17 respondents, as many as 1 person (5.9%) obtained a score of 40, and 2 people (11.8%) obtained a score of 44. Furthermore, 1 person (5.9%) got a score of 52, then 2 people (11.8%) got a score of 56, and 1 person (5.9%) got a score of 60. A total of 1 person (5.9%) got a score of 64, followed by 3 people (17.6%) who got a score of 68. Furthermore, 3 people (17.6%) obtained a score of 72, while 1 person (5.9%)

obtained a score of 76, and finally 2 people (11.8%) obtained a score of 80.

Based on the results of the pre-test conducted on 17 health cadre respondents, it is known that their level of knowledge before being given treatment ranges from 40 to 80. These values describe the variation in the ability of health cadres to understand the material or knowledge being tested. The frequency distribution showed that: A total of 4 people (23.5%) obtained a \leq score of 52, which can be categorized as a level of lack of knowledge. A total of 11 people (64.7%) obtained a score between 56 and 72, which can be categorized as sufficient knowledge or not fully understood. Only 2 people (11.8%) obtained a score of \geq 76, which was categorized as good knowledge or understanding.

From the data, it can be seen that most health cadres have a level of knowledge in the middle category. This means that even though they have not fully mastered the material, they already have the basics of knowledge that can be developed. This indicates that there is a knowledge gap among cadres, and it is important to carry out educational interventions or training to improve their understanding. Because the role of health cadres is very important in public health services, increasing their knowledge capacity will have a direct impact on the effectiveness of the tasks carried out in the field. It can be concluded that the results of this pre-test provide an initial overview of the need for further training for most of the cadres, in order to be able to play an optimal role in accordance with public health service standards.

On the other hand, the low knowledge of health cadres is influenced by various factors such as experience, economic conditions, education level, exposure to information from the mass media, and access to health services. Experience plays a role as a source of learning that can shape a person's wisdom (Mulyatno, 2022). Economic factors also affect an individual's ability to meet primary and secondary needs, including the need for educational information (Sinlgal & Kanldou, 2018). The level of education of health cadres is very decisive in responding to the information received; Cadres with higher education tend to give more logical and rational responses. In addition, mass media has a role in shaping the mindset and behavior of cadres (Indilabila, 2020). Ease of access to health services also contributes to increasing knowledge, especially in the health sector (Mentari & Susilawati, 2022).

Education is a form of education in the health sector. Education is basically an activity that is carried out to convey information to the community with the aim of improving the degree of public health, (Amar et al, 2020). When conducting education, the right media is needed so that the message can be conveyed properly, one of which is video media. Video media is one of the media that can be used to convey information in health education. Video media is considered a good medium to be used in education, because video media is easy to understand, displays images and audio so that it is fun when learning and not just reading a piece of writing (Sumiharsono & Hasanah, 2017).

Knowledge After

The post-test results showed an increase in the level of knowledge of health cadres in Kayubulan Village, Batudaa Pantai District after being given treatment. Of the total 17 respondents, as many as 1 person (5.9%) obtained a score of 80. Furthermore, as many as 6 people (35.3%) got a score of 84, and 4 people (23.5%) got a score of 88. Then, 3 people (17.6%) got a score of 92, followed by 2 people (11.8%) who got a score of 96. Meanwhile, 1 person (5.9%) managed to get the highest score, which was 100.

After two educational videos on blindfold wrapping were shown to health cadres, the results of the score distribution showed that most of the cadres obtained high scores. Some respondents (35.3%) received a score of 84, which reflects a fairly good understanding of the material. In addition, there were also cadres who obtained higher scores, namely 88 (23.5%) and 92 (17.6%), which showed that almost half of the participants had a near-perfect level of understanding. Furthermore, there were two people (11.8%) who achieved a score of 96, and one person (5.9%) who obtained a perfect score, which was 100. The achievement of these high values shows that most cadres are able to understand the material well and thoroughly.

Only one participant (5.9%) scored 80, which, although the lowest score in this group, was still in the good category. None of the respondents scored low or failed, further strengthening the evidence that the training or interventions provided have succeeded in increasing the overall capacity of the cadre. In general, this data reflects that the learning activities or interventions carried out are quite effective in increasing the knowledge of health cadres. These findings are important as a basis for the continuation of training programs and cadre empowerment in supporting health services at the village level.

This research is in line with the previous research conducted by Sari Dwi (2017), from the research data after the training of the blindfold there was an increase in knowledge, it can be seen that before the training 6.7% of knowledge was good to 66.7% and a decrease in low knowledge from 43.3% to 10.0% and according to the research of Warouw Jessicha (2018), based on the knowledge data, it was concluded that the results of the study showed that the level of knowledge of the respondents after being given health education, namely 16 students (100%) were in the good category, there was a difference between before and after health education about blindfolding to improve the knowledge and skills of class X students of SMK Negeri 6 Manado.

Bivariate Analysis

After the normality test was carried out in this study, the results were obtained that the data was distributed normally, so the next statistical test was carried out was the paired t-test. The T-test is used because one of its main assumptions is that the data should be normally distributed. Hypothesis testing was carried out using a prerequisite test with an error rate of 5% ($\alpha = 0.05$), which means that the accepted significance level was 5% or 0.05.

Decision-making in this paired t-test is based on a significance probability value (2-tailed). If the significance value (p-value) < 0.05 , then it can be concluded that there is a significant difference between the average pre-test and post-test results. This means that there is an influence of the treatment given, in this case the knowledge of the first aid blindfold of bone fractures to increase the level of knowledge of health cadres in Kayubulan Village, Batudaa Pantai District. On the other hand, if the significance (p-value) > 0.05 , then it can be concluded that there is no significant difference between pre-test and post-test, which means that there is no significant effect of the treatment on the improvement of knowledge of health cadres.

The results of this study show that there is a significant difference between the level of knowledge of health cadres before and after being given video-based education about blindfolds as first aid for bone fractures. This is indicated by a significance value (p) of 0.05, which is at the threshold of an alpha value ($\alpha = 0.05$). Thus, based on the results of the paired sample t-test, it can be concluded that video-based education has a significant influence on improving the knowledge of health cadres.

The decrease in standard deviation from 3,153 in the pre-test to 1,364 in the post-test also shows that the results of cadre knowledge after education become more homogeneous or even. This means that video-based education not only increases knowledge, but also reduces variations in understanding among respondents. This is an indicator that the educational method used succeeds in conveying information more effectively and uniformly to all cadres.

The use of video media in health education has been proven to be able to increase the absorption of information because it combines audio and visual elements, which can clarify the material and attract the attention of participants. Educational videos also allow participants to repeat the information conveyed, thereby strengthening understanding and memory.

These findings are in line with several previous studies that have shown that video-based learning methods can improve knowledge and skills in the health field, especially in community situations with limited access to formal training. In Kayubulan Village, the use of video media as an educational means is considered appropriate, because it is able to bridge the limitations of face-to-face training resources and provide an interactive learning experience. With the increasing knowledge of health cadres about blindfolds, it is hoped that they can provide appropriate first aid in cases of fractures in the field. This is an important step in improving preparedness and early response to emergency conditions at the community level, particularly in areas where access to professional health services is limited.

In the Research, Dewiyanti et al. (2023) said in her research entitled Video-based education on the knowledge of first-aid blindfolds on bone fractures in the community of the working area of the South Polongbangkeng Health Center. The results were obtained from the majority of 20 respondents, namely 15 respondents (75.0%) had less knowledge, as many as 5 respondents (25.0%) had good knowledge. Dewiyanti said that before being given education on blindfolds, the respondents' knowledge was still in the category of lacking. There are 5 well-informed respondents, this is because they have been exposed to information about the blindfold before it. Meanwhile, 15 respondents who received a low knowledge score had never received education or been exposed to information about blindfolding.

This research is strengthened by research (Ernasari et al., 2021) to determine the influence of health education and simulation on the level of knowledge in students of class X of SMK Negeri 6 Manado. This study uses the Pre-Experiment method with a research design of one group pre and post test and uses multiple choice questions to obtain data from respondents. The sample totaled 16 respondents using the systematic random sampling technique. The results of the study using the wilcoxon statistical test in obtained a P-value

by 0.000 ($< \alpha = 0.05$). The conclusion showed the influence of health education and simulation on knowledge about the first aid blindfold for long bone fractures in grade X students of SMK Negeri Manado.

The results of this study show the influence of video-based education on the knowledge of bone fracture first aid blinds in health cadres in Kayubulan Village, Kacamatan, Batudaa Pantai. The researcher argues that the use of video media in education is very effective. Video media is an interesting medium, with moving images and sounds in it so that it is easier for respondents to receive information that is in The use of video media in education allows respondents to remember the material more easily, because it can clearly show the material that will be given to the respondent.

CONCLUSION

The level of knowledge before being given video-based education on splint and bandage first aid for bone fractures among health cadres, totaling 17 health cadres, showed that 4 cadres were categorized as not understanding, with scores ranging from 40–52. Meanwhile, 11 health cadres were categorized as having low understanding, with scores ranging from 56–76, and 2 health cadres were categorized as understanding, with a

score of 80.

The level of knowledge of respondents after being given video-based education on splint and bandage first aid for bone fractures among 17 health cadres was in the understanding category, with scores ranging from 80–100.

There was a significant effect on the level of understanding of health cadres between the pretest and posttest results. The mean score before the education was given was -6.353, while the standard deviation after the education was 3.020. Using the Paired T-test, the result obtained was $p = 0.000 < \alpha = 0.05$. Therefore, it can be concluded that video-based education had a significant effect on improving health cadres' understanding and knowledge regarding splint and bandage first aid for bone fractures.

SUGGESTIONS

For Educational Institutions

The results of this study are expected to be a source of useful data and information regarding the knowledge of fracture first aid blinds. With this research, it is hoped that it can improve the understanding and skills of students or students in providing appropriate first aid in fracture cases. In addition, this research can also be used as a reference for the development of educational curriculum related to first aid, especially in dealing with emergency conditions such as fractures.

For Health Cadres

The results of this study are also expected to increase their knowledge and insight about the importance of first aid, as well as improve their skills in providing fast and appropriate help to fracture victims. This is very important to strengthen the role of Health Cadres in providing basic health services and improving the rapid response to emergencies in the community

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