Vol. 5 No. 2(2023) Hal 674-682
HealthCare Nursing Journal
Jl. Tamansari No.KM 2,5, Mulyasari, Kec. Tamansari, Kab. Tasikmalaya, Jawa Barat 46196
availabel on : https://journal.umtas.ac.id/index.php/healtcare
e-ISSN : 2655-6812

The Influence of Video-Based Health Education on Burn First Aid: Family Knowledge and Actions

Yuni Syafitri [1], T. Abdur Rasyid[1*], Dian Roza Adila[1]

[1]Bachelor of Nursing Science Program, Faculty of Health Sciences, Universitas Hang Tuah, Pekanbaru, Indonesia.

Article Information

Received: 19 June 2023
Revised: 04 July 2023
Available online: 29 July 2023

Keywords

Education; Burn Injuries; Knowledge; Actions; Video.

*Correspondence

Phone: (+62)81378410592
E-mail:
tengkuabdurrasyid@htp.ac.id

ABSTRACT

Burn injuries are a global health concern, particularly in households. Inadequate management can result in higher mortality and disability rates. Thus, video-based health education plays a vital role. This study examined the influence of video education on family knowledge and first aid actions for burns. This quantitative study employed a pre-experimental design with a one-group pre-test and post-test approach. The population consisted of families with a history of burn injuries within their households. The sample comprised 20 respondents selected through consecutive sampling technique. Data were collected using a knowledge questionnaire and an observation sheet for assessing burn first aid, which underwent validity and reliability testing. Respondents' age, education level, and occupation were presented univariately using a frequency table, followed by bivariate analysis utilizing the Wilcoxon test. The research findings revealed that the majority of respondents were aged 18-35 years (55%), with the most common occupation being housewives (55%), and the majority had a high school education (50%). The median pre-test knowledge score was 8, while the post-test knowledge score was 17. The median pre-test burn first aid action score was 3, while the post-test score was 8.5. The Wilcoxon test yielded a significant p-value of 0.000 for knowledge and burn first aid actions before and after video-based health education. In conclusion, video-based health education significantly impacts family knowledge and actions in burn first aid. The researchers recommend families acquire necessary skills to effectively manage burn injuries and prevent complications.

INTRODUCTION

Burn injuries remain a significant health issue worldwide (Herlianita et al., 2020). The prevalence of burn injuries globally remains high, evidenced by an annual death toll of approximately 180,000 victims. Burn incidents are most prevalent in low- to middle-income countries (WHO, 2018).

From 1990 to 2019, an estimated 117 million cases of burn injuries occurred in Asia, with the highest number of cases in South and Southeast Asia. In Indonesia, there has been a 35% increase in burn incidents from 2014 to 2018. Burn incidents in Indonesia from 2013 to 2015 showed that 68.8% of cases occurred in individuals over 18 years of age, and 82.3% of cases involved the non-working population. The leading cause of

doi : https://doi.org/10.35568/healthcare.v5i2.3549

burn incidents was fire, accounting for 70.8% of cases (Nofiyanto & Nirmalasari, 2020).

According to the Riset Kesehatan Dasar Indonesia (2018), Riau Province is among the top 10 provinces in Indonesia with the highest incidence of burn injuries, accounting for a proportion of 1.7%, which is equivalent to the proportion in DKI Jakarta (Kemenkes RI, 2018). There is no data available on the prevalence of burn injuries based on districts/cities within Riau Province. However, Pekanbaru City is the most densely populated city in Riau Province, with a population of 1,808 people per square kilometer. Based on the prevalence of disasters in Pekanbaru City, the highest number of building fires in the city occurs in the Bukit Raya Subdistrict. This subdistrict has a population of 93,478 people with a density of 4,239 people per square kilometer, making it the fifth most densely populated subdistrict in Pekanbaru City (BPS, 2021). The number of fire incidents in an area may be related to the high incidence of burn injuries.

Burn incidents often occur in the extremities and are frequently observed in kitchen areas (within households) (Nofiyanto & Nirmalasari, 2020). Therefore, it is crucial to provide proper initial treatment for burn patients to prevent complications, disabilities, or even death. Initial management of burn victims involves removing them from the source of the burn, removing burned clothing and accessories to minimize the affected skin area. If the burn is not severe, the burn wound can be irrigated with running water for 15-20 minutes, followed by dressing the wound with a clean dressing. Pain relief can be provided with paracetamol or ibuprofen, and measures should be taken to prevent hypothermia. If necessary, the patient should be taken to a healthcare facility for further treatment (National Health Service, 2022).

However, in reality, improper initial treatment for burns still occurs in the community, such as applying toothpaste, butter, soy sauce, or oil to the burn wound. It is believed that these substances can provide a cooling sensation to the burned area. However, this can actually cause irritation, expansion of the burn area, infection, and delayed wound healing (Jeschke et al., 2021). Therefore, health education regarding initial burn care is essential for the public.

Health education is an effort to provide knowledge to individuals so that they acquire knowledge, attitudes, and skills in accordance with health values. The purpose of health education is to play an active role in maintaining health behaviors for individuals, families, and communities, as well as achieving optimal levels of health (Notoatmodjo, 2014).

Health education can be delivered through various media, including video. Providing health information through audiovisual media (video) to individuals or groups requires active visual and auditory senses, which facilitate understanding of the information obtained. The delivery of video information is more effective for individuals who lack health information, with the goal of achieving optimal outcomes (Harsismanto, Oktavidiati, & Astuti, 2019). The use of video can capture the attention of the public as it presents moving images and clear audio that can be replayed. This makes videos superior to other media such as leaflets, flyers, posters, and other paper-based materials, which are more prone to getting lost (Notoatmodjo, 2014).

The study conducted by Lestari and Fitriana (2020) focused on the improvement of knowledge and skills in first aid for burn injuries among health cadres through health education using videos and simulations. The results of their study showed that the median knowledge score of the health cadres was 12 in the pre-test,

which increased to 16 after the intervention. Meanwhile, the median skills score of the health cadres in providing first aid for burn injuries increased from 3 to 8 after the health education intervention, with a respective p-value of 0.000.

The study conducted by Christianingsih and Puspitasari (2022) on health education using leaflets and videos to improve first aid for burn injuries showed that out of 26 individuals (100%), all of them had a good level of knowledge about first aid for burn injuries after the intervention using video media. In comparison, only 24 individuals (92%) had a good level of knowledge about first aid for burn injuries using leaflet media, with a p-value of < 0.001. This indicates that video media outperforms leaflet media in terms of effectiveness.

A preliminary study was conducted by the researchers in February 2022 involving five housewives who sought treatment at Harapan Raya Public Health Center, Pekanbaru City. The data were collected through interviews. All five mothers had experienced burn injuries while cooking, such as being exposed to hot oil and warm water. The injuries were not severe, with wound diameters ranging from 2 to 5 cm on the hands. Three out of the five mothers applied toothpaste as initial treatment, which resulted in darkened scars on the skin after the wounds healed. Additionally, one of the five mothers mentioned that a family member had experienced a burn injury from a hot motorcycle exhaust on their right leg, resulting in a wound with an approximate size of 6 cm. The initial treatment in this case also involved using toothpaste, and the healing process lasted for two weeks, with persistent pain for about one week and the formation of a darkened scar. Based on the above description, the researchers were interested in conducting further research on the impact of health education using videos on the knowledge and actions of families in providing first aid for burn injuries.

METHOD

This study is a quantitative research with a pre-experimental design using a one-group pretest-posttest approach. The research was conducted in RW 03, Tangkerang Selatan Village, Bukit Raya District, Pekanbaru City. The population of this study consisted of families with a history of burn injuries and at risk of experiencing burn injuries in households. The inclusion criteria for this study were housewives aged ≥20 years old who had a history of at least one burn injury, either personally or in other family members. The exclusion criteria were housewives with hearing and visual impairments and those who were uncooperative. The sample size in this study was determined based on Roscoe's theory, consisting of 20 respondents (Riyanto & Putera, 2022). The sampling technique used in this study was non-probability sampling, specifically consecutive sampling. The independent variable was health education using videos, while the dependent variables were knowledge and actions related to burn first aid.

The knowledge questionnaire was adapted from the study by Lestari and Fitriana (2020) with modifications. It consisted of 20 items in a multiple-choice question (MCQ) format with three answer choices. A score of 1 was assigned for a correct answer, while a score of 0 was given for an incorrect answer, resulting in a knowledge score range of 0-20 points. The face validity of the knowledge questionnaire was conducted by the researchers. The obtained r-value (0.465-0.889) > r-table (0.444), and the Cronbach's Alpha coefficient was 0.947, indicating that the questionnaire was valid and reliable.The observation sheet for initial burn first aid actions was also adopted from the study by Lestari and Fitriana (2020). It included six actions for initial burn first aid using a checklist method, with scores of 0 (not performed), 1 (performed but not in the correct order), and 2 (performed in the correct order), resulting in a score range of

0-12 points. The observation sheet has been validated and shown to be reliable.

Before the families watched the educational video, a pre-test was conducted for 15 minutes, followed by pre-test observation of burn first aid actions for 10 minutes. Then, the respondents were asked to watch a video in MP4 format using a laptop for 5 minutes and 42 seconds. Afterward, a post-test was conducted for 25 minutes, and post-test observation of actions was conducted for 10 minutes. The video was self-produced by the researchers based on the required concept. Age, occupation, and highest level of education data were presented univariately using frequency tables. Meanwhile, the differences in knowledge scores and burn first aid actions before and after health education using the video were tested using the Wilcoxon test. This study has obtained approval from the ethics committee of the Faculty of Health, Universitas Hang Tuah Pekanbaru, with the reference number: 566/KEPK/STIKes-HTP/VIII/2022.

RESULTS

The research findings are as follows:

1. Characteristics of Respondents

Tabel 1. Characteristics of Respondents

Variables	Frequency (f)	%
Age		
a. 18-35 Years old (Late Teens - Early Adulthood)	11	55
b. 36-45 Years old (Late Adulthood)	8	40
c. 46-65 Years old (Early Elderly)	1	5
Last Education Level		
a. Elementary School	0	0
b. Junior High School	5	25
c. Senior High School	10	50
d. Diploma/Bachelor's Degree	5	25
Occupation		
a. Housewives	11	55
b. Civil Servant	2	10
c. Farmer	3	15
d. Entrepreneur	4	20
Total	20	100

Based on Table 1, it can be observed that the majority of respondents are in the age range of 18-35 years (late teens - early adulthood), comprising 11 individuals (55%). The majority of respondents are housewivess, accounting for 8 individuals (55%). Furthermore, the majority of respondents have completed their education up to senior high school (SMA), with 10 individuals (50%).

Table 2. Distribution of scores (pre-test) and (post-test) of family knowledge and actions in providing first aid for burns

No	Variables	Median	SD	Min-Max
1.	Family knowledge (Pre-test)	8	1,569	6-12
2.	Family knowledge (Post-test)	17	0,826	16-19
3.	Family actions (Pre-test)	3	0,876	2-5
4.	Family actions (Post-test)	8.50	1,251	7-11

Based on the above Table 2, it can be seen that the median value of the pre-test knowledge variable is 8 with a standard deviation of 1.569, a minimum value of 6, and a maximum value of 12. Meanwhile, the median value of the post-test knowledge variable is 17 with a standard deviation of 0.826, a minimum value of 16, and a maximum value of 19.

Based on the above Table 2, it can be observed that the median value of the pre-test action variable is 3, with a standard deviation of 0.876. The minimum value is 2, and the maximum value is 5. Meanwhile, the median value of the post-test action variable is 8.50, with a standard deviation of

1.251. The minimum value is 7, and the maximum value is 11.

2. The Influence of Health Education on Family's Knowledge and Actions in Burn First Aid

Table 3. The Influence of Health Education on Family's Knowledge and Actions in Burn First Aid.

No	Variabeles	Median	P-value
1	Family's Knowledge		
	a. Pre-test	8	0,000
	b. Post-test	17	
2	Family's Action		
	a. Pre-test	3	0,000
	b. Post-test	8.50	

The results of the Wilcoxon test on the knowledge of first aid for burns before and after health education using videos obtained a p-value of 0.000. It can be concluded that there is a significant influence of health education using videos on the knowledge of families regarding first aid for burns.

The results of the Wilcoxon test on the actions of first aid for burns before and after health education using videos obtained a p-value of 0.000. It can be concluded that there is a significant influence of health education using videos on the actions of families in providing first aid for burns.

DISCUSSION

1. Respondent Characteristics

a. Respondent's Age

Based on the findings of this study, the majority of respondents were aged 18-35 years (late adolescence - early adulthood), consisting of 11 individuals (55%). Data from the Badan Pusat Statistik (BPS) in 2020 indicated that there were 254,764 individuals within the age range of 20-34 years (BPS, 2020). Therefore, the respondents in this study were predominantly individuals in the late adolescence - early adulthood category. This data is supported by a study conducted by Antoro and Sari (2020) on the Level of Knowledge of Mothers regarding First Aid for Toddler Burns, where the majority of their respondents were also in the late adolescence - early adulthood category, amounting to 40 individuals (48.2%).

Early adulthood is often associated with a higher level of health knowledge compared to adolescence. This may be attributed to a broader exposure to health information through formal education, social media, and greater access to health-related resources. Additionally, early adulthood is a transitional period where individuals begin to understand the importance of their role in maintaining family health and become more involved in family health decisions (Thompson & Nitzel, 2017).

b. Respondents' Education

Based on the findings of this study, the majority of respondents had completed their high school education, with a total of 10 individuals (50%). This finding is consistent with the research conducted by Antoro and Sari (2020), where the majority of their respondents also had a high school education, specifically 43 respondents (51.8%). Another study by Nofiyanto and Nirmalasari (2021) on the first aid practices for burn injuries among housewives in the Sleman area of Yogyakarta also showed that the majority of their respondents had a high school education.

In general, high school graduates have good health information absorption skills, depending on the health education they have received. The level of these skills is influenced by interest, motivation, learning environment, and individual efforts in seeking information, including knowledge

of first aid for burn injuries. Easy access to information through the internet and social media allows high school graduates to search for relevant health information. However, it is important to note that the quality and reliability of online information vary, emphasizing the need to develop critical evaluation skills when assessing information sources (WHO, 2013).

c. Occupation of Respondents

The results of this study indicate that the majority of respondents have the occupation of housewives, with a total of 11 individuals (55%). This finding is supported by the study conducted by Nofiyanto and Nirmalasari (2021), where the majority of their respondents were housewives (non-working), accounting for 52 individuals (61.9%). Non-working housewives have the potential to absorb health information effectively. They play a crucial role in maintaining family health and can acquire knowledge from various sources such as books, media, and medical consultations. Factors such as literacy, access to information, and social support influence their abilities. It is important for them to take initiative in seeking useful information and utilizing community resources. Health literacy is vital for understanding, evaluating, and appropriately utilizing information (Sørensen et al., 2012).

2. The Influence of Health Education Utilizing Videos on Family Knowledge and Actions in Burn First Aid

a. The Influence of Health Education Utilizing Videos on Family Knowledge in Burn First Aid

The results of this study indicate an improvement in family knowledge of burn first aid, with the median pre-test knowledge increasing from 8 to 17 after the implementation of health education using videos. The p-value of 0.000 suggests a significant influence of health education using videos on family knowledge related to burn first aid. These findings are supported by a study conducted by Lestari and Fitriana (2018) on the improvement of knowledge and skills in burn first aid among health cadres through health education and simulation. The study showed that the cadres' skills had a pre-intervention median of 12, which significantly increased to a median of 16 after the intervention, with a p-value of 0.000 < 0.05.

The research conducted by Lestari and Fitriana (2020) on the improvement of knowledge and skills in burn first aid among health cadres through health education using videos and simulations also supports these findings. Their study showed a median knowledge score of 12 during the pre-test, which increased to 16. Similarly, a study by Christianingsih and Puspitasari (2022) on health education using leaflets and videos to enhance burn first aid demonstrated that 26 individuals (100%) had a good level of knowledge after the intervention using video media. In comparison, only 24 individuals (92%) had a good level of knowledge regarding burn first aid when using leaflet media, with a p-value of < 0.001. This indicates that video media outperforms leaflet media in terms of knowledge enhancement.

Providing health information through audiovisual media (videos) to individuals or groups requires active visual and auditory senses to facilitate understanding of the information received. The delivery of video information is more effective for people who lack health information, with the expectation of achieving optimal results (Harsismanto, Oktavidiati, & Astuti, 2019). The use of video can attract the attention of the public as videos are presented with moving images and clear audio, and they can be replayed. This makes videos superior to other media such as leaflets, flyers, posters, and other paper-based media,

which are more prone to getting lost (Notoadmodjo, 2014).

Videos can convey information in a more engaging and interactive way compared to static text or images. By using images, animations, graphics, and other visual elements, videos can depict health concepts clearly and easily understood. Moreover, videos enable the delivery of information through verbal and nonverbal communication, including sound, narration, dialogue, movements, facial expressions, and body language. Videos also have high accessibility, allowing them to be watched anytime and anywhere through electronic devices and easily shared through online platforms or social media. In the continuously evolving field of health, videos allow for the addition of regularly updated content, keeping the audience's knowledge up to date on findings, policy changes, or health-related developments (Lissak, 2017). Based on the above description, it can be concluded that videos are the most effective media for health education. Therefore, healthcare counselors, including nurses, can design and utilize videos in health education.

b. The Influence of Health Education Utilizing Videos on Family Actions in Burn First Aid

The results of this study indicate an increase in family actions in providing first aid for burns, where the pre-test median of family actions increased from 3 to 8.50 after receiving health education using videos. The p-value of 0.000 suggests a significant influence of health education using videos on family actions related to burn first aid.

These findings are supported by the study conducted by Lestari & Fitriana (2018), which found a significant improvement in the skills of healthcare workers after being given intervention in the form of burn first aid simulation, with a pre-intervention median of 3 and a post-intervention median of 8, with a p-value of 0.000 < 0.05. Additionally, the results of this study are also supported by Rosuliana, Februanti, Mariani, and Cahyati (2023) in their research on optimizing the improvement of knowledge and skills of elementary school students in first aid for accidents (P3K) based on audiovisual media. Their study showed that the pre-test results related to wound care skills indicated that the majority of students were categorized as inadequate, with 27 students (90%), while after the demonstration and re-demonstration of wound care skills, the majority of elementary school students had good skills, with 27 students (90%) and 2 students (6.7%) in the fair category.

The use of videos is essential in health education, particularly for teaching skills (procedures or health actions). With videos, health procedures or daily health practices can be clearly and consistently demonstrated. This allows viewers to see and understand the necessary steps to be taken accurately. Moreover, videos can be watched repeatedly, enabling viewers to become more proficient in practicing the health actions explained in the videos (Lissak, 2017). Additionally, videos can be accessed anytime and anywhere through electronic devices such as smartphones, tablets, or computers. They can also be easily shared through online platforms or social media channels. Thus, videos provide flexibility for viewers to learn and improve their health skills according to their own needs (Clark & Mayer, 2016).

REFERENCES

Antoro, W. & Sari. I. M. (2022). Gambaran tingkat pengetahuan ibu tentang pertolongan pertama luka bakar anak usia toddler. *ULIL ALBAB : Jurnal Ilmiah Multidisiplin, 1(12), 4451–4459.* https://doi.org/10.56799/jim.v1i12.1115

Badan Pusat Statistik Kota Pekanbaru. (2023). *Jumlah penduduk kota*

pekanbaru menurut kelompok umur dan jenis kelamin. Pekanbaru: Badan Pusat Statistik kota pekanbaru. https://pekanbarukota.bps.go.id/indicator/12/42/1/jumlah-penduduk-kota-pekanbaru-menurut-kelompok-umur-dan-jenis-kelamin.html

Badan Pusat Statistik. (2021). *Data Statistik Sektoral Kota Pekanbaru.* https://www.bps.go.id/

Christianingsih, S., & Puspitasari, L. E. . (2022). Pendidikan kesehatan dengan media leaflet dan video dalam meningkatkan pertolongan pertama luka bakar. *Journals of Ners Community*, *12*(2), 245–257. https://doi.org/10.55129/jnerscommunity.v12i2.1461

Clark, R. C., & Mayer, R. E. (2016). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning.* John Wiley & Sons.

Harsismanto, J., Oktavidiati, E., & Astuti, D. (2019). Pengaruh pendidikan kesehatan media video dan poster terhadap pengetahuan dan sikap anak dalam pencegahan penyakit diare. *Jurnal Kesmas Asclepius,* 1(1), 75-85.

Herlianita, R., Huda, C., Husna, A., Ruhyanudin, F., Wahyuningsih, I., & Ubaidillah, Z., et al. (2020). Pengaruh pendidikan kesehatan terhadap sikap dan praktik pada pertolongan pertama penanganan luka bakar. *Holistik Jurnal Kesehatan*, *14*(2), 163–169.

Jeschke, M. G., van Baar, M. E., Choudhry, M. A., Chung, K. K., Gibran, N. S., & Logsetty, S. (2020). Burn injury. Nature reviews. *Disease primers*, 6(1), 11. https://doi.org/10.1038/s41572-020-0145-5

Kemenkes RI. (2018). *Riset Kesehatan Dasar 2018.* Jakarta. Jakarta: Balitbang.

Lestari, L. A., & Fitriana, N. F. (2020). Peningkatan pengetahuan dan keterampilan pertolongan pertama luka bakar pada kader kesehatan melalui pendidikan kesehatan dan simulasi. *Jurnal Ilmiah STIKES Kendal*, *10*(4), 537–548.

Lissak, G. (2017). The Effectiveness of Video as an Educational Tool to Enhance Learning: A Theoretical and Empirical Analysis. *Issues in Educational Research, 27(2), 258-276*

National Health Service. (2022). *Burns and scalds treatment*. Diakses dari https://www-nhs-uk.translate.goog/conditions/burns-and-scalds/treatment/?_x_tr_sl=en&_x_tr_tl=id&_x_tr_hl=id&_x_tr_pto=tc

Nofiyanto, M., & Nirmalasari, N. (2021). Praktik penanganan pertama luka bakar pada ibu rumah tangga di wilayah sleman yogyakarta. MEDIA ILMU KESEHATAN, 9(1), 1-10. *https://doi.org/10.30989/mik.v9i1.323*

Notoatmodjo *S. (*2014*). Promosi Kesehatan* dan *Perilaku Kesehatan*. Jakarta: PT. Rineka Cipta.

Rosuliana, N. E., Februanti, S., Mariani, D., & Cahyati, A. (2023). Optimalisasi peningkatan pengetahuan dan keterampilan anak sekolah dasar tentang pertolongan pertama pada kecelakaan (P3K) berbasis media audiovisual. *Abdimas Galuh*, 5(1), 585-593.

Sørensen, K., Van den Broucke, S., Fullam, J., Doyle, G., Pelikan, J., Slonska, Z., ... & Brand, H. (2012). Health literacy and public health: A systematic review and integration of definitions and models. BMC Public Health, 12(1), 80.

Thompson, A. L., & Nitzel, C. (2017). Emerging adulthood in cultural context: The role of family relationships in five countries. *Journal of Adolescent Research, 32(1), 3-29*

World Health Organization. (2013). *Health literacy: The solid facts.* Copenhagen: WHO Regional Office for Europe.

World Health Organization. (2018). Burns. Retrieved from https://www.who.int/news-room/fact-sheets/detail/burns