ISSN 2548-6462 (online), ISSN 2088-8740 (print)

DOI: 10.30644/rik.v14i3.1068

# The effect of health education on first aid for drowning victims on lifeguard knowledge in swimming pools in Jambi City

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Accepted: 14 July 2025; revision: 23 September 2025; published: 30 September 2025

**Background**: Drowning is defined as death caused by asphyxia due to immersion in water that occurs within 24 hours of the incident. Immediate and appropriate first aid is essential to increase the chances of survival. Lifeguards, as the front line in aquatic emergencies, must have adequate knowledge and skills in performing first aid for drowning victims. Health education is one of the efforts to improve lifeguards' understanding and ability to act promptly and correctly in such critical situations.
**Method**: This study employed a pre-experimental research design using a one-group pretest-posttest approach. A total of 33 lifeguards from three different swimming pools in Jambi City were selected using a total sampling technique. Data were collected through a structured questionnaire measuring the level of knowledge regarding first aid for drowning victims before and after the health education intervention. To determine the significance of the changes in knowledge, data were analyzed using the Wilcoxon signed-rank test.
**Results**: The results of the bivariate analysis using the Wilcoxon test showed a Z value of -5.205 with a significance level of 0.001 ($p < 0.05$). These findings indicate a statistically significant improvement in lifeguards' knowledge after receiving health education. Therefore, the null hypothesis ($H_0$) is rejected, and the alternative hypothesis ($H_1$) is accepted.
**Conclusion**: Health education has a significant positive effect on increasing lifeguard knowledge regarding first aid for drowning victims in Jambi City swimming pools. These results emphasize the importance of continuous education and training programs to enhance the readiness and effectiveness of lifeguards in responding to drowning emergencies.

**Keywords:** Health Education; First Aid; Drowning Victims; Knowledge; Lifeguard

## INTRODUCTION

According to Dolinak(1), drowning is defined as death from asphyxia caused by immersion in water that occurs within 24 hours(2). First aid must be carried out immediately and correctly using equipment available on the spot (3). Drowning can occur in swimming pools or at sea. Drowning is not always caused by fluid entering the respiratory system or lungs, it can occur due to the closure of the nostrils or mouth which can also cause drowning(4).

According to World Health Organization estimates, 388,000 people worldwide die from drowning each year. In most countries, drowning deaths are the most common of the three leading causes of death for children aged 5 to 14 years. And drowning accounts for 7% of all injury-related deaths worldwide. The global ratio of males to females across all age groups is approximately 4:1(5). Almost 90% of drowning cases in Indonesia end without quick and effective help. This is caused by several things, including the lack of socialization and education on how to provide first aid to drowning victims(6).

The importance of a lifeguard or pool attendant in the field is that they can provide first aid in the event of an emergency(7). Before the arrival of specialist help (doctors, ambulance officers, or health workers), first aid is the initial treatment or assistance given to victims of emergencies or injuries(8). Before being treated by more experienced individuals, first aid is meant to reassure and assist. Adequate facilities can reduce patient suffering(9).

First aid should be given as soon as possible to save the victim's life or prevent more serious injuries(10). Therefore,

swimming pool supervisors must understand the basics of first aid for drowning victims and how to provide proper assistance. According to Asmadi (2008), health education is a conscious effort by an educator to persuade others to behave or have knowledge and understanding in accordance with expectations(11).

From the results of the study conducted by researchers through interviews about the requirements to become a lifeguard such as special training in first aid for drowning victims, the officers said the requirements were only male and could swim without any requirement to have attended training on first aid. Health education from 33 officers in 3 swimming pools in Jambi city has never received training on first aid for drowning victims. From there the researchers concluded that lifeguard knowledge about first aid for drowning victims is still very minimal. Based on the explanation above, the researcher is interested in taking the title "The Effect of Health Education on First Aid for Drowning Victims on Lifeguard Knowledge at the Jambi City Swimming Pool".

## METHOD

The design used is pre-experimental research using a one-group pre-post test design with a sample size of 33 respondents in 3 different swimming pools using total sampling technique. Data collection using questionnaires and for data analysis using the Wilcoxon test, which is to analyze the effect of health education on first aid for drowning victims on lifeguard knowledge in Jambi city swimming pools.

**Table 1.** Frequency Distribution of Respondent Characteristics Based on E ducation

| Education | Frequency (n) | Percentage (%) |
|---|---|---|
| Not in School | 0 | 0 |
| SD | 5 | 15.2 |
| SMP | 10 | 30.3 |
| High School | 18 | 54.5 |
| S1/S2 | 0 | 0 |
| Total | 33 | 100 |

## RESULTS

### 1. Based on Respondent Education

The table 1 explains that of the 33 respondents, most had a history of high school education, namely 18 respondents (54.5%).

### 2. Based on Respondent Age

**Table 2.** Frequency Distribution of Respondent Characteristics Based on Respondent Age

| Age | Frequency (n) | Percentage (%) |
|---|---|---|
| 20-30 years | 17 | 51.5 |
| 31-40 years old | 16 | 48.5 |
| 41-50 years old | 0 | 0 |
| **Total** | 33 | 100 |

The table above explains that of the 33 respondents, most were in the age range of 20-30 years as many as 17 respondents (51.5%).

### 3. Based on Respondent Gender

**Table 3.** Frequency Distribution of Respondent Characteristics Based on Respondent Gender

| Gender | Frequency (n) | Percentage (%) |
|---|---|---|
| Male | 33 | 100 |
| Female | 0 | 0 |
| **Total** | 33 | 100 |

The table above explains that all respondents are male (100%).

### 4. By Training Experience

**Table 4.** Frequency Distribution of Respondent Characteristics Based on Training Experience

| Training | Frequency (n) | Percentage (%) |
|---|---|---|
| Ever | 0 | 0 |
| Never | 33 | 100 |
| **Total** | 33 | 100 |

Based on the table above, it explains that out of 33 respondents who have never participated in training, 33 respondents (100%).

### 5. Level of Knowledge Before First Aid Education for Drowning Victims Through Video Showing

**Table 5.** Frequency Distribution of Knowledge Level Before Being Given Health Education Through Video Viewing

| Knowledge Level | Frequency (n) | Percentage (%) |
|---|---|---|
| Good | 0 | 0 |
| Simply | 12 | 36.4 |
| Less | 21 | 63.6 |
| **Total** | 33 | 100 |

Based on the table above regarding the frequency distribution of knowledge levels before being given first aid education for drowning victims through video media, the results showed that 21 respondents (63.6%) had a poor knowledge category.

### 6. Knowledge level after being given first aid education for drowning victims through video viewing

**Table 6.** Frequency Distribution of Knowledge Levels After Being Given Health Education Through Video Viewing

| Knowledge Level | Frequency (n) | Percentage (%) |
|---|---|---|
| Good | 24 | 72.7 |
| Simply | 9 | 27.3 |
| Less | 0 | 0 |
| **Total** | 33 | 100 |

**Tabel 7.** Bivariate Analysis of Knowledge Level of First Aid Education for Drowning Victims Pre Intervention and Post Intervention

| | N | Z value | *p* |
|---|---|---|---|
| Pre Intervention Knowledge | 33 | -5.205 | 0.001 |
| Post Intervention Knowledge | 33 | | |

Based on the table 6 regarding the frequency distribution of knowledge levels after being given first aid education for drowning victims through video media, the results showed that most respondents were in the good knowledge category as many as 24 respondents (72.7%).

The results of bivariate analysis using the Wilcoxon test, obtained a Z value of -5.205 and a significance value of 0.001 ($p < 0.005$). The results of this statistical test can be concluded that H1 is accepted so that there is an effect of providing first aid health education for drowning victims on the level of knowledge of lifeguards at the Jambi city swimming pool.

## DISCUSSION

### 1. Analysis of Respondents' Knowledge Level about First Aid for Drowning Victims at the Jambi City Swimming Pool before being given Health Education

Based on the research data, it was found that the level of knowledge of health education in all respondents had poor knowledge, namely 21 respondents (63.6%). This is because some respondents have never received training or education about first aid for drowning victims. Knowledge is the result of knowing and this occurs after people perceive a certain object. Sensing occurs through the five human senses, namely sight, hearing, smell, taste and touch. Knowledge is a very important domain in the form of a person's actions (overt behavior)(12). Age is one of the variables that influence knowledge. Age can affect the power of capture and mindset. A person's strength, comprehension, and mentality increase with age(13). In this study, respondents used in the age range of 20-30 years and work as swimming pool guards who should understand about first aid for drowning victims.

The fact that a person has never received information or training on first aid for drowning victims is another

element that may have an impact on their skill level(14). According to Budiman and Riyanto(15), information is anything that can be learned and used to convey knowledge. Based on primary data on information related to the management or introduction of first aid health education for drowning victims, all respondents (100%) have never received information about first aid for drowning victims (16). According to the results of the data above, the researcher concluded that before being given an intervention in the form of knowledge about first aid for drowning victims, the knowledge possessed by respondents was still classified as insufficient. This is because there is no information or education and there is also an age factor that affects the lack of knowledge about the first aid for drowning victims owned by respondents(14). The absence of training for lifeguards regarding first aid for drowning victims is also a major factor in the respondents' lack of knowledge.

**2. Analysis of the Level of Knowledge of Respondents About First Aid for Drowning Victims in Lifeguards at Swimming Pools in Jambi City After Providing Health Education**

Based on data from the results of research conducted on the level of knowledge after being given health education about first aid for drowning victims, which increased significantly from the level of knowledge less to the level of good knowledge as many as 24 respondents (72.7%) and 9 respondents (27.3%) sufficient knowledge. In the results of the study showed an increase in knowledge of the respondents, namely some respondents had good knowledge. This can be seen from the increasing number of respondents with poor knowledge to 0%.

This is in accordance with the point of view. Notoatmodjo (17) shows how a person's knowledge can be influenced by various circumstances, including age, education, information, and facilities. Knowledge is gained through the application of one's five senses to a particular object to produce knowledge and skills(18).Education and knowledge go hand in hand, because educated individuals will have broader insights. As well as the fact that education is an endeavor that lasts a lifetime and aims to build personality and skills both inside and outside the classroom(17). According to the explanation above, the researcher concluded that after being given an intervention in the form of health education on first aid for drowning victims, the knowledge of most respondents was classified as good. This is because health education on first aid for drowning victims is an obligation that every lifeguard must have.

**3. Analysis of the Influence of Respondents on First Aid for Drowning Victims on Lifeguards in Swimming Pools in Jambi City**

After data processing in both groups showed that the data was not normally distributed (sig value <0.005), the Non-Parametric test (Wilcoxon test) was carried out, the difference between before and after health education was obtained, in the sense that the value that had been carried out by health education with a Z value of -5.205 which means the p result is 0.001, the p value

(Asymp. Sig 2-tailed) less than 0.005 then H1 is accepted and H0 is rejected, namely there is an Effect of Health Education Counseling on First Aid for Drowning Victims on Lifeguard Knowledge at the Jambi City Swimming Pool.

This is in line with the statement of Notoatmodjo(17) which states that health education has the power to change people's attitudes towards healthy behavior(11). Any deliberate effort to influence others, individuals, groups, communities, and educators or other educational practitioners is considered health in general(19). Health education, in the words of Machfeod(20), is a process of change that seeks to transform individuals, communities, and societies towards planned positives through a learning process. In this study, it was found that health education on first aid for drowning victims can affect the level of individual education(21). This is evidenced by before the intervention, some respondents had poor knowledge as many as 21 respondents (63.6%). After being given education, the level of knowledge of respondents increased, namely 24 respondents (72.7%) had a good level of knowledge and 9 respondents (27.3%) had a sufficient level of knowledge.

## CONCLUSIONS

This study shows that health education significantly improves lifeguard knowledge regarding first aid for drowning victims at swimming pools in Jambi City. The results indicate that before the intervention, the majority of respondents had limited knowledge, with most categorized in the “poor” knowledge range. However, following the health education intervention, there was a significant improvement, with the majority of respondents exhibiting good knowledge about first aid for drowning victims.

The health education provided through video-based training was effective in enhancing the lifeguards’ readiness to perform appropriate first aid in emergency situations. This underscores the importance of continuous education and training programs to ensure that lifeguards are well-prepared to respond promptly and efficiently in case of drowning incidents.

However, challenges remain, including the lack of prior formal training for many lifeguards. To address these issues, it is recommended that future interventions include more in-depth and regular training, along with more tailored educational content that fits the specific context of swimming pool settings. Additionally, incorporating hands-on simulations and more interactive learning methods could further improve lifeguards’ practical skills.

Future research should explore the long-term impact of such health education interventions, including the effectiveness of different teaching methods and their actual impact on drowning victim survival rates. Expanding this study to other regions could provide valuable insights into the broader applicability of these findings.

## ACKNOWLEDGEMENTS

The author would like to thank all those who have helped us in carrying out this review.

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