# ORIGINAL ARTICLE

# Health Education on The Knowledge of First Aid in Traffic Accidents in Students at Tunas Husada High School Kendari, Indonesia

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## ABSTRACT

**Introduction:**  Accidents including traffic accidents can occur anywhere, anytime. Around the world, 1.2 million die each year from accidents, and 50 million are injured. Indonesia has the fifth highest rate of accidents. The consequences of unexpected accidents can be life threatening, on an average one traffic accident occurs every 0.5 minutes. Cardiac Pulmonary Resuscitation (CPR) is an individual's skill to save a person's life. This is very important in the first five minutes in a victim's life in many emergency situations. In an emergency, bystander including children in the high school is expected to perform a core role in carrying out CPR. The aim of this study is to determine CPR knowledge in High School. **Methods:** The type of research is a pre-experimental research by approaching the One Group Pre and Post Test Design. Intervention study using pre and post-test validated questionnaire was conducted among 40 students of Tunas Husada high school that were randomly selected.  Data analysis was performed with the Macnemar test. **Results:** The results of the study obtained p= 0.000 which is less than 0.05, so result of the study reveal significant difference in knowledge before and after health education. Thus, there is an effect of health education in increasing knowledge of first aid in traffic accidents among students at Tunas Husada high school, Kendari. **Conclusion:** This study identify that majority students has poor knowledge on CPR. Therefore, implementation of basic life-support training for all school children is recommenced.

**Keywords:**  Health Education, First Aid in Traffic Accidents, Knowledge, Cardiopulmonary Resuscitation, High School

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## INTRODUCTION

CPR is a technique for treating patients who is in cardiac arrest to manually preserve brain function until further medical aid arrives, to restore blood circulation and breathing. CPR is the first treatment that can maintain circulation and breathing (1). American Heart Association states that all individuals who have not received training related to CPR can provide chest compression until the arrival of medical personnel. So, everyone is recommended to learn the process of CPR. CPR aims to provide oxygen to the brain and heart so that the function of the heart and lungs returns to normal until the victim gets treatment from the medical team. CPR must be done properly in order to give a positive response to the victim. Mistakes in carrying out CPR can increase the risk of the victim resulting in death (2).

Accidents like traffic accidents, can occur at anyplace and at any time. The consequences of unintentional accidents can be life threatening (3), on an average in every 0.5 minutes one traffic accident occurs worldwide (4). The occurrence of traffic accident has not received the attention as it one of the prominent causes of death. According to WHO (5), at least 3,000 million people die each day from traffic accidents. Of this, at least 85% occur in low- and moderate-income countries. In the Southeast Asia Region in 2010, traffic accidents resulted in 33,815 deaths, if on average there are 18.5 deaths per 100,000 population. The average death due to traffic accidents in middle-income countries in this region is 19.5 deaths per 100,000 population, while for countries with the low income it is 12.7 deaths per 100,000 population. Increasing motor vehicles and economic development are the main factors causing the increase in traffic accident fatalities in middle-income countries. Vulnerable road users (users of two- and three-wheeled motorized vehicles, pedestrians, and cyclists) accounted for almost half (50%) of total deaths due to traffic accidents in the Southeast Asian region (5).

Around the world, 1.2 million die each year from accidents, and around 50 million are injured. In China in 2014 there were 100,000 traffic accidents that

caused 30,000 deaths in China (4). UNICEF reports that adolescents aged 10 to 19 are 1.2 billion worldwide where on an average 1.4 million adolescents experience accidents each year (6). The percentage of deaths due to traffic accidents in Argentina at the age of 0-17 years is quite high (14.59%) among countries. Similarly, countries like Brazil, Chile, India, France, Italy, and Spain which can be seen in Figure 1 (7). Indonesia itself is fifth with the highest rate of accidents. World Health Organization accidents in Indonesia are considered the third-largest killer after coronary heart disease and tuberculosis. In 2014, 95,906 accidents with 28,297 fatalities, 26,840 seriously injured and 109,741 minor injury happened (8).
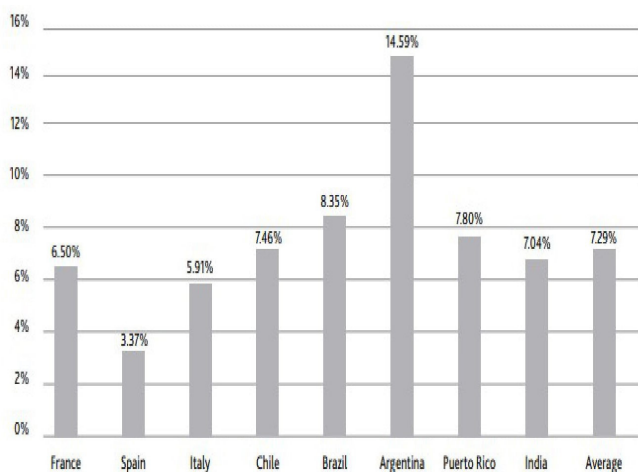


**Figure 1: Percentage of traffic accidents at age 0-17.** Depicts the estimated traffic accident fatality rates for 0-17-year-olds as a proportion of the total reported traffic accident fatalities in each country

First aid including CPR during any accident is intended to provide emergency services for victims before other health professionals render further assistance. According to the American Heart Association, the faster the CPR is done, the possibility of successful resuscitation is higher as chance of survival increase. Over the past decade, CPR has evolved rapidly. Previously it was exclusively performed by physicians and healthcare professionals. However, during life threating situation some easy CPR skills can be applied on victims to save a life. First aid is the assessment and intervention that can be given by someone nearby immediately after an accident, with minimal medical equipment or without medical treatment (9). It is intended to provide emergency services for victims before other health professionals render further assistance. Human beings as social beings will always provide assistance to other people in need, including giving first aid (10). The main benefit of first aid in an accident is that it can speed up the treatment or stop the process that causes death or permanent disability of the patient. Without first aid, many patients who have the chance to survive die at the accident site or on their way to the hospital (3). First aid knowledge is the techniques and the methods used to carry out

practice as an effort to prevent and respond immediately to health emergencies. Therefore, it is important for the general public to acquire first aid knowledge and skills. Many studies recommend that such training and skill development must be made compulsory in schools (11), household, workplace, and recreation area (4). The provision of health education will offer understanding in this matter (10). The results of other studies show that training can improve knowledge with one's own self-development (12).

Currently there is still lack of public knowledge on the proper handling of injuries that are caused by accidents. As a result, this can aggravate the injury condition. Emergency conditions like this can occur anywhere, so people 's involvement in the surrounding environment is needed to help victims before the arrival of healthcare employees.

The aim of study was to find out effect of providing health education related to CPR based on knowledge of first aid in traffic accidents among students at Tunas Husada High School in Kendari.

## MATERIALS AND METHODS

### Samples
In this study sample determination was done using Simple Random Sampling Technique. About 40 high school children age (16 - 18) that meet the inclusion and exclusion criteria were selected for the study. This type of research is a pre-experimental research by approaching the "One Group Pre and Post Test Design". Intervention study was done using pre and post-test validated questionnaire and there is no comparison group. A questionnaire and observation sheet were made by the researcher and used to obtain the data in this study. Respondents were given a questionnaire to gather data on the students first aid knowledge of traffic accidents at Tunas Husada High School in Kendari.

### Ethical Approval
Ethical approval for this study was obtained from the College of Health Sciences Mandala Waluya Kendari (Ref No: 1410.D/STIKES-MW/IX/2019). The confidentiality of the participants was strictly protected.

### Statistical analysis
We used the computer program to perform the data analysis. The analysis carried out in this study, namely univariate analysis, was conducted to describe each variable, namely health education (independent variable) and knowledge of first (dependent variable) were tabulated for frequency distribution. While the bivariate analysis was conducted to determine the presence or absence of health education influence on the knowledge of traffic accident first aid for students at Tunas Husada High School in Kendari.

### Reliability Analysis

Reliability was an important measure of the probability of the questionnaires to provide consistent outcome (8), in the reliability test, we issued a questionnaire item that has a correlation value of less than 0.2. As is known, the Cronbach alpha value of more than 0.70 indicates that the questionnaire has acceptable reliability.

Reliability test observation sheet using inter-rater reliability were conducted by researchers and research assistants. Testing for observation sheets using inter-rater reliability that is the observation carried out by 2 rater or observation on the same 40 respondents, then it was calculated using statistical software. Based on the kappa test conducted between rater, the significance coefficient value is 0.000 and the reliability coefficient were 0.554 between the two raters. The results are significant (<0.05), thus there is no difference in perception between the researcher and the research assistant, while the kappa coefficient can be interpreted as fair sufficient because the kappa coefficient value >0.50. Thus, there is a good agreement between the rater, so the observation sheet can be said to have been valid and reliable.

## RESULTS

### Univariate Analysis

Results of a univariate analysis were based on first aid student knowledge in traffic incidents at Tunas Husada High School in Kendari before and after intervention. Based on the distribution of respondents in the age group. Table I shows that among 40 study respondents within the age 17 there were 28 respondents (28%), age 16 years there were 10 respondents (25%), age 18 were 2 respondents (5%).

Based on the distribution of gender group of respondents it can be seen in Table I that from 40 research respondents, the number of female respondents was higher than male, female respondents were 35 respondents (87.5%), while 5 respondents were men (12.5%).

**Table I: Distribution of respondent age and gender of respondents**

| Variable | n (40) | % |
|---|---|---|
| Age | | |
| 16 years | 10 | 25% |
| 17 years | 28 | 70% |
| 18 years | 2 | 5% |
| Gender | | |
| Male | 5 | 12.5% |
| Female | 35 | 87.5% |

### Bivariate Analysis

Analysis of Differences in Knowledge among Respondent Before and After Health Education, interventions were analyzed by testing (McNemar), as seen in Table II. The results of the analysis in Table 3 show that, in this study, respondents had less knowledge before

**Table II: Knowledge of Respondents Before and After Health Education**

| Knowledge | Moderate Knowledge | | Low Knowledge | | Total | | p Value |
|---|---|---|---|---|---|---|---|
| | n | % | n | % | N | % | |
| Before Intervention | 19 | 47.5 | 21 | 52.5 | 40 | 100 | |
| After Intervention | 38 | 95 | 2 | 5 | 40 | 100 | 0.000 |

receiving intervention (pre-test) were 21 respondents (52.5%), less than 2 respondents (5%) after receiving intervention (post-test). Then respondents who have moderate knowledge before receiving an intervention (pre-test) are 19 respondents (47.5%) after receiving an intervention (post-test) from 38 respondents (95%). So that the positive influence of health education on first aid knowledge in traffic accidents can be seen.

Statistical test (McNemar) showed that result of study has significant differences in knowledge of respondents before and after intervention in health education with p value amount 0.000 less than 0.05. Therefore, health education had an influence on knowledge of first aid in a traffic accident at the Tunas Husada High School in Kendari.

Statistical analysis of the skills of the respondents among 40 respondents was conducted with simulation of 6 items based on the observation sheet including, assessment of current conditions, initial assessment, physical examination, patient history, continued examination and reporting. The results obtained 34 respondents who were eligible to do the simulation and there were only 6 respondents who were not eligible to provide First Aid in traffic accident.

## DISCUSSION

Health education is a process of providing learning experience that influences people's or group's health-related attitudes, knowledge and behavior by providing information through education and training, that will increase knowledge, then raise awareness and eventually the individual will practice according to knowledge gained (13). According to Green (2011) (14), educational background is a fundamental factor that motivates behavior or provides a reference in one's learning experience. The results of this study are in line with Nurhanifah 's research (15) that obtained 43 respondents with good knowledge and 13 respondents with enough first aid knowledge. Research shows that health education influenced the level of first aid knowledge related to accidents.

In the present study it was observed that there were 34 skilled respondents and 6 unskilled respondents at the Tunas Husada Vocational School in Kendari. Among

these respondents, simulation of first aid in a traffic accident was carried out based on attitude that doesn't care about something in contrast to attitude is someone's readiness or willingness to act. The results of this study are consistent with the Sai Yunita study (6) where there were differences in skills before and after the health education simulation method. There was positive influence of health education and simulation on knowledge and skills concerning first aid for students undergoing Syncope Class X High School in Manado. Health education is an attempt to develop skills by some interesting methods that is effective and are required to communicate health knowledge. Other research indicates that knowledge and attitudes have a significant influence on the training followed, but further training and support is still needed in order to increase knowledge and recognize unmet needs (16).

Based on this study it can be said that knowledge may increase with the existence of health education in the community related to first aid traffic accidents. Knowledge is important in influencing attitudes and behavior, a higher level of knowledge will facilitate the determination of an individual's response in an emergency situation. This in turn will determine the attitude that will be taken toward first aid after gaining knowledge of health education.

## CONCLUSION

Base on the research finding conducted by researchers at Tunas Husada high school Kendari it can be concluded that there is an effect of health education on the level of knowledge of first aid traffic accidents on students at Tunas Husada high school Kendari.

## ACKNOWLEDGEMENTS

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