

# First Aid Knowledge among Secondary Pupils at Three Selected Schools in Ndola, Zambia

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## Abstract

**Introduction:** First Aid is immediate care given for the purpose of preserving life and minimizing the consequences of injury and illness until help, from trained medical workers is obtained. The likelihood of an injury or accident victim living or dying depends on the timeliness of the aid given. On a global scale, someone dies every 5 seconds as a result of an injury, over 15000 people's lives are cut short every day and about 5.8 million people die in a year. Survival is greatly increased if bystanders quickly begin applying first aid. Therefore, this study aims to assess the levels of first aid knowledge in secondary pupils at three selected schools in Ndola, Zambia.

**Methods:** An analytical cross sectional study was carried out among pupils at three selected schools in Ndola, Zambia. The data collection tool that was used is a self-administered questionnaire. A two stage sampling method was used. Firstly, a non-probability sampling method was used to select schools. Thereafter, classes and their respective pupils were sampled randomly. A sample size of 376 was used. The study was carried out at Chiluba Secondary School, Lubuto Secondary School and Ndola Skill School. Data was entered and analysed using SPSS version 20, and categorical variables were analysed using chi Square.

**Results:** In this study, majority of the participants had poor knowledge (87.8%), followed by those with average knowledge (6.4%), then those with no knowledge (5.3%) and finally those with good knowledge (0.5%). The mean score was 3.70, the median was 4.00, the mode was 3, the standard deviation was 2.008 and the sum was 1393. It was found that there is an association between levels of first aid knowledge and exposure to first aid information from the media, receiving first aid knowledge from guardians and religion. However, there was no association between levels of first aid knowledge and age, sex, economic status, opinion, being taught first aid at school and being a member of a first aid club. It was found that the factors that influence levels of first aid knowledge include exposure to first aid information from the media and receiving first aid information from guardians.

**Conclusion:** Overall, first aid knowledge amongst secondary school pupils at the three selected school in Ndola Zambia was poor. The mean score was 3.70 which is poor knowledge. It is recommended that first aid training be added to the school curriculum as this will allow a good number of students to be reached over a period of time Furthermore, awareness of first aid should be raised through the media, campaigns and brochures. Finally, it is recommended that like studies be conducted in the future.

**Keywords:** Secondary pupils • First aid • School curriculum

## Introduction

First Aid is immediate care given for the purpose of preserving life and minimizing the consequences of injury and illness until help from trained medical workers is obtained [1]. It is never known when an injury or accident may happen. It is therefore important to have some level of first aid knowledge because it makes a difference for saving lives, it preserves life, prevents a condition from getting worse,

reduces severity of injuries and it allows lay people to provide treatment until professional medical staff arrive at the scene [2].

Intentional (i.e., violent or self-inflicted) and unintentional (i.e., accidental) injuries claim more than 5.8 million lives or 10% of global fatalities annually. This makes them one of the leading causes of death and morbidity. Groups at risk of injuries include road users, people attending schools, people in various work environments and people in homes. (IFRC, 2015. Based on the results of a 2012 study

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carried out at Ahmadu Bello University in Nigeria by Joshua et al, it was found that over 50% of the respondents were faced with an emergency situation but only 10% could help the victims [2]. According to Semwal et al, many experts believe that even a limited understanding of first aid would be an invaluable service to individuals who find themselves in emergency situations [3]. First aid can make the difference between life and death [4]. This study is therefore aimed at assessing levels of first aid knowledge in secondary pupils at three selected schools in Ndola, Zambia.

## Methods

The present study was done at Chiluba Secondary School, Lubuto Secondary School and Ndola Skill School in Ndola, Zambia. The target population was secondary school pupils from grade 8 to 12 at the three selected schools. An analytical cross sectional study design was used. A two stage sampling method was used in this study. Firstly, a non-probability sampling method was used. Thereafter, classes and their respective pupils were sampled using a probability sampling technique. The sample size was found to be 376. All pupils from grade 8 to 12 at the three selected schools, regardless of age were included in this study. Every individual not belonging to this group was excluded from this study. The data collection tool used in the present study was a self-administered questionnaire. The data was entered and analyzed using SPSS version 20. The descriptive statistics were summarised using means, modes, medians, percentages and standard deviations. And finally, ethical approval was gotten from the ethical committee at the tropical disease and research center (TDRC) in Ndola Zambia.

## Results

The calculated sample size was 376, and all 376 questionnaires were retrieved. The response rate thus came to 100.0%. Majority of the respondents were aged 16 to 20 years old (72.1%) and the rest were aged 11 to 15 (27.9%). With regard to sex, most of the participants were female (51.6%) and the rest were male (48.4%). 98.4% of the participants were Christian, 1.1% were Islam and 0.5% were not religious. Furthermore, majority of the participants were in grades 10 to 12 (69.4%), and the remaining were in junior secondary school (30.6%). In relation to economic status, majority of the participants were of average economic status (44.4%), followed by below average

(38.8%), and the rest were above average (16.8%). 77.1% of the participants had heard about first aid from the media and 22.9% had never. 92.3% of the participants thought first aid knowledge is necessary and 7.7% felt that it is not. In addition, 64.6% of the respondents had received first aid information from their guardians, whilst 35.4% had not. 80.1% of the participants had been taught first aid in school, whilst 19.9% had not. Finally, 35.6% of the participants were in a first-aid related club, whilst 64.4% were not.

### Levels of first aid knowledge

To assess levels of first aid knowledge, a total of 14 questions were answered. Each question was valued at 1 point if the correct answer was given and zero if a wrong answer was given. Knowledge was categorized into four groups. No knowledge, poor knowledge,

average knowledge and good knowledge. No knowledge referring to the participants who got a score of 0, poor knowledge referring to the participants who scored between 1 and 6, average knowledge referring to the participants who scored between 7 and 10, and good knowledge to those who scored between 11 and 14. As shown in the (Figure 1).



**Figure 1:** Distribution of levels of first aid knowledge.

Majority of the participants had poor knowledge (87.8%), followed by those with average knowledge (6.4%), those with no knowledge (5.3%) and finally those with good knowledge (0.5%).

Out of a possible 14 points, the highest score was 12 and the least was 0. Only one participant got a score of 12 and 20 got a score of 0. The mean score was 3.70, the median was 4.00, the mode was 3, the standard deviation was 2.008 and the sum was 1393.

### Association between factors and the levels of first aid knowledge

According to the results of this study, it was found that there is an association between levels of first aid knowledge and member of a first aid club. Whose P-values were 0.781, 0.997, 0.837, 0.746, 0.102, 0.144 and 0.283 respectively. All of which are greater than 0.05 (Table 1).

Factor	P-value	Interpretation
Age	0.781	No association
Sex	0.997	No association
Level of education	0.837	No association
Religion	0.027	Association
Economic status	0.746	No association
Media	0.044	Association
Opinion	0.102	No association
Parents/Guardians	0.017	Association
School	0.144	No association
First aid Club	0.283	Association

**Table 1:** Factor, p-value and Interpretation.

## Determination of factors that influence levels of first aid knowledge

In order to determine the factors that influence levels of first aid knowledge, a religion, exposure to first aid information from the media and receiving first aid knowledge from guardians. Their P-values were, 0.027, 0.04 and 0.017 respectively. They are less than 0.05, thus an association was established. However, there was no association between levels of first aid knowledge and age, sex, level of education, economic status, opinion, being taught first aid at school and being a chi-square test of association was done. However, the chi-square assumption was violated and Fisher's exact test was used instead. Only three of the multiple socio-demographic factors were found to have an association with levels of first aid knowledge. These included religion, first aid information from the media and receiving first aid information from parents or guardians. The associations of all three factors were found to be weak as determined by Cramer's V. All Cramer's V values were found to be less than 0.25. With regard to religion, amongst the three groups, good knowledge was noted amongst the Christians. With regard to first aid information from the media, in comparison to those who did not receive first aid information from the media, good knowledge was noted amongst participants who received first aid information from the media. Finally, with regard to first aid information from parents or guardians, in comparison to those who did not receive first aid information from parents or guardians, good knowledge was noted amongst participants who received first aid information from their parents or guardians.

## Discussion

### Socio-demographic characteristics

A total of 376 participants took part in this study. Majority (72.1%) of the respondents were aged 16-20 years old and the rest were aged 11 to 15 (27.9%). With regard to sex, most of the participants in this study were female (51.6%) and the minority were male (48.4%). This finding is similar to that of Khatatbeh who found that majority of the participants were female (65.9%) and the minority were male [5]. Unlike the current study, in a similar study carried out by Priyangika and Hettiarachchi, it was found that majority of their participants were male (53.0%) and the minority were female (47.0%) [6].

98.4% of the participants were Christian, 1.1% were Islam and 0.5% were not religious. Furthermore, majority (69.4%) of the participants were in senior secondary school (grades 10 to 12), and the remaining were in junior secondary school, grades 8 to 9 (30.6%). A similar study done by Joshua et al found that unlike the current study, majority (79.8%) of the participants were juniors and the minority were senior students (21.5%) [7].

In relation to economic status, majority of the participants were of average economic status (44.4%), followed by below average (38.8%), and the rest were above average (16.8%). Similar findings were found in a study by Mobarak et al in 2015.

77.1% of the participants had heard about first aid from the media and 22.9% had never heard of it from the media. Majority of the participants (92.3%) thought first aid knowledge is necessary and 7.7% felt that it is not. This is similar to the findings of Makhlef, who

found that majority (96%) of their participants found first aid knowledge to be necessary, and the minority (4%) did not. 64.6% of the respondents had received first aid information from their guardians, whilst 35.4% had not. In addition, 80.1% of the participants had been taught first aid in school, whilst 19.9% had not. This finding is unlike that of Mobarak et al who found that majority (86.4%) of their participants had not received first aid training and 13.6% had received training. Finally, 35.6% of the participants were in a first-aid related club, whilst 64.4% were not.

### Knowledge

In this study, majority of the participants had poor knowledge (87.8%), followed by those with average knowledge (6.4%), then those with no knowledge (5.3%) and finally those with good knowledge (0.5%). Out of a possible 14 points, the highest score was 12 and the least was 0. Only one participant got a score of 12 and 20 got a score of 0. These results are similar to a study by Priyangika and Hettiarachchi in which it was found that knowledge and practices of first aid were poor. However, this study was done amongst school prefects only. A similar study was done in Nigeria by Joshua et al. It was also found that levels of first aid knowledge were generally poor.

According to a study by Khatatbeh which was carried out at a university in Jordan, it was found that levels of first aid knowledge amongst participants was insufficient. Similarly, in a study by Joseph et al at a, it was found that very few students had good knowledge. The results of the current study are however unlike a similar study which was done by Barutcu et al amongst vocational high school students where it was found that correct answer percentages were higher than wrong answer percentages.

### Association between factors and the levels of first aid knowledge

According to the results of this study, it was found that there is an association between levels of first aid knowledge and religion exposure to first aid information from the media and receiving first aid knowledge from guardians. However, there was no association between levels of first aid knowledge and age, sex, economic status, attitude, being taught first aid at school and being a member of a first aid club.

Unlike the current study where there is no association between sex and levels of first aid knowledge, a study by Khatatbeh found that there was an association. Higher levels of first aid knowledge were noted amongst female participants. A similar study by Joseph et al, found that there was no association between gender or previously being taught first aid and levels of first aid knowledge, which is similar to the results of this study.

A study by Gore et al, found that unlike the current study, there was an association between level of education and levels of first aid knowledge. Jamaludin et al, found that there was an association between gender, year of study, first aid training experience and levels of first aid knowledge.

## Determination of factors that influence levels of first aid knowledge

According to the results of this study, the factors that influence levels of first aid knowledge include exposure to first aid information from the media, religion and receiving first aid information from guardians. Christians, participants exposed to first aid information from the media and participants who received first aid information from parents or guardians were noted to have good knowledge. This is similar to the results of Mobarak et al, who found that televised material as well as parents, were the chief sources of information about first aid.

## Conclusion

Overall, first aid knowledge amongst secondary school pupils at the three selected school in Ndola Zambia was poor, the mean score was 3.70 (poor knowledge). It was established that there is an association between levels of first aid knowledge and religion, exposure to first aid information from the media, and receiving first aid knowledge from guardians. However, there was no association between levels of first aid knowledge and age, sex, economic status, opinion, being taught first aid at school and being a member of a first aid club. Furthermore, according to the results of this study, the factors that influence levels of first aid knowledge include religion exposure to first aid information from the media and receiving first aid information from guardians. With good knowledge noted amongst Christians, receiving first aid information from parents or guardians and media.

## Recommendations

It is recommended that first aid training be added to the school curriculum as this will allow a good number of students to be reached over a period of time. This should be backed up with periodic refresher training as level of first aid knowledge did not differ significantly between pupils taught first aid in school and those who were not, and between pupils in a first aid related club and those who were not. In addition, practical training should complement the theory, as it will increase the pupil's confidence and experience.

## Study Limitations

The literature in this study was limited only to the research and literature published in English. This study only assessed the knowledge of first aid skills among secondary school pupils and not the practical skills. In addition, the study population was made of students from Ndola Zambia only, thus the findings could not be generalised to all secondary school pupils in Zambia. Finally, the study was carried out amidst the corona virus pandemic and the study was delayed due to closure of schools.

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