

Poor Practice of First-Aid among Secondary School Students: A Pointer To Poor Emergency Preparedness and Services in Nigeria

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Abstract: The exposure to school related injuries, coupled with the inadequacy of school health program in most Nigerian schools puts students at risk of serious morbidity when unforeseen incidents occur. This study aimed to assess the level of knowledge, attitude and practice of first aid among students of a secondary school in Southwest Nigeria. A questionnaire and scoring system were designed to test the students' ability to identify common emergencies, their attitude towards learning and delivering first aid and the degree of practice. Data was analysed using the Statistical Package for Social Sciences (SPSS®) version 21. Results: Majority of the 304 respondents (68.4%) had fair knowledge of first aid. The attitude towards first aid was positive in almost all (98%) respondents, but 56.9% had poor practice of first aid. Conclusion: Despite the positive attitude towards first aid, the students had fair knowledge with poor practice of first aid. We recommend inclusion of first aid in the national school curriculum for all secondary schools, as this will increase awareness on common emergencies and the number of potential first responders in a country that lacks a buoyant emergency response infrastructure.

Key words: First Aid • Students • Secondary School • Nigeria

INTRODUCTION

First aid is temporary medical care administered to an ill or injured person until full medical treatment is available. It often entails a one-time, short term treatment and requires little technology or training to administer [1]. First-aid requires simple techniques with minimal or no equipment and can be employed effectively by laymen, but if wrongly administered can lead to complications. Administration of first aid measures requires at least basic training (received from qualified medical professionals),

which has been shown to increase motivation and willingness to act in emergency situations [2, 3].

Commonly encountered emergencies that result in presentation to the health facility include asthma, pneumonia, epilepsy or convulsion and sports injuries amongst others [4]. However, insufficient knowledge, fear of making things worse, believing an ambulance will arrive soon and apprehension about being exposed to infectious agents such as human immunodeficiency virus (HIV) can limit the practice of first aid by bystanders despite adequate knowledge [5-9].

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In the United States, unintentional injuries are the leading cause of death among children 1-19 years of age accounting for nearly 37 percent of all deaths in children after one year of age [10]. It is estimated that up to a quarter of injuries in children happen while they are in school, as the regular school-aged child spends 28% of the day and 14% of his or her total annual hours in school [11]. Commonly reported playground injuries among school children include abrasions, contusions, sprains, dislocations, lacerations and fractures [12, 13]. Epilepsy, snake bites, road traffic accidents and diarrheal diseases are more common in developing countries and are frequently encountered in sub-Saharan Africa [14, 15].

There is a paucity of data regarding the injury profile of school children in Nigerian schools.

Many schools in Nigeria lack the services of a trained health personnel or first aid giver, though some have sick bays and dispensaries that provide essential drugs and first aid services [16, 17].

The inclusion of Basic Life Support (BLS) in the school curriculum was recommended by the International Liason Committee on Resuscitation (ILCOR) in 2003 [18] and endorsed by the American Heart Association [19] along with several other researchers [2, 3, 20-22], but this recommendation is only being implemented variably across Europe, The United States, New Zealand and the United Kingdom [23-26].

School age children (6-14 years) make up about 23% of the population of the average Nigerian community and their health status reflect the state of the nation's development [27]. The school, which has direct contact with more than 95 percent of Nigeria's young (aged 5-17 years), for about 6 hours a day and for up to 13 critical years, [28] is a place where children could present with ill health or injuries from a variety of sources, including the playground, sports facilities and transportation facilities [11, 13]. The inadequacy of school health services could lead to a delay in accessing health services and could lead to health consequences including death [16, 17].

Therefore, it is important to assess the baseline knowledge, attitude and practice of first aid among secondary school students so as to know how to recommend suitable interventions for early involvement of children in first aid. This study will identify the training needs of the students in order to recommend modifications to the school curriculum as required and deliver goal-oriented training sessions to improve knowledge and practice of first aid. It is important to consider this study because first aid knowledge and practice will benefit the society, by increasing the number of potential first responders at the scene of medical emergency who can deliver the initial lifesaving care.

This study will help to fill a gap in knowledge about how much of first aid secondary school students know, their attitude towards it and how they practice it. It will serve as a reference point for the development of future programs on first aid. The objectives of this study were to assess the level of knowledge of first aid for specific emergencies among students in secondary school, as well as their attitude and practice of first aid.

MATERIAL AND METHODS

The study was carried out in Babcock University High School, a private secondary school located in Ilishan-Remo, Ikenne local government, Ogun state, Nigeria, with 1312 students enrolled at the time of the study. The school has a sick bay, manned by a registered nurse. Serious illnesses are referred to the Babcock University Teaching Hospital which is less than 50 metres from the school's exit gate. The teaching hospital provides emergency, out-patient and in-patient services to the students.

The students are divided into six classes, three classes in the junior secondary school (JSS 1-3) and three classes in the senior secondary school (SS1-3), equivalent to grade 7-12 in the United States. The students receive some rudimentary first aid training by participating in Adventist Youth Ministries (AYM) programmes, a paramilitary organisation that aims at developing youths physically, mentally, socially and spiritually.

The study was carried out in November, 2016. A cross-sectional study design was adopted. Minimum sample size (298) was arrived at using the Kish formula [29], with 10% added for attrition, giving 328. Stratified sampling technique was employed, dividing the student population into six strata. The proportion of students to represent each stratum was calculated and the participants were randomly selected. Only students who were enrolled into the school for that session were included and all subjects who were absent during the sample collection were excluded.

The questionnaire used was developed for the study, in simple language, avoiding complex medical terminology and structured to achieve the specific objectives of this study. The questionnaire was designed in four sections.

Section A: Obtained information on socio-demographics.

Section B: Assessed the knowledge of first aid. It had a total of twenty three multiple choice questions, each worth one point, with a total score of twenty three - 0-8 constituted poor knowledge, 9-16 constituted fair knowledge and 17-23 constituted good knowledge.

Section C: Assessed the attitude towards first aid. A total of seven questions were asked, each question worth one point. The scoring was as follows: 0-4 = poor attitude, 5-7 = good attitude.

Section D: Addressed the practice of first aid with seven questions, each worth one point. The scoring was as follows: 0-4 = poor practice, 5-7 = good practice.

This questionnaire and scoring system were designed for the sole purpose of meeting the objectives of this study. The questionnaire was thoroughly reviewed and found valid by senior members of the Community Health department, Babcock University. It was then pre-tested in a private secondary school in the same town as the study population.

The questionnaire was self-administered and required 10-15 minutes to be filled completely. Data from the questionnaires was subjected to statistical analysis using the Statistical Package for Social Sciences® software (SPSS) Version 21. Descriptive and analytical data were generated. Chi square test was used to compare categorical variables. A P-value of equal to or less than 0.05 ($P \leq 0.05$) was considered as statistically significant.

Ethical approval was obtained from the ethical review committee of Babcock University, with reference number BUHREC246/16. Permission was duly obtained from the authorities of the school to carry out the study. The purpose and need for the study was explained to the students and they gave assent to participate. No identifying information was collected from participants and they were assured of the confidentiality of personal information provided. Participants were not coerced to participate.

RESULTS

A total of 304 responses were obtained. Most of the respondents were between 12 and 14 years old (Mean = 12.66 ± 1.9), female respondents were slightly more than males. The predominant religion and tribe were Christianity and Yoruba respectively. The class (stratum) with the highest representation was JSS2 (Table 1).

Majority of the respondents (82.9%) had a good understanding of general principles of first aid, including protecting the injured from further injury, protecting one's self and calling an ambulance. A higher proportion of the students picked correct responses on knowledge of the cause and features of asthma, choking, convulsion, heat stroke, fainting, sprain and external bleeding. Concerning knowledge of the appropriate emergency management technique, over 80% of the respondents

Table 1: Sociodemographic Characteristics of the Respondents

Variable	Frequency (n = 304)	Percentage (100%)
Age		
9-11	91	30
12-14	157	51.6
15 and above	56	18.4
Sex		
Male	128	42.1
Female	176	57.9
Religion		
Christianity	286	94.1
Islam	18	5.9
Tribe		
Yoruba	229	75.3
Igbo	63	20.7
Hausa	2	0.7
Others	10	3.3
Class		
JSS1	59	19.4
JSS2	60	19.7
JSS3	51	16.8
SS1	51	16.8
SS2	52	17.1
SS3	31	10.2

knew that the inhaler was the first point of call in an individual having an acute asthma attack and most of the students were aware of the Heimlich manoeuvre being the approach to relieve choking. However most of the students were in support of inserting an object into the mouth of an individual who is convulsing in order to protect the tongue. A good proportion of the students also knew the correct first aid to apply in heat stroke, fainting/ unconsciousness, sprain, external bleeding and nose bleeds (Table 2). Overall the mean score for knowledge of first aid was 15.1 ± 2.8 out of 23, classified as fair and 68.4% of the respondents fell into this category. 30.6 and 1% of the respondents had good and poor knowledge respectively.

Almost all (98%) of the respondents had a good attitude towards first aid, answering positively towards learning and administering first aid in the near future. The average attitude score was 6.5 out of 7, classified as good attitude. Only 2% had poor attitude towards first aid.

Of the 304 respondents, only about half (50.3%) had ever practiced first aid and they reported that they carried it out appropriately. The mean score was 3 out of 7, indicating poor practice of first aid, with 56.9% of the respondents in this category. 43.1% of the respondents had good practice of first aid.

Table 2: Knowledge of basic emergency management (1)

Item	Frequency n = 304	Percentage 100%
Initial management of asthma		
Give a cold drink	3	1
Calm the individual down and administer inhaler	257	84.5
Calm the individual down, ask to breathe into paper bag	4	1.3
Don't know	40	13.2
Maneuver to relieve choking		
Chest punch	46	15.1
Heimlich maneuver	129	42.4
Valsalva maneuver	24	7.9
None of the above	29	9.5
Don't know	76	25
Initial management of convulsion		
Put spoon you in their mouth to prevent them from biting their tongue	139	45.7
Put onion in their mouth	39	12.8
Gently support the person's head to prevent it from hitting the ground until seizure stops	51	16.8
Don't know	75	4.7
Initial management of heat stroke		
Give cool water to the individual to drink if conscious	29	9.5
Expose to cool air	51	16.8
All of the above	182	59.9
Don't know	42	13.8

Table 3: Knowledge of basic emergency management (2)

Item	Frequency n = 304	Percentage 100%
Safety of giving oral fluids to an unconscious individual		
It is safe	22	7.2
It is unsafe	245	80.6
I don't know	37	12.2
Initial management of a sprain		
Rest the leg	13	4.3
Elevate the leg	14	4.6
Apply ice	82	27
All of the above	191	62.8
Don't know	4	1.3
Initial management of external bleeding		
Rinse the wound with clean running water and apply pressure on the wound with clean cloth	270	88.8
Rush him/her to the pharmacy to buy drugs	28	9.2
Don't know	6	2
Initial management of nose bleed		
Blow the nose	9	3
Lean head forward and pinch the nose	163	53.6
Lean head backward	116	38.2
Don't know	16	5.3

Table 4: Attitude towards First Aid

Items	Frequency n = 304	Percentage 100%
It is necessary to know first aid procedure for protection of myself, my family and friends		
Yes	294	96.7
No	6	2
Don't know	4	1.3
If I see a sick person or injured person, I would help the person if I know first-aid		
Yes	293	96.4
No	3	1
Don't know	8	2.6

Table 4: Continued

Items	Frequency n = 304	Percentage 100%
It is good to know first-aid because the teachers or school nurse who know first-aid may not be around at the time they are needed		
Yes	295	97
No	6	2
Don't know	3	1
It is difficult to learn how to apply first aid		
Yes	8	2.6
No	277	91.1
Don't know	19	6.3
The knowledge of first-aid is only necessary for people who are in the medical field like doctors, nurses and medical student		
Yes	13	4.3
No	285	93.8
Don't know	6	2
I would love first-aid to be a subject in my school		
Yes	262	86.2
No	36	11.8
Don't know	6	2
I would like to get first-aid training in the future that would teach me how to act in case of emergency		
Yes	279	91.8
No	19	6.3
Don't know	6	2

Table 5: Practice of First Aid

Item	Frequency	Percentage 100%
Have you ever seen a medical emergency happen before, e.g. cut, asthma, seizure		
Yes	252	82.9
No	52	17.1
Total	304	100
Did you apply any first-aid measure to assist the individual		
Yes	153	50.3
No	151	49.7
Total	304	100
Were you able to stay calm during the incident		
Yes	96	62.7
No	57	37.3
Total	153	100
Did you encourage the person that they would be alright		
Yes	137	89.5
No	16	10.5
Total	153	100
Did you call for help		
Yes	127	83
No	26	17
Total	153	100
Did you have the first-aid skills needed to help the individual		
Yes	111	72.5
No	42	27.5
Total	153	100
Were you able to apply the correct first-aid measures for the person		
Yes	130	85
No	23	15
Total	153	100

A significant association was found between knowledge of first aid and the attitude towards it, as well as between attitude and practice of first aid ($p < 0.05$) using the Chi-square test. However there was no

significant association between knowledge and practice of first aid. No association of statistical significance was found between any of the socio-demographic variables and knowledge, attitude or practice of first aid.

DISCUSSION

The mean age of 12.6 ± 1.9 years observed in the respondents indicates a culture of early enrolment of children into formal education, as is commonly seen across Nigeria today. Early enrolment has been seen to be associated with better academic performance in primary school children [30]. Females made up the majority of the sample, which suggests a female preponderance in Babcock University High School. This finding corroborates the recent national picture which revealed a slight female dominance in secondary school attendance in South West states, including Ogun, Lagos and Oyo states [31]. The most prominent religion and tribe were Christianity and Yoruba respectively. This is expected, as Christianity is one of the foremost religions practiced amongst residents of South-West Nigeria and the people are primarily of the Yoruba tribe. However none of these socio-demographic characteristics were seen to have a statistically significant effect on the knowledge, attitude and practice of first-aid among the respondents. This shows that first aid can be learned, a good attitude developed towards it and it can be practiced by anybody regardless of their age, sex, religion, tribe or class in school.

Majority of the students had a good general understanding of first aid and what it entails. However as regards knowledge of the specific disease conditions and their appropriate first aid management, there were variations in the response patterns. Nevertheless, a good majority of the students knew about asthma and the immediate care in an acute asthma attack. This could be because of the rising prevalence of asthma in young people in Nigeria, with prevalence rates quoted to be between 7.2-14.1% amongst school age children and young adults [32-36]. Hence, a good number of respondents may have witnessed an acute asthma attack or experienced one themselves.

Choking is not a commonly witnessed emergency in adolescents, as corroborated by a Nigerian tertiary healthcare center study, where the incidence was noted to be highest in pre-school children, aged 3-5 years [37]. This could explain the poor knowledge of choking that was observed.

Most of the respondents believed that a spoon should be inserted into the mouth of the convulsing individual to prevent them from biting their tongue. A similar result was obtained in a study among secondary school students in Enugu, Southeast Nigeria where a poor knowledge of epilepsy was noted, with more than half of

the respondents believing that an object should be inserted into the mouth of an individual who is convulsing [34]. This is a common harmful practice in Nigeria and should be replaced by current best-practices on first aid for convulsions. The school can play a role in teaching the students the correct measures.

Sprains are usually associated with outdoor activity and are a common sports injury hence a frequent cause of emergency room visit in adolescents [4, 39]. Therefore it is expected that the respondents should have some knowledge of first aid for sprains. Lack of formal first aid training could be a reason why a lower percentage of the students knew the appropriate first aid measure for sprains.

About 64.1% of the respondents knew the consequences of external bleeding and 88.8% knew how to manage bleeding from lacerations while 53.6% knew how to manage nose bleeds correctly with first aid. The finding regarding nose bleeding is in contrast to two studies, one in India and the other in the United Kingdom, where only 7.4% and 11.3% respectively knew the correct first aid management of nose bleeds (epistaxis) [40, 41].

Studies conducted among secondary school students show poor knowledge of first aid [2, 18, 38] though some researchers found that the level of knowledge was higher in private schools [2]. Majority showed a positive attitude towards acquiring basic first aid knowledge in the nearest future and were supportive of the idea of including it in the school curriculum. Similar findings were obtained in a study among high school students in New Zealand where it was reported that the students with a positive attitude were in the majority and had a better knowledge than the students with negative attitude. It was however found that up to 70% of those with negative attitude had had prior first aid training, which shows that having knowledge is not necessarily a pre-requisite to a positive attitude [42]. In our study, attitude towards first aid was noted to be significantly associated with knowledge as well as practice of first aid. This shows the central role that attitude plays as regards first aid.

Practice of first aid was poor. Though majority of the respondents had witnessed a medical emergency, only about half of the respondents had ever had to administer first aid. This illustrates a lapse between having theoretical understanding of the first aid and the hands-on practical experience of it, as first aid in itself is a field that requires skill development and mastery so as to give optimum care to those who require it.

CONCLUSION

Overall knowledge of first aid among high school students in BUHS was fair, with poor practice despite a predominantly positive attitude. There was a significant association between knowledge and attitude towards first aid and between attitude and practice of first aid. This shows the central role of attitude which indicates that interventions geared towards increasing knowledge can have an effect on attitude and vice versa, both of which would improve practice on the long run. There was no significant relationship noted between the socio-demographic variables and knowledge, attitude and practice of first aid respectively.

In a country that lacks a buoyant school health programme and emergency response infrastructure, It is imperative that high schools across Nigeria and beyond, offer basic first aid training and seminars to its students to improve their knowledge and attitude towards first aid. This can be achieved by employing professional outfits such as the Red Cross society or other medical personnel to train the students, including practical sessions to aid skill development. It is also advocated that first aid be added to the school curriculum for high school students across Nigeria. This will benefit the country at large by increasing health awareness and the number of potential first responders in case of a medical emergency. Further research in this area will contribute to the development of sound policies as regards first aid and the youth.

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