

Effectiveness of first-aid training on school children of urban area of Sambalpur District, Odisha

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ABSTRACT

Background: Delay in accessing appropriate medical care and/or lack of knowledge regarding treatment results in the death of the injured which can be avoided by immediate resuscitation measures. First aid, as the name implies, is the first care given to a victim of an accident, injury, or sudden illness, before the provision of advanced medical care. First aid should be aimed to preserve life, promote recovery, and prevent worsening of the victim's condition. **Objectives:** The present study was aimed to assess the knowledge of school students regarding first-aid management and to evaluate the effectiveness of education on selected first-aid measures among school students. **Materials and Methods:** A total of 95 students of 6th, 7th, and 8th standard students were given a self-administered questionnaire for assessing their baseline knowledge about management of common injuries followed by educational intervention. Post-intervention evaluation of their knowledge acquisition was done after 10 days with the same questionnaire. **Results:** The objective of providing knowledge was accomplished with maximum students retaining knowledge shown as per the percentage increase in post-test scores. The maximum increase was seen in epistaxis (65.26%), head injury (44.21%), choking (42.11%), snakebite (52.94%), and dog bite (42.11%) which signifies less number of students had knowledge about these first-aid measures. Paired *t*-test showed a statistically significant difference in the pre- and post-education scores. **Conclusion:** Inculcating first-aid training in the school curriculum can be a fruitful investment in ensuring proper and timely management of illnesses and injuries.

KEY WORDS: First Aid; Epistaxis; Resuscitation

INTRODUCTION

The national first-aid science advisory board defined first aid as the assessment and interventions that can be performed by a bystander (or by the victim) immediately with minimal or no medical equipment.^[1] Proper early measures may be instrumental in saving life and ensuring a better and more rapid recovery. Often, the first action taken for the management

of injuries and common illness decides the future course of disease and complication rates. First aid is usually seen to be helpful in some of the very common injuries such as simple cut or wound, sprains, snakebite, electric shock, burns, and dog bite.

First aid includes the basic steps to be followed in case of an injury before seeking professional medical help. In some inaccessible and remote areas where medical help is difficult to obtain immediately following an injury, first aid plays an important role in saving the life of the victim. However, to administer correct first-aid management, basic training needs to be acquired from experts. Otherwise, wrongly administered first aid can inadvertently lead to harmful consequences. Thus, education in first aid should be universal: Everyone can learn first aid and everyone should.^[1]

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A substantial proportion of the world's population, i.e., 35–45% constitutes young children.^[2] Childhood injuries are the leading cause of death for children in the preschool and school-going age in the world. As the children come under the vulnerable group, they are more prone to get injuries and accidents. Childhood practices and teaching have a direct impact on children's physical and mental development.^[3] Students have the potential for changing the health scenario of the society if properly groomed and educated.^[4] Apart from providing health benefits, first-aid knowledge also increases the social responsibility of society and strengthens values. Studies have reported that the response of students is usually enthusiastic for any training program organized for them. Imparting school children with appropriate knowledge on prevention, control, and management of common illness and injuries will play a long way in reducing the morbidity and mortality of the population of all ages and sex.^[5]

First-aid training in early childhood can improve an individual's knowledge, skills, and willingness to perform first aid in an emergency situation. Early training also provides the basis for future training opportunities. Properly administered first aid can mean the difference between life and death, rapid versus prolonged recovery, and temporary versus permanent disability (American safety and health institute).^[1] First-aid knowledge is the basic need of the hour. It should be compulsory in all schools. However, schools in India hardly include first-aid training in their educational curriculum. With this background, the present study was undertaken in a rural school of Odisha where first-aid training was imparted to the students studying in Class VI, VII, and VIII after a preliminary assessment of their existing knowledge. Further, assessment of their acquired knowledge and attitude was done to determine the effectiveness of the intervention.^[6] Thus, the present study was embarked on to assess the knowledge of school students regarding first-aid management and to evaluate the effectiveness of education on selected first-aid measures among school students.

MATERIALS AND METHODS

Study Design

This was a cross-sectional interventional study.

Study Place

This study was conducted at Upper Primary Government High School, Goudapali, Burla, Sambalpur, Odisha, India.

Period of Study

The study was conducted over a period of 3 months between January 2019 to March 2019. A date was selected to test

the knowledge of the students regarding first-aid practices. Then, on a later date, about 10 days from the previous date, the same students were evaluated to assess their post-training knowledge.

Study Population

Students of standard 6th, 7th, and 8th their total number being 95 were included in the study.

Inclusion Criteria

All students of standard 6th, 7th, and 8th were included in the study.

Exclusion Criteria

Students who were absent on the 1st day of the intervention were excluded from the study.

Sample Size

Sample size comprised 95 school children who were present on the 1st day of the intervention. A self-administered, self-structured questionnaire was prepared in English, then was translated into the local language (Odia) keeping semantic equivalence. To make the study interesting for the students, pictorial presentation of the question was used to educate the children regarding first aid, which was taken from an authenticated source.

Study Procedure

The pilot study was conducted in upper primary High School at Goudapali, Burla, Sambalpur, Odisha. Formal permission was obtained from the Head Mistress of the School. There was only one section in each class. There were 30 students in 6th standard, 37 students in 7th standard, and 28 students in 8th standard present on that day. The self-introduction about the investigator and the information regarding the nature of the study was explained. Students were gathered in one place, and pre-test questionnaire was distributed to them, which included pictorial representation regarding basic first aid measures on the 1st day. After the pre-test, knowledge, and demonstration of selected first aid measures were provided by the investigator using laptop and IEC materials. First-aid boxes were also shown to the subjects. After 10 days, the selected students were distributed the same questionnaire to test their post-interventional knowledge.

Data Collection

A scoring system was developed, by assigning for every correct response value of "1" and for every wrong response a value of "0" on the 14 multiple-choice questions. The total score was "14" for both pre-test and for post-test.

Data Management

The pre-education and post-education scores were evaluated using the paired *t*-test. The test was performed individually for each question to prove a statistically significant change in knowledge following health education as compared to knowledge before education.

Ethical Approval

The proposal for the study was approved by the Institutional Ethics Committee. Permission was obtained from institute VIMSAR, Burla to carry out this study in a school under the Goudapali block in Burla. Informed verbal consent was obtained from the Principal and class teachers of 6, 7, and 8 grade of the school.

RESULTS

Table 1 depicts that after conducting the above interventional study among 95 students of Goudapali School, Burla, we found out that maximum student 35 (36.84%) students were of 11 years of age. The number of male students were 57 and female students were 38 in number. Class 7th had the maximum and class 8th had the minimum strength. According to BG Prasad's socio-economic classification, it was also found that maximum students belonged to 54 (56.84%) to lower socioeconomic status. Most of the students, 63 (66.31%) were found to be living in a joint family.

Table 2 represents that the percentage of correct responses obtained for each of the questions to elicit the knowledge of the students regarding selected first-aid measures. A remarkable improvement was seen for every question after imparting health education. Minimum number of correct response, i.e., 9.47% was obtained for the question on the management of choking in the pre-test. However, after the educational intervention, the percentage of correct responses for the same rose to 51.58%; for minor cuts/wounds in both pre-test 70.52% and post-test 92.63%, respectively, whereas in epistaxis, only 14.74% of students showed pre-test correct response, which significantly increased to 80% after the intervention.

Table 3, paired *t*-test showed a statistically significant difference in the pre- and post-education scores except in pair 1 (identification of the first box) and pair 13 (first aid for minor burn) where it was not significant due to masking of preliminary knowledge about them.

DISCUSSION

The present study assessed the effectiveness of first-aid training in 95 school children of class 6, 7, and 8 of upper primary school Goudpali, Burla. The study went on for 3 months from January to March 2019, which comprised

Table 1: Demographic characters of students (*n*=95)

Variables	Frequency (%)
Age (year)	
11	35 (36.84)
12	28 (29.47)
13	11 (11.57)
14	21 (22.10)
Gender	
Male	57 (60.00)
Female	38 (40.00)
Education	
Class 6	30 (31.5)
Class 7	37 (38.90)
Class 8	28 (29.47)
Socioeconomic status	
Upper class	Nil
Upper middle	Nil
Middle class	2 (2.1)
Lower middle	39 (41.05)
Lower class	54 (56.84)
Type of family	
Joint family	63 (66.31)
Nuclear family	32 (33.68)

Table 2: Comparison of correct responses related to first-aid before and after the educational intervention (*n*=95)

Responses	Before intervention	After intervention
Identification of first-aid box	89.47	97.89
Contents of first-aid box	80	93.6
Minor cut or wound	70.52	92.63
Sprain	54.73	87.37
Bruise	53.68	87.37
Piercing of nail	56.84	81.05
Epistaxis	14.74	80
Choking	9.47	51.58
Electric shock	61.05	90.53
Head injury	14.74	58.95
Foreign body in eye	65.26	89.47
Dog bite	25.26	67.37
Minor burn	61.05	74.74
Snakebite	18.94	71.58

pre-test, education, post-test, data compilation, data analysis, data interpretation, and final submission of the project. The questionnaire in the pre- and the post-test was in the local language (given in the annexure). A score of +1 was assigned for a correct response and 0 for a wrong response. Both the tests contained the same questions so that the scores could be compared. The educational training regarding the first-aid

Table 3: Result of paired *t*-test to compare pre- and post-education scores (*n*=95)

Responses		Mean±Standard deviation	Standard error mean	95% confidence interval of the difference		<i>t</i>	df	Sig.(2-tailed)
				Upper	Lower			
Pair 1	PRE1-POST1	-0.084±0.315	0.032	-0.148	-0.020	-2.606	94	0.011
Pair 2	PRE2-POST2	-0.137±0.375	0.038	-0.213	-0.060	-3.556	94	<0.05
Pair 3	PRE3-POST3	-0.221±0.509	0.052	-0.325	-0.117	-4.233	94	<0.05
Pair 4	PRE4-POST4	-0.326±0.554	0.057	-0.439	-0.213	-5.738	94	<0.05
Pair 5	PRE5-POST5	-0.337±0.518	0.053	-0.442	-0.231	-6.338	94	<0.05
Pair 6	PRE6-POST6	-0.242±0.596	0.061	-0.364	-0.121	-3.957	94	<0.05
Pair 7	PRE7-POST7	-0.653±0.521	0.053	-0.759	-0.546	-12.204	94	<0.05
Pair 8	PRE8-POST8	-0.421±0.496	0.051	-0.522	-0.320	-8.268	94	<0.05
Pair 9	PRE9-POST9	-0.309±0.509	0.052	-0.413	-0.204	-5.882	93	<0.05
Pair 10	PRE10-POST10	-0.442±0.578	0.059	-0.560	-0.324	-7.452	94	<0.05
Pair 11	PRE11-POST11	-0.242±0.477	0.049	-0.339	-0.145	-4.942	94	<0.05
Pair 12	PRE 12-POST12	-0.421±0.594	0.061	-0.542	-0.300	-6.910	94	<0.05
Pair 13	PRE13-POST13	-0.137±0.576	0.059	-0.254	-0.019	-2.314	94	0.023
Pair 14	PRE14-POST14	-0.526±0.562	0.058	-0.641	-0.412	-9.129	94	<0.05
Pair 15	PRETOT-POSTTOT	-4.568±2.426	0.249	-5.063	-4.074	-18.353	94	<0.05

measures was provided to the students through a demonstration of each step and audio visual aids. The objective of providing knowledge was accomplished with maximum students retaining knowledge shown as per the percentage increase in post-test scores. The maximum increase was seen in epistaxis (65.26%), head injury (44.21%), choking (42.11%), snakebite (52.94%), and dog bite (42.11%) which signifies less number of students had knowledge about these first-aid measures, while the percentage increase for the first-aid measures such as minor cut (22.11%), sprain (32.64%), bruise (33.69%), nail injury (24.21%), electric shock (29.48%), and foreign body in eye (24.21%) shows a good number of students had knowledge about these measures.

The students were mostly of 11 years (36.84%) and male (60%) in our study conducted among 6th, 7th, and 8th standards. In a similar study conducted in a rural area of West Bengal among Class 9 and 10, the subjects were mostly 14 years of age (58.09%) and female (56.2%). Nearly 100% of the students had never been exposed to any sort of first-aid training before this study was undertaken. This is mainly because no such programs or teachings were ever included in the curriculum of the school.^[4] Most of the students (89.47%) knew about the term first aid but mostly believed that first aid could only be provided by doctors and not by common people and children like them. In a similar study conducted in Bengaluru in the year 2006, showed that merely 13.3% had adequate knowledge about the meaning of first aid.^[7] In a study by Zielińska *et al.*^[8] in 181 students of two secondary schools of Poland, the knowledge regarding the first-aid management of epistaxis was poor with only 12% giving correct responses, and the worst percentage was obtained regarding the management of choking (8.6%). Similarly, in our study, the children had less knowledge

regarding management of epistaxis (14.74%) and choking (9.47%).

The knowledge regarding the management of dog bites and snakebites was also found to be poor like in a study conducted in a government school of Chandigarh with 120 students showed that only one-third students knew about the correct first aid for dog and snakebites.^[9] An assessment after 10 days with the same questionnaire revealed that the score of the subjects improved dramatically in regard to all the questions in terms of the percentage of correct responses. From 80% knowing about the contents present in first-aid box, 93.6% of the subjects knew it correctly after education. There was an improvement in the knowledge following education for management of sprain by 33%, bruise by 34%, electric shock by 29%, and minor burn by 13%. However, in contrast, in a study conducted by Ghosh *et al.*^[10] in a group of school children of Jamshedpur reported poor post-training knowledge acquired by students regarding the management of burns. In the present study, improvement in knowledge scores following education was found to be statistically significant in this study.

In our intervention, we demonstrated selected first-aid skill to the students in a very interactive way, using various audio visual methods so that the students can quickly retain it in their memories. Thereby, the message of first aid is being disseminated to their younger siblings and family members too. Along with the study about first aid, the children were also given the knowledge about some basic measures such as steps of hand-washing, importance of personal hygiene, and food hygiene. The limitation of the study is that the study was school based study; the major drawback was the time constraint. While keeping in track with the class schedule

and recess hours, the time allotted for the training had to be completed within 2 h.

CONCLUSION

The results showed a significant difference in all measures except identification of the first-aid box and management of minor burn; most of the students had preliminary knowledge regarding it. The study recommends, to importantly introduce first-aid training in the teaching curriculum of upper primary classes because this would not only enhance their skills toward emergency management of injuries but is also a crucial step forward to disseminate first-aid message in the community.

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