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Original Research Article

Basic first aid and life support: are the schools prepared? a descriptive study

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ABSTRACT

Background: First aid is the immediate assistance provided to a sick or injured. Children spend most of their daytime in schools and are at greater risk of accidents and injuries. National disaster management guidelines 2016 recommends that school teachers and students be trained in first aid and basic life support (BLS). This study was undertaken in schools to assess the awareness of high school students and teachers about first aid and BLS, accompanied by demonstration and hands-on training.
Methods: This was a descriptive cross sectional study. All students of class 11th and 12th and teachers of three cantonment schools in New Delhi were included. Knowledge was assessed using a questionnaire comprising 20 multiple choice questions. 377 questionnaires were analyzed.
Results: Mean knowledge score=10.96, SD=2.87. 67.6% participants had a score <12 (60%), 29 (7.7%) had good knowledge, 214 (56.8%) average (11-15) and 107 (35.5%) poor (≤10).
Conclusions: There was low level of awareness about correct first aid and BLS. First aid training should be incorporated as a part of school curriculum. Repeated reinforcement of knowledge and skills is essential.

Keywords: Basic life support, First aid, Schools, Students, Teachers

INTRODUCTION

When a disaster strikes, no responder can respond as quickly as a neighbour or a family member. However only when that person knows first aid, crisis can be averted and lives can be saved.

By definition, first aid is the immediate assistance provided to a sick or injured person until professional help arrives. First aid interventions seek to preserve life, alleviate suffering, prevent further illness or injury and promote recovery.[1] Properly administered first aid can be the difference between life and death, rapid versus prolonged recovery and temporary versus permanent disability.[2] Studies conducted by British red cross in 2016 revealed that 45-59% of deaths can be prevented by first aid alone. In certain self-limiting medical conditions, it may obviate the need to visit a hospital or clinic, lessening demand on medical facilities.[3] According to national first aid science advisory board, first aid should be learned by every person.[4]

Children spend most of their daytime in schools and are at greater risk of accidents and injuries. Overall, majority of the injuries among children are directly related to outdoor physical activities, of which 20% occurs during school hours.[4]

National disaster management guidelines, school safety policy of India 2016 recommend that school teachers and students be trained in first aid and BLS.[5] First aid training has been a mandatory part of the school curriculum in countries such as Norway since the early 1960s. Since then, there has been widespread call for other countries to adopt similar policies.[6] However in India it is still not a part of formal education.

The advantage of teaching first aid and BLS to school children lies in building a reserve of trained persons in the society. It is advantageous to catch them young because skills learned at a young age remain with an individual for a long time. This study was undertaken in schools of New Delhi cantonment to assess the awareness of high school students and teachers about first aid in common medical emergencies and BLS, accompanied by demonstration and hands-on training on BLS and first aid skills.

Aim and objectives

The aim of this study was to assess the awareness of high school students and teachers about basic first aid and BLS, to impart knowledge and skills about first aid and BLS to school students and teachers through lecture, demonstration and hands-on training and to create trainers and equip them with necessary knowledge and training material for further reinforcement.

METHODS

The study was conducted to assess the existing knowledge of first aid and BLS in three schools in New Delhi cantonment followed by lecture cum demonstration on first aid and BLS designed specifically for schools.

Type of study

The type of study done was descriptive cross sectional.

Duration of study

The study was conducted from 15 March 2019 to 15 April 2019.

Inclusion criteria

The targeted population included for this study were the school students of class 11th and 12th and the school teachers.

Sample size

All students of class 11th and 12th of three cantonment schools in New Delhi and all school teachers were included in the study. Total 393 students and teachers participated in the study. 377 questionnaires were analyzed as 16 forms were incomplete.

Questionnaire

Knowledge was assessed using a questionnaire comprising 20 multiple choice questions covering basic knowledge about standard first aid procedures in common conditions and BLS. One point was awarded for each correct response and zero for each incorrect response. Maximum and minimum achievable scores were 20 and 0, respectively. 5 questions were focused on BLS. Scores were divided in good (75% or more), average (75%-50%) and poor (<50%). Questionnaire was tested for standardization and validation on 30 children. Since there were no major changes, these 30 children were included in the total sample.

Analysis

Descriptive statistical analysis was done using microsoft excel 2013 and SPSS version 20.

Ethical approval

Ethical approval was taken from O/o Director General Medical Services (Air).

RESULTS

It was an anonymous study and participants were not asked to reveal their personal details like age, sex, class and socioeconomic status.

Mean knowledge score was 10.96 with a standard deviation of 2.87. Highest knowledge score was 16/20 (80%) scored by 4 participants and lowest was 1/20 (5%) scored by 4 participants. Most common score was 12, scored by 62 (16.4%) participants. More than two thirds, 67.6% participants had a score ≤12 (60%) (Table 1).

Table 1: Knowledge score ranges.

Knowledge score	Frequency (%)
Good (≥15)	29 (7.7)
Average (11-15)	214 (56.8)
Poor (≤10)	107 (35.5)
Total	377

Knowledge about specific conditions

Knowledge about BLS (Table 2). None of the participants were able to answer all 5 questions about BLS correctly and only 3 (0.8%) of them answered 4 questions correctly. While 315 (83.55%) participants knew that carotid pulse is checked at the side of neck, only 18 (4.77%) knew the correct rate of chest compressions is 100-120/min.

Knowledge about first aid in common medical conditions

Table 3 shows that almost all, 362 (96.02%) participants, knew that first aid means onsite care and it can be given by anyone. Knowledge about management of bleeding wound, electric shock and fever was also very common. 91.78%, 90.19% and 88.86% participants knew about First aid in bleeding wound, electric shock and fever, respectively. Apart from BLS, knowledge was poor about management of epistaxis and snake bite. While only 41 (10.89%) participants knew about management of epistaxis and 69 (18.30%) participants knew about first aid of snake bite.

Table 2: Responses to questions about BLS (n=377).

Question	Frequency of Correct Responses (%)
Sequence of BLS	81 (21.49)
Site for checking carotid pulse	315 (83.55)
Position of hand for chest compression	110 (39.18)
Ratio of chest compression to rescue breaths	50 (13.26)
Rate of chest compression	18 (4.77)

Table 3: Responses to questions about various medical conditions (n=377).

S. no.	Medical Condition	No of participants who knew first aid (%)
1	First aid definition	362 (96.02)
2	High grade fever	335 (88.86)
3	Bleeding wound	346 (91.78)
4	Suspected fracture	318 (84.35)
5	Epistaxis	41 (10.88)
6	Sprain	171 (45.36)
7	Seizure	169 (44.82)
8	Syncope	309 (81.96)
9	Burn	220 (58.36)
10	Electric shock	340 (90.19)
11	Foreign body/ liquid in eye	245 (64.99)
12	Choking	116 (30.77)
13	Accidental poisoning	244 (64.72)
14	Snake bite	69 (18.30)
15	Dog bite	261(69.23)

DISCUSSION

This study was done in three schools in New Delhi cantonment among 377 participants. Study done by Mobarak et al about first aid knowledge and attitude of secondary school students in Saudi Arabia in 2015 revealed that first aid preparedness was inadequate.[13] A study conducted in Sri Lanka in 2015 found similar results among senior school prefects in schools.[14] Only 17% had complete knowledge of first aid and partial knowledge was found in 33.3% of students in a study done in a public school in Dehradun by Semwal et al.[4] The results were comparable in this study, where only 7.7% participants had good knowledge (score >75%).

While 96.02% students were aware that first aid is providing immediate onsite care, awareness about BLS was very poor in our study. Aims of first aid were known to 36.66% students in study done by Rachna Kapoor et al.[2] However, Deepak and Nayak in 2012 report that 62% had good knowledge and 38% had average knowledge of BLS among self-help groups.[10]

The maximum and minimum percentage of correct response was obtained for management of fracture (63.33%) and for management of wound (7.66%) respectively in a comparable study done by Rachna Kapoor et al in school students of Ahmedabad.[2] In our study, knowledge about management of fracture and wound was 84.35% and 91.78% respectively. Study done by Priyangika et al found different results for fracture (50%), however results were comparable for burns. For burns, 52.56% participants had knowledge in our study and 50% in the study done in Sri Lanka.[14]

In contrast to study findings of Semwal et al where only 3.7% students had knowledge of first aid in epileptic seizures, 42% of participants responded correctly in study conducted by Priyangika et al 44.82% participants knew about first aid in seizures in our study.

While Priyangika et al reported that none of the participants had correct knowledge about choking, in study done by Semwal et al 5.7% had complete knowledge and 31.3% had partial knowledge. In our study, 30.77% participants knew first aid of choking in a child. Thein et al in 2005 found primary caregivers in Singapore had good knowledge about first aid in choking.[15]

In a study done in general population in Myanmar by Mahmood et al in 2018, 39% knew about the correct first aid in snake bite case.[16] In our study, 18.30% participants knew the correct first aid for snake bite. Agravval et al found in study done in rural health care center in India that 42.4% relied on household treatments like putting chilli on wound in dog bite.[17] 69.23% participants in our study were aware that dog bite should be washed with soap and water and nothing should be applied. The difference may be due to the fact that our study was done in urban setup.

Jose Antonio et al reported that a small proportion showed satisfactory knowledge about BLS.[18] In our study, no participant could answer all 5 questions about BLS, and only 10.9% participants answered 3 out of 5

questions correctly. Amoura Soliman Behairy conducted a study on BLS in egyptian schools in 2016 and found that no participant had any baseline knowledge about basic life support.[19]

Limitations of the study

As the above study was conducted in a limited time period (1.5 hour each session), it was not possible to give hands-on training to every participant.

CONCLUSION

It was found in the study that not only there was low level of awareness about correct first aid and BLS, but incorrect information was also prevalent. There is a definite need for strengthening knowledge among students by regular training programs on first-aid in schools. First aid training should be incorporated as a part of school curriculum. Repeated reinforcement of knowledge and skills is essential to bring a long term positive change.

Recommendations

On the basis of the observations made in the study, a few short term and long term recommendations are being made. The short term recommendation was to enable efficient first aid management of medical emergencies occurring in schools and all school teachers and students must be trained in first aid and BLS to be able to handle medical emergencies occurring in schools. The long term recommendation was to make schools self-reliant in sustaining a basic first aid and BLS training. First Aid and BLS must be included in the school curriculum, with a defined number of hours dedicated to practical skills which require repeated reinforcement. Certain voluntary teachers can be made trainers who will train subsequent batches of voluntary students. Initial training of these teachers can be taken up by local medical authorities. Certain training aids, equipment and material to be developed so that training of first aid is interesting and educative.

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