Original Research Article

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A training program on first aid and basic life support skills among teachers of a school in South Delhi: a feasibility assessment

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ABSTRACT

Background: There is a need for training teachers in first aid skills as they are the primary contact for most commonly encountered emergency situations in school scenario. The objective of the study was to assess the feasibility of a training program on first aid and basic life support skills among teachers of a school in south Delhi, India.

Methods: We identified topics and prepared a training module (6-hour duration on a single day) for teachers and conducted the training in the Centre for Community Medicine department of All India Institute of Medical Sciences, New Delhi.

Results: 40 teachers were involved in this study. The mean (SD) score before and after the training was 5.55 (1.88) and 12.4 (1.66) respectively. A significant improvement in the scores pertaining to knowledge on first aid skill was observed after the training (p<0.01).

Conclusions: We conclude that training program is feasible and acceptable by teachers and improves their immediate knowledge and skills.

Keywords: First-aid, Training, Teachers, Basic life support, Resuscitation

INTRODUCTION

"Asthmatic girl dies, school blamed."

The news came into limelight when a student succumbed to acute asthmatic attack in a reputed school in Delhi.¹ Many such events go unreported and unnoticed. Ensuring the safety of the children in school and elsewhere is one of the major priorities of parents and professionals included. This needs first aid training of teachers as first contact person in schools.

First aid is defined as 'the immediate care given to a person who has experienced an illness/injury, in order to

preserve life, prevent worsening (further harm) and to promote recovery, while awaiting medical help'. As far as accidental injuries are concerned, childhood injuries have emerged as global health problem with high burden of premature morbidity and mortality of the children. Large numbers of children and youth around the world succumb to death as a result of unintentional injuries (UIs) and it contributes to almost 90% of 950,000 annual deaths, making it the leading cause of death amongst persons aged 10–19 years. Training and skill development in first aid might help to reduce morbidity and mortality due to injury and illness provided it is universally available. Most of the injuries in schools are trivial and can be managed by persons with training in

first aid skills. Some injuries that may require specialized management can be attended by the personnel with proper training to prevent worsening until medical help arrives. The knowledge of first aid, when properly applied, can be considered as an attempt to prevent permanent injury and long-term disability, and promote rapid recovery.⁶

Most schools in India do not have trained medical personnel to manage medical emergencies or minor injuries. Due to resource constraints, training of school teachers in basic first aid skills may be a convenient, effective and also prudent decision for immediate management and timely referral of childhood injuries. This study was done to identify training needs and acceptability of training on first aid and basic life support among teachers of a school in South Delhi.

METHODS

The training was conducted among teachers of a school in South Delhi, by Centre for Community Medicine (CCM) department of All India Institute of Medical Sciences (AIIMS), New Delhi in collaboration with National Service Scheme (NSS) unit, AIIMS, New Delhi, an initiative by the Ministry of Youth Affairs & Sports, Government of India. The NSS unit of AIIMS organizes health education activities like health camps, role plays in slums, blood donation camps in colleges & community, development of health education materials and training programs on orientation to various health issues. Data was collected in August 2016.

Preparation of training module and pre-testing

Topics included in the training program

Brainstorming was done to identify the important topics by residents and faculty members of CCM (including one faculty member of health education). Most commonly encountered medical/emergency situations in school were considered for inclusion into the training module. First aid management for common injuries, burns, acute abdominal pain and diarrhea were dealt with in brief. It not only included the intervention required in those situations but also the brief knowledge of what should be refrained from doing which might aggravate the problem. Beneficial effects of proper hand-washing were discussed with hands-on training (involving volunteers) amongst the teachers. Recognition of insect/animal bites, signs and symptoms, and first aid management with appropriate referral was also explained through power point slides including pictures were displayed. Causes, signs and symptoms of commonly occurring fevers, allergies, epistaxis (nose bleed) and asthma and their appropriate management were dealt in detail. Do's and don'ts during an earthquake and the drill that should be followed was also shown through audio-visual display. The various situations which could require Basic Life Support (BLS) and Hemlich's Maneuver were explained, which was followed by hands on training by an anesthesiologist from the institute. Hands-on training was interspersed with the remaining module to make the training program more interesting for the audience.

Making of the presentation

After the selection of topics, the training content (PowerPoint presentation) was prepared by the residents using audio-visual aids. The above mentioned topics were included by the team with focus on causes, management and the consequences of delay while management.

Questionnaire preparation (pre and post-test)

A semi-structured questionnaire was used to record socio-demographic details like age, gender, educational qualifications and prior first aid training. The questionnaire also included few scenario based questions related to the knowledge and practice regarding first aid relevant to schools. These 15 multiple choice questions (4 options were provided) were designed with inputs from public health experts and each had one best possible answer to be selected. Each component was scored as 0 and 1 for incorrect and correct answer respectively. The total scores thus ranged from 0-15. Questionnaire was administered as before (pre-test) and immediately after the training program (post-test).

Pre-testing

The questionnaire was pretested among few teachers before the study and appropriately modified for clarity and better understanding. The teachers involved in the pretest were not included in the main study. The teachers during pretesting were also requested to enquire and suggest for any other specific scenarios which they have faced and would want to discuss. Topics requested included management of heat stroke, dehydration, hypoglycemia, choking and seizure. These topics and their management were then included in the training module after team meeting.

Mock presentations

Resident doctors had received training and practice under supervision of faculty members from CCM before the actual training program. Mock presentations were done to standardize the content and improve the quality of the program. And changes suggested during trial were made appropriately.

Actual conduct of the training program

The Principal of the school from South Delhi was approached and the purpose of this training program was explained. The teachers reported at CCM on a particular pre-decided date and participated in the program from 10 AM to 4 PM. A brief introduction sensitized the teachers about the importance and need for first aid training. The

questionnaire was then administered to the teachers to assess their knowledge and current practices regarding management of the common conditions. Following this, various topics relating to the common scenarios requiring first aid management were discussed. The training program was taken by the faculty and residents of CCM and was collaborated with faculty of Anesthesiology. Hand washing and method of tying bandage/sling skills were demonstrated with the help of volunteers. Audiovisual aids (for e.g. disaster management during an earthquake) were also used to show relevant pictures and videos related to the topics. At the end of the each presentation, there was an interactive session in which teachers discussed the doubts or confusion regarding any of the preceding topics. The interactive session appreciated feedback from them and helped in instilling confidence and ensuring learning throughout the session. The teachers were encouraged to clear any doubts if any which was followed by a brief discussion with the speaker after each sub-topic. At the end of the training, the post-test questionnaire and a feedback form were administered.

Anonymous questionnaire was administered to the study participants and the records were kept confidential. Oral verbal consent was taken before the study started.

Feedback

At the end of the training module, feedback was taken from the teachers. Feedback form was administered to the teachers which involved quantitative assessment of two items namely 'relevance of content' and 'adequacy of time for each session' by using Likert scale with score ranging from 1 to 5 (1=below average to 5=excellent). Open ended question for suggestions for improving the training program further was also provided at the end of the feedback form.

Statistical analysis

Socio-demographic characteristics were described in frequencies (percentages) for categorical variables and continuous variables were expressed by Mean (SD). Nonnormal data (teaching experience) was expressed in Median (IQR).

The pre-test and post-test questionnaire was analyzed using individual and group analyses. Each question was individually assessed before and after the session and compared with the help of t test (individual analysis). The mean total scores before and after session was also compared by t test (group analysis). P value of less than 0.05 with 95% confidence interval was considered significant. Mean (SD) scores were presented for the items included in feedback form. Qualitative analysis was done for the suggestions provided as it was an openended question. Results were entered, analyzed and manuscript was prepared in August-September 2016.

RESULTS

Forty teachers participated in the training program at CCM, AIIMS, New Delhi.

Mean (SD) age of the school teachers was 40.6 (12.6) years. The mean number of years of schooling (SD) was 17.8 years (1.5). The median (IQR) number of years of teaching experience was 10 (4, 28) years. 10 (25%) of them had the experience of dealing with a situation requiring first aid management among school children, but only 2 (5%) of the study participants had received training in first aid skills in the past.

Table 1: Effect of training program on first aid skills among school teachers (n=40).

Component	Pre-training scores	Post-training scores	■ P value
	N (%)	N (%)	1 value
1. Management of wound	19 (47.5)	40 (100.0)	< 0.01
2. Management of bleeding (wound)	16 (40.0)	35 (87.5)	< 0.01
3. Management of burn	29 (72.5)	40 (100.0)	< 0.01
4. ORS preparation	22 (55.0)	39 (97.5)	< 0.01
5. Management of fever	11(27.5)	21 (52.5)	=0.04
6. Basic life support	6 (15.0)	37 (92.5)	< 0.01
7. Management of syncope	3 (7.5)	33 (82.5)	< 0.01
8. Management of epistaxis	5 (12.5)	38 (95.0)	< 0.01
9. Management of seizure	12 (30.0)	32 (80.0)	< 0.01
10. Management during disaster (Earthquake)	20 (50.0)	25 (62.5)	0.16
11. Management following injury	17 (42.5)	21 (52.5)	0.71
12. Management of chocking	4 (10.0)	31 (77.5)	< 0.01
13. Management of hypoglycemia	18 (45.0)	34 (85.0)	< 0.01
14. Management of dog bite	10 (25.0)	36 (90.0)	< 0.01
15. Management of asthma	30 (75.0)	35 (87.5)	0.26

Table 2: Quantitative assessment of feedback form with respect to 'relevance of topic' and 'adequacy of time for topic'.

Session	Relevance of session	Adequacy of time for session
Accidents, injuries, bleeding, cuts, burns, acid burns	4.7 (0.6)	4.6 (0.8)
Food poisoning, acute abdominal pain, diarrhoea	4.7 (0.7)	4.6 (0.7)
Fever, heat stroke, dengue	4.7 (0.6)	4.7 (0.6)
Epistaxis, vasovagal syncope, fit disorders, hypoglycemia	4.7 (0.7)	4.6 (0.7)
Cardio-pulmonary resuscitation, Hemlich's manoeuvre, drowning	4.7 (0.6)	4.6 (0.7)
Natural disaster (earthquake)	4.6 (0.7)	4.6 (0.7)
Insect bite, animal bite, snake bite	4.6 (0.7)	4.6 (0.5)
Allergy, asthma	4.7 (0.6)	4.6 (0.6)
Diabetes mellitus	4.6 (1.0)	4.1 (1.1)
Total	4.6 (0.7)	4.5 (0.7)

Mean (SD) score for feedback based on Likert scale ranging from 1-5 (1=below average, 2=average, 3=good, 4=very good, 5=excellent).

The mean (SD) score before and after the training was 5.55 (1.88) and 12.4 (1.66) respectively. A significant improvement in the scores pertaining to knowledge on first aid skill was observed after the training (p<0.01). Significant improvement in score was observed for twelve out of fifteen individual components from the questionnaire (Table 1).

Significant improvement was also seen in the components which were requested (needs-based topics) by the teachers during pre-testing i.e. hypoglycemia, choking, syncope/ORS management, dehydration.

Analysis of feedback: Most teachers found the topics relevant and that the time allotted for that respective session was adequate as shown (Table 2).

Mean (SD) scores were 4.6 (0.7) and 4.5 (0.7) for 'relevance' and 'time adequacy'. Most teachers found the training program useful and had suggested 'longer training duration', 'frequent sessions', 'training for students'. There were three domains identified when teachers were asked about usefulness of the program. One of the domains was regarding clearing of myths by provision of the training. Many myths such as holding keys/gagging to alleviate seizures, applying turmeric on burn injuries, etc. may not be the correct treatment and may delay the treatment or may cause superadded infections.

The training provided them with knowledge regarding many commonly encountered diseases/situations and its management and the training made them believe that they would be more confident in handling these situations.

DISCUSSION

School teachers are the most immediate care giver for the students in case of any emergency. Attempt to increase knowledge and improve skills required to manage common conditions could result in prevention of injuries

and further complications among school-going children. The current study attempted to capture the improvement in knowledge and practices regarding management of the common conditions encountered amongst school children in the golden hour period.

We noted a significant improvement in the teachers' knowledge, immediately after the training session in the present study. The identified areas with better knowledge after training were injury (pre; post score=19; 40: p<0.01), burn management (pre; post score=29; 40: p<0.01) and ORS preparation (pre; post score= 22; 39: p<0.01), where more than 95% of the study participants answered correctly post training. The areas with lower scores identified were management of fever cases (pre; post score= 11; 21: p=0.04), earthquake (pre; post score= 20; 25: p=0.16), need for tetanus toxoid for dog bite cases (pre; post score= 17; 21: p<0.71) etc. The possible reasons for questions with lower scores could have been due to the lack of time for detailed discussion or due to the need for better understanding of the cases which may be improved with refresher training and need to be studied.

A study from Mangalore (Karnataka) yielded similar findings where a structured teaching program on knowledge and practice of primary school teachers about first aid management was found to be effective. Majority of the teachers included in our study had not received any prior training in first aid. However a considerable number of them have had an experience of a situation requiring first aid measures. In India most of the schools did not have any first aid facilities. Recently after Central Board of Secondary Education (CBSE) had stated that, all affiliated schools should provide first aid skill training to their students, besides ensuring provision of basic emergency cares services in the school premises.⁸ Many schools have a first aid kit, but may not be well equipped for handling the common medical emergencies. In the study done in Mangalore, most schools had a first-aid box but only around 6% were well equipped.⁷ Teachers who

receive training in first aid skills may further provide training to the school children. 9-11 To begin with training of school teachers may be cost-effective step as teachers are usually the first contact point in any such type of emergencies. Teachers are easily-accepted source of information for children, who would be more receptive to the knowledge imparted by their mentors. However in India, the effectiveness of first aid training is yet to be acknowledged. Further studies with larger samples are required to study the long term effectiveness and also cost effectiveness of similar training program.

School should acknowledge the necessity of first aid training programs and take the initiative for the same, for the betterment of the students' health and also the feeling of security it imbibes in the parents regarding their wards. Each school may have varied requirements of the first aid which should be primarily determined according to the student strength and common causes of injury suspected according to the school environment and its premises. The school should have a separate room allotted to the first aid facility. The number of the first aid kits should also be assessed accordingly and a person should be appointed in-charge of the kits. This will ease the procurement of the kit at the time of emergency. There still remains an incomplete task if adequate number of staff is not given a proper training in the first aid skills. Though, a one-time training sensitizes the staff about the management process, regular refresher modules to refresh and to cover the gaps if any and also to update with the current strategies could be more beneficial in all aspects especially to make this program sustainable in the long run.

In addition to the teachers, students should be given basic first aid training by trained teachers or other staff. This will ensure that even students can offer help to others in times of emergency. There can be a situation where teacher is not available in the vicinity. Students with the knowledge of the first aid can become custodians for each other and manage the critical situation for timebeing. Thus we also attempted to involve the roles of different stakeholders to achieve successful first aid skill training.

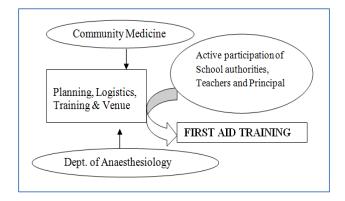


Figure 1: Roles and responsibilities of various stakeholders.

The major question which remains unanswered is the physical facility for imparting the training by health professionals. If doctors from medical colleges take part in training and refresher-training of school teachers, it would enable school teachers to respond with confidence and urgency to situations where first aid could prevent significant amount of morbidity and mortality among school going children. Department of Community collaboration with department of medicine in anesthesiology/medicine or others, can take this as a challenge and involve themselves in training teachers who can in-turn train students (Figure 1). Prior training and hands-on experience may boost confidence among school teachers in engaging in first aid management and may improve the outcome of the emergency situation.

There were certain limitations in the study. The limited participants from one institution make the study results less generalizable. However, as this was a feasibility study, the generalizability cannot be assessed. We may involve more number of teachers by randomly selecting them from different schools to understand the needs of the teachers. This training program was a single time activity. Regular training may be necessary to retain the acquired knowledge and can also be further used to train the school children.

Strengths of the study were that the school teachers attended the training without any economic incentive without any difficulty. This study demonstrated how a medical college can play an important role in training of school teachers or other non-medical personnel to develop skills which can be effective in managing minor commonly occurring medical emergencies in the absence of a trained medical person. This could prevent from serious damages due to delay of treatment and also emerge as handy during emergencies where shortage of skilled manpower is always a limiting factor. The study also elicits that training could be delivered with no added resources by medical colleges.

CONCLUSION

We conclude that the training program for teachers was feasible, well accepted and improved the immediate knowledge of first aid and basic life support skills among them. This program also made them confident and helped them to get rid of their myths related to common emergency conditions encountered in the school. This could help in providing first aid and prevent treatment initiation delay and preferably postpone complications/ death.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

REFERENCES

- Gohain M. Asthmatic girl dies, school blamed -Times of India. The Times of India. 2018. Available at: https://timesofindia.indiatimes.com/city/delhi/ Asthmatic-girl-dies-school-blamed/articleshow/ 4431933.cms. Accessed on 2 February, 2018.
- 2. British Red Cross Society. First aid manual. Revised 9th ed. United Kingdom: Dorling Kindersley Publishing; 2011.
- 3. Peden M, Oyegbite K, Ozanne-Smith J, Hyder AA, Branche C, Rahman AK, et al. World report on child injury prevention. Geneva: WHO; 2008.
- 4. Sleet DA, Ballesteros MF, Borse NN. A review of unintentional injuries in adolescents. Annu Rev Public Health. 2010;31:195–212.
- Web-based integrated 2010 and 2015 American Heart Association and American Red Cross Guidelines for First Aid. American Heart Association and American Red cross. Available at https://eccguidelines.heart.org/index.php/circulation/aha-red-cross-first-aid-guidelines/part-15-first-aid/. Accessed on 20th August 2016.
- 6. Masih S, Sharma RK, Kumar A. Knowledge and practice of primary school teachers about first aid management of selected minor injuries among children. Int J Med Public Health. 2014;4(4):458-62.
- Joseph N, Narayanan T, Bin Zakaria S, Nair AV, Belayutham L, Subramanian AM, Gopakumar KG.

- Awareness, attitudes and practices of first aid among school teachers in Mangalore, south India. J Prim Health Care. 2015;7(4):274-81.
- Saxena S. CBSE asks schools to provide first aid training to students. The Times of India City (Dehradun). Available at http://timesofindia. indiatimes.com/city/dehradun/CBSE-asks-schoolsto-provide-first-aid-training-to-students/articleshow/ 49996814.cms. Accessed on 25th November, 2016.
- 9. Toner P, Connolly M, Laverty L, McGrath P, Connolly D, McCluskey DR. Teaching basic life support to school children using medical students and teachers in a 'peer-training' model--results of the 'ABC for life' programme. Resuscitation. 2007;75(1):169-75.
- 10. Ammirati C, Gagnayre R, Amsallem C, Némitz B, Gignon M. Are schoolteachers able to teach first aid to children younger than 6 years? A comparative study. BMJ Open. 2014;4(9):e005848.
- 11. Bollig G, Wahl HA, Svendsen MV. Primary school children are able to perform basic life-saving first aid measures. Resuscitation. 2009;80(6):689-92.

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