

A Study to Assess Knowledge of Basic First Aid Practices amongst Teachers of Selected Government Schools of Bhopal

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Abstract:

Introduction: According to World Health Report, 15% of disease burden was due to injuries. Children are the most vulnerable population. Since children spend majority of time in schools, there is a high chance of injuries happening at school. Teachers will be the first person to help out students in such emergencies. Hence, they should have adequate knowledge and skills to manage such emergencies.

Aim: To assess the knowledge of teachers on first-aid and see the effect of educational intervention on the same.

Methods: An intervention study was conducted among five randomly selected government schools in catchment area of urban centre of GMC Bhopal. The teachers were given a questionnaire for pre-test followed by educational intervention by presentations and videos. After a month, post test was conducted.

Results: The study was conducted among 35 teachers in five schools. All the schools had a first-aid kit. None of the teachers had a formal training course on first-aid before. Hence 100% teachers fell in poor category of knowledge before intervention which improved to 60% in fair category and 2.8% in good category after the intervention. Knowledge on managing fainting episodes (86%), foreign body (79.5%) and nose bleeds (65%) improved significantly after the intervention. Overall, the knowledge score improved by 15.12%. There was 40% improvement in maintenance of health register by the schools.

Conclusion: By health education and training on first-aid, the teachers should be enabled to handle emergency situations at school which in turn would ensure the safety of children.

Keywords: Bhopal, First aid, School teachers.

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Introduction

“Take some time to learn first aid and CPR. It saves life and it works” - Bobby Sherman

First aid is administered to injured or ill persons in any health threatening settings in order to save life, prevent worsening of the situation or initiation of treatment process before any professional medical care is available.[1] First aid generally consists of series of simple, sometimes lifesaving, medical techniques, which an individual, either with or without formal medical background can be trained to perform with minimal equipment.[2] In the whole world, at least 875000 school students aged below 18 years die because of unintentional injuries yearly and more than 95% of these deaths occur in countries with low and middle income levels, more serious injuries have been reported at schools. According to the World Health Report, the burden of the disease due to injuries has increased from about 12% in 1990 to 15% in 2000 and expected to increase to about 20% by 2020.[3]

Previous research showed that 80-90% of school injuries stem from human errors, while 10-20% of these injuries occur due to environmental conditions.[4] First aider should be able to assess the victim, then provide the basic care accordingly and then directed to an appropriate medical care as soon as possible. At the present day, first aid might be needed in daily life at any moment.

Knowledge on first aid for preventive care is of great interest to every ones' life. Children spend most of the time in school where they are exposed to various types of minor injuries and other health related conditions. [5] Teacher is the key person who can attend the children for these problems in school through complete knowledge regarding first aid management. Studies have emphasized that administering appropriate first aid to students soon after the injury or unexpected illness can be lifesaving. Thus teachers must do what is sensible to keep students safe and healthy, so they require

education/training regarding application of proper first aid. [6] Because school health learning in government schools give limited emphasis for first aid and basic life support in the educational curriculum plan. So, we conducted our study to educate the teachers about first aid to be able to deal safely with these injuries and other ailments.

Objectives-1) To assess the level of knowledge of school teachers working in the selected government schools of Bhopal related with basic first aid practices.2) To assess the effect of educational intervention, using Audio-Visual aids & live demonstration, on their knowledge regarding first aid.

Materials and Methods

This was a school based educational interventional study done in selected government schools of Bhopal over a period of 4 months. Five schools were selected randomly from all the government schools in the catchment area of Urban Health and Training Centre, Department of Community Medicine, Gandhi Medical College, Bhopal. All the teachers of the selected school who were present on the day of visit and who gave consent were included in the study. Thus, the total number of teachers who participated in the study were 35.

The aim of the study was explained to the teachers and their consent was taken. After this a pre-designed, semi-structured, pre-tested questionnaire was administered using face to face interview which consisted of questions (in the local language Hindi) related to the most common conditions requiring basic first aid practices.

The questionnaire had total 25 questions covering 12 conditions requiring first aid. Each correct response was given a score of 1, else a score of 0 was given for other response. So, maximum score was 25 & minimum score was 0. Following this an educational interventional program was conducted

using videos, power point presentation and live demonstrations. Each school was visited separately on different days.

One month after the intervention, reassessment was done regarding knowledge of teachers on first-aid if there was any improvement and availability of first-aid facilities. All data were collected, coded and tabulated using Microsoft Excel. Data analysis was done using SPSS 21. All the variables analysed using descriptive statistics to calculate frequencies, mean, range etc.

Results

The study was conducted among 35 school teachers, out of which most of the teachers (94%) were female. Mean age of our study participants was 55.16 (S.D 5.58) years. When professional characteristics are examined, more than half (57%) of the teachers had higher qualification of B.Ed, M.Ed etc. All the teachers had a work experience of more than 5 years. Majority (88.5%) of them had faced a situation needing first-aid service. It was found that none of the study participants had a training regarding first-aid (Table 1).

Table 2 shows the distribution of the schools according to the first aid facilities available. Register with special medical attention was present only in one (out of 5) schools before intervention. It was noted that there was a substantial increase (40%) in the maintenance of a register by schools after the intervention.

Contact number of nearest hospital was displayed only in 2 schools. Even after intervention, only 3 (60%) schools displayed the contact details of a nearest hospital. First aid kit was present in all 5 schools while only 2 schools had nodal officer for first aid. There was no difference in the appointment of a nodal officer by the schools, even after the intervention.

Table 1: Socio-demographic characteristics of the participants

Sociodemographic characteristics	Frequency (N=35)	Percentage (%)
Age	Range- 38-63 yrs	
	Mean \pm SD 55.16 \pm 5.58	
Gender		
Male	2	5.71
Female	33	94.29
Education		
Under Graduate	6	17.14
Post Graduate	9	25.72
Special Qualification (B.Ed, M.Ed, D.Ed)	20	57.14
Confronted with a situation requiring first aid		
Yes	31	88.57
No	4	11.42

Table 2: Distribution of school according to first aid facilities

Facilities available	Pre- Test	Post- Test	% increment
1.Register with special medical attention	1 (20%)	3 (60 %)	40%
2.Contact no of nearest hospital	2(40%)	3(60%)	20%
3. First aid kit	5(100%)	5(100%)	0%
4. Nodal officer	2(40%)	2(40%)	0%

Table 3: Distribution of study participants according to total mean knowledge score (pre & post intervention)

Total mean score	Pre-test (n=35)		Post-test (n=35)		% Improvement
	Mean (%)	SD	Mean (%)	SD	
1. Choking (*2)	0.14 (7%)	0.351	1.14(57%)	0.543	50%
2. After Fall (4)	2.97 (74.25%)	1.108	3.17(79.25%)	0.891	5%
3. Foreign Body (2)	0.19 (9.5%)	0.401	1.77(88.5%)	0.426	79.5%
4. Burns (1)	0.29 (29%)	0.458	0.71(71%)	0.458	42%
5. Asthma (2)	2.67 (83.5%)	0.586	1.75 (85.5%)	1.052	2%
6. Nose Bleed (1)	0.09 (9%)	0.284	0.74 (74%)	0.443	65%
7. CPR (3)	0.56 (42.84%)	0.695	1.22(61.96%)	0.929	22%
8. Seizures (2)	0.58 (29%)	0.692	1.47 (73.5%)	0.696	44.5%
9. Injury (2)	1.22(61%)	0.832	1.31 (65.5%)	0.624	4.5%
10. Fainting (1)	0.03 (3%)	0.169	0.89 (89%)	0.323	86%
11. Animal bite (3)	1.83 (61%)	0.910	1.39(46.33%)	1.076	-
12. Electric Shock (2)	0.58 (29%)	0.604	0.75 (37.5 %)	0.732	8.5%

*The number in the bracket indicates the number of questions related to the particular emergency.

Table 4: Categorisation of Total Knowledge Score into Good, Fair & Poor

Total Knowledge Score	Pre- Intervention		Post-Intervention	
	N	%	N	%
GOOD (> 80 %)	0	0	1	2.8
FAIR (60-80 %)	0	0	21	60
POOR (<60 %)	35	100	13	37.1

The effect of intervention on knowledge of managing different situations requiring first aid is shown in Table 3. Total mean knowledge score was calculated for each of the 12 conditions before and after educational intervention. Pre - test mean knowledge score was fair to good for after fall, asthma, injury, animal bite. The conditions which showed significant improvement after intervention were choking, foreign body, burns, nose bleed, seizures, fainting. Our intervention has caused significant increase in the knowledge of the participants, on the first-aid management of foreign body (79%) and on handling fainting episodes (86%). There was a good improvement in knowledge scores on management of other aspects like, choking, burns, nose bleeds and seizures. Knowledge scores on managing choking improved by 50%, 29% of participants had knowledge on burns management initially which had increased by 42% due to intervention.

Good pre-test score on management of falls (74.25%) and asthma attack (83.5%), showed that teachers were already equipped with first aid management of these conditions. Since the incidence of these conditions is common even at homes, most of the teachers knew how to handle them. Only 9% participants were able to manage

nose bleeds initially, on which our intervention had a good impact leading to 65% increase in knowledge scores.42.84 % of the teachers knew how to perform CPR, which improved by 22% due to intervention. Knowledge on management of seizure and electric shock improved by 44.5% and 8.5% respectively. Knowledge on injury management was not affected by the intervention (4.5%). While 61% participants knew the management of animal bites. The total pre-test score on assessing the knowledge on first-aid procedures of various conditions, was 46.84 % which later increased to 61.96 on post-test evaluation.

Based on the total scores, the participant's knowledge on first-aid was categorised into good, fair and poor. Initially, all teachers had poor knowledge on first aid, which got improved to fair and good in 60% and 2.8% respectively after educational intervention.37.1% still had poor knowledge score post intervention (Table 4).

Discussion

Majority of the participants were females, similar to the study conducted by Sonmez et al and Masih et al (98.1% and 94% respectively). (7,5) While in

Younis et al and Sharma et al study, male constituted around 49% and 59.5% of the participants respectively. [8] The age distribution of our study is similar to Kumar et al's in Chandigarh (>40 years). While studies in foreign shows, majority teachers belonged to 30-39 years of age. [7,8] Since in India majority of the teachers have been working for long, it was believed that they would have been trained or faced emergency management situations in their experience. B.Ed. was generally considered as mandatory qualification for the post of teacher. But there have been schools open to employ teachers even without it. [9] Likein Sharma et al study, only 22% had B.Ed. qualification. [10] Work experience of teachers correlate with the number of injuries and accidents they might have encountered and their ability to provide first-aid.[11] Similar to ours in Alqahtani study teachers had more than five years of experience.[12] While Sharma et al reported 16% teachers had >15 years of experience. [10] Likewise in Sonmez et al and Sharma et al study, 68- 72 % have faced emergency situations. They were having teachers with many years of experience.86% and 83% teachers respectively had not undergone any formal training in first aid despite having faced so many emergency incidents. [10,13] The international scenario as by Younis et al is no different from the present study, 88% of the participants had not received any formal training.[8] Apart from training, providing an enabling environment is also a part of primary prevention. [14] In studies by Kumar et al and Mobarak et al, it was found that only 25% and 43.6% schools only had a first aid kit.[2] Lack of basic facilities like a first-aid kit, poses a serious threat to the students and creates anxiety among parents regarding the safety of their wards. The intervention in our study had an effect of procuring special register for medical conditions and acquiring contact of nearest health facility. In Bhatia et al study, only 62% schools had a register initially, which later increased to 87% after intervention and it was found that 65% of the schools had the facility for referring sick children to government hospitals and 16% to private clinics. [15] In presence of a nodal officer, the maintenance of register, referral services, ambulance arrangement and regular training of faculty members on first-aid would be well coordinated. The importance of having an appointed person for such medical emergencies is still not felt, as seen by our study and also not many studies have realised this aspect.

When we compared knowledge of teachers in dealing with emergencies, it was found that other studies had similar findings as our study. 89% participants had absolutely wrong knowledge on how to deal with foreign body embedded in a wound injury as per Hanoon et al. [16] Sonmez et

al and Kumar et al found 66% and 26.3 % teachers respectively, were making the student lie flat with foot elevation, while providing water (9%) was the other practice. [7,13] Regarding burns management, overall similar results were observed in Sonmez et al study. (32.7%) while 36% teachers were practicing application of cold water on burn area. Majority in our study participants had good knowledge on fall management, while Bhatia et al and Sonmez et al reports only 9% and 20.9% had sufficient information on it. According to Robertson et al, nosebleeds incidents are reported once a month in their schools and only 37.5% and 25% of primary and secondary schools had a management policy for it. [17] In our study hardly few teachers had knowledge on its management similar to Hanoon et al, Dasgupta et al. Kumar et al (20%). There might be a sense of panic/ alarm on seeing blood and also due to the diversity of causes for nose bleeds, the teachers might have worries on managing it. In a study in Saudi, it was interesting to note that 15% teachers responded that they wouldn't try stopping the bleed. [18] 40% in Sonmez et al study knew the correct order of assessing an unconscious child, while only 9 % of the teachers had good knowledge on delivering CPR in Younis et al study. Like our study, there was low knowledge on seizure management in Dasgupta et al study (36.2%). Kumar et al found the practice of placing a metal rod in the hands of seizure patient (86%), while in Sonmez et al study, 72% considered opening the mouth of patients during seizure to be wrong. School involvement in knowing such crucial medical history of students and able to manage them during emergencies is of utmost importance. In Gadov et al study, 70% of teachers were involved in students' compliance to treatment and their management at school. This was possible because of regular teacher- parent interactions. [19]

While assessing the improvement in knowledge scores, after the intervention, many similar studies have proven the effect of a health education. Substantial improvement in management of foreign body as seen in Dasgupta et al results (82.9 % to 99% increase). [20] Dasgupta et al and Bhatia et al study also showed good improvements on injury management after interventions (37.1% and 30.1%). Similar to our study, majority of teachers were in poor category in Hanoon et al study. In contrast to the present study, Sonmez et al concluded that only 10 % of the total teachers had poor knowledge, while in Deepak et al in Mangalore, 62% teachers had good knowledge. The contrast finding of some studies in relation to the present study can be due to the different socio demographic status of the participants. Half the participants had only UG/PG training and were not having a teacher training course done. 11% of them had not encountered such a situation, which

otherwise might have acted as a knowledge opener. The most important contributor to this poor status of the knowledge might be due to absence of formal training. It is indeed mandatory that teachers should get themselves acquainted with emergency management as students spend most part of their time at schools. Another factor responsible for the poor knowledge in the present study is the lack of logistics and resources in the region due to inadequate funds allocated to the first aid management program. To the author's best knowledge, no other study was found which has assessed the presence of nodal officer for the first aid care delivery. In the study conducted by Kumar et al, it was found that there was a significant difference among the teachers' knowledge with qualification of degree or less, working experience of more than ten years, residing in urban areas and trained in first aid compared to their counterparts.

Conclusion

In our study, the knowledge on first-aid procedures of various conditions, was 46.84 % which later increased to 61.96 % after intervention. Also, none of the study participants had a training regarding first-aid. WHO has advocated for pre-service and in-service training programs for teachers on emergency management by enabling the teachers, to handle the emergency situations and providing first-aid, major and minor morbidities can be reduced and also the same knowledge will percolate to their students. It is imperative that every school is equipped with a first-aid kit with medicines and surgical equipment in adequate quantity and good quality under a respective nodal in charge. In this way, the schools can offer a safe environment for students.

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