

Knowledge of First Aid in School Students and Teachers

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ABSTRACT

Background: Basic knowledge on first aid is required to every citizen. School children are best target group for giving such training. School teachers have dual responsibility on this regard. They should have adequate knowledge on first aid so that they can provide when necessary and they should have enough knowledge to train students. This study was conducted to assess the knowledge of school teachers and students and effect of first aid training.

Methods: This study was conducted in school teachers and high school students of six schools in Kathmandu. Two days training on first aid was given to all participants. Knowledge on first aid was assessed through self administered 10 questionnaires before and after training. Response was recorded as 'correct' or 'incorrect' of individual question and total score obtained by individual. Responses were compared before and after training and between students and teachers also.

Results: A total of 152 participants (121 students and 31 teachers) were included in the study. Average score in pretest and posttest was 5.1 ± 1.56 and 8.01 ± 1.49 respectively with $P < .001$. Majority were aware of meaning of first aid, time to perform Cardiopulmonary Resuscitation and first aid knowledge on fracture and electric shock. First aid knowledge on other incidents was not satisfactory. The training improved overall knowledge of participants. There was no difference of knowledge in students and teachers.

Conclusions: First aid knowledge of school teachers and students was similar and not satisfactory. Training improves knowledge significantly.

Keywords: First aid knowledge; high school students; school teachers; training.

INTRODUCTION

First aid is stabilisation of injured person by common people until professional help is available. Many people lack appropriate knowledge to provide basic treatment for injured person.^{1,2} Certified first aid courses for non medical person are available in many developed countries. First aid training is essential to obtain driving license and employee of kindergarden in many European countries.^{2,3}

Organizations like Red Cross and ambulance services have designed courses. This training can be easily given to school children and they retain better knowledge if training was taken during school.⁴ School children

are vulnerable for physical trauma because of their behavior. School teacher have dual responsibility of providing first aid when necessary and training students.

We are providing training to school children and school teachers on request from schools. We conducted this study to measure the knowledge of high school students and teachers before and after first aid training.

METHODS

This was prospective study conducted in 6 high schools of Kathmandu. Maharajgunj Medical College in association with local community and private high schools conducts regular first aid training to different high schools of

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Kathmandu. Training schedules depends on request from schools. Participants of the training were students of grade 9 to 11 and teachers of same high school. Training session includes 2 days course on first aid including theoretical sessions and practical sessions of commonly encountered injury in day to day life. This study included participations from 6 training sessions of 25 - 30 each. Selection of participants was done by school administration based on the interest shown by students and teachers. This study was approved by 'Institutional Review Committee' of Institute of Medicine, Tribhuvan University (Ref no. 25/(6-11)E2/077/078). Informed consent was obtained from participants and parents of students below 18 years. Assent was taken before administering pre test.

A questionnaire of 10 multiple choice questions was developed including basic knowledge on first aid and various types of injury. The questionnaire was approved by different trainers of the group. Trainers were Faculty of General Surgery who actively take part in different trauma courses. However, external validation has not been done. Self administered pre test of all participation was done prior to training. Similar post test was conducted at the end of training. Mostly Nepali language was used for training and evaluation except for some technical terminology.

For analysis, each answer was marked as correct or incorrect. Answer of each question was compared between pre and post test. Total score was compared between pre test and post test. Scores between teachers and students also compared. McNemar's test was used for individual question and paired t test was used to compare total scores. P value < 0.05 was considered as significant.

RESULTS

There were 173 participants in 6 training sessions of 25 - 30 each. Seventeen participants did not complete

the complete 2 days session and four did not fill the questionnaire properly. Remaining total of 152 participants were enrolled for study. Among them 121 were students and 31 teachers. Among students 54 (44.6 %) were boys and 67(55.4 %) were girls. Among teachers, 14 (45.2%) of were females. Students were aged between 14 to 18 years and teachers were between 23 to 47 years.

More than 70% gave correct answer on 'meaning of first aid', 'first step on electric shock', 'time to give cardiopulmonary resuscitation (CPR)' and 'first aid on fracture of bone' before training. Ninety seven percent of participants do not have adequate knowledge on snake bite, 91% on sequence of airway breathing circulation, 63% on first aid on unconscious patients and 64% on risks of poisoning before training. There was marked improvement on score on all questions except in poisoning. Correct answer given by all participants is shown in figure 1.

Results of individual questions was compared between pretest and post test of students and teachers separately. Detail of responses is explained in table 1. The training helped to improve knowledge in 7 out of 10 topics. Majority could not give correct answer on poisoning even after training. Level of knowledge on students and teachers was similar. Students were well aware of use of CPR than teachers.

Total (combined teachers and students) mean score in pretest was 5.1 ±1.56 and post test 8.01 ±1.49 with P value <0.001. Pre test and post test score obtained by teachers and students was similar. There was significant difference in score obtained during post test as shown in table 2.

While comparing the results between teachers and students, there was no difference in pre test (P = 0.797) and post test (P = 0.571) as well.

Table 1. Comparison of correct answer on pretest and post test of each question.

	Pre test	Post test	P value
Meaning of first aid			
Students	106 (87.6%)	116 (95.9%)	0.013
Teachers	27 (87.1%)	26 (83.9%)	0.032
First aid on snake bite			
Students	4 (3.3%)	86 (71.1%)	<0.001
Teachers	0 (0%)	24 (77.4%)	<0.001
Use of CPR			
Students	91 (75.2%)	112 (92.6%)	<0.001

Table 1. Comparison of correct answer on pretest and post test of each question.

Teachers	20 (64.5%)	27 (87.1%)	0.039
Full form of ABC in emergency			
Students	9 (7.4%)	117 (96.7%)	<0.001
Teachers	4 (12.9%)	28 (90.3%)	<0.001
First aid on unconscious person			
Students	45 (37.2%)	103 (85.1%)	<0.001
Teachers	13 (41.9%)	28 (90.3%)	<0.001
First step on electric shock			
Students	84 (69.4%)	87 (71.9%)	0.69
Teachers	24 (77.4%)	26 (83.9%)	0.68
First aid on bone fracture			
Students	84 (69.4%)	101 (83.5%)	0.003
Teachers	25 (80.6%)	31 (100%)	1
First aid on impelled object			
Students	61 (50.4%)	107 (88.4%)	0.001
Teachers	20 (64.5%)	29 (93.5%)	0.011
Not to do in poisoning			
Students	43 (35.5%)	39 (32.2%)	0.665
Teachers	12 (37.8%)	11 (35.5%)	1
Priority on Emergency			
Students	71 (58.7%)	97 (80.2%)	<0.001
Teachers	12 (38.7%)	22 (71.0%)	0.013

Table 2. Total score obtained by students and teachers in pretest and posttest.

	Pre test	Post test	P value	t - Value	Std Error
All (n=152)	5.1 ±1.56	8.01 ±1.49	<0.001	16.63	0.175
Teachers (n=31)	5.16 ±1.26	8.31 ±1.43	<0.001	8.68	0.342
Students (n=121)	5.08 ±1.62	7.96 ±1.5	<0.001	13.35	0.201

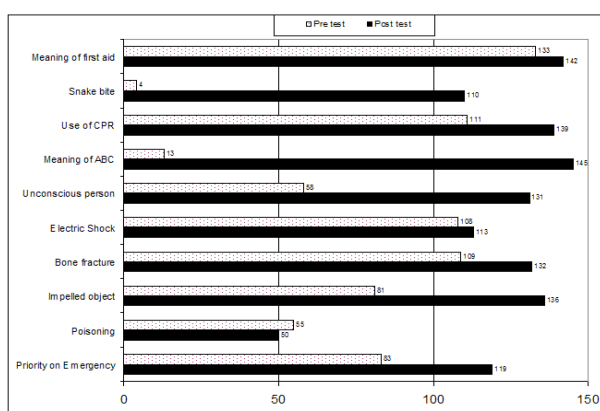


Figure 1. Bar diagram showing correct answer on specific situation given by all participants in pre and post test.

DISCUSSION

First aid is defined as ‘Making an assessment and implementing intervention that can be performed by a bystander (or victim him/herself) with minimal or no equipment’.⁴ It is provided by a bystander immediately after any trauma/incident at the site of injury/incident. Mortality can be decreased by 1.8 - 4.5 when effective first aid is given at incident site.⁵⁻⁷

Treating an injured person requires a sound technical knowledge and skills. Common people do not have adequate knowledge on treating basic life support. A qualified person of another field other than medical field also requires first aid training. Population based survey, showed inadequate knowledge of first aid in UAE,⁸ Poland,⁹ India,¹ Pakistan⁷ and many other countries.

It is estimated that 1.8 - 5% of trauma deaths can be prevented if a bystander provides airway and bleeding control at incident site.¹⁰ Worldwide 15%-55% of injured person receive some kind of first aid by bystander. In such situation if bystander is trained first aider, quality of first aid and overall outcome improves.^{11,12}

Every person may come across such situation where first aid is required. In a public survey on Norway, 43% had been present at the situation and 89% of whom provided first aid. A meta analysis showed approximately 10.7-65% patient received some kind of first aid after trauma and up to 83.7% were given incorrect first aid.¹⁰

School children are best target group for such training.¹³⁻¹⁵ Norway has first aid training as a part of national school curriculum for grade 7-10.² Older person are less likely to be trained.¹⁶ Children of aged 7-14 years are able to perform basic life saving skills. Knowledge and skills seems adequate but they find thinking algorithm difficult.¹⁷ Studies on Norway, even primary school children had correct knowledge of assessment in emergency and able to perform basic first aid measures. Knowledge on proper use of semi automated defibrillator significantly increased after training in children.¹⁸ Overall knowledge was not satisfactory in high school students. Knowledge gradually declines over a period of time. But still remains significantly higher if trained in childhood.¹⁹

Our training module included some practical aspects like compression during bleeding, splinting, maneuver for choking, CPR and asked to perform it. The practical performance was also satisfactory. But we did not include in the study as they were not assessed prior to training. Children who are trained in school can teach their family members and friends and have positive attitudes towards bystander for life support. CPR for school children was endorsed by WHO in 2015.²⁰ If training is given during childhood, knowledge, skills and willingness to perform in emergency situation increases.^{13,21} Some recommend CPR training should be started as early as 10 years.²²

When we target about schoolchildren, we should not forget school teachers. They are the best resource person for children. School teacher who do not have training do not necessarily have adequate knowledge on first aid. As basic life support is technical subject and all teachers are not aware of it. So we thought of conducting same study on same setting. We find many of literatures regarding studies on primary, secondary and university students but less with teachers.

Teachers are guardian and protector of school children

during school hours. They must be able to deliver first aid if they sustain injury. In a study in Iran, a cross sectional study of 200 teachers, 48.5% had encountered a situation needing first aid in school. Most of the teacher's knowledge was insufficient.²³ In India, 72% of teachers had experiences of handling injured children.²⁴

School teachers also lack of training and knowledge three decades earlier in United States.²⁵ But the scenario has not changed much at least in developing countries. Overall perception and practice among school teachers were found to be poor in India²⁶, Ethiopia²⁷ and Egypt.²⁸ But teachers have great attitude towards learning and giving when required.²⁹⁻³¹

Our study tried to assess knowledge of school students and school teachers through same questionnaire. Questionnaires were prepared to assess knowledge of general public which includes teachers and high school students. Overall knowledge score was just 50% of total scores. Concept of first aid was well known for majority of participants. More than 70% were aware of fracture management, electric shock. 'Sequence of airway breathing circulation', 'first aid measures of snake bite', 'unconsciousness' and 'poisoning' were less known topics to participants. Snake bite is not common in Kathmandu valley. Analysis of each question helps to plan future training module.

Being a school teacher is not sufficient to have adequate knowledge on first aid. High school students have almost equal knowledge as of their teachers. After training, knowledge of both groups of participant increased significantly.

CONCLUSIONS

Overall knowledge of school teachers and students is not satisfactory. A properly conducted training improves the knowledge on first aid of school students and school teachers. It is essential to give training to school teachers as they play vital role in teaching students.

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CONFLICT OF INTEREST

None.

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