Assess the Effectiveness of "First Aid Training Program" in Terms of Knowledge and Skills Among School Teachers of Selected Schools of Ambala, Haryana": A Quasi Experimental Study

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Abstract

Background: As the incidence of medical emergencies is rising, the demand of the knowledgeable and skilled personnel is also needed. It is important for every person to be competent enough to tackle all the emergency situations anywhere. First aid training helps to make a person able to give actual immediate care and safety awareness. The objective of the study is to assess the effectiveness of first aid training program in term of knowledge and skill among school teachers.

Methodology: A Quasi-Experimental study following one pre-test post-test design was used. Participant's data was collected from 105 school teachers from 12 schools (9 govt. and 3 private) using Total enumerative sampling and the schools were conveniently selected. Knowledge and skills were assessed by using structured knowledge questionnaire and observational checklist respectively.

Conclusion: Data was analyzed using SPSS 16. The t test analysis showed a significant difference before and after the administration of first aid training program in term of knowledge(t=37.05 and p= 0.001)and skills (t=84.485 and p=0.000) at 0.05 level of significance. There was significant association of pre-test knowledge scores with educational status of school teachers.

Key words: effectiveness, First Aid Training Program, knowledge, skills, school teachers.

Introduction

First aid is a valuable key for all beings. It helps individual to become efficient in providing immediate care to the on spot victim, also it helps him to assist persons who are willing to help other injured ones. The knowledge and practice of First Aid is important in limiting the pain and complications brought out by negligence and it can improve the condition at hand only, more the comprehensive knowledge and efficient skills, less will be the risk of mortality.[1]

The First Aider should always be prepared in order to save life.[2]The common types of school accidents are fainting, epistaxis, shortness of breathing, fractures, joint dislocation, bruises, burns, choking, seizures, insect bites and poisoning.[3]

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According to the study by Henry et al at America found that 30% of children younger than 5 years and 56% of children, aged 6 to 10 years had at least one episode of nosebleed.[4]According to the report by Heart institute at Cincinnati's children's pediatric heart program, around 20% of young children's parents reported their children underwent fainting.[5]

According to Indian guidelines and protocols it has been mentioned that honey bee sting and insect sting accounts for 1% incidence in children and 3% incidence in adults. A bee sting is always potentially dangerous as 30-50 stings from a bee have been provedfatal.[6]

Teachers are the main caregivers and the first line of protection for school students. Their role complements that of parents. They are the first respondent in cases of disasters or emergencies. Therefore, they must be able to deal appropriately with medical emergencies, for all healthy students and those students with special health care needs. This role can be achieved if teachers are equipped with the required skills to provide effective First Aid services that promote recovery and prevent future serious health consequences

Material and Method

The study was conducted during the period from March 2018 to June 2019 in the state of Haryana, India as a Quasi-Experimental research design "one group pre-test post-test design".The ethical clearancewas obtained from university research ethics committee (MMU/IEC/1305) and the study was carried out in accordance with the guidelines laid by Indian Council of Medical Research ICMR (2006). The written consent from school teachers was collected prior to the study**.**A sample of 105 school teachers from 12 schools (09 from Government and 03from private school) participated in this study with the prior permission from the principals of selected schools and board of education Mullana. The sample was selected through **Total Enumeration Sampling Technique.** The sample size for the study was estimated using Cochran's sample size formula. First aid training program was given with Lecture cum discussion and demonstration method with the help of power-point presentation,videos and demonstration in simulated setting using case scenarios regarding First Aid Management of selected conditions including wound care, fracture, epistaxis, choking, fainting and honey bee sting.

DESCRIPTION OF TOOL

Section I: description of sample characteristics

It consisted of nine items related to selected sample characteristics of school teachers i.e age, Gender, education status, job experience, marital status, no of children, previous Knowledge of First Aid, if yes then source of information, previous handling of First Aid, if yes, then specify condition, previously had taken any First Aid Training.

Section II: Structured knowledge questionnaire

A preliminary list of 30 items on knowledge was prepared. All the 30 items were multiple choice type questions. Each item had a single correct answer. Every correct answer was accorded a score of one mark and every wrong answer assigned zero mark. Thus the maximum score was 30 and the minimum score was zero**.**The level of knowledge was categorized as very good, good, average and below average

Section III: An observational checklist

For skill assessment of school teachers on selected condition of First Aid. Paper pencil technique was used for description of selected sample characteristics and structured knowledge questionnaire.Observation technique was used to assess the skills of school teachers

A preliminary list of 64 items on observational check list was prepared on management of wound care, fracture, epistaxis, choking, fainting and honey bee sting. Each item was marked as yes if followed or no if not followed. Total score ranges from 0-64 and the maximum possible score was 64 and minimum possible score was zero. The level of skills was categorized as very good, good, average and below average.

The reliability coefficient for structured knowledge questionnaire was calculated by using Kuder-Richardson- 20 (KR_{20}) formula and it was found to be 0.8.

Data Analysis

KS (Kolomogorov- smirnov) test was applied to check the normality of the data. Data was normally

distributed hence parametric tests were applied. The entire hypothesis was tested at 0.05 level of significance..

Descriptive statistics

· Frequency and Percentage Distribution to describe sample characteristics.

· Frequency and percentage distribution, Range of score, Mean, Median and Standard Deviation

Inferential statistics

· Karl pearson correlation was used to find relationship between knowledge and skills

· ANOVA and t-test was used for association of selected sample characteristics with knowledge and skill among school teachers.

Result

Data was entered in Microsoft excel and analysis was done with SPSS version 16. Result of the study shows that first aid training program is effective in improving the knowledge and skills among schoolteachers.

1. Findings related to selected sample characteristics:

In the present study, Less than half of the subjects (32.2%) were above 40 years. Almost all (98.09%)of them were female, more than (54.285%) of them were post graduate and less than half (34%) of the school teachers had 6-10 years of experience. Majority(92.28%) of them were married, for less than half (39.47%) of them source was friend and relatives and More than half of teachers did not 53(50.47%) performed first aid previously.

2. Findings related to the effectiveness of First Aid Training program in terms of knowledge among school teachers

In pretest of knowledge, majority of the school teachers (85.71%) had below average and only few (14.28%) had average knowledge whereas in post test more than majority of the teachers (80%) had good level of knowledge , few (10.47%) had very good level of knowledge and less than few (9.52%) had average level of knowledge.

TABLE 1: Mean, Mean Difference, Standard Deviation of Difference, Standard Error of Mean Difference 't' and 'p' value of Pretest and Posttest of Knowledge Score of School Teachers

N=105

Knowledge Score	Mean	M D	SDD	SEMD	't' value	p value
Pre-Test Post-test	11.59 23.11	11.524	3.187	0.311	37.054	0.001**

"t"(104)= 1.660 at 0.05 level of significance   **highly significant p<=0.001

Table 1 shows that the level of knowledge among school teachers after administration of first aid training program.The t test was applied and the mean difference was found to be statistically significant ("t"=37.054, p=0.001) at 0.05 level of significance. Hence, it can be inferred that the First Aid Training Program was effective in increasing the knowledge of school teachers on First Aid Management.

3. Findings related to the effectiveness of First Aid Training program in terms of skills among school

teachers

In pre-test of skills through observational checklist all (100%) of the school teachers were having below average skills. Whereas in the post-test most of the school teachers (73.33%) were having good skills, 24.76% were having very good skills, 0.009 were having average skills and 0.009 below average skill.

Table 2

Mean, Mean Difference, Standard Deviation of Difference, Standard Error of Mean Difference 't' and 'p' value of Pretest and Posttest of Skills Score of School Teachers

N=105

Skills score	Mean	M D	SDD	SEMD	't' value	p value
Pre-test Post-test	4.21 49.59	45.381	5.504	0.537	84.485	0.000**

"t"(104)= 1.660 at 0.05 level of significance   ****highly significant p<=0.001**

Table 2 depicts that the level of skills among school teachers after administration of first aid training program. The t test was applied and the mean difference was found to be statistically significant ("t"= 84.485, p=0.000) at 0.05 level of significance. Hence, it can be inferred that the First Aid Training Program was effective in increasing the skills of school teachers on First Aid Management.

4. Findings related to the relationship between knowledge and skills among school teachers on selected conditions of First Aid

TABLE 3: Correlation between Knowledge and Skills Scores

N=105

	Knowledge	
	Pre test	Post test
Skills	-0.06(0.95)	-0.04(0.6)

df(104),r(105)= 0.194   **significant(p<=0.05**

Table 3 depicts the relationship between knowledge and skills of school teachers regarding First Aid Management of selected conditions. During Pre-test no significant relationship was observed between knowledge and skills(r=-0.06,p=0.95). During Post-test also, no significant relationship was observed between knowledge and skills(r=-0.04,p=0.6). The calculated r-value in pretest and post-test shows that there was no significant relationship between Knowledge and skills. This indicates that there is no significant relationship between knowledge and skills score of school teachers on First Aid Management of selected conditions.

5(A) Findings regarding association of knowledge scores of school teachers regarding First Aid with their selected sample characteristics using t-test and ANOVA

The ANOVA/'t' value of age (0.729), gender (1.326),job experience(1.64), marital status (0.54), no of children (1.090), Previous knowledge regarding First Aid management (0.48), Source of information (3.230), Have you performed first aid previously (0.41) were found to be statistically non-significant except educational status (8.442), hence post hoc test was applied. It infers that knowledge was independent of selected sample characteristics except educational status (Post Graduates had higher knowledge than J.BTs).

Table 4: Post hoc Test Showing Mean Difference for Association of Pre Knowledge Scores with Selected Sample Characteristics

N=105

Sr. No	Sample Characteristics	Categories	Mean Difference	Standard Error	p value
1.	Educational status	J.BT vs. B.Ed.	0.965	0.971	0.137
		J.BT vs. Postgraduate	3.341	0.950	0.002*
		B.Ed. vs. J.BT	1.965	0.971	0.137
		B.Ed. vs. Post graduate	1.376	0.486	0.017
		Post graduate vs. J.BT	3.341	0.950	0.002*
		Post graduate vs. B.Ed.	1.376	0.486	0.017

Table 4 shows significant mean difference for association of knowledge with educational status. It depicts that school teacher who has the education status as Post Graduation had better knowledge than the teachers with education status as JBT (Junior Basic Training) as mean difference was significant at 0.05 level of significance

5(B) Findings regarding association of skills scores of school teachers regarding First Aid with their selected sample characteristics using t-test and ANOVA

The ANOVA/'t' value of age (0.869), gender(0.461), educational status(2.648), job experience (1.683), marital status(0.72),no of children(1.037), Previous knowledge regarding First Aid management (0.326), Source of information(0.455), Have you performed first aid previously (0.185) were found to be statistically non-significant. It denotes no association with knowledge.

Discussion

The main aim of the study was to evaluate the effectiveness of First Aid Training Program in terms of Knowledge and skills of school teachers related to First Aid of selected conditions.

Effectiveness of First Aid Training Program in terms of Knowledge among school teachers related to First aid of selected conditions.

In the present study the mean post-test knowledge score of school teachers (23.911+1.923) was higher than the mean pretest knowledge score(11.15+ 2.5378).The computed "t" value (37.054) was found to be significant at 0.05 level of significance. Hence, the null hypothesis (H_{01}) was rejected and research hypothesis (H_1) was accepted. This indicates improvement in knowledge after the administration of First Aid Training Program on first aid management of common conditions. These findings were consistent with a study conducted by Sumithram 2017 where mean post-test knowledge score of school teachers (25.3+3.15) was higher than the mean pretest knowledge score(18.9+ 2.99).

Effectiveness of First Aid Training Program in terms of Skills among school teachers related to First aid management of selected conditions.

In the present study, there was a significant difference in the mean skill score. The post-test skill score (49.59+4.632) was higher than the mean pre-test skill score (4.21+2.191). The computed "t" value (84.48) was found to be statistically significant at 0.05

level of significance. Hence, the null hypothesis (H_{02}) was rejected and research hypothesis (H_2) was accepted. Thus, it can be inferred that the First Aid Training Program was effective in improving the skills of school teachers related to First Aid of selected conditions. These findings were consistent with a study conducted by Shobha Masih2017 where there was a significant difference in the mean post-test skills score(18.52+2.63) was higher than the mean pre-test skill score (14.52+2.39).

Conclusion

The first aid training program was effective in enhancing knowledge (pretest score=11.15+ 2.5378 and post test score=23.911+1.923) and skills (pre-test4.21+2.191 and post-test 49.59+4.632) of school teachers on common conditions of first aid. There was no relationship between knowledge and skill scores of schoolteachers on common conditions of first aid. There was no significant association of First Aid Training Program with pre-test knowledge and Skills scores.

Conflict of Interest: NIL

Funding Sources: NIL

Ethical approval: The ethical clearance was obtained from university research ethics committee of Maharishi Markandeshwar(Deemed to be University), Mullana, Ambala (MMU/IEC/1305) and the study was carried out in accordance with the guidelines laid by Indian Council of Medical Research ICMR. The permission was taken to conduct the study from the principals of the selected institutes. The written consent from the students was collected prior to the study. The purpose for carrying out research project was explained and assurance of confidentiality was given to the participants.

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