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EFFECTIVENESS OF STRUCTURED TEACHING PROGRAM ON KNOWLEDGE REGARDING CARDIOPULMONARY RESUSCITATION (CPR) AMONG SELECTED STUDENTS OF MOUNT CARMEL SCHOOL, AIZAWL, MIZORAM

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ABSTRACT

Introduction: Cardiac arrest is a catastrophic medical emergency that may occur at any time in the hospital or pre-hospital setting. CPR can help prevent death in those odds. **Aims and Objectives:** The study aims to assess the knowledge regarding Cardiopulmonary Resuscitation among selected students and to find out the effectiveness of structured teaching program on knowledge regarding Cardiopulmonary Resuscitation among the students. **Methodology:** A pre-experimental one group pre-test post-test design was adopted for the study. 100 students from Mount Carmel School, Aizawl were selected using non probability purposive sampling technique. Knowledge was assessed using a questionnaire, structured teaching program was administered along with demonstration of CPR and post test was conducted with the same questionnaire. **Results:** Prior the teaching program 8(8%) had adequate knowledge, 65(65%) had moderate knowledge and 27(27%) had inadequate knowledge. After the teaching program only 94(94%) had adequate knowledge, 5(5%) had moderate knowledge and 1(1%) had inadequate knowledge. The calculated "t" test value (3.93) at df (99) was found to be statistically significant at 0.05 level of significance. **Conclusion:** The results of this study suggests that the structured teaching program was effective

KEYWORDS

Assess, Effectiveness, Structured Teaching Program, Cardio Pulmonary Resuscitation, Students

INTRODUCTION

Cardiopulmonary resuscitation (CPR) is a series of life-saving actions that improves the chance of survival following cardiac arrest. The purpose of CPR is to temporarily provide effective oxygenation to the vital organs, especially the brain and heart, through artificial circulation of oxygenated blood until the restoration of normal cardiac and respiratory activity takes place.[1] Cardiopulmonary resuscitation is performed in an effort to manually preserve intact brain function to restore spontaneous blood circulation as the central nervous system will show irreversible lesions, if anoxia lasts for more than 3 to 4 minutes. According to the World Health Organization, cardiovascular diseases cause 12 million deaths in the world each year whereas in India, 27% of deaths are because of cardiovascular diseases.[2]

According to data on "Accidental Deaths & Suicides in India" complied by the National Crime Records Bureau (NCRB) the number of estimated deaths due to heart attacks in India is proximately over 28,000 in the last three years. Given the size and relevance of the problem even small piecemeal of improvement in survival can lead to thousands of lives saved each year.[3]

The American Heart Association's Heart and Stroke Statistics- 2022 update, states that more than 3, 56,000 cardiac arrests occur outside of the hospital each year, and nearly 90% of it is fatal. On an average, cardiac arrest, if left unresponded, brain damage occurs within 4-5 minutes without oxygen and can be fatal if it last longer than 6-8 minutes and the chances of survival rate decreases by 10%.[4]

A person who is administered CPR within a minute of cardiac arrest has 22% chance of survival, while one who gets it after 39 minutes has only 1% probability. Timely application of CPR saves lives. Each minute saved further increases the chances of survival. However, the percentage of people who know how to give CPR is abysmally low. Private organisations and schools too should train their employees and students in CPR, respectively.[5]

The study will allow the lay population to be ready in cases of emergency and might need it when least expected. The study also attempts to teach the correct technique among the lay population and upgrade knowledge regarding Cardiopulmonary Resuscitation among the Mizo people is apparently lower as compared to most states of India. Hence, it is essential that the lay populations are given the basic training as an effective Cardiopulmonary Resuscitation to double the chances of survival rate.

OBJECTIVES OF THE STUDY

1. To assess the level of knowledge regarding Cardiopulmonary Resuscitation among selected students pre and post structured teaching program.
2. To find out the effectiveness of structured teaching program on knowledge regarding Cardiopulmonary Resuscitation among the students
3. To identify the association between pre-test knowledge and selected demographic variables.

Hypotheses

Hypotheses are tested at 0.05 level of significance

H_1: There is a significant difference between the pre-test and post-test level of knowledge regarding Cardiopulmonary Resuscitation among selected students.

H_2: There is a significant association between the pre-test level of knowledge and the selected demographic variables.

METHODS AND TOOLS

Research Approach: Quantitative research approach

Research Design: Pre-experimental One group pretest post-test design

Study Setting: Mount Carmel School, Aizawl, Mizoram

Duration of the study: One week

Sample Size: 100 students

Sampling Technique: Non-probability purposive sampling technique

Development of tool:

The data collection tool consisted of 2 sections

Section A: Demographic Details
It comprised of demographic variables of subjects which included age, gender, major subject, family history of cardiac disease, previous training and experience on cardiopulmonary resuscitation.

Section B: Questionnaire
The questionnaire consists of 20 questions regarding Cardiopulmonary Resuscitation. The questions were given to the students before and after the structured-teaching program.

Data Collection Procedure

1. A formal written permission was obtained from Principal, Mount Carmel School, Chaltlang, Aizawl, Mizoram.
2. Samples were selected using purposive sampling technique.
3. Written informed consent was obtained from all the participants.
4. The data collection period was scheduled for 2days.
5. On the first day knowledge regarding CPR was assessed using the questionnaire followed by administration of the structured teaching program.
6. On the second day post-test knowledge was assesses using the same questionnaire.

RESULTS

Section A: Determination of frequency and percentage distribution of demographic variables of students

Table 1: Frequency and percentage distribution of demographic variables of students, n=100

Demographic variables	Group	f	%
Age in years	a) <15 b) 16-19 c) >19	- 100 -	- 100% -
Gender	a) Male b) Female	61 39	61% 39%
Family h/o Cardiac Disease	a) Yes b) No	17 83	17% 83%
Previous CPR training experience	a) Yes b) No	9 91	9% 91%
Major Subject	a) Science b) Liberal Arts c) Commerce	55 45 -	55% 45% -

Data in Table 1 reveals that in terms of age, all of the students 100(100%) were from the age group 16-19 years. In terms of gender, majority 61 (61%) were male. With regards to family history of cardiac diseases, majority 83(83%) had no family history of cardiac diseases. With regards to previous CPR training experience, majority 91(91%) had no experience. In terms of major subject, majority 55(55%) majored in science.

Section B: Assessment of the level of knowledge regarding Cardiopulmonary Resuscitation among selected students n=100

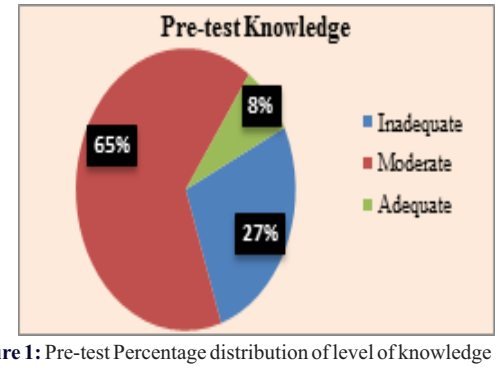

Figure 1: Pre-test Percentage distribution of level of knowledge

Figure 1 depicts that majority, 65% had moderate knowledge, 27% had inadequate knowledge and 8% had adequate knowledge before administration of the structured teaching. n=100

Figure 2 depicts that majority, 94% had adequate knowledge, 5% had moderate knowledge and 1% had inadequate knowledge after administration of the structured teaching.

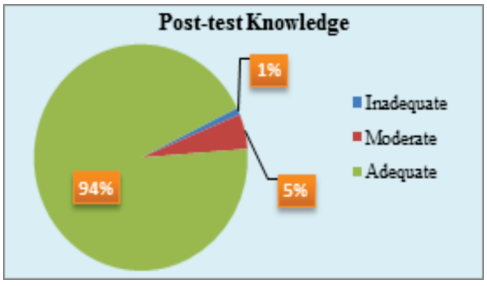

Figure 2: Post-test Percentage distribution of level of knowledge

Section C: Assessment of the effectiveness of structured teaching program regarding Cardiopulmonary Resuscitation among selected students.

Table 2: Effectiveness of structured teaching program on the knowledge regarding Cardiopulmonary Resuscitation among selected students, n=100

Knowledge Level	Mean	SD	Mean Diff	df	't' value	Tab value	P value	Remarks
Pre-test	12.18	8.98	5.30	99	3.93	0.995	0.0001	S*
Post-test	17.48	173.05						

*p<0.05 level of significance S-Significant

Data in Table 2 revealed that the mean difference of the knowledge scores pre and post administration of the structured teaching program was of 5.30. The mean difference between pre-test and post-test knowledge score was tested using paired 't' test. The obtained 't' test value (t=3.93) was larger than the tabulated value (t=0.995) at df (99) and hence found to be statistically significant at 0.05 level of significance. Therefore the hypothesis H_1which stated that there is a significant difference between the pre-test and post-test level of knowledge regarding Cardiopulmonary Resuscitation among selected students was accepted.

Section D: Determination of association between the pre-test knowledge score regarding Cardiopulmonary Resuscitation among selected students and the selected demographic variables

Table 3: Association between the pre-test knowledge score regarding Cardiopulmonary Resuscitation among selected students and the selected demographic variables, n=100

Demographic variables	Group	Knowledge				df	$\chi 2$	Tab value	p value	Remarks
		Inadequate	Moderate	Adequate	Total					
Age in years	a) <15 b) 16-19 c) >19	0 30 -	1 60 -	0 9 -	1 99 -	2	9.749	5.99	0.007	S*
	Total	30	60	9	100					
Gender	a) Male b) Female	21 9	37 23	3 7	61 39	2	4.48	5.99	0.106	NS*
	Total	30	60	10	100					
Family h/o Cardiac Disease	a) Yes b) No	5 45	2 43	0 5	7 93	2	1.516	5.99	0.468	NS*
	Total	50	45	5	100					
Previous CPR training experience	a) Yes b) No	5 25	5 59	0 6	10 90	2	2.487	5.99	0.288	NS*
	Total	30	64	6	100					
Major Subject	a) Science b) Liberal Arts c) Commerce	13 16 -	39 23 -	3 6 -	55 45 -	2	4.523	5.99	0.104	NS*
	Total	29	61	9	100					

*p<0.05 level of significance S-Significant NS-Non-Significant

Data on table 3 showed that in terms of age (χ^2=9.749; p=0.007), the calculated χ^2 value at df (2) was larger than the tabulated value (i.e., χ2 =5.99) at 0.05 level of significance which indicated that there is a statistically significant association between the knowledge of CPR with their age. Thus the research hypothesis H_2 which stated that there is a significant association between the pre-test level of knowledge and the selected demographic variables was accepted in terms of age. But, the H_2 was rejected in terms of gender, family history of cardiac disease and previous CPR training experience and major subject.

DISCUSSION

The assessment of knowledge regarding CPR revealed that, in the pre-test 8% had adequate knowledge and 65% had moderate knowledge and 27% had inadequate knowledge. The post test result revealed that 94% had adequate knowledge, 5% had moderate knowledge and 1% had inadequate knowledge regarding CPR.

The paired 't' test result (t=0.995; p=0.0001) at df (99) was found to be statistically significant at 0.05 level of significance. Thus, the study revealed that the structured teaching program was effective.

RECOMMENDATIONS

Based on the present study findings, the following recommendations were made

- The study can be replicated in specific settings like colleges, outpatient departments of hospitals, and among medical professionals.
- The study can be replicated in a larger scale to bring about a better generalization.
- A descriptive study to assess the knowledge, skill and attitude regarding CPR can be done.
- Future research needs to focus on the knowledge and skill of onlookers, in addition to the intervention use of multimedia applications.

CONCLUSIONS

The study revealed that there is a significant change in knowledge regarding CPR after the structured teaching program. This implies the need for educational and demonstration programs to promote the knowledge and practice of CPR.

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