Research Article

A Quasi Experimental Study To Assess The Effectiveness of Skill Training Programme on Knowledge And Skills of Cardio Pulmonary Resuscitation Among Adolescents In Selected Higher Secondary School of Maharashtra

Ashley Maxi Fernandis
Department of Community Health Nursing, Clinical Instructor, MES College of Nursing, Lote, Maharashtra, India

Abstract

Objectives: The main objective of the study is to find effectiveness of skill training program on knowledge and skills among adolescents in selected higher secondary school.

Materials and Methods: One group pre-test and post-test design was used for this study. The independent variable in the study is skill training program on knowledge and skills of cardiopulmonary resuscitation (CPR). The dependent variables in the study are knowledge and skills on CPR. The study was conducted at selected higher secondary school. The 60 samples that fulfill the inclusion criteria were selected by non-probability convenient sampling technique.

Results: Pre-test knowledge mean was 5.63 and standard deviation (SD) was 1.96, and in the post-test, the mean was 16.83 and SD was 2.56. Pre-test skills mean was 2.66 and SD was 0.92, and in the post-test, the mean was 09.38 and SD was 4.8. The comparison between the pre-test and post-test level of knowledge revealed that a "*t*" value was t = 37.87 which showed a high statistical significance at 0.05 level. The comparison between the pre-test and post-test level of skills revealed that a "*t*" value was t = 13.15 which showed a high statistical significance at 0.05 level. Association of selected demographic variables was that none of the demographic variables had shown statistically significant association with pre-test level of knowledge and skills among adolescents.

Conclusion: From findings of the study, the investigator concluded that skill training program has an important role in increasing the level of knowledge and skills regarding CPR among adolescents.

Keywords: Cardiopulmonary resuscitation, adolescents, knowledge, skills

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Introduction

Cardiac arrest unpredicted in remote community, the victim's life is at stake due to lack of timely intervention. Approximately 10% of the deaths in India is due to sudden cardiac arrest which is also the most common factor of death in the world.[1] Over 75% of the annual estimated 9.5 million deaths in India occur in the home and the large majority of these do not have a certified cause. Approximately 7 lakhs people die each year from sudden cardiac arrest, representing 10% of all deaths in India. However, very few people are

Address for Correspondence:
Mr. Ashley Maxi Fernandis, Department of Community Health Nursing, Clinical Instructor, MES College of Nursing, Lote, Maharashtra, India
E-mail: aslifernandis1@gmail.com

aware that the first 10 min are crucial and can make all the difference in saving a patient during a cardiac arrest.[2] Hence, it is important that community people should adequate knowledge and skill on cardiopulmonary resuscitation (CPR) so that the victim's life can save still he or she is brought to the hospital. If bystander CPR was more consistently, if AED were more widely available and if every community could achieve 20% cardiac arrest survival rate, an estimated 50,000 more lives could be saving each year.[3] Learning the basic of CPR is community service at its best, as it can help to avoid mortality through timely assistance or helping before medical help arrives. In India, approximately 98% people are not skill or knowledge about the CPR. It is the most crucial and basic procedure to save a life in the event of a sudden cardiac arrest.[4] Now, day's society is complex and over changing. As children grow, they learn not only to cope up with current demands but also to prepare for the many unexpected event facing tomorrow. It is necessary to do a study on knowledge and skill of the adolescent because adolescent will become the elder person in the future. Educating the adolescents and creating awareness in helping them to learn more about CPR and it helps to prevent death occurring due to cardiac arrest. If they are aware and can perform basic life support during the critical life situation, then they can educate their younger ones. Hence, if the maximum people in the society know the basic life support, then we can save the life of those people who are suffering from sudden cardiac arrest. Hence, the researcher carried out this study on skill on CPR among adolescents' students because they are the once who come forward to face any situations.

Materials and Methods

One group pre-test and post-test design was used for this study. The independent variable in the study is skill training program on knowledge and skills of CPR. The dependent variables in the study are knowledge and skills on CPR among adolescents. The study was conducted at selected higher secondary school. Sample includes 60 adolescents who fulfill the inclusion criteria were selected by non-probability convenient sampling technique. The Table 1 shows that the, Gender- Male 39 (65%) were male and 21 (35%) were Female. Area of residence- 56 (93.33%) were in Rural area and 04(6.66%) were from Urban area. Stream of education- 13(21.66%) were in arts, 18(30%) were in commerce and 29(48.33%) were in science stream. Type of family Majority 48(80%) had from Joint family and 12(20%) had from nuclear family. History of cardiac illness in family Majority 43(71.66%) had family history of cardiac illness.

The Table 2 shows that in the pre-test, majority 38(63.33%) had poor level of knowledge, 22(36.66%) had good knowledge. Whereas in the posttest after the skill training programme majority 56(93.33 %) had excellent level of knowledge, 3(5%) had good level of knowledge and 1(1.66%) had poor level of knowledge regarding Cardio Pulmonary Resuscitation among adolescents in selected higher secondary school of Maharashtra.

Table 1: Frequency and percentage distribution of demographic variables of adolescents in selected higher secondary school of Maharashtra *n*=60

S. No.	Demographic variables	Frequency	%
1	Gender		
	a) Male	39	65
	b) Female	21	35
2	Area of residence		
	a) Rural	56	93.33
	b) Urban	04	6.66
3	Stream of education		
	a) Arts	13	21.66
	b) Commerce	18	30
	c) Science	29	48.33
4	Type of family		
	a) Joint family	48	80
	b) Nuclear family	12	20
5	History of cardiac illness in family		
	a) Yes	43	71.66
	b) No	17	28.33

Table 2: Classification of respondents based on the level of knowledge *n*=60

Level of knowledge	Pre-test		Post-test	
	Frequency	%	Frequency	%
Poor level (0–06)	38	63.33	1	1.66
Good level (07–13)	22	36.66	3	5
Excellent level (14–20)	0	0	56	93.33

Table 3: Classification of respondents based on the level of skills

Level of practice	Pre-test		Post-test	
	Frequency	%	Frequency	%
Poor (0–3)	58	96.66	11	18.33
Fair (4–7)	02	3.33	41	68.33
Good (8–11)	0	0	8	13.33

Table 4: Comparison of knowledge score among adolescents in selected higher secondary school

Standard measures	Pre-test knowledge	Post-test knowledge
Mean	5.63	16.83
Mean percentage	9.38	29.08
Median	6	18
SD	1.96	2.56

SD: Standard deviation

Table 5: Comparison of skills score among adolescents in selected higher secondary school

Standard measures	Pre-test skills	Post-test skills
Mean	2.66	09.38
Mean percentage	20.60	50.60
Median	2	10
SD	0.928583	4.8

SD: Standard deviation

Table 6: Comparison between the pre-test and post-test level of knowledge

Aspects	Knowledge		Paired *t*-test
	Mean	Mean (%)	
Pretest	5.63	9.38	*t*=37.8721
Posttest	16.83	29.08	df=59
Difference between pre-test and post-test	11.2	19.7	*P*≤0.05 (*t* table=2.00)

Table 7: Comparison between the pre-test and post-test level of skills

Aspects	Skills scores		Paired *t*-test
	Mean	Mean %	
Pre-test	2.66	20.60	*t*=13.15
Post-test	09.38	50.60	df=59
Difference between pre-test and post-test	06.72	30	*P*≤0.05 (*t* table=2.00)

Table 8: Association between pre-test level of knowledge regarding cardiopulmonary resuscitation with selected demographic variables (*n*=60)

Demographic variables	Frequency	Mean	Test value
Gender			
Male	39	5.46	Unpaired test
Female	21	5.95	*P*=0.05
			t=2.00
			df=58
			NS
Area of residence			
Rural	56	5.60	Unpaired test
Urban	04	6.00	*P*=0.05
			t=2.00
			df=58
			NS
Stream of education			
Arts	13	5.38	ANOVA test
Commerce	18	5.72	*P*=0.05
Science	29	5.68	f=0.12
			df=59
			NS
Type of family			
Joint family	48	5.07	Unpaired test
Nuclear family	12	5.78	*P*=0.05
			t=2.00
			df=58
			NS
History of cardiac illness in family			
Yes	43	5.72	Unpaired test
No	17	5.41	*P*=0.05
			t=2.00
			df=58
			NS

NS: Non-significance

For data collection, permission was obtained from the Local Ethical Committee. A prior formal written permission was obtained from the selected higher secondary school of Maharashtra for conducting the study. On 1st day of the study, researcher explain about himself and sample selection was done. An informed consent was obtained from the subjects. The purpose of the study was explained to the subjects. A pre-test was conducted on CPR using the self-structured knowledge questionnaire for knowledge and observational checklist for skills on 1st day. After conducting pre-test on CPR the skills training-program was delivered to subjects. A post-test was administered on 7th day of providing skill training program using same self-structured knowledge questionnaire for knowledge and observational checklist for skills and the data were collected.

Table 9: Association between pre-test level of skills regarding cardiopulmonary resuscitation with selected demographic variables (*n*=60)

Demographic variables	Frequency	Mean	*P*
Gender			
Male	39	2.12	Unpaired test
Female	21	2.52	*P*=0.05
			t=2.00
			df=58
			NS
Area of residence			
Rural	56	2.28	Unpaired test
Urban	04	2	*P*=0.05
			t=2.00
			df=58
			NS
Stream of education			
Arts	13	2.07	ANOVA test
Commerce	18	2.33	*P*=0.05
Science	29	2.31	*F*=0.33
			NS
Type of family			
Joint family	47	2.34	Unpaired test
Nuclear family	13	2	*P*=0.05
			df=58
			t=2.00
			NS
History of cardiac illness in family			
Yes	43	2.39	Unpaired test
No	17	1.94	*P*=0.05
			df=58
			t=2.00
			NS

NS: Non-significance

The Table 3 shows that in the pre-test, majority 58(96.66%) had poor level of skills, 2(3.33%) had fair level of skills. Whereas in the post-test after skill training programme 8 (13.33%) had good level of skills, 41(68.33%) had fair level of skills and 11(18.33%) had poor level of skills regarding Cardio Pulmonary Resuscitation among adolescents.

The Table 4 shows that in pre-test the mean was 5.63 and in the post-test mean was 16.83. In the pre-test mean percentage was 9.38 and in the post-test mean percentage was 29.08. In the pre-test median score was 6 and in the post-test median score was 18. And in the pre-test standard deviation was 1.96 and in post-test standard deviation was 2.56.

The Table 5 shows that in pre-test the mean was 2.66 and in the post-test mean was 09.38. In the pre-test mean percentage was 20.60 and in the post-test mean percentage was 50.60. In the pre-test median score was 2 and in the post-test median score was 10. And in the pre-test standard deviation was 20.60 and in post-test standard deviation was 4.8.

Data analysis

In descriptive statistics, to determine the level of knowledge and skills of adolescents regarding CPR by using mean, median, and standard deviation. In inferential statistics, the significance of difference between the mean pre-test and post-test knowledge and skills scores of adolescents regarding CPR using paired t-test and to find out the association between pre-test level of knowledge and skills with selected demographic variables of adolescents by t-test, using ANOVA test.

Results

Pre-test knowledge mean was 5.63 and standard deviation (SD) was 1.96, and in the post-test, the mean was 16.83 and SD was 2.56 (Table 6). Pre-test skills mean was 2.66 and SD was 0.92, and in the post-test, the mean 09.38 and SD was 4.8 (Table 7). The comparison between the pre-test and post-test level of knowledge revealed that a "*t*" value was t = 37.87 which showed a high statistical significance at 0.05 level (Table 6). The comparison between the pre-test and post-test level of skills revealed that a "*t*" value was t = 13.15 which showed a high statistical significance at 0.05 level (Table 7). Association of selected demographic variables was none of the demographic variables had shown statistically significant association with pre-test level of knowledge and skills among adolescents.

The Table 8 shows that none of the demographic variables that is gender, area of residence, stream of education, type of family, history of cardiac illness in family had shown statistically significant association with pre-test level of knowledge among adolescents in selected higher secondary school.

The Table 9 shows that none of the demographic variables such as gender, area of residence, stream of education, type of family, history of cardiac illness in family had shown statistically significant association with pre-test level of skills among adolescents in selected higher secondary school.

Discussion

The main study was conducted in selected higher secondary school of Maharashtra. The skill training program was tested for its effectiveness by pre-test and post-test. On day 1, the pre-test was administered, followed by administering skill training program. On 7th day, post-test was administered. The data gathered were analyzed and interpreted according to the objectives of the study. The descriptive and inferential statistical was used for the data analysis.

The ethical aspect of research was maintained throughout the study by obtaining ethical clearance, formal permission from the respective authorities, and consent from the participants. Privacy and confidentiality were maintained throughout the data collection period and collected data were used only for the research purpose.

The most significant public health issues in the globe is violence and injury. A large number of the millions of non-fatal injuries have long-term health effects and are a major cause of mortality, especially in children and young adults. A wound or violent act causes long-term psychological health effects in tens of millions more individuals.[5]

Animals and vegetation both need oxygen to survive. The placenta supplies the foetus with oxygen before delivery. One of the main causes of death for people living in developed nations is heart disease. In developing nations, the majority of cardiac arrest patients do not have access to sophisticated emergency care, whereas in developed nations, experts will be there within 10 minutes. The study's goal was to assess the secondary school teachers' current CPR information and abilities. We also looked into how well secondary school students were taught CPR using simulations. On a sample of 60 selected secondary school teachers, we conducted a pre- and post-test research using a 20-item questionnaire and a skill checklist. In terms of information level, secondary school teachers' pre-test and post-test mean values were 6.05 and 10.33, respectively, with standard deviations of 2.79 and 1.38. The mean difference values were 4.28 [+ or -]. 3.1. Pre- and post-test mean values for secondary school teachers' degree of practises were 2.85 and 3.91, respectively, with standard deviations of 0.54 and 0.90. The median change [plus or minus] was 1.06 1.08. Effective CPR simulation training for secondary school instructors.[6]

the first to demonstrate in cats that external heart compression without opening the chest might result in adequate circulation: "It can easily be seen that for a long time one could keep up a kind of emergency circulation; as soon as the compression is decreased the heart refills itself from the main veins, so that again and again fresh blood will be forced out of the heart."George Crile in Cleveland, Ohio, USA, confirmed this work in dogs, and seven human cases"one successfully and two partially so"were recorded in 1904. Although internal massage through an open thorax was used until the work of Kouwenhoven half a century later, external cardiac compression was abandoned in the early twentieth century after Schiff's work in 1896.[7]

The results of the current research showed that adolescents' pre-test knowledge of CPR was insufficient, and that there was no correlation between knowledge and ability and demographic factors.My conviction that all life is a gift and should be protected is emphasised through CPR.[8]

Conclusion

The results of the study will enable the health professionals to utilize the teaching program of CPR on adolescents in the schools and colleges as an additional improvement in knowledge and skills of CPR.

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Conflicts of interest

None declared.

References

1. Mehra R. Global public health problem of sudden cardiac death. J Electrocardiol 2007;40:S118-22.
2. Heart Disease, Stroke among Top Killers in India. @Businessline. 2018. Available from: https://www.thehindubusinessline.com/news/science/heart-disease-stroke-among-top-killersin-india/article24935985.ece [Last accessed on 2023 Jan 01].
3. Heart Disease, Stroke among Top Killers in India. @Businessline. 2018. Available from: https://www.thehindubusinessline.com/news/science/heart-disease-stroke-among-top-killersin-india/article24935985.ece [Last accessed on 2023 Feb 02].
4. Every Citizen must be Trained to Save Others in Times of Life-Threatening Distress: Vice President; 2018. Available from: https://pib.gov.in/PressReleasePage.aspx?PRID=1554752 [Last accessed on 2023 Jan 12].
5. Injuries and Violence the Facts; 2021. Available from: https://apps.who.int/iris/bitstream/handle/10665/149798/9789241508018-eng.pdf?sequence=1 [Last accessed on 2023 Jan 02].
6. Raut NG, Mourya AT. Effectiveness of Simulation Teaching Regarding CPR among Secondary School Teachers. Journal of Evolution of Medical and Dental Sciences. 2020;9:2730-8.
7. Hurt R. Modern cardiopulmonary resuscitation--not so new after all. J R Soc Med 2005;98:327-31.
8. Lavanya CH. A quasi-experimental study to assess the effectiveness of hands on skill training program on CPR among adolescents in selected schools, Bangalore. Int J Adv Res Dev 2017;2:1-3.

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