

A Study to Assess the Video Assisted Teaching on Knowledge and Skills Regarding Adult Cardio Pulmonary Resuscitation (CPR) among Final year Pharmacy Diploma Students at KCT'S Krishna College of Pharmacy, Karad

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Abstract: Background: Cardiopulmonary Resuscitation (CPR) is a critical component of basic life support. It is established first line before advanced life support. Cardiopulmonary resuscitation is a potential life saver because it is associated with survival and has the potential to prevent sudden death. All health care providers who are in contact with the patients should have regular resuscitation training as recommended by The American Heart Association (AHA) resuscitation guidelines. Many research studies shows that the victims chances of survival depends on the quality of cardiopulmonary resuscitation which means it has direct impact on survival of the victim. Cardiopulmonary resuscitation (CPR) should be used for those patients with reasonable chance of restoring and prolonging life^{1,3,9}. Objectives: To assess the existing knowledge & skills regarding cardio pulmonary resuscitation among the students. Methodology: A qualitative research approach had been used, with one group pre test post test experimental design was used to evaluate the effectiveness of the audio visual learning package on knowledge and skills regarding cardiopulmonary resuscitation among final year pharmacy diploma students. Conclusion: The pre-test data depicts that, majority of students, 38(65.52%) had poor level of knowledge about CPR, whereas 20(34.48%) of students had good level of knowledge and none 0 (0%) of students had Excellent knowledge regarding Adult Cardio Pulmonary Resuscitation (CPR) before administration of Video Assisted Teaching.

Keywords: Cardio Pulmonary Resuscitation (CPR) Knowledge

1. Introduction

Cardiopulmonary Resuscitation (CPR) is a critical component of basic life support. It is established first line before advanced life support. Cardiopulmonary resuscitation is a potential life saver because it is associated with survival and has the potential to prevent sudden death. All health care providers who are in contact with the patients should have regular resuscitation training as recommended by The American Heart Association (AHA) resuscitation guidelines. Many research studies shows that the victims chances of survival depends on the quality of cardiopulmonary resuscitation which means it has direct impact on survival of the victim. Cardiopulmonary resuscitation (CPR) should be used for those patients with reasonable chance of restoring and prolonging life^{1,3,9}.

Cardiopulmonary resuscitation is the final hope for survival when sudden death impends as well as early defibrillation, resuscitative pharmacology, and effective ventilation. Which maintains circulation until normal circulation and ventilation, has been restored through definitive therapy. All the health care professionals should be taught necessary knowledge and skill for performing cardiopulmonary resuscitation.²

According to the American Heart Association statistics emergency medical services (EMS) treats nearly 3, 00,000 victims out of hospital due to cardiac arrests each year in US and people who suffer cardiac arrest outside the hospital scenario was less than 8%. Less than one third of out of

hospital sudden cardiac arrest victims receive bystanders CPR. More than 12 million people were trained CPR annually including health care professionals and General public by The American Heart Association.³

2. Importance of the Study

Sudden cardiac death is a major cause of death in today's world. During the minutes passing from the onset of cardiac arrest to the arrival of professional help, the cardiac arrest victim can only rely upon cardiopulmonary resuscitation (CPR) provided by educated bystanders⁴.

The American heart association strongly encourage the people, companies and organization to implement CPR programs to increase the chances of survival for people who have heart related emergencies. With an AED programme an employee will be better prepared to save the life of co-worker since 1995 the AHA has promoted public access defibrillation programs those focused on training lay rescuers to give CPR and use AED in public gathering areas. Such programs have been shown to have significant impact on survival rates. So providing a effective CPR we should have good knowledge as well as skills. From this study the researcher focused to develop all students' psychomotor skill regarding CPR.

Assumptions of the Study

Present level of knowledge among pharmacy students regarding CPR is not adequate.

Delimitation

The study was limited to the final year diploma in pharmacy students during 2016-2017.

Review of the literature

Studies related to knowledge regarding CPR:

Perer M. D (2010) conducted a study at Washington University School of Medicine in St. Louis to rule out only giving Cardiac compression by the bystanders without giving breath, there were improved survival rates. They combined the data from the three studies in a meta analysis and were able to analyze survival rate in more than 3.700 cardiac arrest patients who received either standard CPR or Chest compression only. Those smaller studies had suggested chest compression –only CPR may improve survival. One noted a 14% increase in survival to hospital discharge, while 2nd reported a 24% improvement in 30 days survival. But analyzing all three studies the team determined that survival improved by 22% when bystanders called 911 and were advised by the dispatches to do chest compression-only CPR⁷.

Thomas D Rea MD (2010) did a study was to evaluate the effect of compression-only CPR. Data was collected from emergency medical services division of public health for Seattle and king country and colleagues. 1941 adults out of hospital cardiac arrest, dispatches randomly provided CPR directions to bystanders for compressions either alone or with rescue breathing. No significant differences were observed in the proportion of patients who survived to hospital discharge or survive with the favourable neurology outcome. Compression along was linked to a no significant trend towards a higher proportion of patients surviving to hospital discharge for those with a cardiac cause of arrest or shockable rhythms⁸.

Marzooq H, Lyneham J (2009) conducted a study on Cardiopulmonary resuscitation knowledge among nurses working in Bahrain. There is a public expectation that registered nurses are competent in their skills. Nurses need to know cardiopulmonary resuscitation (CPR) to enable them to safely and effectively provide appropriate CPR measures. The objectives of this descriptive study were (i) to investigate nurses' knowledge regarding CPR; and (ii) to identify barriers to appropriate CPR evaluation. One hundred questionnaires were distributed to nurses working in a public government hospital in Bahrain; 82 of these were returned. The results indicated that cognitive knowledge was not adequately retained. Fifty-eight per cent of respondent's perceived recalling CPR information as easy or extremely easy. Only 7% of respondents passed the knowledge test. In general, those who had less education and experience did not recall essential CPR knowledge. This study identified a significant problem with the knowledge surrounding CPR. More concerning was the lack of professional responsibility in dealing with this inadequacy.⁹

Henry halperin, David j. Carver (2010) the study was conducted to know the quality of CPR in an important predictor of outcome from cardiac arrest. Mechanical chest compression devices provide an alternative to manual CPR. Physiological and animal data suggest that mechanical chest

compression devices are more effective than manual CPR. Consequently there has been much interest in the development of new technique devices to improve the efficacy of CPR. The review will consider the evidence and current indication for the use of some of the more common mechanical devices developed to increase the safety and efficacy of CPR Administration¹⁰.

3. Methodology

This chapter deals with the methodology adopted in order to meet the set objectives of this study and for assessing the effectiveness of audio visual learning package on knowledge and skills regarding cardiopulmonary resuscitation among final year pharmacy diploma students at KC T's Krishna College of pharmacy karad. It include the description of the research approach, research design, setting of the study, inclusive and exclusive criteria for selection of the sample , sample and sampling technique ,development of data collection ,tool content validity, reliability, pilot study, procedure for data collection and plan for data analysis.

4. Research Approach

A qualitative research approach had been used, with one group pre test post test experimental design was used to evaluate the effectiveness of the audio visual learning package on knowledge and skills regarding cardiopulmonary resuscitation among final year pharmacy diploma students. Interventional study was conducted out on the same group of participants' i.e. final year pharmacy diploma students at KCT'S pharmacy college Karad in the state of Maharashtra from 24th October 2016 to 15th November 2016. The location of karad is shown in the state of Maharashtra in the map of India.

Setting of the Study

The research setting of the present study was KIMSDU Karad.

Krishna Institute of Medical Science Deemed University Karad, is located in western Maharashtra India. The campus is speeded over 60 acres. The constituent colleges of the University include Medical, Dental, Physiotherapy, Nursing and Biotechnology offering undergraduate and postgraduate courses in respective faculties and campus include pharmacy and nursing diploma course under the respective council. It also runs Ph.D. programs in Anatomy, Community Medicine, Pharmacology, Microbiology and Nursing.

The population:

In this study the accessible population consisted of the students studied during 2016-17 in final year diploma pharmacy at KCT'S Krishna College Karad.

Sample:

A sample is a selected proportion of a defined population. In this study the sample consisted of 58 students who studied in KCT'S Krishna College.

Sample Technique

The final year pharmacy students at Pharmacy College Karad attached to KCT karad were identified. There were 58 students' final year pharmacy students who were studying in final year diploma in pharmacy so all of them were decided to be included in the study

All final year diploma students were contacted and plan & purpose of the study was explained to them. A litter informed consent was taken from all the willing students in the study which fulfil the sampling criteria

Non probability convenient purposive sampling technique includes participants who were easily accessible to the researcher and who meet the criteria of the study.

Sample Size Calculation

Sample size calculation formula was used as follow:-

$$n = \frac{z^2 * sd^2}{(\bar{X} * \delta)^2}$$

$$Z = 1.96$$

$$n = 10 \text{ (sample)}$$

$$\text{Pre-test mean} = 4.6$$

$$\text{Post test mean} = 8.6$$

$$\text{pre sd} = 1.17$$

$$\text{post sd} = 1.48$$

$$n = \frac{(1.96)^2 (0.26)^2}{(4)^2 (\delta)^2}$$

$$\delta = \text{error \%}$$

Consider data error 2 %

$$\frac{(3.84)(0.068)}{(16)(0.02)^2}$$

$$N = 41$$

Thus minimum 41 subjects we required to be studied. Since the study design was before and after type, considering chance of non response due to any reason more subjects were needed to be included than the calculated minimum sample size, so that I have been taken all 58 students from the selected class.

Sample selection Criteria:

Inclusive Criteria:

- 1) Students who were studying final year Pharmacy at KCT'S Pharmacy College, Karad.
- 2) Students who were available at the time of data collection.

Exclusive Criteria:

- 1) Students who were not willing to participate in the study.

Subjects:

The participants of the research study comprised of all final year pharmacy students who are studying during 2016-17 in KCT'S Krishna pharmacy college.

Variables:

Three types of variables were dependent variables, Independent Variables and Demographic Variables.

Dependent variables:

Dependent variables were knowledge of the selected students regarding cardiopulmonary resuscitation in this study.

Demographic Variables:

The base line information such as age, gender, religion, and previous knowledge about CPR,

Development of the Tool:

Based on the objective of the study demographic data and structured knowledge questionnaires, on cardiopulmonary resuscitation was prepared. To make these questionnaires the investigator went through numerous primary data from books journals world wide web, videos and after extensive and systematic review of literature.

Tool and technique:

The tools of data collection translate the research objectives into specific questions/items, the response to which will provide the data required to achieve the research objectives. In order to achieve this purpose each question/item much convey to the respondent the idea or group of ideas required by the research objectives and each item must obtain a response which can be analyzed for fulfilling the research objectives.

The researcher prepared a questionnaire as tool for the study

Section A:- Demographic Data

The demographic data conduct details with the data of study population like Age Gender Religion Previous CPR knowledge.

Section B:- Knowledge based questionnaire:

The researcher used the multiple choice questionnaire to assess the knowledge of the students. it consist of 12 items based on knowledge of students regarding Adult CPR. 1 mark was given for correct answer minimum mark was 0 and maximum 12. No negative mark was done

Ethical clearance

The main study conducted after the approval of ethics committee of the Krishna Institute of Medical Science Deemed University, permission obtained from the respective head of the institutions. The purpose and details of the study subjects and assurance given regarding the confidentiality of the collected data

Reliability

Reliability refers to the accuracy and consistency of information obtained in a study. It is said to be reliable if the co-efficient is more than 0.7

The reliability of the questionnaire was determined by inter rater method. Cronbach alpha was used for reliability. Cronbach alpha measure how will a set of items or (or variables) measure a single uni dimensional latent construct. Cronbach Alpha is not a statistical test; it is coefficient reliability (or consistency).

The reliability of the tool was established using cronbach's coefficient alpha formula. The reliability of knowledge score was 0.959; for observational checklist was 0.728

This can be considered reliable.

Feasibility of the study

Feasibility of the study looks at the viability of an idea with an emphasis on identifying potential problems and attempts to answer the hypothesis.

Procedure for Data Collection

The researcher obtained the formal permission from the principal KCT'S Krishna College of pharmacy Karad to collect the data for the main study. The main study was conducted at Krishna pharmacy college Karad.

Steps for conducting main study were as follows;

- 1) The investigator introduced him in front of the students
- 2) Written informed consent was obtained from each subject after explaining the purpose of the study
- 3) A structured questionnaire was administered to assess the socio demographic data and pre test knowledge related to Adult CPR to study Object

The data collection began on 24th October 2016; the first day researcher introduced himself to the students. After explaining the purpose and details of the study, assurance was given regarding the confidentiality of the collected data.

On the very next day, consent from the students was taken and socio demographic data acquired. The pre test knowledge on, "Adult CPR" was obtained by using a structured questionnaire. On 26th and 27th. A structured questionnaire was given to students later on, for test knowledge assessment.



Conducting Knowledge pretest 25th October 2016

Plan for data analysis:

Statistical analysis helps the researcher make sense of quantitative information. Statistical procedure enable researcher to summarize, organize, evaluate, interpret and communicate the numeric information. The data obtained was analyzed in terms of objective of the study by using descriptive and inferential statistics.

Organization of Findings

In order to find out the improvement in knowledge the responds the data is organized, analyzed and presented under the following headings

Section A:

Distribution of the students according to socio demographic variables

Section B:

Frequency and percentage distribution of pre test knowledge scores regarding CPR

Frequency and percentage distribution of post test knowledge score of regarding CPR

Comparison of pre test and post test knowledge score of students regarding CPR

Section – A

Table 1: Distribution of socio demographic data, N=58

Sr. No.	Socio Demographic Variables	No.	%
1	Age		
	18-20	48	82.6
	21-30	7	12.2
	>24	3	5.2
2	Gender		
	Male	20	34.5
	Female	38	65.5
3	Residence		
	Urban	16	27.6
	Rural	42	72.4
4	Type of Family		
	Joint	30	51.7
	Nuclear	28	48.3
5	Have you received any information about the emergency care for a person who collapses and becomes unresponsive?		
	Yes	35	60.3
	No	23	39.7
6	Have you ever seen emergency care/ cardio pulmonary resuscitation given to an un responsive person whose heart beat and breathing has suddenly stopped?		
	Yes	7	12.1
	No	51	87.9
7	Have you ever seen on television or read in newspapers, magazines etc about basic life support/ cardio pulmonary resuscitation?		
	Yes	51	87.9
	No	7	12.1

The above diagram depicts that most of 48 (82.6%) participants of Final year Pharmacy Diploma Students at KCT'S Krishna College of Pharmacy, Karad were in the age group of 18-20 years followed by 7 (12.2%) who were in the age group of 21-30 years and 3(5.2%) were >24 years of a

The above diagram depicts that most of 38(66%) participant of Final year Pharmacy Diploma Students at KCT'S Krishna College of Pharmacy, Karad were females and the remaining 20 (34%) respondents of were males.

Distribution of students according information from television or read in newspapers, magazines etc about basic life support/ cardio pulmonary resuscitation.

The above bar diagram shows, majority of Final year Pharmacy Diploma Students at KCT'S Krishna College of

Pharmacy, Karad i.e. 51(87.9%) have received information from television or read in newspapers, magazines etc about basic life support/ cardio pulmonary resuscitation while 7(12.1%) had not received such information.

Section B.

Table 2: Classifications of final year students on pre- test knowledge level regarding adult cardio pulmonary resuscitation (CPR), N=58

Level of Knowledge	Score	Level of Respondents	
		Frequency	Percentage
Poor	0-4	38	65.52
Good	5-8	20	34.48
Excellent	9-12	0	0.00
Total		58	100.00

Distribution of subjects according on pre-test knowledge before intervention.

The above table-2 and figure-12, shows the pre-test level of knowledge of Students regarding Adult Cardio Pulmonary Resuscitation (CPR).

In the table it was noticeable that majority of students 38 (65.52%) had poor level of knowledge about CPR, whereas 20(34.48%) of students had good level of knowledge and none 0 (0%) of students had Excellent knowledge regarding Adult Cardio Pulmonary Resuscitation (CPR) before administration of Video Assisted Teaching.

5. Discussion

The socio demographic data revealed that the majority of students (83%) were in the age group of 18-20 the maximum number of responders (66%) were females majority of respondents belongs to rural area. Most of the respondents (60%) didn't got any information about the emergency care for a person who collapse and become unresponsive. The findings of the study discussed with the reference to the objectives and hypothesis.

The investigator has assessed the knowledge of CPR. There were 20 (34.5%) male and 38(65.5%) female among total (58) participant in this study.

The final year pharmacy have been arbitrarily grouped in the categories according to their knowledge score as per poor, good and excellent score take cut of as follows

The knowledge score was arbitrarily graded as poor 0- 4(%) good 5-8(%) and excellent 9-12.

Based on the objective of the study, data was collected by the investigator.

The pre-test data shows that, majority of students, 38(65.52%) had poor level of knowledge about CPR, whereas 20(34.48%) of students had good level of knowledge and none 0 (0%) of students had Excellent knowledge regarding Adult Cardio Pulmonary Resuscitation (CPR).

The findings of the present study are supported by another study which was conducted by Bonnie Lynch a, Eric L. Einspruch a, and Graham Nichol b, the study was conducted to assess the effectiveness of a 30-min CPR self-instruction program for lay responders: a controlled randomized study. The data was collected from 285 adults between 40 and 70 years old who had had no CPR training within the past 5 years were assigned to an untrained control group, Heart saver training, or one of three versions of VSI. Basic CPR skills were measured by instructor assessment and by a censored manikin. The percentage of subjects who assessed unresponsiveness, called the emergency telephone number 911, provided adequate ventilation, proper hand placement, and adequate compression depth was significantly better ($P < 0.05$) for the VSI groups than for untrained controls. VSI subjects tended to have better overall performance and better ventilation performance than did Heart saver subjects. And the study concluded that older adults learned the fundamental skills of CPR with this training program in about half an hour. If properly distributed, this type of training could produce a significant increase in the number of lay responders who can perform CPR.³⁴

The above findings also supported by study carried out by Dr. K. Tamizharasi 2012 on effectiveness of video assisted teaching programme (VATP) on neonatal resuscitation for the nurses working in rural salem, the quasi-experimental research, pre-test and post test without control group design with experimental approach was undertaken to assess the effectiveness of Video assisted teaching programme on the knowledge of nurses on neonatal resuscitation. Data were collected from 248 nurses selected by cluster sampling technique in PHCs of Salem district through closed ended questionnaire and observational checklist. Data were analysed by descriptive and inferential statistics. The overall pre-test mean knowledge score was 28.13 ± 7.55 (42.61%) whereas in post-test it was 57.71 ± 3.94 (87.44%) revealing 44.83% enhancement of knowledge score. Area wise assessment shows during post test highest mean KS (1.89 ± 0.32) which is 94.56% of the maximum score was for the area "Initial assessment" where the difference in mean percentage was lowest (31.66%) might be due to highest pre test mean % (62.9%). Highly significant difference was found between the total knowledge scores of pre and post test and area wise score values of pre-test and post test ($p < 0.01$) revealing effectiveness of video assisted teaching programme. No significant association was found between post test knowledge scores of nurses when compared to demographic variables ($P > 0.05$)²⁸.

6. Conclusion

Hence on-going teaching and health education programs can further improve the knowledge of Final year Pharmacy Diploma Students at KCT'S Krishna College of Pharmacy, Karad.

7. Limitations

The study only assessed the knowledge of the students regarding Basic of CPR
 The study was limited to one institution around the area; more than two institutions could give more precise results.

8. Recommendation

- Same study can be carried out on larger population of lay people
- Similar study can be carried out by developing audio visual aids package on different body system of human body
- The study can be carried out to assess the knowledge as well as skill of other medical students or lay people regarding CPR
- A descriptive study can be carried out to assess the teaching methods used to teach CPR regarding the effective understanding of those methods used for gaining knowledge in other colleges

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