



**“A STUDY TO ASSESS THE EFFECTIVENESS OF TRAINING PROGRAMME ON KNOWLEDGE AND BEGINNING SKILL REGARDING CARDIOPULMONARY RESUSCITATION (CPR) AMONG STAFF NURSES WORKING IN INTENSIVE CARE UNITS AT SELECTED HOSPITALS OF SURAT DISTRICT, GUJARAT.”**

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**ABSTRACT** **BACKGROUND OF THE STUDY:** Cardiopulmonary resuscitation (CPR) dramatically increases the chance of survival for a victim suffering from SCA. CPR is a combination of chest compressions and breaths, and provides critical blood flow and oxygen to the heart and brain. If CPR is started within three to five (3-5) minutes of collapse, it increases a victim's chance of survival and reduces the chance of permanent damage.

**AIM OF THE STUDY:** The aim of the study is to assess the effectiveness of training programme on knowledge and beginning skill regarding cardiopulmonary resuscitation among staff nurses working in intensive care unit.

**MATERIAL AND METHODS:** In the study quantitative approach was adopted. The research design use for the study was Pre-experimental one group pre-test post-test design was adopted for the study. In this study non-probability, convenient sampling techniques was used for the selection of samples. Total sample size was 30 staff nurses working in intensive care unit at Venus hospital, Surat. Ethical consideration was taken from the college to conduct the study. Data was collected between 15/04/2019 to 21/04/2019 at Venus hospital, Surat, Gujarat, by the tool which consist the selected socio demographic variables, structured knowledge questionnaire and observation checklist regarding cardiopulmonary resuscitation and STP with training programme also given on 15-4-2019 after the pre-test. Data analysis was done by descriptive and inferential statistics.

**RESULTS:** In pre-test knowledge score of participants, 6.7% of them had poor knowledge score and in post-test 0 of them had poor knowledge score. In pre-test beginning skill score of participants, 33.3% of them had poor score during Pre-test and during Post-test 0 of them had beginning score. Therefore, knowledge and beginning skill score was increased after the training programme. There is a significant difference between the pre-test and the post-test mean and it is statistically significant at 0.05 levels. The knowledge score shows the statistically significant association with the professional educational status and work experience in hospital of the staff nurses.

**CONCLUSION:** The findings of the study showed that the structured teaching programme and training programme was very effective in improving the level of knowledge and beginning skill.

**KEYWORDS :** Training programme, CPR, knowledge and beginning skills.

**INTRODUCTION & BACKGROUND OF THE STUDY**

Health is the level of functional and metabolic efficiency of a living organism. In humans it is the ability of individuals or communities to adapt and self-manage when facing physical, mental, psychological and social changes with environment. The World Health Organization (WHO) defined health in its broader sense in its 1948 constitution as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.<sup>1</sup>

Cardiovascular diseases (CVDs) have now become the leading cause of mortality in India. A quarter of all mortality is attributable to CVD. Ischemic heart disease and stroke are the predominant causes and are responsible for >80% of CVD deaths. The Global Burden of Disease study estimate of age-standardized CVD death rate of 272 per 100 000 population in India is higher than the global average of 235 per 100 000 population. Premature mortality in terms of years of life lost because of CVD in India increased by 59%, from 23.2 million (1990) to 37 million (2010).<sup>2</sup>

The heart is a muscular organ in most animals, which pumps blood through the blood vessels of the circulatory system. Blood provides the body with oxygen and nutrients, as well as assists in the removal of metabolic wastes. In humans, the heart is located between the lungs, in the middle compartment of the chest. Age, hypertension, left ventricular hypertrophy, intra-ventricular conduction block, elevated serum cholesterol, glucose intolerance, decreased vital capacity, smoking, relative weight, and heart rate identify individuals at risk for sudden cardiac death. Smoking is an important risk factor. In the Framingham study, the annual incidence of sudden cardiac deaths increased from 13 per 1000 in non-smokers to almost 2.5 times that for people who smoked >20 cigarettes per day.<sup>3</sup>

Heart disease is the world's largest killer, claiming 17.5 million lives every year. About every 29 seconds, an Indian dies of heart problem. As many as 20,000 new heart patients develop every day. In India 9 core Indian suffer from heart disease and 30% more are at high risk. Sudden cardiac arrest is a major public health problem. Basic Life Support (BLS) is the provision of treatment designed to maintain adequate circulation and ventilation to the patient in cardiac arrest, without the use of drugs or specialist equipment. Basic Life Support (BLS) includes recognition of signs of sudden cardiac arrest (SCA), heart attack, stroke, and foreign-body airway obstruction (FBAO); and cardiopulmonary resuscitation (CPR).<sup>4</sup>

Cardiopulmonary resuscitation (CPR) dramatically increases the chance of survival for a victim suffering from SCA. CPR is a combination of chest compressions and breaths, and provides critical blood flow and oxygen to the heart and brain. If CPR is started within three to five (3-5) minutes of collapse, it increases a victim's chance of survival and reduces the chance of permanent damage.<sup>5</sup>

CPR is a simple but effective procedure that allows almost anyone to sustain life in the first critical minutes of cardiac arrest. CPR provides oxygenated blood to the brain and the heart, long enough to keep vital organs alive until the victim is transferred. Statistics suggest that sudden cardiac arrest is rapidly becoming the leading cause of death. Once the heart ceases to function, a healthy human brain may survive without oxygen for up to 4 minutes without any permanent damage. Unfortunately, a typical emergency medical service response may take 6, 8 or even 10 minutes.<sup>6</sup>

At first medical personnel were only allowed to give CPR. Kouwenhoven and his colleagues set a new land mark for effective external cardiac compression, coupled with mouth to mouth breathing in the resuscitation of victim who had total circulatory stand still. As a result, the combination of closed – chest cardiac massage and mouth to mouth rescuer breathing, coupled with the introduction of external defibrillation, created cardiopulmonary resuscitations as it is known today. Thus the foundation of modern CPR was laid in 1960.<sup>7</sup>

Sudden Cardiac Death is a major public health problem all over the world, and although resuscitation rates are improving, the majority of individuals who suffer Sudden Cardiac Arrest will not survive, and often the underlying cardiac condition is not recognized prior to death. Behind these tragic events, there are various causes, risks, and predisposing conditions, which differ in the prevalence according to region, age, ethnicity, race and sex. As such, a multifaceted approach, which addresses risk factors both in high and low risk populations, will be required to decrease the burden of Sudden Cardiac Death. Although substantial progress has been made in this field, further studies addressing SCD prevention across the whole spectrum of disorders, from CHD in the general population to the rarer inherited disorders, are warranted to address many remaining uncertainties regarding the multitude of factors which underlie susceptibility to SCD.<sup>8</sup>

**OBJECTIVES**

- To assess the knowledge regarding cardiopulmonary resuscitation

among staff nurses working in intensive care units before and after training programme.

- To assess the beginning skill regarding cardiopulmonary resuscitation among staff nurses working in intensive care unit before and after training programme.
- To compare the pretest and post-test knowledge and beginning skills regarding cardiopulmonary resuscitation among staff nurses working in intensive care unit.
- To associate effectiveness of training programme with selected socio-demographic variable such as age, gender, professional education status etc.

**ASSUMPTIONS**

- Staff nurses may have some knowledge regarding CPR.
- Staff nurses may have some beginning skills in providing CPR
- Training Programme may increase the knowledge and improve the skill of staff nurses regarding cardiopulmonary resuscitation.

**MATERIAL AND METHODS:**

In the study quantitative approach was adopted. The research design use for the study was Pre-experimental one group pre-test post-test design was adopted for the study. In this study non- probability, convenient sampling techniques was used for the selection of samples. Total sample size was 30 staff nurses working in intensive care unit at Venus hospital, Surat. Ethical consideration was taken from the college to conduct the study. Data was collected between 15/04/2019 to 21/04/2019 at Venus hospital, Surat, Gujarat, by the tool which consist the selected socio demographic variables, structured knowledge questionnaire and observation checklist regarding cardiopulmonary resuscitation and STP with training programme also given on 15-4-2019 after the pre-test. Data analysis was done by descriptive and inferential statistics.

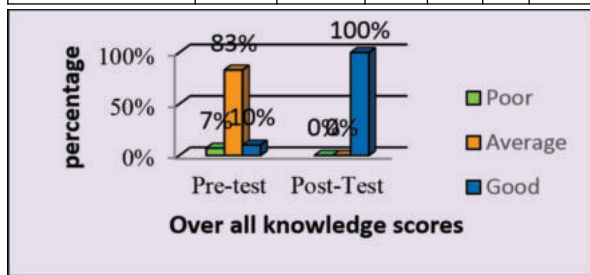
**ETHICAL CONSIDERATION**

The study was proposed and submitted to the ethical committee, Maniba Bhula Nursing College and experts on the committee approved the study. All respondent were carefully informed about the purpose of the study and their part during the study. Informed consent for the study was obtained from all participants. Thus, the investigator followed the ethical guidelines, which issued by the research committee. Necessary permission to conduct the study was requested and obtained from the Maniba Bhula Nursing College, Bardoli, administrative officer of Venus hospital, Surat. The study was done without any violation of human rights.

**RESULTS**

**Table:1** Classification of Overall knowledge of staff nurses.

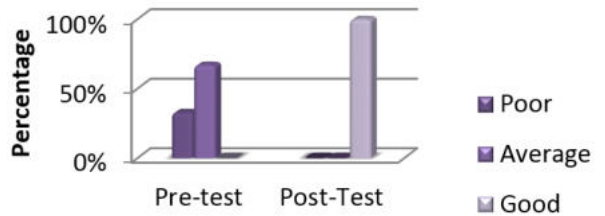
Classification of knowledge score			Pre-test		Posttest	
Grade	Score	%	F	%	F	%
Poor	0-13	1-33%	2	7%	-	-
Average	14-26	24-66%	25	83%	-	-
Good	27-40	67-100%	3	10%	30	100%



The data presented in the Table1 participants' level of knowledge during pretest and post-test regarding cardiopulmonary resuscitation; Pre-test level of knowledge shows that, 83participants were having average knowledge, 10% of participants were having good knowledge and remaining 7%participants were having poor knowledge. During post-test all 100% of participants were having good knowledge regarding cardiopulmonary resuscitation.

**Table:2** Classification of Overall beginning skill of staff nurses.

Classification of beginning skill score			Pre-test		Posttest	
Grade	Score	%	F	%	f	%
Poor	00-08	1-33%	10	33.3%	-	-
Average	09-16	34-63%	20	66.7%	-	-
Good	17-25	64-100%	00	00	30	100%



**Over all beginning skill scores**

The data presented in the table depicts the respondent's level of beginning skill during pretest and post-test regarding cardiopulmonary resuscitation;

Pre-test level of beginning skill shows that, maximum 20(66.7%) participants were having average beginning skill and remaining 10 (33.3%) participants were having poor beginning skill.

During post-test all 30(100%) of participants were having good beginning skill regarding cardiopulmonary resuscitation.

**Table 3** Association of knowledge score with selected Sociodemographic variable.

Socio-demographic variable	Level of knowledge				Total	Chi square value
	Median & below median	%	Above median	%		
<b>Age</b>						$\chi^2=7.60$ df=3 (NS)
a.21-25 yrs	05	33.33%	10	66.66%	15	
b.26-30 yrs	10	83.33%	02	16.66%	12	
c.31-35 yrs	01	50%	01	50%	02	
d.>35 years	01	100%	00	00	01	
<b>Gender</b>						$\chi^2=0.80$ df=1 (NS)
a. Male	05	71.42%	02	28.57%	07	
b. Female	12	52.17%	11	47.82%	23	
<b>Professional educational status</b>						$\chi^2=5.43$ df=1 (S)
a. GNM	08	88.88%	01	11.11%	09	
b. B.Sc(N)	09	42.85%	12	57.14%	21	
<b>Income / Month (Rs)</b>						$\chi^2=5.31$ df=4 (NS)
a. Below 10,000	00	00	02	100%	02	
b. 10,001 – 15,000	09	75%	04	33.33%	12	
c. 15,001 – 20,000	03	37.5%	05	62.5%	08	
d. 20,001 – 25,000	02	66.66%	01	33.33%	03	
e. Above 25,000	03	75%	01	25%	04	
<b>Work experience in hospital</b>						$\chi^2=8.62$ df=2 (S)
a. <1 year	03	25%	09	75%	12	
b. 1-5 year	10	83.33%	02	16.66%	12	
c. >5 year	04	66.66%	02	33.33%	06	
<b>Years of experience in ICU</b>						$\chi^2=1.50$ df=2 (NS)
a. <1 year	08	47.05%	09	52.94%	17	
b. 1-3 year	04	66.66%	02	33.33%	06	
c. >3 year	05	71.42%	02	28.57%	07	
<b>Attended emergency call</b>						$\chi^2=3.09$ df=1 (NS)
a. Yes	12	70.58%	05	29.41%	17	
b. No	05	38.46%	08	61.53%	13	
<b>Done CPR on patient</b>						$\chi^2=2.03$ df=1 (NS)
a. Yes	11	68.75%	05	31.25%	16	
b. No	06	42.85%	08	57.14%	14	
<b>Reason for taking CPR training?</b>						$\chi^2=2.34$ df=2 (NS)
a. Personal interest	07	53.84%	06	46.15%	13	
b. Work nature	05	45.45%	06	54.54%	11	
c. Organizational	05	83.33%	01	16.66%	06	

Data presented in table 3 shows that post-test levels of knowledge of participants regarding cardiopulmonary resuscitation is found significant for professional educational status and work experience in hospital. There will be significant association between the post-test

levels of knowledge scores with selected socio-demographic variables of professional educational status and work experience in hospital.

**Table 3** Association of beginning skill score with selected Sociodemographic variable.

Socio-demographic variable	Level of beginning skill				Total	Chi square value
	Median & below median	%	Above median	%		
<b>Age</b>						$\chi^2$
a. 21-25 yrs	08	53.33%	07	46.66%	15	=1.90
b. 26-30 yrs	08	66.66%	04	33.33%	12	df=3
c. 31-35 yrs	01	50%	01	50%	02	(NS)
d. > 35 years	0	00	01	100%	01	
<b>Gender</b>						$\chi^2$
a. Male	04	57.14%	03	42.85%	07	=0.001
b. Female	13	56.52%	10	43.47%	23	df=1
						(NS)
<b>Professional educational status</b>						$\chi^2$
a. GNM	04	44.44%	05	55.55%	09	=0.78
b. B.Sc(N)	13	61.90%	08	38.09%	21	df=1
						(NS)
<b>Income / Month (Rs)</b>						$\chi^2$
a. Below 10,000	01	50%	01	50%	02	=2.59
b. 10,001 – 15,000	07	53.84%	06	46.15%	13	df=4
c. 15,001 – 20,000	04	50%	04	50%	08	(NS)
d. 20,001 – 25,000	03	100%	00	00	03	
e. Above 25,000	02	50%	02	50%	04	
<b>Work experience in hospital</b>						$\chi^2$
a. <1 year	07	58.33%	05	41.66%	12	=0.13
b. 1-5 year	07	58.33%	05	41.66%	12	df=2
c. >5 year	03	50%	03	50%	06	(NS)
<b>Years of experience in ICU</b>						$\chi^2$
a. <1 year	10	58.82%	07	41.17%	17	=0.14
b. 1-3 year	03	50%	03	50%	06	df=2
c. >3 year	04	57.14%	03	42.85%	07	(NS)
<b>Attended emergency call</b>						$\chi^2$
a. Yes	10	58.82%	07	41.17%	17	=0.07
b. No	07	53.84%	06	46.15%	13	df=1
						(NS)
<b>Done CPR on patient</b>						$\chi^2$
a. Yes	09	56.25%	07	43.75%	16	=0.002
b. No	08	57.14%	06	42.85%	14	df=1
						(NS)
<b>Reason for taking CPR training?</b>						$\chi^2=2.5$
a. Personal interest	07	53.84%	06	46.13%	13	2
b. Work nature	08	72.72%	03	27.27%	11	df=2
c. Organizational	02	33.33%	04	66.66%	06	(NS)

Data presented in table shows that the post-test levels of beginning skill of participants regarding cardiopulmonary resuscitation is not found significant for any of the selected socio demographic variables. there will be no significant association between the post-test levels of beginning skill scores with selected socio-demographic variables of participants.

## DISCUSSION

The present study was undertaken by the researcher to assess the effectiveness of training programme on knowledge and beginning skills regarding cardiopulmonary 80 resuscitation among participants

working in intensive care units at selected hospitals of Surat District, Gujarat. Sudden cardiac death is a major problem in the world, the majority of individuals who suffer sudden cardiac arrest will not survive and often the underlying cardiac condition is not recognizing prior to death. Cardiopulmonary resuscitation increases the chance of survival for the sudden cardiac arrest victim. So this study was done to help participants to improve their knowledge and beginning skill regarding CPR. The conceptual framework of the present study was based on general system model of Ludwig von Bertalanffy (1968). A sample of 30 participants were selected by using non-probability convenient sampling technique, one group pre-test post-test design was used. To assess the knowledge and beginning skill of participants structured knowledge questionnaire and observation checklist was used as tools of study.

Data were analysed and hypothesis were tested using descriptive (frequency, percentage, mean, median, mode, standard deviation) and inferential statistics (paired 't' test and chi square). In pre-test regarding knowledge score out of 30 participants 2 (6.7%) of them had poor knowledge, 25 (83.3%) of them had average knowledge and 3 (10%) of them had good knowledge score. For the beginning skill 10 (33.3%) of participants had poor beginning skill. 20 (66.7%) had average beginning skill and none of them had good beginning skill.

In the post-test majority 30 (100%) of participants had good knowledge score, none of them had poor and average knowledge score. For beginning skill 30 (100%), of participants had good beginning skill score after the training programme. The knowledge mean score of pre-test was 21.4, SD was 4.39 and post-test knowledge mean score was 33.4, SD was 2.28, whereas for the beginning skill pre-test mean score was found 8.7, SD was 1.85 and in the post-test mean beginning score was 20.96, SD was 1.77.

The training programme improved knowledge and beginning skills score on an average of 1.683 and 1.68 respectively. The calculated 't' value for the knowledge was found to be 13.17 which was higher than tabulated value and for the beginning skill 't' value was 24.90 which was also higher than tabulated value at 0.05 level of significance.

There was significant association between post-test knowledge score with demographic variables (professional educational status of participants and work 81 experience in hospital) were found to be significant. And for the beginning skill score with demographic variable were not found to be significant.

## CONCLUSION

In pre-test there was lack of adequate knowledge and beginning skills of participants regarding cardiopulmonary resuscitation, but after the training programme there was significant improvement in knowledge and beginning skill of participants. So, it can be concluded that training programme is found to be an effective and feasible method of teaching strategy to improve knowledge and beginning skill of participants.

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