

# A Study to Evaluate the Effectiveness of Planned Teaching Programme on Knowledge and Skill Regarding Cardiopulmonary Cerebral Resuscitation (CPCR) Among Staff Nurses of Selected Hospitals, Surat, Gujarat

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**Abstract: Background:** Cardiopulmonary Cerebral Resuscitation (CPCR) is a procedure to support and maintain breathing and circulation for an infant child or adolescent who has stopped breathing (respiratory arrest) and/or whose heart has stopped (cardiac arrest). The common indications are cardiac and respiratory arrest. In such a case, start basic life support by early access, check for CAB, and followed by early CPCR. **Aim:** To assess the knowledge and skills regarding Cardiopulmonary Cerebral Resuscitation (CPCR) among the staff nurses, before and after administration of the planned teaching program. **Methods:** One group pretest-posttest, the pre-experimental design was used for the study. Non-probability sampling (purposive sampling) technique was used for 40 staff nurses of selected hospitals, Surat, Gujarat. **Results:** Pretest according to their level of knowledge scores of subjects regarding CPCR, the majority of subjects 29 (72.5%) had average knowledge, 8 (95%) had good knowledge, 3 (7.5%) had poor knowledge. After the administration of PTP and demonstration method, there was a significant gain in the knowledge scores. Posttest means knowledge scores revealed that the majority of subjects 38 (95%) had good knowledge and 2 (5%) had average knowledge. Pretest according to their level of skill scores of subjects regarding CPCR revealed that the majority of subjects 27 (67.5%) had average skill; 10 (25%) had a good skill and 3 (7.5%) had poor skill. After the administration of PTP and demonstration method, there was a significant gain in the skill scores. Posttest skill scores revealed that the majority of subjects 38 (95%) had a good skill and 2 (5%) average skill. **Conclusion:** The study revealed that the planned teaching program and demonstration of Cardiopulmonary Cerebral Resuscitation (CPCR) was an effective method in improving the knowledge and skill of staff nurses.

**Keywords:** Baccalaureate nursing students, Planned teaching program, Cardiopulmonary Cerebral Resuscitation (CPCR), Socio-demographic variables, Knowledge, Skill.

## Introduction

Life is a characteristic that distinguishes objects that have signaling and self-sustaining processes, that is living organisms from those that do not, either because such functions have ceased (death), or else because they lack such functions and are classified as inanimate. Living organisms undergo metabolism, maintain homeostasis, possess a capacity to grow, respond to stimuli, reproduce, and, through natural selection, adapt to their environment in successive generations. Human beings can move, to see, to talk, hear, respond, to stimuli, to think, and to make judgments. These abilities are all part of these processes called life and are carried out by working together of all cells, tissues, and body fluids.<sup>1</sup> The human body is made up of many systems, each of these performs different functions to maintain homeostasis. For constant working, all these systems need oxygen and energy. This oxygen and energy are supplied by the blood. The heart and network of blood vessels, which are together known as the circulatory system, work constantly to keep all parts of the body supplied with blood, which carries vital oxygen and nutrients.<sup>2</sup>

The inability of the cardiovascular system to supply the cells of the body with enough oxygenated blood to meet their metabolic demands is referred to as a circulatory failure. The circulatory system can fail for two main reasons; severe bleeding and fluid loss may cause the volume of circulating blood to fall and deprive the vital organs, primarily the brain, circulatory system to break down. Oxygen is essential to support life. The action of breathing enables air containing oxygen to be taken into the lungs so that the oxygen can be transferred to the blood and circulated throughout the body. The action of breathing and the process of gas exchange in the lungs are together commonly described as respiration and the organs, tissues, and structures that enable us to breathe as the respiratory system. Breathing is controlled by the brain through the autonomic nervous system, a system that also helps to monitor the levels of oxygen and carbon dioxide in the blood.<sup>2</sup>

The average adult normally breathes about 20-30 times per minute. The rate can be altered by the respiratory center in the brain as a response to abnormal levels of oxygen or carbon dioxide, stress, exercise, injury, or illness. The body can also change the depth and rate of breathing voluntarily. The breathing process consists of breathing in (inspiration), breathing out (expiration), and a pause. There is always some air left in the lungs so that oxygen is constantly available to the blood.<sup>3</sup>

As we approach the twenty-first century, lifestyles throughout the different global regions are changing rapidly, deeply affecting the working conditions, living environment, and also characteristics of occupations and occupational hazards. Almost all emergencies are unexpected so the first aid is the most important, one in which a layman has a useful and rewarding part to play and also which requires progressive acquirement of learning and skill. It is appropriate training, which will provide one of the knowledge and skills required to recognize the signs and symptoms of an illness or an injury. Such trained individuals need to be aware of one's surroundings at all times so that when an emergency occurs, they can respond swiftly and efficiently.<sup>4</sup>

Cardiopulmonary Cerebral Resuscitation (CPCR) is an emergency procedure that is performed to return life to a person in cardiac arrest. It is indicated in those who are unresponsive with no breathing or only gasps. It may be performed both in and outside of a hospital. If a person still has a pulse but is not breathing (respiratory arrest), artificial respirations may be more appropriate, but due to the difficulty people have inaccurately assessing the presence or absence of a pulse, CPCR guidelines recommend that laypersons should not be instructed to check the pulse while giving health care professionals the option to check a pulse.<sup>5</sup>

One and a half million Americans in the world population will have a heart attack this year. Among 500,000 deaths that will occur, 300,000 will be within the first hour of the onset of symptoms. Sudden Cardiac Deaths account for more than 40-45 % of cardiovascular deaths in India; sudden cardiac arrests are not random as commonly perceived, say experts at Fortis Hospitals, 75% of the people who die of sudden cardiac arrest show signs of coronary artery disease.

Most of these people will die before they reach a hospital. Almost three-quarters of these sudden deaths occur at home.<sup>6</sup> A person who suffers a cardiac arrest outside a hospital has a 25 to 30 percent chance of surviving if Cardiopulmonary Cerebral Resuscitation (CPCR) is administered promptly; when CPCR isn't started until an emergency medical team arrives, the survival rate is just 5 percent.<sup>7,8</sup>

The nurse is a trained person who is available round the clock in the hospital, ambulance services, and in first aid clinics. The emergencies can't wait for someone to come, as "time and tide wait for none". Looking at the precious life and life fighting its threatening emergency of cardiac arrest, the nurse can easily employ a lifesaving technique of CPCR, if he/she has the necessary knowledge and skills of CPCR and can save a precious life.<sup>9, 10</sup>

## Methods

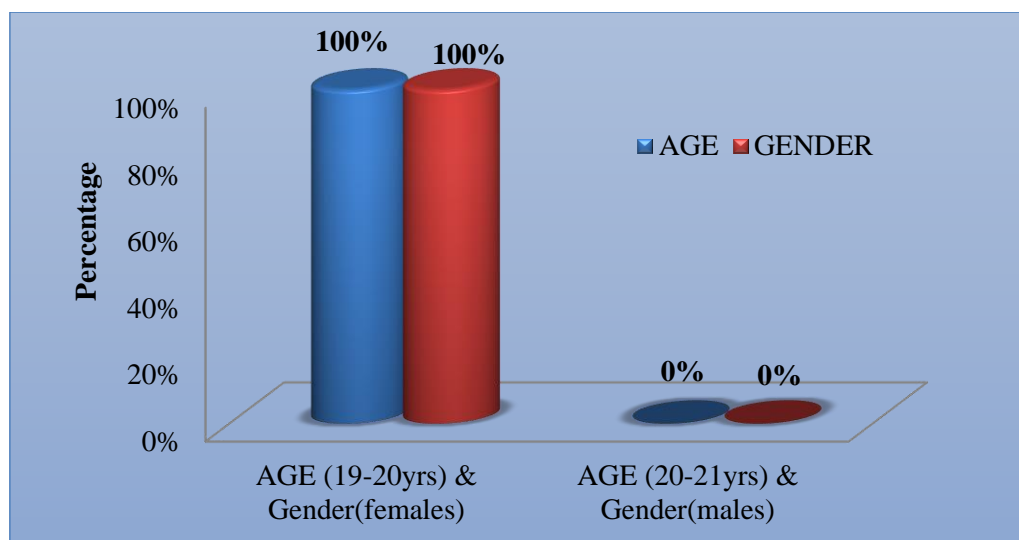
The conceptual framework was based on the General system model of Ludwig Von Bertalanffy. The concepts of the theory were: input, throughput, and output. Given the nature of the problem selected and objectives to be fulfilled, one group pre-test post-test, the pre-experimental design was used for the study.

Non-probability sampling (purposive sampling) technique was used for 40 staff nurses. Data was collected using a structured knowledge questionnaire and observational checklist, which comprised of three sections I, II & III. i.e. Socio-demographic data, structured knowledge questionnaire, and observational checklist. The pilot study was conducted on 10 samples from 07/04/2019 to 14/04/2019 at Sardar hospital and the reliability of the tool was established by a Split Half method using Karl Pearson's coefficient of correlation formula and the reliability for structured knowledge questionnaire  $r = 0.71$  and skill observational checklist is  $r = 0.79$ . A planned teaching program on CPR was developed and sent for validation to experts along with the tool. A total of five experts validated the tool and PTP.

Main study data was collected among the 40 staff nurses from Surat civil hospital in 08/10/2019 to 15/10/2019 and analysis was done using descriptive and inferential statistics in terms of frequency, percentage, mean, median, mode, standard deviation, paired 't' value, the correlation between knowledge and skill scores and chi-square.

## Results

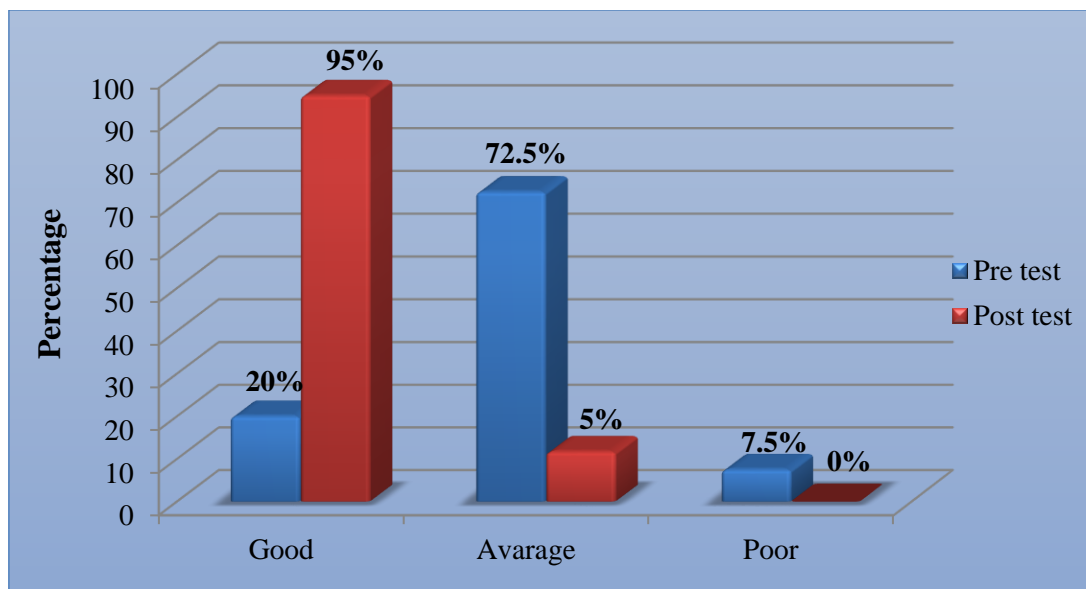
In the present study it was found that out of 40 staff nurses, All 40 (100%) belong to 19–20 years of age group and were females.



**Figure 1. Percentage distribution of subjects according to their age and gender.**

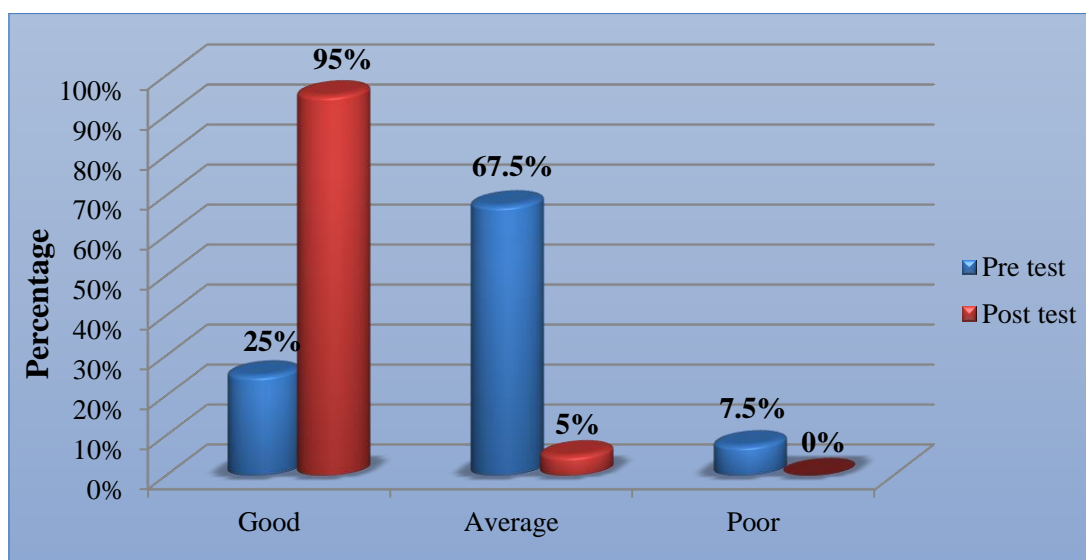
Pre-test according to their level of mean knowledge scores of subjects regarding CPR of 40 Staff nurses, revealed that the majority of subjects 29 (72.5%) had average knowledge, 8 (95%) had good knowledge, 3 (7.5%) had poor knowledge.

After the administration of the PTP and demonstration method, there was a significant gain in the knowledge scores. Post-test mean knowledge scores revealed that the majority of subjects 38 (95%) had good knowledge and 2 (5%) had average knowledge.



**Figure 2. Percentage distribution according to their level of mean knowledge scores of subjects regarding CPR.**

Pre-test according to their level of skill scores of subjects regarding CPR of 40 staff nurses, revealed that the majority of subjects 27 (67.5%) had average skill; 10 (25%) had a good skill and 3 (7.5%) had poor skill. After the administration of PTP and demonstration method, there was a significant gain in the skill scores. Post-test skill scores revealed that the majority of subjects 38 (95%) had a good skill and 2 (5%) average skill.



**Figure 3. Percentage distribution according to their level of skill scores of subjects regarding CPR.**

The paired 't' test value ( $t=16.3$ ) at  $p<0.05$  level of significance for knowledge scores proved that the stated hypotheses  $H_1$  was accepted and the paired 't' test value ( $t=27.37$ ) was significant at  $p<0.05$  level of significance for skill scores. The pre-test results revealed that there is a positive correlation between the variables i.e. knowledge and skill.

### Conclusion

The study revealed that the Planned teaching program and demonstration on cardio-pulmonary-cerebral resuscitation was an effective method in improving the knowledge and skill of staff nurses. The study also revealed that there is a positive correlation between the knowledge and skill of staff

nurses regarding CPR. The study concluded that teaching programs enable and empower Nurses with adequate knowledge and better skill which in turn contribute to improving the total quality of one's health.

### **Conflicts of interest**

There are no conflicts of interest.

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