



## Educational and Interventional Study on CPCR Among 90 Nursing Student of Central India

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### INTRODUCTION:

Cardiopulmonary cerebral resuscitation (CPCR) is a life saving procedure which is performed with a goal of prolonging circulatory & lung function. Out-of-hospital cardiac arrest (OHCA) is a major public health problem worldwide. Approximately 330,000 individuals in the United States and 275,000 individuals in Europe experience OHCA each year. Most patients who survive an OHCA are resuscitated in the prehospital setting and are subsequently transported to emergency hospitals(1).

Early diagnosis and treatment of sudden cardiac arrest can improve a victim's chance for survival. Basic life support (BLS) is to achieve the assessment of patient initially, the activation of pre-hospital health system and the initiation of cardiopulmonary resuscitation systematically. The main modification in Cardiopulmonary Resuscitation (CPR) guidelines of 2010 American Heart Association (AHA) is intended to encourage the paramedics and laypersons to perform the cardiac massage. Cardiac massage is only applied for a short while of witnessed cardiac arrest.(2)

According to AHA, 80% of cardio respiratory emergency occur at home/outside hospital. CPCR gives greatest chance of survival and can be performed by a paramedics or a lay person with a little bit of training. Out of 2lacs, 50000 deaths are due to cardio-respiratory emergency can be prevented if CPCR is performed at right time in a right way. (.3.)

Cardiopulmonary-cerebral resuscitation (CPCR) training is essential for all hospital workers. In recent years, a large number of studies that have focused on the CPCR training - especially advanced cardiac life support (ACLS) - which are believed to improve the resuscitation knowledge and skills of trainees. Some studies have revealed that a novel training technique - namely the problem-based method - which is learner-oriented and centered on the knowledge and skills of trainees, can augment resuscitation skills.(5,4)

There is no doubt as to the significance for CPCR training programs for medical students and other hospital staff. The present study aimed at assessing the overall CPCR knowledge of the nursing students and the proportion of them trained. It also aimed at identifying the weaker areas of knowledge to help in the design of future CPCR training programs.

### OBJECTIVE:

- To assess the CPCR knowledge among Nursing Students of Gandhi Medical College Bhopal.
- To identify the reason of gap in their knowledge.
- To educate them regarding CPCR.
- To reassess their knowledge.

### MATERIAL & METHOD:

This was a 3 point cross sectional study conducted on the nursing student of 1<sup>st</sup> /2<sup>nd</sup>/3<sup>rd</sup> year enrolled in Hamidia Hospital Bhopal carried during a period of 3 month in 2015. Structured questionnaire was prepared using the most recent guidelines by the American Heart Association (2) .Expert from Cardiology and Anesthesia department

were also consulted for advice .

Pilot testing was performed to test the wording of questions, to identify common response categories based on which the structured questionnaire was modified and standardized.

The study population consisted of all the nursing students of 3 years present on the predecided dates day who gave verbal informed consent after assuring full confidentiality.

At the 1<sup>st</sup> point of study questionnaire was given to be filled, followed by 2<sup>nd</sup> point in which PowerPoint presentation on CPCR , video and live demonstration on dummy were demonstrated .Group were made of 15 students in each group for the educational intervention . At 3<sup>rd</sup> point of study questionnaire were distributed for evaluation of the educational intervention.

The data was interred in MS Excel and analyzed using Epi-info-7. Pearson's chi squared test was used to analyzed the difference in pre and post intervention knowledge level .

### OBSERVATIONS:

**Table. 1 Demographic characteristics of the study sample**

CHARACTER	SAMPLE n=90(%)
SEX : Male	29(32.22)
Female	61(67.78)
AGE (years) : 18-23	60(66.67)
24-30	27(30)
>30	3(3.33)
Mean Age	(22.83)years
RELIGION : Hindu	73(81.11)
Muslim	12(13.33)
Sikh	1(1.12)
Christian	4(4.44)
EDUCATION: Higher Secondary	72(80)
Graduation	18(20)

**Table. 2 Prior training among the surveyed sample**

RESPONSE	NUMBER (%)
1. Any prior training Cardiopulmonary cerebral resuscitation training: YES	12(13.33)
NO	88(86.67)
2.When did you receive your last CPR training: <1yrs	2(2.22)
1-2yrs	7(7.77)

3-5yrs	3(3.33)
>5yrs	0
3.Where did you receive your CPR training : Hamidia Hospital	6(6.66)
Kamla Nehru Hospital	4(4.44)
Others	2(2.22)
4. Have you given CPR on a real person before: YES	5(5.55)
NO	85(94.44)

**Table: 3 Reason not trained in Cardiopulmonary resuscitation**

RESPONSE	FREQUENCY (n=90)
1.No time	11(12.22)
2.Uninterested	9(10)
3.Don't know where to obtain training	5(5.55)
4.Training is expensive	14(15.55)
5.Hope to obtain the training during the course	43(47.77)
6.Other	8(8.88)

**4. Table showing knowledge regarding CPR**

Questions	Pre inter- ven- tional %	Post inter- ven- tional %	Increase in the knowl- edge %	P-value
CPCR stands for	47	99	52	0.0001
When to do CPR	54	90	36	0.0001
Sequence of CPCR	55	92	37	0.0001
Compression rate in CPR	40	95	55	0.0001
Depth of Com- pression	36	86	50	0.0001
Position of airways	58	84	26	0.0001
Compression to ventilation ratio	47	85	38	0.0001
Site of compres- sion	49	80	31	0.0001
Infant cardiac massage	32	90	58	0.0001
Signs of circula- tion	65	86	21	0.0009
MEAN %	48.3	88.7	40.4	

**Table: 5 Knowledge scores of respondents according to age-group and education level**

Age & education	% Increase in the knowledge		P-value
Age ( years )	Mean Pre	Mean Post intervention Score (%)	
18-23 (60)	42%	88%	0.0001
24-30(27)	49%	91%	0.0001
>30(3)	51%	94%	0.0001
Education			

Higher secondary (80%)	47%	89%	0.0001
Graduation (20%)	53%	92%	0.0001

**DISCUSSION:**

This study showed a markedly deficient knowledge of CPR among nursing students in the Bhopal. The mean score was 48.3 with the majority of the students scoring below the average of 50% Similarly low levels (54.3%, and 25%) of knowledge have been reported from medical students in Poland and interns from southern India, respectively(7). This is probably as a result of the low percentage of the study subjects that had been exposed to any form of CPR training. A similar deficient knowledge of CPR was observed in other studies among medical students,[8,9] health care professionals[10,11] and laymen.[12] In a study[Zaheer at al] among Pakistani medical students, only 18% provided correct answers to skills on CPR. In another survey among Indian medical, dental nursing students and doctors, majority of the respondents (84.82%) scored <50% to questions asked regarding BLS. As shown in other studies,[ Zamir Q at al, Harsha Kumar HN at al,] there was improved knowledge of CPR with increasing number of years of study among medical Students in this study. This may be due to the fact that medical students are only exposed to CPR as they advance in their clinical years of study on the ward rounds. Also with advancing year of study, it is more likely that their knowledge of CPR may have been updated frequently due to increasing encounters with the subject matter as they advance in a clinical study. In our study this effect is shown by students who were graduate in any other field as they were more aware regarding CPR.

This study appraised a new educational method for CPR Training, i.e. the Lecture and video-based method. As was discussed above, the post-workshop scores were significantly higher than the pre-workshop ones in our three groups of nursing students in CPR training. This demonstrates that the CPR workshop of training is useful for all participants based on the participants' self-assessment of their own knowledge and skills. A study by Tan EC at al from Netherlands also reported that only 38% of the clinical picture and diseases and 69% of the skills were mastered by the students after the training.

CPR training programs need to be developed in different groups of the society. There are substantial challenges to deliver training programs for General population, in contrast to medical college-based programs. This CPR workshop had high and positive effects on Participants' attitude and after the course it was found that the participants were more willing to do CPR in emergency states. It seems that suitable training of CPR as well as explaining the key points and its importance and feasibility can improve the individual's attitude about CPR and decrease the individuals' fear of performing not suitable CPR. In this study, it was found that the method that was more effective at the course had more long-lasting effects. In fact, presence of educational film and reference book allows the Participants to refresh their skills and knowledge and remember more easily the course components.

**RESULT:**

Among the 90 respondents 67.78 % were female and 32.22 were male, majority (81.11%) of respondent were Hindu by religion followed by Muslims (13.33%) . Most of them (80%) had joined nursing after higher secondary with only 20% after graduation. The respondents in a significantly higher proportion (66.67%) belong to 23-30 years old with a mean age of 22.83 years.

Only 13.33% had received CPR training the majority been trained by 1 to 2 years ago. Only 2.22 % of respondents had undergone training in the past year and 5.55% had actually administered CPR in a real life situation. Most common reason for not having received CPR training was that they were expecting to obtain the training during the course of nursing.

Only 7 out of 90 nursing students could score >50% in the pre inter-ven-tional phase which shows that the level of CPR knowledge in our paramedical staff is highly unsatisfactory and the main reason that they had been never exposed to such training .

The weakest overall performance was about infant cardiac massage followed by depth of compression .Individuals with previous train-

ing in CPR displayed superior knowledge, but still not satisfactory since their mean score was 48.3% before intervention and 88.7 after intervention , None of the respondents could give all answer correctly even after the intervention which shows that single training is not sufficient . It should be repeated and individual hands on training must be emphasized because failure of one single step can result in the failure of the resuscitation attempt though knowledge cannot be equated with clinical skills (as expected the young age group higher their scores and education ).The common reason for not taking part in CPR training was that they expected that by the completion of their B.Sc nursing they will be trained but till 3<sup>rd</sup> year they were not which infect should have started in 1<sup>st</sup> year followed by refreshers course in 2<sup>nd</sup> and 3<sup>rd</sup> year . The mean score at 1<sup>st</sup> point of study was 48.3% followed by 88.7% after the intervention. A mean increase of 40.4% in the knowledge regarding CPR was achieved.

#### RECOMNDATION:

Further more studies should be done to assess the clinical skill and attitudes, rather than just assessing the level of knowledge in order to enhance their ability to effectively perform CPR in real life.

#### CONCLUSION:

General knowledge as well as skills regarding CPR is poor even among the nursing staff. There is clear need for a review of basic life support education in hospitals. Only 13% of study population had received CPR training, a major reason being that they hoped that by the end of the course they will be trained.

Hence, there is an urgent need to raise awareness among hospital staff and stake holder of importance of basic life support, to evaluate the existing curriculum and to provide more extensive hospital based training program.

#### LIMITATIONS:

Since only a single dummy was available so the skills could only be demonstrated and individual hand to hand skills couldn't be imparted. The questionnaire was more of extracting theoretical knowledge rather than evaluating practical skills of CPR which perhaps could have been more assertive.

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#### KEYWORDS:

Cardiopulmonary resuscitation; ; resuscitation , emergency care; End-of-life care , nursing student , dummy .

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