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A Study to Assess The Knowledge And Practice Regarding Cardiopulmonary Resuscitation Among Nursing Students Of Agra, Uttarpradesh

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Article History	Abstract
	Background: *Cardiopulmonary resuscitation (CPR) is a life-saving operation performed in an emergency when the heart stops beating. Immediate CPR following a cardiac arrest can double or triple the odds of survival. The American Heart Association welcomes you to join us in our vision of a future without cardiac arrest. In the United States, 350,000 individuals die from cardiac arrest each year. CPR keeps the blood pumping and the body supplied with oxygen until specialized treatment is available. There is normally enough oxygen left in the blood to support the brain and other organs for a few minutes.* ***Objective:*** *To assess the knowledge and practice regarding cardiopulmonary resuscitation among diploma nursing students.* ***Methods:*** *Descriptive research design was used. This study included 60 students. Knowledge and practice checklist was used to assess the knowledge and practice and chi-square test used to see the association between dependent and independent variables.* ***Result****: In this study, level of knowledge regarding cardiopulmonary resuscitation pretest level poor knowledge 23(38.3%), poor knowledge 19(31.7%) and good knowledge 18(30%) . level of skills regarding cardiopulmonary resuscitation pretest level skills 60(100%) poor skills 0(0.0%) good skills. Age, Gender, religion, Course of study, Family history of cardiac disease, Aware about cardio pulmonary resuscitation, source of information regarding cardio pulmonary resuscitation, Classes on cardio pulmonary resuscitation within the last 6 months had shown no statistically significant association with the pretest levels of skills regarding cardio pulmonary resuscitation among students.* ***Conclusion****: Despite the fact that more than half of students had good knowledge, so students required proper skill development about cardio pulmonary resuscitation.*
	Keywords: *Knowledge, Practice, Cardio Pulmonary Resuscitation.*

Introduction:

One of the most important organs in the human body is the heart. An adult's heart beats 72 times each minute on average. It is operational 24 hours a day, seven days a week. Our heart performs a simple yet vital function. It delivers oxygen-rich blood to every area of our bodies. When our heart stops pounding, oxygen does not reach our other critical organs, and they cease to function.[1]

The heart is a muscular hollow organ. It measures 10 cm and is roughly the size of one's own fist. It weighs approximately 225 grammes in women and approximately 310 grammes in men.

Cardiac arrest is a common medical emergency that can be fatal. Cardiac arrest happens when the heart stops producing an efficient pulse and stops circulating blood throughout the body. It is characterized by a loss of consciousness as well as the absence of a pulse and blood pressure. Most of the time, the significant mortality linked with it can be readily avoided by some relatively easy manoeuvre and talents.[2]

Coronary artery disease is the leading cause of sudden cardiac arrest. Approximately 60– 70% of sudden cardiac deaths are related to coronary artery disease. The other causes of cardiac arrest include smoking, lack of physical exercise, obesity, diabetes, previous heart attack and family history of cardiac diseases. CPR traditionally has integrated chest compressions and rescue breathing with the goal of optimizing circulations and oxygenation. Rescuer and victim characteristics may influence the optimal application of the components of CPR. Everyone can be a life saying rescuer for a cardiac arrest victim. CPR skills and their applications depends on the rescuer's training, experience and confidence.[3]

Chest compressions are the foundations of CPR. All rescuer's regardless of training should provide chest compressions to all cardiac arrest victims. Because of their importance, chest compressions should be the initial CPR actions for all victims regardless of age. Rescuers who are able should add ventilations to chest Compressions. Highly trained rescuers working together should coordinate their care and perform chest compressions as well as ventilations in a team-based approach. Integrating the critical components of CPR.[4]

It has been estimated that more than 7,000,000 people die of sudden cardiac death per year worldwide. In India, the annual incidence of sudden cardiac death accounts for per 1000 population. Almost 2.6 million Indians are predicted to die due to coronary artery disease, in India by 2020. The incidence of sudden cardiac deaths is increased in the age group of 45-75 years. It is also seen that men have a higher incidence of cardiac arrest than females.[5]

Studies have shown that, in case of out- of- home cardiac arrest, bystanders, lay persons or family members attempt CPR in 14% to 45% of the time, and only half of bystanders perform CPR effectively. It was also found that when a cardiac arrest occurs in out of hospital setting, CPR was more commonly given by a bystander who has no connection to the victim than a member of his own family.[6] This is because a stranger can remain calm and think clearly when compared to a family member. Only a minority of bystanders will initiate CPR when a family member collapses in the home. The main reason for not performing CPR was fear of failing. The study highlighted that CPR courses are not reaching to those most likely to be called upon to use this skill.[7]

Knowledge of BLS and practice of simple CPR techniques ensures the survival of the patient till experienced medical help arrives and in most cases that itself is sufficient for survival**.** Basic CPR can be performed by a trained health care professional and by appropriately trained non- professionals.[8]

Materials and Methods

Study area and period
The study was conducted in selected nursing colleges at Agra

Study design
The research design was used in this study descriptive research design.

Population
Source population: The source population was all nursing students

Study population: All sampled nursing students during study period.

Inclusion criteria and Exclusion criteria:
Inclusion criteria
➢ Available at the time of data collection
➢ Interested for study
➢ The students who can read and write Hindi or English
Sample size: 60 nursing students
Sampling procedure
Non probability Convenience sampling technique

Variables
Independent variables
The independent variable in this study is relaxation technique.

Dependent variables
The dependent variable in this study is knowledge and practice of cardio pulmonary resuscitation

Operational definition
1. Knowledge: In this study knowledge refers to the understanding of students regarding cardio pulmonary resuscitation, as measured by a structured questionnaire
2. Practice: In this study, it refers to the ability of students to perform cardio pulmonary resuscitation as measured by a checklist.
3. Cardio Pulmonary Resuscitation: In this study, it refers to an emergency procedure used to temporarily maintain blood oxygenation and tissue perfusion, as well as restore cardiac function, in a person who has suffered cardiopulmonary arrest.
4. Nursing Students: In this study, it refers to candidates studying degree and diploma course in selected nursing college.
5. **Demonstration Method:** in this study demonstration method in teaching can be defined *as* giving a demo or performing a specific activity or concept.

Data collection instrument and procedure
Structured and semi-structured English version questionnaire was prepared from the literature review by principal -investigators. Translation to Hindi version and again translated to English version were used by the principal investigators before starting the data collection time. It includes about socio-demographic, knowledge and practice questionnaire.

Data collection instrument and methods: -The data collector was the group members. Face to face interview held privately after verbal consent is obtained from each participant. The data was collected until the required sample size achieved.

Data processing and analysis
The coded data were entered to computer by using Statistical Package for Social Science (SPSS) version 25 statistical software for analysis. Cleaning was performed by using frequency distribution. Any error were corrected after revision of the original data using the code numbers of the questionnaires. Frequencies were computed for description of the study population in relation to socio-demographic and other relevant variables. The association between independent and dependent variable determined by odd ratio with 95% CI and P- value less than considered as statistically significance. Chi-square test will be used to find association of the post-test anxiety score with selected demographic variables. In this study P-value < 0.05 was considered to declare a result as statistically significant association. The result presented by charts, figures, and tables.

Results and Discussion
Descriptive and inferential statistics were used for analyzing the data on the basis of objectives of the study. The data has been tabulated and organized as follows.

Table: 1 Frequency and percentage distribution of study samples according to the selected Demographic variables N=60

Demographic Variables		frequency	Percentage
Age in years	17-19	35	58.3
	20-22	6	10.0
	23-25	14	23.3
	>25	5	8.3
Gender	Male	24	40.0
	Female	36	60.0
Religion	Hindu	54	90.0
	Muslim	4	6.7
	Christian	2	3.3
Course of study	Diploma Nursing	10	15.4

	B.Sc Nursing	36	61.0
	P.B.Bsc Nursing	14	23.7

Family history of cardiac disease	Yes	18	30.0
	No	42	70.0
Aware about cardio pulmonary resuscitation	Yes	42	70.0
	No	18	30.0
source of information regarding cardio pulmonary resuscitation	Health personal	26	43.33
	Mass media	12	20.0
	Workshop	10	16.7
	Friend	10	16.7
	Neighbour	2	3.3
Classes on cardio pulmonary resuscitation within the last 6 months	Yes	20	33.3
	No	40	66.7
		60	100

Table 1 shows the frequency and percentage distribution of the demographic variables of students. According to their age majority 35(58.3 %) were in 17-19 years of age, 14(23.3%) were 23-25 years of age,6(10%) were 20-22 years and 5 (8.3%) were more than 20 years of age.

Regarding gender of students maximum 36(60%) were Female patients and 24(40%) were male. Regarding religion of students maximum 54(90%) belongs to Hindu, 4(6.7%) belongs to Muslim and 2(3.3%) belongs to Christian.

With regard to class of studying of students 36(61%) were bachelor of Nursing,14(23.7%) belongs to post Basic Nursing,10(15.4%) was Diploma Nursing.

Regarding Family history of cardiac disease of students maximum 42(70%) were no history of cardiac disease, 18(30%) yes about history of cardiac disease. According to aware about cardio pulmonary resuscitation student's majority 42(70%) were aware about cardio pulmonary resuscitation, 18(30%) were no aware about cardio pulmonary resuscitation.

Regarding source of information regarding cardio pulmonary resuscitation maximum 26(43.33%) were health personal,12(20%) were mass media, 10(16.7%) were workshop, 10(16.7%) were friends and 2(3.3%) were neighbors.

Regarding Classes on cardio pulmonary resuscitation within the last 6 months, 20(33.3%) were attended classes and 40(66.7%) were not attended classes.

Table 2: Assessment of levels of knowledge among students regarding cardio pulmonary resuscitation.

Levels of knowledge	Pretest levels	
	Number	**Percentage**
Poor knowledge	23	38.3
Average knowledge	19	31.7
Good knowledge	18	30.0
Total	**60**	**100.00**

P<0.05

The table 2 shows that Assessment of level of knowledge regarding cardiopulmonary resuscitation pretest level poor knowledge 23(38.3%), poor knowledge 19(31.7%) and good knowledge 18(30%) .So P<0.05 level at significant.

Table 3: Assessment of levels of Skills among students regarding cardio pulmonary resuscitation.

Levels of skills	Pretest levels	
	Number	**Percentage**
Poor skills	60	100
Good skills	0	0.0
Total	**60**	**100.00**

P<0.05

The table 4shows that assessment of pretest level of skills regarding cardiopulmonary resuscitation pretest level skills 60(100%) poor skills 0(0.0%) good skills.

Table 7: Association between levels of knowledge and demographic profile or characteristics

Demographic profile	Levels of knowledge							Chi-square	df	P-value
	Poor knowledge	%	Average knowledge	%	Good knowledge	%	Total			
Age groups in Years										
17-19	5	8.33	1	1.66	2	3.33	8	1.294	6	0.972 NS
20-22	8	13.33	6	10	5	8.33	19			
23-25	6	10	4	6.66	4	6.66	14			
>25	4	6.66	8	13.33	7	11.66	19			
Gender										
Male	17	28.33	8	13.33	12	20	37	1.742	2	0.418 NS
Female	6	10	11	18.33	6	10	23			
Religion										
Hindu	15	25	9	15	8	13.33	32	1.179	4	0.882 NS
Muslim	5	8.33	7	11.66	6	10	18			
Christian	3	5	3	5	4	6.66	10			
Course of study										
Diploma Nursing	9	15	6	10	5	8.33	20	5.801	4	0.215 NS
B.Sc Nursing	12	20	8	13.33	9	15	29			
Post B.Sc Nursing	2	3.33	5	8.33	4	6.66	11			
Family history of cardiac disease										
Yes	18	30	11	18.33	10	16.66	39	1.554	2	0.460 NS
No	5	8.33	8	13.33	8	13.33	21			
Aware about cardio pulmonary resuscitation										
Yes	16	26.66	9	15	10	16.66	35	2.680	2	0.262 NS
No	7	11.66	10	16.66	8	13.33	25			
source of information regarding cardio pulmonary resuscitation										
Health personal	14	23.33	9	15	8	13.33	31	9.305	6	0.157 NS
Mass media	4	6.66	7	11.66	3	5	14			
Workshop	1	1.66	2	3.33	3	5	6			
Friend	3	5	1	1.66	2	3.33	6			
Neighbor	1	1.66	0	0.0	2	3.33	3			
Classes on cardio pulmonary resuscitation within the last 6 months										
Yes	10	16.66	9	15	8	13.33	27	0.192	2	0.908 NS
No	13	21.66	10	16.66	10	16.66	33			

*p<0.005*indicates significant   S-Significant   NS-non significant

The table7 showed that demographic variables Age, Gender, religion, Course of study, Family history of cardiac disease, Aware about cardio pulmonary resuscitation, source of information regarding cardio pulmonary resuscitation, Classes on cardio pulmonary resuscitation within the last 6 months had shown no statistically significant association with the pretest levels of knowledge regarding cardio pulmonary resuscitation among students. P<0.005.

Table 8: Association between levels of Practice and demographic profile or characteristics

Demographic profile	Level of skills						df	P-value
	Poor skills	%	Good skills	%	Total			
Age groups in Years								
17-19	14	23.33	0	0.0	14	0.543	3	0.909 NS
20-22	13	21.66	0	0.0	13			
23-25	15	25	0	0.0	15			
>25	18	30	0	0.0	18			

Gender								
Male	32	53.33	0	0.0	32	0.045	1	0.832 **NS**
Female	28	46.66	0	0.0	28			
Religion								
Hindu	28	46.66	0	0.0	28	0.886	4	0.941 **NS**
Muslim	18	30	0	0.0	18			
Christian	14	23.33	0	0.0	14			
Course of study								
Diploma Nursing	17	28.33	0	0.0	17	1.047	1	0.306 **NS**
B.Sc Nursing	24	40	0	0.0	24			
Post B.Sc Nursing	19	31.66	0	0.0	19			
Family history of cardiac disease								
Yes	31	51.66	0	0.0	31	1.455	2	0.460 **NS**
No	29	48.33	0	0.0	29			
Aware about cardio pulmonary resuscitation								
Yes	32	53.33	0	0.0	32	0.207	1	0.649 **NS**
No	28	46.66	0	0.0	28			
source of information regarding cardio pulmonary resuscitation								
Health personal	24	40	0	0.0	24	0.425	3	0.903 **NS**
Mass media	12	20	0	0.0	12			
Workshop	6	10	0	0.0	6			
Friend	10	16.66	0	0.0	10			
Neighbor	8	13.33	0	0.0	8			
Classes on cardio pulmonary resuscitation within the last 6 months								
Yes	28	46.66	0	0.0	32	0.136	1	0.713 **NS**
No	32	53.33	0	0.0	28			

*p<0.005*indicates significant   S-Significant   NS-non significant

The table 8 showed that demographic variables Age, Gender, religion, Course of study, Family history of cardiac disease, Aware about cardio pulmonary resuscitation, source of information regarding cardio pulmonary resuscitation, Classes on cardio pulmonary resuscitation within the last 6 months had shown no statistically significant association with the pretest levels of skills regarding cardio pulmonary resuscitation among students. P<0.005.

Competing interest:
The authors report no conflicts of interest for this work.

Authors' contributions
All authors were involved in the interpretation of the data and contributed to manuscript preparation. All authors have read and approved the final version of the manuscript

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