

## Knowledge of Cardiopulmonary Resuscitation among Nurses In Public Hospital Lahore Pakistan

Naeema Akber<sup>1</sup>, Sidra Ayub<sup>2</sup>, Nazia Murad<sup>3</sup>, Samina Yasmeen<sup>4</sup>, S. Amir  
Gilani<sup>5</sup>, M. Asif Hanif<sup>6</sup>.

*Afro-Asian Institute lower mall road Lahore affiliated with Government College University Faisalabad<sup>1</sup>,  
Lahore school of nursing university of Lahore<sup>2</sup>,*

*\*Corresponding Author: Naeema Akber MPH*

### ABSTRACT:-

#### Introduction:

Cardiac arrest is the sudden abrupt cessation of normal blood circulation due to unable of the heart to contract properly on systole. Cardiac arrest is the most common cause of death in all developing and developed countries. During management of cardiac arrest patient, cardiopulmonary resuscitation knowledge and its technique is of great concern. Purpose of the study is based on to assess the nurse's knowledge regarding the cardiopulmonary resuscitation.

#### Methodology:

It was descriptive cross sectional study. All registered nurses of public hospital Lahore, who were working in critical care units and having work experience more than one years in these critical areas included. 150 nurses were selected to participate willingly in this study. Likert scale questioner were made to assess knowledge, each question had five answers. The tool which was prepared for study had been checked for its reliability.

#### Results:

Majority of the nurses have poor knowledge regarding the cardiopulmonary resuscitation and its technique. Response of the question When come across the cardiac arrest first check for responsiveness, only 50.7% nurses were agree about it that it Before starting artificial ventilation, opening airway is necessary, only 56.0% nurses agreed. Response of the question about Ratio of cardiac massage to respiration in all the ages for usual rescuer is 30:2 only 40.7% was agreed. In response of this question the recommended chest compression to be performed in each minute during CPR is 100 only 29.3% nurses were agreed.

#### Conclusion:

It has been concluded that it is a challenge for nurses to work together with health care team. Nurses need to have solid knowledge about the use cardiopulmonary resuscitation in critical situation and saving the life of the patient efficiently. Nurses with this poor knowledge cannot serve well as they are expected to be.

### I. INTRODUCTION:

Nurses are most important part in any health care setup and are appear to be knowledgeable in providing basic care to the patients (Andreka & Frenneaux, 2006). Cardio-pulmonary Resuscitation (CPR) is an important medical procedure which is required for people who face sudden cardiac arrest. It is a combination of save breathing and chest compressions which is delivered to the individual who are thought to be in cardiac arrest (Marzooq & Lyneham, 2009).

Cardiopulmonary resuscitation (CPR) is a life restoring skill which is useful in many cardiac emergencies. Cardiopulmonary resuscitation is important in cases of low blood supply, heart attacks, or any other situation in which a person's breathing or heartbeat has stop (Avabratha et al.,2012). Cardiac arrest is the most common cause in which Cardiopulmonary resuscitation usually done. This study was based on to assess the nurse's knowledge regarding Cardiopulmonary resuscitation. These emergencies can be handling efficiently by proper knowing and skill of resuscitation skills. Resuscitation is the art of restoring life or consciousness of one who dying (Alanazi et al., 2013).

Cardiopulmonary resuscitation (CPR) is a series of lifesaving actions that increase the chance of life following cardiac arrest. Life of patient can be saved by having knowledge about how to do CPR according to the need of the patient and giving treatment of the nurse (Rajeswaran & Ehlers, 2014). In any emergency situation knowing is very important to deal with situation, because if CPR not properly done it leads to major complications like broken ribs, ineffective lung inflation and cardiac output cause brain damage or death (Mustafa, 2014).

Cardiac arrest is the sudden abrupt and cessation of normal blood circulation due to unable of the heart to contract properly on contraction (Coons & Guy, 2009).

During management of cardiac arrest and other emergencies, cardiopulmonary resuscitation knowledge and its use of technique is of great concern (Avabrattha, Bhagyalakshmi, Puranik, Shenoy, & Rai, 2012). Heart failure is otherwise called cardio respiratory failure. It is the sudden stoppage of usually diffusion of the heart since disappointment of the heart to pump rightfully. At the point when there is sudden stoppage then blood flow stop to supply to the brain and when mind gets lack of spreading then it brought about irregular or stoppage of breathing and that can bring about sudden mind passing or mind tissues damage. Brain death can happen if there is heart failure over five minutes. When there is sudden cardiac arrest it could leads to death within few minutes and called acute cardiac death (Coons & Guy, 2009).

Nurses ability to respond quickly and effectively any critical condition and safe life of peoples through cardiopulmonary resuscitation (Luciano et. al., 2010).

It has been notified that cardiopulmonary resuscitation is much necessary for survival of client. There is a great need of that critical care nurses must be fully trained and having skills to perform CPR because they are more close to the patient at that time inside the hospital settings(Silva, Steremberg, & Valença, 2012).

Studies shows that fibrillation of heart after consistently the chances of survival diminishes. It has been told that cardiopulmonary revival is much important for survival of client. There is an incredible need of that basic consideration medical care takers must be completely prepared and having abilities of cardiopulmonary revival and in the use of defibrillator since they are all the more near the patient around then inside the hospital facility settings (Dal & Sarpkaya, 2013).

Nurses needs to bring crash cart and defibrillator near the patient within three minutes. Nurses who are not fully trained about CPR they need to assist it with the code blue team or with critical care team more efficiently without increase the chances of survival of patients (Meaney et al., 2010).

*The purpose of the study* is to assess the knowledge of cardiopulmonary resuscitation techniques among critical care nurses in public Hospital.

This study will help to learn to assess the knowledge regarding cardiopulmonary resuscitation among staff nurses in critical care units. We will learn more about having proper skills of cardiopulmonary resuscitation. The data gather from nurses help to show it to the organization leaders and tell them about the knowledge that nurses have about the cardiopulmonary resuscitation. If there will be any lacking in the knowledge then BLS (Basic life support) and ACLS (Advanced cardiac life support) programs could be held on monthly basis inside the organization for the improvement of the knowledge of nurses about the cardiopulmonary resuscitation. When nurses will have accurate knowledge about the cardiopulmonary resuscitation then they will be more confident and more skillful in assisting with the team of resuscitation.

*Research Questions*, Do critical care nurses have knowledge about cardiopulmonary resuscitation?

## II. LITERATURE REVIEW:

Most of the nurses have less and poor knowledge about CPR or cardiac arrest situation. Their understanding could be improved by the teaching. Also resuscitation skills need to be refreshed after sometime, and short courses can be offered for effective revision (Pourmirza Kalhori et al., 2012). It has been noticed though research that for cardiopulmonary resuscitation, there was an in general development in performing cardiopulmonary resuscitation. Nurse's competencies can be enhanced by teaching them with skills. Studies shows that proper education and regular training about cardiopulmonary resuscitation enhance nurse's knowledge and their confidence level during cardiopulmonary resuscitation (Mohsenpour, Imani, & Abdolkarimi, 2010).

Mostly critical care nurses starts CPR of patient with sudden cardiac arrest. In the general ward usually CPR done by on duty nurses and then they announced for help. When code blue team arrives then they took the responsibility to resuscitate the patient and they also use advance cardiac life support to save life of patient (Cave et al., 2010). Then they also use defibrillator in case of shock able rhythm as it is detected on the monitor. It is found in study that patients with heart failure during their stay inside the hospital setting, survival rate is disappointingly low. In these patients ventricular tachycardia or ventricular fibrillation and heartbeat less electrical movement occur (Dal & Sarpkaya, 2013).

There is need to perform efficient form of cardiopulmonary resuscitation and use of defibrillator. All the health care professional present at the time of Patient cardiac arrest especially nurses must start CPR without delay and with one minute after arrest and call to the code blue team (Passali et al., 2011). Nurses who are not fully trained to perform CPR they need to assist it with the code blue team or with critical care team more efficiently without increase the chances of survival of patients (Chamberlain, 2011).

Nurses work inside hospital work as a team and perform CPR is also a team work in emergency situation as patient collapse with cardiac arrest and needs early detection and management (Falcon-Chevere & Cabanas, 2012).

There is need to have nurses knowledgeable about skillful performance of cardiopulmonary resuscitation and having knowledge about detection of shock able rhythm (M. Kyller, & Johnstone, D., 2005).

The use of automated external defibrillator (AEDs) in hospitals known to very helpful. Understanding the use of automated external defibrillator into current protocols essential to nurses to assist alone and within team. Nurses will continue on coming across automated external defibrillator both in their communities and when they respond to sudden cardiac arrest in the hospital and operate it only by trained nurses who have Advance cardiac life support diploma (M. Kyller & Johnstone, 2005). Any patient with sudden cardiac arrest would be treated by using the automated external defibrillator with pads, and the initial defibrillation would be delivering by critical care nurse with a team. In areas where nurses are not trained with ACLS then they need to have complete knowledge about defibrillator use to help out as a team (Roh & Issenberg, 2014).

### III. MATERIAL AND METHODS:

The design of this study was descriptive cross sectional. Convenient sampling technique used for this study. Convenience sampling involves using the most conveniently available people as study participants. The data was collected from all the Nurses of tertiary care hospital Lahore. All registered nurses 1 or more than 1 year working experience in ICU CCU, HDU, and emergency ward was included, and student nurses and staff nurses working in other than ICU, CCU, HDU, and emergency department were excluded.

A number of research studies use the so-called Slovin's (or sometimes Slovin's) formula for obtaining the sample size. Denoting by "n" the sample size, Slovin's formula is given by  $n = N / (1 + (N)(E)^2)$  where "N" is the population size and "e" is the margin of error. The total population (N) is 250 and by using the Slovin's formula my sample size was 150. A five point, questionnaire Likert scale tool was used to collect the data and questionnaires are adopted from the Article.

Nurses Awareness was checked through questionnaire knowledge about Cardiopulmonary resuscitation. Questioners that was on Likert scale. Knowledge was checked on the basis of answers. Questioner was based on the detection of cardiac arrest and CPR performance. All questionnaires was completed by person to person. I was present there to clarify their doubts about any question during the course of completing the questionnaire. A five Likert scale questionnaire was used to identify the nurse's knowledge regarding Cardiopulmonary resuscitation.

I took verbal and written consent from participants also. All participants was given informed consent, and privacy was maintained during the interview process. I took permission from hospitals management department to conduct research. This study approximately took in 2-3 months period. I was analyzing the data by using Statistical Package for Social Sciences (SPSS) version 20.

### IV. DATA ANALYSIS:

First analysis was demographic analysis. It gives us details of 3 demographic questions that is age, experience and education. Data gather only female nurses in critical care unit. More details are clear from given table and graph. TABLE 1: AGE, This Age table Statistics shows that 44(29.3%) respondents belong to 20-25 age group. 74 (49.3%) respondents belong to 26-30 age group. 23(15.3 %) of respondents belong to 31-35 age group. 9 (6.0%) respondents belongs to 36-40 year age group.

TABLE 2: experience Stay in organization This experience table shows that 49 (32.0%) respondents experience 1-5-year age group. 63(41.3%) respondents experience to 6-10year age group. 34(21.3%) respondents present in this organization above 10 year. More details are clear from given table and graph. TABLE 3: The qualification of the respondents was recorded as; 128(84.7%) respondents was diploma in nursing, 5 (5.3 %) respondents are midwifery diploma and 5 (10.0 %) respondents are graduate. More details are given in above table and graph.

**DESCRIPTIVE ANALYSIS:**

*Independent Variable:*

**Table 4 If the patient needs CPR we must wait for the coming of doctor as the leader of resuscitation team.**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly disagree	59	39.3	39.3	39.3
Disagree	45	30.0	30.0	69.3
Neutral	5	3.3	3.3	72.7
Agree	30	20.0	20.0	92.7
Strongly agree	11	7.3	7.3	100.0
Total	150	100.0	100.0	

Table 4. If the patient needs CPR we must wait for the coming of doctor as the leader of resuscitation team. The first question in this study if the patient needs CPR we must wait for the coming of doctor as the leader of resuscitation team. Respondent response this question 59(39.3%) strongly disagree, 45 (30.0%) disagree, 30(20.0%) respond neutral, 30(7.3%) agreed and 11(7.3%) strongly agree. Table 5. When com across the cardiac arrest first check for responsiveness. In response of this question when come across a cardiac arrest first check for responsiveness3 (2.0%) strongly disagree, 17 (11.3%) agree, 21(14.1%) neutral, 76 (50.0%) agree and 33 (22.0%) strongly disagree.

**Table 6 CPR is most effective when immediately started after the patient collapse.**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	2	1.3	1.3	1.3
Disagree	10	6.7	6.7	8.0
Neutral	9	6.0	6.0	14.0
Agree	73	48.7	48.7	62.7
Strongly Agree	56	37.3	37.3	100.0
Total	150	100.0	100.0	

Table 6. CPR is most effective when immediately started after the patient collapse. CPR is most effective when started immediately after the patient collapse 10(1.3%) respond strongly disagree, 10(6.7%) disagree, 9 (6.0%) neutral, 73(48.7%) agree and 56(37.3%) strongly agree. Table 7. Before starting artificial ventilation, opening airway is necessary. In response of fourth question before starting artificial ventilation, opening airway is necessary 6(4.0%) strongly disagree, 84(56.0%) agree, 15(10.0%) ne utral and 45(30.0%) respondent strongly agree. Table 8. Ratio of cardiac massage to respiration in all the ages for usual rescuer is 30:2 In response of fifth question Ratio of cardiac massage to respiration in all the ages for usual rescuers is 30 to 3 (2. 2.0%) strongly disagree,18(12.0%) agree,22(14.0) neutral, 61( 40.0%) agree and 46(30.0%) strongly agree.

**Table 9 The recommended chest compression to be performed in each minute during CPR is 100.**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	10	6.7	6.7	6.7
Disagree	24	16.0	16.0	22.7
Neutral	29	19.3	19.3	42.0
Agree	44	29.3	29.3	71.3
Strongly Agree	43	28.7	28.7	100.0
Total	150	100.0	100.0	

In response of this question The recommended chest compression to be performed in each minute during CPR is 100. 10(6.7%) respondent strongly disagree,24(16.0%) disagree,29(19.3%) neutral, 44 (29.3%) agree and 43(28.7%) strongly agree.

**Table 10 The best way to open the airway prior to giving mouth-to-mouth ventilation is to tilt the head back and lift the chin up.**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	10	6.7	6.7	6.7
Disagree	22	14.7	14.7	21.3
Neutral	31	20.7	20.7	42.0
Agree	54	36.0	36.0	78.0
Strongly Agree	33	22.0	22.0	100.0
Total	150	100.0	100.0	

The best way to open the airway prior to giving mouth-to-mouth ventilation is to tilt the head back and lift the chin up in response of this question 10 (6.7%) strongly disagree, 22(14.7%) agree, 32 (21.3%) neutral, 61 (40.7%) response agreed and 24(16.0%) strongly agree. Table 11. The chest compression landmark on adult is at the center of the chest. In response of this question the chest compression landmark on adult is at the center of the chest. 8 (5.3%) strongly disagree, 11(7.3%) disagree, 16 (10.7%) neutral, 85(56.7%) agreed and 30 (20.05 %) strongly agree. Table 12. The steps of CPR in the correct sequence is Compression, maintain a patent airway and artificial breathing. In response of this question the steps of CPR in the correct sequence is Compression, maintain a patent airway and artificial breathing. 18 (12.0%) strongly disagree, 27 (18.0%) disagree, 26 (17.3%) neutral, 45 (30.0%) agree and 34(22.7%) strongly agree. Table 14. When dealing with a conscious choking patient, an abdominal thrust should be taken as a treatment. In response of tenth question when dealing with a conscious choking patient, an abdominal thrust should be taken as a treatment. 23 (15.3%) strongly disagree, 26 (17.3%) disagree, 36(24.0%) neutral, 52(34.7%) agree and 13(8.7%) strongly agree. Table 15. After every compression, it must be permitted that chest completely returns to its normal. In response of this question after every compression, it must be permitted that chest completely returns to its normal. 6 (4.0%) strongly disagree, 12(8.0%) disagree, 22(14.7%) neutral, 76 (50.0%) agree and 34(22.7%) strongly agree.

Table 16. Adults’ chest must be pressed to the extent of 4 to 5 centimeters in every massage. In twelfth question Adults’ chest must be pressed to the extent of 4 to 5 centimeters in every massage 13 (8.7%) strongly disagree, 20(13.3%) disagree, 27(18.0) neutral, 66 (44.7%) agree and 22(14.8%) strongly agree.

**Table 17 The most stopping time of cardiac massage for putting endotracheal tube is 10 seconds.**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	20	13.3	13.3	13.3
Disagree	23	15.3	15.3	28.7
Neutral	47	31.3	31.3	60.0
Agree	50	33.3	33.3	93.3
Strongly Agree	10	6.7	6.7	100.0
Total	150	100.0	100.0	

In response of this question the most stopping time of cardiac massage for putting endotracheal tube is 10 seconds. 20 (13.3%) strongly disagree, 23 (15.3%) disagree, 47 (31.3%) neutral, 50(33.3%) agree and 10(6.7%) strongly agree. Table 18. Cardiac massage must be done tough and fast. In last question Cardiac massage must be done tough and fast responded response is 7(4.7%) disagree, 11 (7.3%) neutral, 93 (62%) agree and 39 (20.0%) strongly agree.

**Reliability Assessment:**

This table presents Cronbach’s alpha for four scales used in the study. Cronbach alpha is the most commonly used measure of scale reliability (Cortina, 1993). Cronbach alpha above 0.70 is considered to be the acceptable indicator of internal consistency reliability (Santos, 1999; Bryman & Cramer, 2005; Pallant, 2007; Hair et al., 2006).

The alpha values of Knowledge regarding cardiopulmonary resuscitation were above 0.7 which were acceptable. Its means that internal reliability of the scale was accurate.

**TABLE 08: RELIABILITY OF CONSTRUCTS**

S.NO	Variable of study	No. of items	Cronbach's alpha
01	Knowledge	15	.839

## V. DISCUSSION:

In this research nurses selected who were working in critical care unit and having one or more working experience. Data that was based on statistics shows that most of the nurses working in critical care units having experience between six to ten years.

The most current advancement in the 2010 American heart association (AHA) rules for CPR is an adjustment in the basic Life Support (BLS) arrangement actions from ABC (Airway, Breathing, Chest compressions) to CAB (Compression, Breathing, Circulation). Because purpose behind this activity was majority of CPR done due to, heart failure is because of VF (Ventricular fibrillation) or pulseless VT (Ventricular Tachycardia) and also some critical situations. Just 30.0% nurses know about the changing sequence American heart association (AHA) and 29.3% know about exact ratio of chest compression. According to Parajulee & Selvaraj nurses don't have knowledge about CPR sequence and exact ratio of chest compression in one minute (Field et al., 2010).

The answer to this question in this study that tell about the Ratio of cardiac massage to respiration in all the ages for usual rescuer is 30:2, 40.7% nurses know about and give correct answer other 52% nurse gave the wrong answer to the question. Responses to this question in my study supports that nurses have don't enough knowledge about CPR. Study shows that most of the nurses 75% were aware about when come across the cardiac arrest first check for responsiveness, But 110% nurses know that they have to resuscitate if the patient needs CPR no need to wait for doctor. (Chandrasekaran, Kumar, Bhat, Shabbir, & Chandrasekaran, 2010).

### Limitations:

Short time, Limited area of getting sample and sample size will not be adequate large to apply all over this research.

The study is limited to staff nurses who are working in selected Intensive Care Units.

The study did not use any control group.

The study did not assess the attitude of staff nurses regarding resuscitation.

### Recommendations:

- The study can be conducted on the large scale sample to validate and for better generalization of the findings.
- Involve nursing superintendent of the hospital to enhance nurse's knowledge about the use of resuscitation.
- Arrange monthly ACLS and BLS health education programs in the hospital to increase awareness regarding the resuscitation among nurses.
- This type of study can be done in different setting.
- Comparative study can be done between two hospitals on staff nurses working in intensive care unit.

## VI. CONCLUSION:

There is a great need to improve the patient safe and effective care. Educational programs and strategies played an important role in providing safe and effective health care to the patient. Over the next decade, they will continue to contribute to the improvement of health outcomes. Educational based programs are most likely to succeed in improving health and wellness when they address influences at all levels and in a variety of environments/settings. Most of the nurses were aware about resuscitation but not able to independently done. Most of the nurses have no sense of cardiopulmonary resuscitation and thought it's only done by the doctors. It has been concluded that nurses have poor knowledge regarding the cardiopulmonary resuscitation. Nurses do not have knowledge about resuscitation, when they do not have sense about resuscitation then they do not understand the importance of resuscitation. Most of the nurses don't know even the meaning of resuscitation and they are working in critical care unit even though most of them know that resuscitation most important for saving life.

### ACKNOWLEDGEMENT

I am very thankful to Mr. M. Hussain faculty of nursing department, Lahore school of nursing and Mr. Asif Hanif Allied Health Sciences University of Lahore for facilitating me in completing my research project. I am thankful of Mr. M. Afzal principal of Lahore of nursing and Dean S. Amir Gilani Allied Health Sciences University of Lahore. I am thankful for the entire staff of public Hospital for their support and participation.

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## Questionnaire.

Sr. #	Variable Name (Knowledge Regarding CPR)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	If the patient needs CPR we must wait for the coming of doctor as the leader of resuscitation team.	①	②	③	④	⑤
2	When come across a cardiac arrest first check for responsiveness.	①	②	③	④	⑤
3	CPR is most effective when started immediately after the patient collapse.	①	②	③	④	⑤
4	Before starting artificial ventilation, opening airway is necessary.	①	②	③	④	⑤
5	Ratio of cardiac massage to respiration in all the ages for usual rescuers is 30 to 2.	①	②	③	④	⑤
6	The recommended chest compression to be performed in each minute during CPR is 100.	①	②	③	④	⑤
7	The best way to open the airway prior to giving mouth-to-mouth ventilation is to tilt the head back and lift the chin up.	①	②	③	④	⑤
8	The chest compression landmark on adult is at the center of the chest.	①	②	③	④	⑤
9	The steps of CPR in the correct sequence is Compression, maintain a patent airway and artificial breathing.	①	②	③	④	⑤
10	When dealing with a conscious choking patient, an abdominal thrust should be taken as a treatment.	①	②	③	④	⑤
11	After every compression, it must be permitted that chest completely returns to its normal.	①	②	③	④	⑤
12	Adults' chest must be pressed to the extent of 4 to 5 centimeters in every massage.	①	②	③	④	⑤
13	The most stopping time of cardiac massage for putting endotracheal tube is 10 seconds.	①	②	③	④	⑤
14	Cardiac massage must be done tough and fast.	①	②	③	④	⑤
15	The chance of saving a victim is 75 when CPR performed correctly	①	②	③	④	⑤

*\*Corresponding Author: Naeema Akber MPH  
Afro-Asian Institute lower mall road Lahore affiliated with Government College University  
Faisalabad,*