

# Identify Knowledge of Basic Cardiac Life Support among Nursing Student

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## *Abstract*

The knowledge of Basic Cardiac Life Support (BCLS) is very important among nurses to give basic life support the patient with cardiac arrest in routine work at hospital and in community. Every nurse has to face emergency situation in her life and it is necessary for her to gain sound and effective knowledge of BCLS. Increase survival ratio and decrease death rate is basic concern of health care provider. **Purposes** To identify knowledge of basic cardiac life support among student nurses. **Method** Quantitative experimental study was selected. It was an interventional study. **Instrument** The knowledge was analyzed by using the questionnaires prepared from Basic Life Support (BLS) manual of American Heart Association (AHA). A workshop has been conducted on basic cardiac life support and skills of cardiopulmonary resuscitation among Post RN BSN nursing students of Lahore School of nursing at the skill lab of University of Lahore. Where effect of training of Basic Life Support (BLS) was evaluated based on pretest and posttest training assessment scores. First theoretical Knowledge was explained through power point presentation and practical skills were demonstrated on manikins in skill lab. **Result** The results were analyzed by using paired t test. Out of 62 participants only 3.2% (n=2) participants get high scores in pretest the rest of participant 93.5% (n=58) has moderate knowledge level and 3.2% (n=2) had low knowledge level. Posttest assessment was done with the same question paper showed 96.8% (n=60) secured high score and remaining 3.2% (n=2) passed with moderate score. Mean difference was -9.4 and P value 0.000 showed the workshop highly effective and improved knowledge level in posttest. **Conclusion** Hence BCLS workshop is essential to improve knowledge and skills of cardiopulmonary resuscitation (CPR).

**Key Words:** Basic Cardiac Life Support (BCLS), Cardiopulmonary resuscitation (CPR), Knowledge, Students, Workshop.

## INTRODUCTION

Basic cardiac life support means given to the life support a patient in such a situation like sudden cardiac arrest (SCA), heart attack, stroke and foreign body airway obstruction (FBAO). (Chaudhary, Parikh et al. 2011). Basic cardiac life support knowledge and practices for health care provider is a key element or pillar to decreasing the death rate and increasing survival ratio. (Roshana, Batajoo et al. 2012). Globally one third population of the world died each year with cardiovascular diseases. Health care personnel did not have knowledge of effective cardiopulmonary resuscitation techniques. (Meaney, Sutton et al. 2012).

Nurses are the first person who deals to the patients with cardiac in hospital. So, nurses need a good knowledge and effective practices of cardiopulmonary resuscitation. (Xanthos, Akrivopoulou et al. 2012) Student nurses need to be complete the courses of Basic Cardiac Life Support prior to start clinical practices in actual life. (Kardong-Edgren and Adamson 2009).

Post RN BSN students are going to complete their degree program after diploma holding. It is necessary for them to have qualified knowledge and skills especially in cardiopulmonary resuscitation.

Nurses have low level of knowledge of cardio pulmonary resuscitation and skills. It should be required to arrange cardiopulmonary resuscitation training courses on regular bases. (Rajeswaran and Ehlers 2014). It is necessary for every person of

community to have knowledge of cardiopulmonary resuscitation (CPR) and basic life support for increasing the survival rate in life threatening condition especially health care workers like doctors, nurses and paramedic's staff should have basic and authentic knowledge of cardiopulmonary resuscitation to improve the quality of life. (Chandrasekaran, Kumar et al. 2010).

Basic life support knowledge is a fundamental knowledge and skills for nurses. To retaining BCLS skills among nurses it is necessary to arrange periodically workshop. As health care professional nurses should have fully skilled and competent in their knowledge and skills regarding BCLS as they are close to the patient first when patient went into cardiac arrest.

Cardiac arrest is still leading cause of death around the world. Initial chest compression is the only source for cardiopulmonary resuscitation.(Sidney, Rosamond et al. 2013). In under developing countries like Pakistan even though the person is a health care worker who has to face emergency condition, fails to give basic life support to patient with cardiac arrest. It is generally observe doctors and nurses fails to give proper and effective resuscitation in emergency situation when patient present with cardiac arrest.

Study finding helped the organization to plan and organize similar type of educational and training workshop for not only nursing students but also all Allied Health Science students prior to join an organization in actual life and work in community.

The study was quantitative experimental study. The population selected the student nurses of Post RN BSN year I semester II and Year II semester II. The students who are from Post RN BSN and give consent to become part of the study included. The sample size was (n=62)

## **RESEARCH ELABORATION**

Cardiac arrest is the most serious issue in hospital and out hospital setting, which require immediate CPR for reversal of the victim. (Karim 2016). According to American Heart Association victim with cardiac arrest should provide basic life support for cardiopulmonary resuscitation and work up on cardiopulmonary resuscitation services among public to improve survival ratio. (Meaney, Bobrow et al. 2013). The "2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care" increased the focus on methods to improve high quality cardiopulmonary resuscitation (CPR). AHA introduce 5 critical component to improve quality of cardiopulmonary resuscitation as minimise the interruption of chest compression, provide adequate rate and depth, avoid lean the body during perform compression, avoid excessive ventilation and provide minimum rate of ventilation according guidelines. (Meaney, Bobrow et al. 2013).

A prospective quasi experimental study conduct on a single group pre test and post test after BLS class on registered nurses at Jordianian hospital. Data show significant improvement as pre test scores (M=4.6, SD=2.9, range=0-9) and post test scores as (M=7.5, SD=1.7, range=4 to 9). The score in pre test and post test indicate that nurses gain better score in post test. The study shows the effectiveness of BLS simulation class.(Toubasi, Alosta et al. 2015)

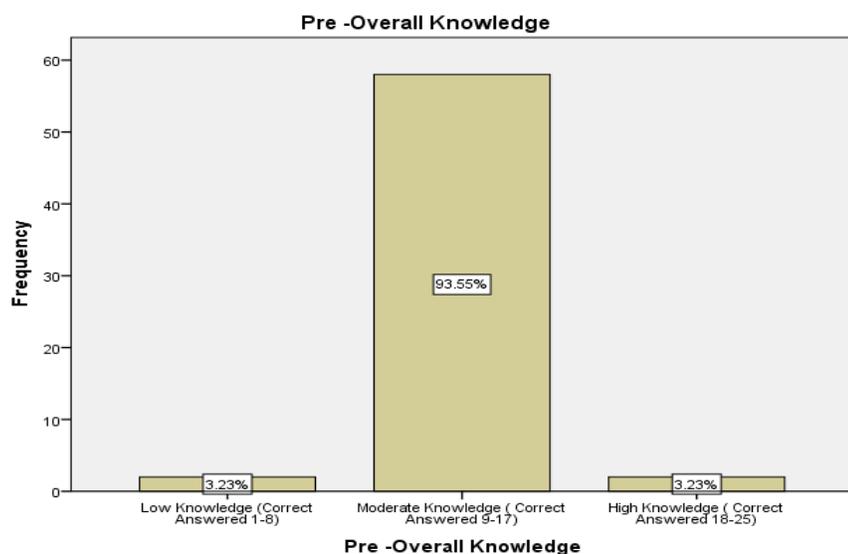
A cross-sectional study conducted among medical students and doctors in Rawalpindi-Islamabad Pakistan to assess the knowledge of cardiopulmonary resuscitation from June to September 2011. Results of the study was as inadequate awareness of cardiopulmonary resuscitation among medical/dental students and doctors and recommended to give training of basic life support. (Zamir, Nadeem et al. 2012)

## **RESULTS**

### **Pre Overall Knowledge**

Pre-test over all knowledge as 3.2% (n=2) give 1-8 correct answer and have low knowledge level. 93.5% (n=58) have moderate knowledge. Only 3.2% (n=2) have high knowledge with (2.00±0.25) shows in (Table 1) (Fig 1)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Low Knowledge (Correct Answered 1-8)	2	3.2	3.2	3.2
Moderate Knowledge ( Correct Answered 9-17)	58	93.5	93.5	96.8
High Knowledge ( Correct Answered 18-25)	2	3.2	3.2	100.0
Total	62	100.0	100.0	

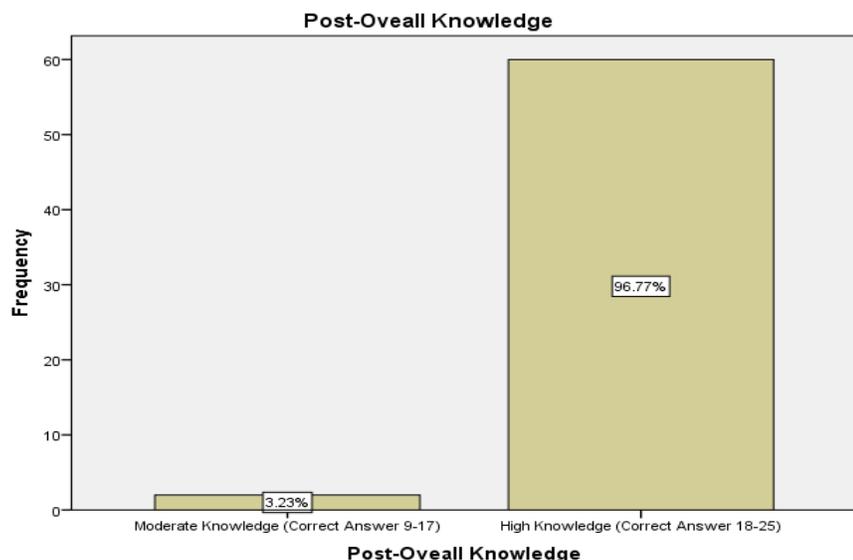


**Fig 1 Pre Overall Knowledge**

**Post Overall Knowledge**

After attending workshop of BCLS knowledge level improved as 96.8% (n=60) have high knowledge as they gave correct answer 18-25 question out of 25 question. Only 3.2% (n=2) passed with moderate level of knowledge as they gave 9-17 correct answers with (2.97±0.17) illustrate in (Table 2) (Fig 2)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Moderate Knowledge (Correct Answer 9-17)	2	3.2	3.2	3.2
High Knowledge (Correct Answer 18-25)	60	96.8	96.8	100.0
Total	62	100.0	100.0	



**Fig 2 Post Overall Knowledge**

Among 62 participants 40 were from year II semester II of post RN and remaining 22 were from year I semester II. Among all student nurses only 3.2% (n=2) secured high score in pretest and remaining students have moderate knowledge. In post workshop assessment as 96.7% participant secured high score. By paired t test data analysis pretest mean (11.9±2.51). In Posttest knowledge level was high with mean (21.4±1.64) shows in (Table 3)

**Table 3 Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test Score	11.9839	62	2.51221
	Post-Test Score	21.4194	62	1.66496

Table4 shows paired sample significant correlation as 0.562.

**Table 4 Paired Samples Correlations**

	N	Correlation	Sig.
Pair 1 Pre-Test Score & Post-Test Score	62	.562	.000

The p value of p<0.05 used to determine for the significant results. In short analysis of paired t test such as BCLS knowledge increased significantly from the pretest (M=11.9) to the posttest (M=21.4), Mean differences= -9.4, p value 0.00. Intervention was highly effective and statistics mean scores was high in post-test and improved knowledge level after attending workshop of Basic Cardiac Life Support (BCLS).

**Table 5 Comparison of pre workshop and post workshop scores**

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Workshop Participant	N	Pre Test mean	Post Test mean	Mean Differences	Paired t test P value
Student Nurses of Post RN BSN	62	11.3	21.4	-9.4	.000

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### Conclusion:

The study emphasizes to teach basic cardiac life support skills to student nurses. All students have maximum experience to serve health care organization of 4 to 7 years. On finding of this study students were fail in certain questions: how long should a pulse check, correct compression rate, a child is gasping bus has pulse rate 100 per minute what should rescuer response, response of rescuer on infant become responses after choking, what should done after AED shock, breath and compression ratio of child among second rescuer, correct compression placement in infant, alone find victim first response, when should use two thumb encircling technique in infant, after scene is clear what should second step, when second rescuer come with AED what should next step, bag valve mask is effective when controlled by two rescuer and best method to hold mask to deliver ventilation via bag valve mask.

Pre overall knowledge was moderate among all nursing students except two secured high scores and two secured low scores. After attending workshop there is significant change in knowledge as all students secured high scores and two person passed with moderate knowledge level. Paired t test and p value  $>0.05$  was used to analyze the significant results. The study was highly effective as on evaluation p value was 0.000 and mean differences between pre and post mean was -9.4. Results significantly show the effectiveness of workshop among nursing student.

In North-karela a cross-sectional study conducted to evaluate knowledge of BLS among health care workers. Study shows results as inadequate knowledge of BLS among health care professionals and recommended BLS Training to improve knowledge. (Nambiar, Nedungalaparambil et al. 2016)

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