

# Awareness, Knowledge and Attitude about Basic Life Support among Interns of Maharashtra University of Health Science's Affiliated Physiotherapy Colleges in Pune City: A Questionnaire Based Study

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## ABSTRACT

**Background:** Survival after sudden cardiac arrest is usually low and depends on early intervention, quality of cardiopulmonary resuscitation (CPR) and time to defibrillation. Prompt actions can improve chances of survival post cardiac arrest. Individuals in community, at least the health care professionals should know how to perform Basic Life Support (BLS) as they often encounter such situations. Physiotherapists being associated with patient care in varied settings, if trained will be able to identify the early signs of cardiac arrest and also provide immediate resuscitation.

**Objective:** To evaluate the awareness, knowledge and attitude about BLS in interns of all Physiotherapy colleges, affiliated to Maharashtra University of Health Sciences, in Pune city.

**Methodology:** A questionnaire comprising all three domains was designed. It was administered to all the interns of selected colleges in Pune city. Questionnaire was answered in presence of the investigator. The data was then analyzed and represented as descriptive statistics.

**Results:** The total number of interns from all the selected colleges was 157, response rate was 100%. The interns scored well in awareness domain but some of the individual components of knowledge domain were incorrect in more than half of the study participants. The most rated reason for reluctance in performing BLS was lack of professional training.

**Conclusion:** Half of the study participants had no valid BLS training, there is scope for appropriate strategies to be implemented to train maximum number of students which in turn might help to improve outcome post cardiac arrest.

**Keywords:** Awareness, BLS, CPR, Choking, Physiotherapists, Questionnaire

## INTRODUCTION

Sudden Cardiac Death refers to an unexpected death from some cardiovascular cause in a person with or without any pre-existing heart disease. <sup>[1]</sup> It is estimated that every year approximately 7 lakh sudden cardiac deaths occur in India. <sup>[2]</sup> The location of out of hospital cardiac arrest (OHCA) is reported to be majorly at home/residence followed by public settings and nursing homes. <sup>[3]</sup>

Survival after sudden cardiac arrest is usually low and depends on early intervention, quality of cardiopulmonary resuscitation (CPR) and time to defibrillation. Prompt and appropriate actions can improve chances of survival of a person post cardiac arrest. Lesser the time interval from the moment of arrest to the provision of chest compression or defibrillation, better the chances of victim's survival. <sup>[4]</sup> Every link incorporated in the

chain of survival has a crucial role, further dictating the outcome of resuscitation efforts.

In OHCA's, bystander CPR can improve the chances of survival by 2-3 fold.<sup>[5]</sup> It has also been proven that the performance of bystander CPR is associated with increased neurologically intact survival as compared to no bystander CPR. In OHCA, an early CPR before the arrival of Emergency Medical Services (EMS) is associated with a 30-day survival rate of more than twice as high as that associated with no CPR before EMS arrival.<sup>[6]</sup> Hence, the survival rate is appreciably high and the patient's quality of life is surely improved if an early bystander CPR is performed.

OHCA is witnessed by a lay person in 37% of cases.<sup>[3]</sup> Individuals in community; at least the health care professionals should know how to perform BLS as they often encounter such situations. Physiotherapists work on sports ground as "on-field" medical support staff, they are also engaged in treating patients at their residences, work in hospitals (Intensive care Unit, In-Patient and Outpatient Department), private clinics and so on. As incidences of sudden cardiac arrest are higher in all these settings and physiotherapists being in close contact with the patient, they can identify the signs of sudden cardiac arrest at once and effective BLS protocol can be initiated immediately.

Interns, being new aspiring physiotherapists are responsible for their patients' treatment. In case of any adverse event, if they are trained, they will be able to identify the signs of Sudden Cardiac Arrest (SCA) and activate and carry out BLS protocol effectively.

Knowledge about BLS protocol has been studied in certain medical and nursing students and professionals, but has not been studied yet in Physiotherapy fraternity.<sup>[7-11]</sup> Hence evaluation of the awareness, knowledge and attitude of BLS and related topics in interns of all physiotherapy colleges in Pune city affiliated to

Maharashtra University of Health Sciences (MUHS) was undertaken.

## **MATERIALS AND METHODS**

Clearance was sought from the Institutional Ethics Committee, before conducting the study. A questionnaire comprising all three domains of awareness, knowledge and attitude towards BLS was designed. The questionnaire included open as well as close ended questions. Awareness component had questions like if they have heard about the term BLS, expansion of terms BLS, Automated External Defibrillator (AED) and so on.

Knowledge domain had more specific questions regarding the ideal site and duration of pulse check, correct BLS sequence, ideal site of hand placement while giving compressions, the correct rate and depth of compressions and the compression : ventilation ratio to be maintained, characteristics of high quality CPR, correct maneuver of airway opening and prompt action required in case of choking. The responses to all these questions were based on the guidelines for Basic Life Support given by American Heart Association.<sup>[4]</sup>

Attitude domain included questions to evaluate how confident the study participants felt in carrying out BLS protocol, what were the reasons for their reluctance if any, if they recommended the inclusion of BLS in the curriculum and so on.

Face validation of the questionnaire was done. Following this, all Physiotherapy Colleges in the Pune city affiliated to MUHS were enlisted. A prior permission for conducting the study was taken from the concerned authorities of these colleges. Complete list of all the interns was obtained from the respective colleges and all the interns were approached individually. Subject Information sheet was given to all study participants and their Informed Consent was taken before administering the questionnaire. The questionnaire was answered by the study participants in presence of the investigator to avoid any

malpractice. Their response was then evaluated using appropriate statistics.

**Data Analysis / Statistics**

Data was entered and analyzed by Statistical package of Social Sciences (SPSS) version 17 and represented as descriptive statistics.

**RESULTS**

The total number of interns from all the colleges was 157. All of them agreed to participate in the study; response rate thus being 100%. Female participants (146/157, 93%) were more as compared to male participants. All the study participants belonged to the age group of 21-24 years.

**Awareness domain:**

156 (99.4%) participants had heard of the term BLS and knew its correct expansion.36

(22.9%) study participants knew about Automated External Defibrillator (AED) and 108 (68.8%) study participants were aware about the apt first response to an unresponsive, unconscious victim. Awareness score of the study participants is shown in Table 1.

**Knowledge domain:**

The analysis of components under knowledge domain is shown in Figure 1. Further analysis of the individual components of Cardiopulmonary Resuscitation (CPR) is shown in Figure 2. American Heart Association guidelines for BLS and CPR were used as guideline for this domain. [4] Knowledge score of the study participants is shown in Table 1.

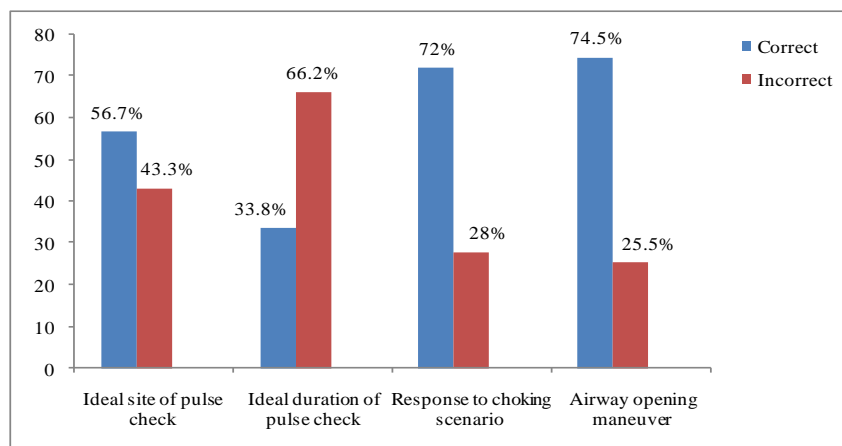


Figure.1 Distribution of components of Knowledge domain.

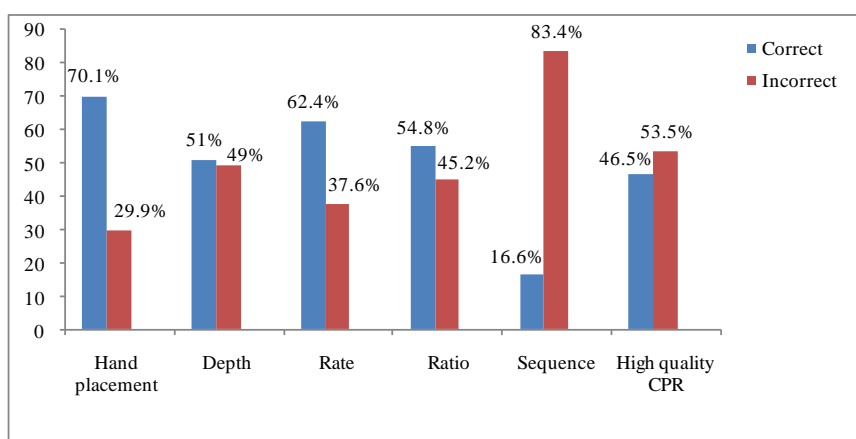


Figure.2 Distribution of individual components of cardiopulmonary resuscitation (CPR).

Table 1: Distribution of Awareness and Knowledge score of the study participants (n=157)

Category	Awareness Score	Knowledge Score
Poor	1 (0.6%)	24 (15.3%)
Average	62 (39.5%)	86 (54.8%)
Good	94 (59.9%)	47 (29.9%)

**Attitude domain:**

112 (71.3%) study participants were confident in performing CPR. When asked to rate themselves on BLS performance; 42

(26.8%) of them rated themselves in poor category, 86(54.8%) rated in average, 28(17.8%) in good and only 1(0.6%) participant rated in excellent category. The reasons for reluctance stated by the study participants are shown in Table 2. 70 (44.6%) of the study participants had not

undertaken certified BLS training, 83(52.9%) had attended certified BLS training in last two years whereas 4 (2.5%) of them had attended certified BLS training but 3-5 years back. All (100%) the study participants recommended the inclusion of BLS training in the curriculum.

**Table 2: Distribution of reasons for reluctance in administrating CPR.**

Reason for reluctance	Number of participants	Percentage of participants
Fear of causing harm to the victim	54 /157	34.4
Unaware of the correct procedure	27/157	17.2
Fear of being punished	7/157	4.5
Not exposed to professional training	69/157	43.9

## DISCUSSION

Basic life support is a “life saving” procedure. Early bystander CPR and defibrillation are crucial components of the chain of survival following Out of Hospital cardiac arrest. Studies have shown that early bystander CPR improves the chances of survival in an out of hospital cardiac arrest victims. [12] A study done in Denmark has proven that there is an improvement in the rate of 30 days neurologically intact survival by administration of an early bystander CPR. [6] Thus, it has been proven that early activation of BLS protocol and appropriate response by the bystander can determine the outcome of a patient in out of hospital cardiac arrest.

Sudden cardiac arrest (SCA) can occur anywhere, at home, in hospital setting (Out -patient and in -patient departments) and on sports field or playing any sports. Physiotherapists work closely with patients in all these settings. So it more than essential for physiotherapists to be aware and have sound knowledge of basic life support. The study population included interns as they are the new aspiring physiotherapists, who are now going to step into the professional world. They will now be entitled to treat patients independently. Awareness and knowledge of BLS in them is of utmost importance. If they are not trained or confident in carrying out BLS protocol, they can get trained in order to handle any emergency situation. The attitude of the study participants towards

BLS will give us the idea about their outlook or perspective towards this topic.

Several studies have been conducted on medical, dental students and interns, radiologists and other professionals, nursing students to evaluate awareness and their knowledge about basic life support skills. Till date there is no published study that has been performed to evaluate this aspect on Physiotherapy students. The present study is a unique study which was conducted on the Physiotherapy Interns, passing out in the year 2020, from all MUHS affiliated Physiotherapy colleges in Pune city.

The awareness score of more than half of the study population was found to be Good (59.9%) However, there is lack of awareness about a conjugate, yet very important part of the BLS protocol, the Automated External Defibrillator (AED). Only 36 interns out of 157 (22.9%), could expand the term AED. Ventricular fibrillation being the most common rhythm leading to sudden cardiac arrest, will respond well to early defibrillation thereby dictating the outcome post cardiac arrest. [4] Thus knowledge about AED is vital.

Majority of the study participants had knowledge about ideal site of pulse check, hand placement, rate and depth of compressions. 72% of the study participants knew the correct response to choking which if not addressed immediately can lead to adverse events. However, 83.4% of the study participants did not have knowledge about the correct sequence of BLS protocol. It is crucial to follow the correct sequence of

BLS in order to improve the chances of survival post arrest. Similarly, 53.5% of interns did not have knowledge about characteristics of high quality CPR which are, start compressions within ten seconds of arrest, push hard and push fast, allow proper chest recoil, minimize interruptions, give adequate breath and avoid excessive ventilation. [4] These characteristics determine the quality of resuscitation efforts. The study participants thus did not have complete knowledge about all components of BLS protocol. With inadequate knowledge successful resuscitation would not be possible.

Attitude towards various aspects of BLS was calculated separately; as they may have different attitude towards different components. Substantial number of study participants reported that they are not confident in performing CPR. It was also found in the study that, majority of the study participants were reluctant in performing CPR due to lack of professional training and their concern as to not harm the patient. Thus inclusion of BLS in curriculum and training sessions for the same can help overcome these barriers, thereby promoting the delivery of CPR following adverse events. Similar to our study, Raghava Sharma et al, in their study stated that lack of professional training of BLS was regarded as the most common hindering factor responsible for poor BLS knowledge in dental interns. [7]

Candidates were asked if they would recommend or support the inclusion of BLS training in their curriculum. All study participants (100%) have stated that there is necessity of including BLS in the academic curriculum. This demonstrates their positive attitude towards the necessity of knowing about BLS. In a similar study conducted by Rajashekar et al, 76% of the study participants wanted the inclusion of BLS in their curriculum. [11] The inclusion of BLS training Module in the Physiotherapy curriculum will enable the students to learn and master proper techniques which would

equip them to respond well in any emergency situation.

### **Strengths**

So far this is the only study done exclusively to assess awareness, knowledge and attitude in Physiotherapy interns, towards BLS. This study also brings to light the most rated reason for reluctance from performing BLS being lack of training which is very much an addressable issue which in turn might help to improve patient survival post cardiac arrest in an out of hospital or in hospital settings.

### **Limitations**

This study being a questionnaire based study could not evaluate the practical or hands on skills of the study participants which forms an important aspect of BLS training.

### **Clinical implication**

This baseline evaluation of all the three domains will help to plan and implement specific strategies in order to train maximum students and professionals in BLS, thereby improving the outcome of cardiac arrest victims.

### **CONCLUSION**

Even though the interns scored well in awareness domain, except for awareness about AED, some of the individual components of knowledge domain like ideal duration of pulse check, correct sequence of CPR and characteristics of high quality CPR were incorrect in more than half of the study participants. As far as attitude domain was concerned, the most rated reason for reluctance in performing BLS was lack of training. Half of the study population had no valid training about BLS but all of them recommended inclusion of BLS training in the curriculum.

### **Future Scope**

Similar studies can be conducted in various health care professionals and also assess the practical or hands on skills involved in Basic Life Support training.

### Conflict of interest

The authors declare that they have no conflict of interest relevant to this article.

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### Appendix

#### QUESTIONNAIRE

##### I) AWARENESS DOMAIN:

- 1) Have you heard about the term BLS? a) YES b) NO
- 2) Expand the term BLS \_\_\_\_\_
- 3) Can BLS be performed only in "IN-HOSPITAL" settings? a) YES b) NO
- 4) Expand the term AED \_\_\_\_\_
- 5) In the middle of the road, you find a 35yr old man unresponsive, your first response will be \_\_\_\_\_
  - a) Ensure scene-safety
  - b) Start chest compressions
  - c) Give rescue breaths
  - d) Open the airway

##### II) KNOWLEDGE DOMAIN:

- 6) The ideal site of pulse check in adults is: -
  - a) Femoral artery
  - b) Dorsalis pedis artery
  - c) Carotid Artery
  - d) Radial artery
- 7) The ideal time duration for pulse check is: -
  - a) 2-5 seconds
  - b) 5-10 seconds
  - c) 5-8 seconds
  - d) 10-12 seconds
- 8) The correct sequence of BLS is \_\_\_\_\_
  - a) Compression-Breathing-Airway
  - b) Airway-Compression-Breathing
  - c) Compression-Airway-Breathing
  - d) Breathing-Compression-Airway
- 9) The ideal site for HAND PLACEMENT while giving chest compressions is:-
  - a) Lower half of sternum
  - b) Upper half of sternum
  - c) On the ribs
  - d) Left mid clavicular line

- 10) The minimum DEPTH of chest compressions should be-  
a) 5cm b) 9cm c) 7cm d) 2cm
- 11) The RATE of giving Chest Compressions should be -  
a) 200-250/min b) 100-120/min c) 50-100/min d) 300-350/min
- 12) The ratio of COMPRESSION: VENTILATION is:-  
a) 20:1 b) 30:1 c) 30:2 d) 40:2
- 13) All of the following are the characteristics of High-Quality CPR, EXCEPT \_\_\_\_\_  
a) Promote excessive ventilation b) Push hard - Push Fast  
c) Start chest compressions within 10 seconds d) Minimize interruptions
- 14) The correct maneuver used to open up the airway is:-  
a) Open the mouth b) Sweep finger in mouth c) Head tilt – chin lift d) Head lift – chin tilt
- 15) If a 21 yr old boy, demonstrates universal signs of choking, then your first response will be:  
a) Use AED b) Pulse check c) Rescue breaths d) Abdominal thrust

### **III) ATTITUDE DOMAIN:**

- 16) Are you confident in performing CPR? a) YES b) NO
- 17) What do you think is the reason for reluctance?  
a) Fear of causing further harm to the patient b) Unaware of the correct procedure  
c) Fear of being punished by the authority d) Not exposed to professional training
- 18) How will you rate yourself on BLS performance?  
a) Poor b) Average c) Good d) Excellent
- 19) Have you attended BLS workshop?  
a) No b) Yes, within last 2 years  
c) Yes, within last 3-5 years d) Yes, before 5 years
- 20) Do you recommend inclusion of BLS training in your academic curriculum? a) YES b) NO

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