Cardiopulmonary Resuscitation Knowledge/Awareness Among Final Year B. Physiotherapy Students: A Questionnaire-Based Study

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Abstract: Background: Cardiopulmonary resuscitation (CPR) reduces cardiac arrests and related deaths when patients receive CPR promptly from adequately trained and specialized healthcare professionals. Quality CPR consists of providing an appropriate frequency and depth of compressions, minimised interruptions and appropriate volume of ventilation. The objective of the study was to determine the current level of knowledge /awareness of Cardiopulmonary Resuscitation (CPR) among Final Year B. Physiotherapy students. Material And Methods: This cross-sectional study involved final year B. Physiotherapy students from different colleges of Ahmedabad. A Questionnaire containing 14 Questions was given to the students and were ask to tick the most appropriate answer. Result: The average score is 44.53% (N=200). While only 31.5% of them were completely aware of the universal compression rate, 62.5% were aware of the compression depth in adults whereas only 19% were aware of the compression depth in infants. Conclusion: This questionnaire survey demonstrated that CPR skills in physiotherapy students were insufficient, which could be improved by well-designed certified training programs. [Tripathi H Natl J Integr Res Med, 2021; 12(3): 68-71]

Key Words: Awareness of CPR, Cardiopulmonary resuscitation, Physiotherapy students

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Introduction Cardiovascular diseases (CVDs) became the leading cause of mortality in India. This epidemiological transition is large because of the increase in the prevalence of CVDs and CVD risk factors in India. India has one of the highest burdens of cardiovascular disease (CVD) worldwide.

The annual number of deaths from CVD in India is projected to rise from 2.26 million (1990) to 4.77 million (2020)[1]. Coronary heart disease prevalence rates in India have been estimated over the past several decades and have ranged from 1.6% to 7.4% in rural populations and from 1% to 13.2% in urban populations[2].

Cardiac arrest (also known as cardiopulmonary arrest or circulatory arrest) is the cessation of normal circulation of the blood due to failure of the heart to contract effectively. Cardiac arrest is a medical emergency that, in certain situations, is potentially reversible if treated early. Unexpected cardiac arrest sometimes leads to death almost immediately, this is called sudden cardiac death. The treatment for cardiac arrest is cardiopulmonary resuscitation (CPR) to provide circulatory support, followed by defibrillation if a shockable rhythm is present[3]. The first CPR guideline was published in 1966 by an Ad Hoc Committee on Cardiopulmonary Resuscitation established by the National Academy of Sciences of the National Research Council. Since that time, periodic revisions to the guidelines have been published by the AHA in 1974, 1980, 1986, 1992, 2000, 2005, 2010 and now 2015. The 2010 guidelines were most notable for the reorientation of the universal sequence from A-B-C (Airway, Breathing, Compressions) to **C-A-B** (Compressions, Airway, Breathing) to minimize time to initiation of chest compressions[3].

To improve survival after cardiac arrest, care must be optimized at each point along the cardiac arrest continuum including rapid emergency response, provision of CPR by bystanders, delivery of chest compressions with minimal interruptions by first responders, rapid defibrillation, and optimization of post-resuscitation care, including therapeutic hypothermia[3,4,5].

CPR as the foundational technique for the emergency treatment of cardiac arrest has been shown to protect brain viability after as much as 10 minutes without circulation, increase survival rates in cases of ventricular fibrillation from 20 to 40 percent and consequently maintain neurologic

function[6,7]. Out of hospital cardiac arrest (OHCA) is often the first presentation of ischemic heart disease.

If victims of OHCA can receive immediate and appropriate treatment, they have a 30% - 70% chance of survival[8].

The physiotherapist works constantly at places that require knowledge of CPR, so it is important to assess the knowledge of these professionals on this topic with a view to advocate for curricular reviews and continuous education that will equip physiotherapists to improve patient care.

This study assessed knowledge of CPR among final year B. Physiotherapy students.

Material & Methods: Sampling Technique: A convenient sampling was used to assess knowledge/awareness among final year B. Physiotherapy Students of Ahmedabad. This Institutional based cross-sectional self-administered questionnaire study involved 200 final year physiotherapy students of Ahmedabad.

The physiotherapy students were recruited from municipal, government and private physiotherapy colleges. Permission was taken from the head of the institute before the study.

Inclusion Criteria: Final year physiotherapy students.

Exclusion Criteria: Not willing to participate in the study. Absent students during data collection time.

Procedure: The purpose of the study was explained to students to avoid ambiguity and misunderstanding. Moreover, the individual was asked to fill questionnaires after verbal consent was obtained. A questionnaire containing 14 questions were given to the students of the final year and they were asked to tick the most appropriate answer.

Results: The average score was 44.53% (N=200). 84% of students were aware of the components of CPR.

When asked what is the right time to make sure the scene of an accident is safe, only 29% of students gave the correct answer. 67.5 % were aware of the protection of CPR providers.

30.5% knew about time to check the pulse. Only 39% were aware of the hand placement to perform chest compression. While only 31.5% of them were completely aware of the universal compression rate, 8.5% & 16% knew how to operate AED and what to do after AED respectively whereas only 19% were aware of the compression depth in infants.

Table 1: Study Questionnaire

No.	Questions	%
1	What is the most critical component of CPR?	84%
2	When is it the right time to make sure the scene of an accident is safe?	29%
3	To protect your safety while providing CPR, you should:	67.5%
4	"Agonal breathing" is a form of struggling breathing that sounds like gasping or gurgling. A person who shows signs of agonal breathing should get CPR right away.	61.5%
5	How long should you take to check for a pulse?	30.5%
6	How deep should chest compressions be for an adult victim?	62.5%
7	Where should you place your hand to provide chest compressions to an adult?	39%
8	What is the rate of compression when delivering CPR?	31.5%
9	What should you do first when operating an AED?	8.5%
10	You have delivered an AED shock to a patient. What should you do next?	16%
11	When delivering CPR to an infant, the correct depth of compression is:	19%
12	How do you check for responsiveness in an infant?	64%
13	How do you open an unresponsive victim's airway?	80%
14	What is the proper compression-to-breaths ratio when performing CPR on a child along with an additional rescuer?	30.5%

Discussion: Physiotherapy professionals are expected, and often have to attend life threatening emergencies including cardiac arrests as the work in the ICU department.

A physiotherapist is expected to have skills and knowledge regarding resuscitation as they work with patients in the hospital as well as out of the hospital. This questionnaire survey demonstrated that CPR skills in physiotherapy students were insufficient and needs to be improved. Most of the students had brief theoretical BLS class and no previous practical training of CPR in college. This may have accounted for the poor to average knowledge in present study.

Aroor et al, in a study conducted in South India, reported an overall awareness and knowledge of basic life support (BLS) mean score of 4.16 (SD ±1.40) of a 10-maximum indicating a poor knowledge score among nursing, dental and medical individuals including undergraduate, internship and postgraduate groups. However, these knowledge scores are based on a survey about BLS knowledge which is not similar to our survey. In addition, the authors found that age, gender, level of training, the programme of study and previous exposure to BLS were significantly associated with knowledge level[4].

Furthermore, healthcare professionals and International studies also reported that trained individuals were more willing and confident to perform bystander CPR[12]. Therefore, trained professionals or students may be able to perform early CPR, initiate resuscitation efforts and speed up access to prehospital and definitive care. This may lead to the increased survival rates and improving patient outcomes.

Shanta Chandrasekaran at al conducted cross-sectional study assessing responses to 20 selected basic questions regarding BLS among students, doctors and nurses of medical, dental, homeopathy and nursing colleges. No one among them had complete knowledge of BLS. Awareness of BLS among students, doctors and nurses of medical, dental, homeopathy and nursing colleges was very poor[15].

In addition, studies concluded that basic and advanced life support skills deteriorate after only 6months post-training[8]. Therefore, it is imperative to continuously refresh the trainee's knowledge and skills regularly.

At least, certified CPR training programs at regular intervals and incorporating them in curriculum should be a mandatory component in all health-associated fields like MBBS, Physiotherapy, and nursing colleges and other allied professionals. From this study, we suggest that all members of health care professionals should join CPR training programs, especially those who work or are willing to work in multi-speciality hospitals with an emergency department or ICU unit.

Limitations of the study was small sample size and only final year students were included and, study gives no idea about practical knowledge of CPR. Large study involving interns, PG and clinician assessing theoretical as well as practical knowledge needs to be done.

Physiotherapist works in ICU and as first contact person in clinics. Knowledge and practice of CPR may strengthen their position and advocacy within the healthcare system. This may enhance the global advocacy for professional autonomy of physiotherapy. Mandatory resuscitation training in physiotherapy education curricular and continuous professional development will improve the outcome of patients who may suffer a cardiac arrest.

Conclusion: Cardiopulmonary resuscitation (CPR) reduces hospital cardiac arrests and related deaths when patients receive CPR promptly from adequately trained and specialized healthcare professionals[8,14]. This study explores that level of knowledge among physiotherapy student is inadequate and research is highly needed to establish effective strategies for improving CPR knowledge and skills among students.

References:

1. Murray CJL, Lopez AD. Alternative projections of mortality and disability by cause 1990 – 2020 : Global Burden of Disease Study. 2020;349:1498–504.
2. Huffman M, Prabhakaran D. Europe PMC Funders Group Incidence of Cardiovascular Risk Factors in an Indian Urban Cohort : 2020;57(17):1765–74.
3. Vural M, Koşar MF, Kerimoğlu O, Kızkapan F, Kahyaoğlu S, Tuğrul S, et al. Cardiopulmonary resuscitation knowledge among nursing students : a questionnaire study. 2017;(8):140–5.
4. Aroor AR, Saya RP, Attar NR. Awareness about basic life support and emergency medical services and its associated factors among students in a tertiary care hospital in South India. 2014;166–70.

5. Chandrasekaran S, Kumar S, Bhat SA, Shabbir PM, Chandrasekaran VP. Awareness of basic life support among medical , dental , nursing students and doctors. 2010;54(2):121–6.
6. Alam T, Khattak YJ, Anwar M, Khan AA. Basic Life Support : A Questionnaire Survey to Assess Proficiency of Radiologists and Radiology Residents in Managing Adult Life Support in Cardiopulmonary Arrest and Acute Anaphylactic Reaction. 2014;2014.
7. Tsegaye W, Tesfaye M, Alemu M. Knowledge , Attitude and Practice of Cardiopulmonary Resuscitation and Associated Factors in Ethiopian University Medical Students Journal of General Practice. 2015;3(4).
8. Oteir AO, Almhdawi KA, Alwidyan MT, Williams B, Kanaan SF. Cardiopulmonary resuscitation level of knowledge among allied health university students in Jordan : a cross-sectional study. 2019;1–9.
9. Roshana S, Kh B, Rm P, Mw S. Basic life support : knowledge and attitude of medical / paramedical professionals. 2012;3(2):141–5.
10. Hospital G, Voulas A, Artemidos O. Knowledge of Cardiovascular Resuscitation in an. 2015;149–53.
11. Mbada CE, Adedoyin R, Awotidebe to. Knowledge , attitude and practice of cardiopulmonary knowledge , attitude and practice of cardiopulmonary resuscitation. 2015;(January 2019).
12. Abelsson A, Nygårdh A. To enhance the quality of CPR performed by youth layman. 2019;0(2 19):4–9.
13. Teachers PE. and Academic Review. 2018;6(6):1–8.
14. Journal I, Scientific OF. Assessment Of Nurses Performance During Cardiopulmonary Resuscitation In Intensive Care Unit And Cardiac Care Unit At The Alexandria. 2015;4(12):141–8.

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