

Knowledge of Basic Life Support among the Nursing Staff and Students of KIMSDU.

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ABSTRACT

Background: Nursing staff plays important role in the health care system; one of the key skills that students should develop during their training is to be prepared for emergency life saving measures like cardiopulmonary resuscitation (CPR) anytime, anywhere. At least the doctors, nursing and paramedical staff are expected to know about it, as they frequently face life threatening situations. **Objectives:** a) To evaluate the CPR awareness among nursing staff and students. b) To screen the knowledge regarding accurate, effective CPR procedural techniques and various barriers of CPR failure in clinical practice from a student perspective. **Methods:** A cross-sectional Observational study conducted among nursing staff and students of the Krishna institute of nursing science, Karad. Maharashtra. **Results:** No one has complete knowledge of BLS. Only 3% of total students have 80% knowledge about BLS. 81% of the students has less than 50% of knowledge. **Conclusion:** It can be concluded that not only the nursing staff and students be trained in Basic Life Support, but also it has to be reinforced from time to time, since the skills of CPR are difficult to teach and once taught difficult to retain. As these are the persons, who are near the patient for 24 hrs easily approachable with in no time till the resident or the CMO attends the patient in the hospital. Also, this should be incorporated into the academic curriculum, as it will become a compulsory topic to be dealt with specially for the nursing students.

Keywords: BLS, CPR, CPR questionnaire, Nursing staff.

INTRODUCTION

Resuscitation "is the art of restoring life or consciousness of one apparently dead."^[1] Resuscitation attempts date way back in time. Cardiopulmonary resuscitation (CPR) is one of the most evolving areas of modern medicine which comprises a series of lifesaving actions that improve the survival rates following cardiac arrest.^[4] Today, whether you are a resident of Mumbai, Assam, Kerala, or Punjab, it's simply a matter of luck, whether you will get good medical care during emergency "there is a general lack of awareness among public and policy makers about what emergency medical care is all about. In most cases, it is only understood to be an ambulance intervention, where a vehicle would be deployed. Majority of the ambulances are not able to provide any care to the victim. They only transport from point A to point B and are not able to stabilize the patient. The equipments or trained profession also required to save someone's life are missing.

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It is important that people in the community know the BLS skill to save lives and improve the quality of the community's health. This becomes more important for paramedical staff who are facing life threatening situations. In this study, we showed that hands on skill make an obvious difference to

improve skill of BLS. In earlier days CPR training was meant only for health care professionals. Later it was noticed that many of these events occurred outside the hospital setting, and that early CPR need to be performed by the bystanders who witnessed the scene. Hence, CPR is said to be a skill for all.^[5] Quality of life is also found to be better for victims who immediately receive bystander CPR even in absence of professional assistance.^[6]

MATERIALS AND METHODS

A cross-sectional study was conducted by assessing the responses to 25 selected basic questions regarding BLS, among nursing staff and students of the Krishna institute of nursing science, Karad.

A questionnaire with 25 questions regarding the awareness and skills involved in BLS was used to assess the levels of awareness to BLS and its practical knowledge. The aspects on which they were interrogated were about the abbreviation of BLS, AED and EMS (Emergency Medical Service), sequential steps in BLS, assessment and resuscitation techniques with regard to airway, breathing, circulation in unresponsive victims of different age groups, techniques regarding removal of foreign body obstruction, recognition of early signs of stroke and acute coronary syndrome. A total of 580 participants, 420 nursing students & 160 nursing staff were part of the study.

QUESTIONAIRES

1. There are several things need to do when you encounter a person in need of assistance. What should do first?
 - a) Commence CPR
 - b) Check for danger
 - c) Call for help
 - d) Determine responsiveness
2. Why do we perform CPR?
 - a) Help the heart to beat normally.
 - b) Manually circulate blood.
 - c) Keep the casualty unconscious
 - d) All of the above
3. You are walking in the basement corridor of the medical center .Ahead of you a middle aged man suddenly slumps against a wall and slides to floor .No one is available to help .What should you do next? (need help)
 - a) Check for responsiveness; if the victim is unresponsive ,activate the emergency response system ,then return to the victim to begin CPR.
 - b) Activate the emergency response; wait in an intersecting hallway to direct the responders
 - c) Place the victim in the recovery position and await the arrival of emergency responders with appropriate equipment
 - d)Perform CPR for 1 minute ,then activate the emergency response system
- 4.You notice a 48years –old male lying on the grass in the middle of a park. You have ensured that the scene is safe and checked for responsiveness. You found that the victim is unresponsive . You immediately tell a bystander to call emergency number .What should you do next.
 - a) Wait for the bystander to come back with the AED ,
 - b) Open the airway and begin giving rescue breaths every 5 seconds.
 - c) Begin abdominal thrusts.
 - d) Get down to bare chest and begin CPR starting with chest compressions
5. When placing the hand upon the chest to perform CPR, what part of the chest do we place the hand upon?
 - a) Centre of the chest
 - b)The high upper breastbone
 - c) The lower part of the breast bone
 - d)Left lower lateral part of the chest
- 6 .Which of these methods would be appropriate to “open the airway of a child victim
 - a) Backward head tilt and chin lift
 - b) Maintain head in neutral position
 - c) Recovery position
 - d) Shout at the child to wake up
7. You are giving compressions on the adult at a rate of at least 100 compressions per minute. What is the correct depth for these compressions?
 - a) At least 1 inch
 - b) At least 2 inches
 - c) At least 3 inches
 - d) At least 4 inches
8. What is the recommended rate of compression?
 - a) 30 compressions per minute
 - b) 100 compressions per minute
 - c) 60 per minute
 - d) 82 per minute
9. What is the recommended ratio of compression to breaths?
 - a) 30 compressions to 2 breaths
 - b) 100 compressions to 2 breaths
 - c) 30 compressions in two minutes
 - d) 30 compressions and 4 breaths
10. The recommended ratio of compressions to breathing (30:2) applies to
 - a) All of these
 - b) Infants
 - c) Adults and older children
 - d) Younger children
11. What is the correct hand placement for compression for infant victim?
 - a) Use two hands when performing compressions on an infant
 - b) Use one hand when performing compressions on an infant
 - c) Use two fingers when performing compressions on an infant
 - d) Do not give compression on small infant
12. You have started CPR on an infant victim .What is the recommended compression depth?
 - a) It is not recommended to do compression on infant
 - b) At least one inch or 1/5 of the depth of the chest
 - c) At least an inch and a half or 1/3 of the depth of the chest
 - d)) At least two inches or 1/4 of the depth of the chest
13. While at work in a hospital you find adult victim who has collapsed. No one is available to provide the needed help . After you ensure that the scene is safe, what do you do next?
 - a) Check for responsiveness ;if the victim is unresponsive ,activate the emergency response system (or call give phone)and get the AED if available
 - b) Phone (or activate the emergency response system), then wait outside to direct the emergency responders.
 - c) Open the airway with the tongue –jaw lift and perform 2 finger sweeps to check if food is blocking the airway
 - d) Perform CPR for 1 minute, then phone
14. You witnessed the collapse of the 45year old man. You are now performing CPR after sending someone to phone 911. You have done your best to ensure that the first 2links in the chain, which will have the greatest effect on increasing this man’s chance of survival?
 - a) Arrival of the paramedic who will administer the drug
 - b) Transportation of man to the hospital
 - c) Arrival of rescue with the defibrillator
 - d) Arrival of EMS personnel who can do CPR

15. You are giving CPR to 5-year-old child. A second rescuer comes by and states they know CPR. What happens to your compression to breath ratio when you add the second rescuer?
- It stays the same -30 compressions to 2 breaths
 - It changes -5 compressions to 1 breaths
 - It changes -15 compressions to 2 breaths
 - It changes -30 compressions to 3 breaths
16. You are performing CPR on adult victim .The second rescuer has arrived with the AED and turned it on. What is the next step?
- Place the pads over the victims' clothes
 - Place the pads on the victims' bare chest
 - Shock the victim
 - Wait for advanced care to arrive before continuing use of the AED
17. After the AED has delivered the shock you should?
- Continue CPR beginning with compressions
 - Wait patiently for the AED to reanalyze
 - Turn off the AED
 - Give two breaths
18. Rescue breathing is used for victim who is unconscious, but has pulse.What is the correct rate of rescue breathing in adult?
- 1 breath every 3 to 5 seconds
 - 1 breath every 5 to 6 seconds
 - 2 breaths every 5 to 6 seconds
 - 2 breaths every 3 to 5 seconds
19. Rescue breathing is used for the victim who is unconscious, but has a pulse. What is the correct rate of rescue breathing in the child or infant
- 1 breath every 3 to 5 seconds
 - 1 breath every 5 to 6 seconds
 - 2 breaths every 3 to 5 seconds
 - 2 breaths every 3 to 5 seconds
20. A 7 year –old child has been electrocuted after playing around faulty electrical equipment. The scene has been made safe .You are performing CPR and have just completed 5 cycles of compressions and breaths when a coworker arrives with a standard adult AED.You should.
- Continue CPR .Do not attach the AED without the child pads/system
 - Stop CPR.Wait for EMS to arrive with the child pads/system
 - Stop chest compressions and give rescue breathing only
 - Attach the standard adult AED and follow the voice prompts
21. During lunch at your childcare center, a 4-year –old child suddenly clutches her throat and looks very anxious. You quickly ask "are you choking". The child does not respond or make any sound, but she appears very frightened. You should
- Encourage her to cough it out
 - Position the child flat on her back and give 30 chest compressions
 - Kneel behind the child and give abdominal thrusts in rapid sequence
 - Attempt to give 2 breaths until the stomach visibly rises
22. While feeding an infant, he suddenly stops making any sounds and turns blue. You should
- Raise his arm in the air and shout ,"spit it out "
 - Give 5 back blows/slaps and 5 chest thrusts until the object is expelled
 - Give abdominal thrusts in rapid sequences until the object is expelled
 - Give forceful rescue breath until the stomach visibly rises
23. You discover a 7-month-old infant face down on the sofa .The baby is not moving .You roll him over and see a bluish tint around his lips .You should
- Shout for help and immediately start the steps of CPR
 - Leave the baby to get an AED
 - Give 5 back blows/slaps and 5 chest thrusts
 - Give 2 rescue breaths that make the stomach visibly rises
- 24.After giving 1 shock with an AED , a victim remains unresponsive with no signs of life ,you should:
- Remove the electric pads from the victim chest
 - Give 30 compressions and 2 breaths, and then let the AED reassess the rhythm
 - Give 5 cycles of 30 compressions and 2 breaths, and then let the AED reassess the rhythm
 - Clear the victim and give 2 more shocks
25. Why should we stop performing CPR?
- Casualty shows signs of life
 - Rescuer becomes totally fatigued
 - Paramedics arrive and take over or tell you to stop
 - All of the above

We have given training to the nursing students and staff, before conducting exam. Total out of 580 strength only 320 were present for training courses, as the exam was compulsory so all have attended the exams.

No one had complete knowledge on BLS. Only seven out of 580 (1.2%) had secured 80 – 89% marks, of these seven, two were the senior nursing

nursing students of final year. Seventeen out of 580 (2.93%) had secured 70 – 79% marks, of these, five were nursing college teaching faculty ,7 were the ICU staff and remaining 5 were senior nursing staff. Forty of 580 (6.89%) had secured 60 – 69% marks, of these 12 were the senior nursing staff, 8 were cath lab staff, 14 were nursing students and 6 were ICU staff. Forty seven of the 580 (7.93%) had secured 50 – 59% marks, of these 15 were ICU staff, 7 senior

staff ,15 were the cath lab staff ,and 10 were nursing college student . The remaining 470 (81.3%) secured less than 50% marks.

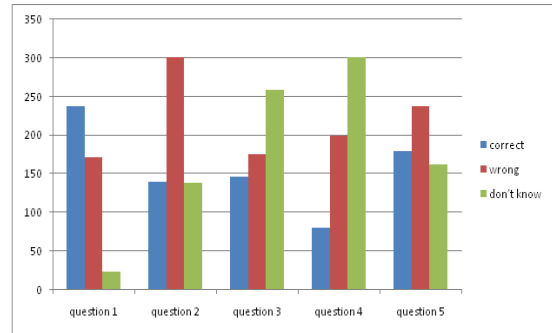
Table 1: Total number of nursing students and nursing staff who have attended training programme in BLS.

	Nursing Staff	Nursing Student
Attended BLS training	100	220
Did not attend BLS training	60	200

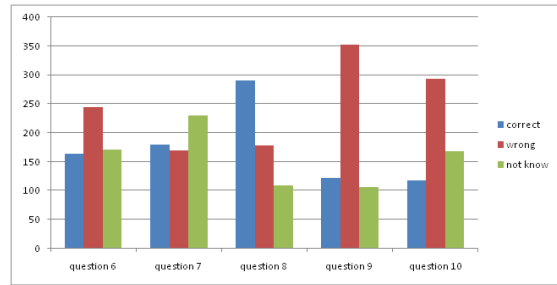
Table 2:?????

Percentage of score	Number of student	Percentage
Less <50%	470	81.3%
50-59%	46	7.93%
60-69%	40	6.83%
70-79%	17	2.93%
80-89%	7	1.2%
	580	100%

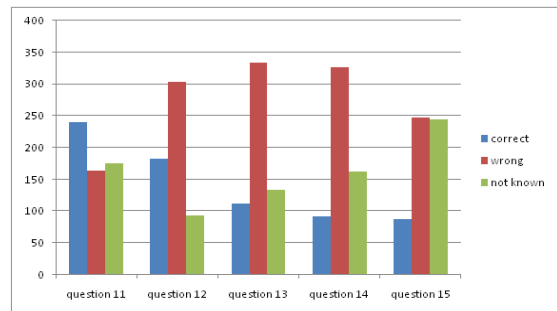
41.03% of the students knew what to do when the person is in need of assistance, 29.65 don't know what to do and remaining wrote the wrong answer. 23.9% of students don't know why we perform CPR, 51.89 have given the wrong answer and only 24.13 know the correct answer. 44.65 %of students and staff do not know what to do in an emergency when help is not available, only 25.17% knows the correct answer and 30.17 % has answered wrong. 51.89% don't know what to do when a unresponsive person is found, 34.31% know the wrong answer and only 13.7% of the students know what to do in these type of situations. 41.03% of the student have wrong information about where to put hands on the chest while performing CPR, 27.93 students don't know the procedure and only 31.03% know the correct answer for this question. 29.48% of students don't know the method to open the airway in the infant victim 42.24% knows the wrong method and only 28.27% knows the correct method to open the infant victim's airway. Only 31.03% knows the depth of chest compression in an adult, 29.31% has wrong knowledge and 39.65% do not know the answer. 50.17% of the students knows the rate of compressions per minute, 18.96% don't know and 30.86% knows the wrong answer. Ratio of chest compressions was wrongly known by 60.68% and 18.27% do not know the ratio of compressions and only 21.03% knows the correct answer. Only 20.34% students knows where the compression and breath applies 29.13% do not know and 50.51% knows wrong answer.



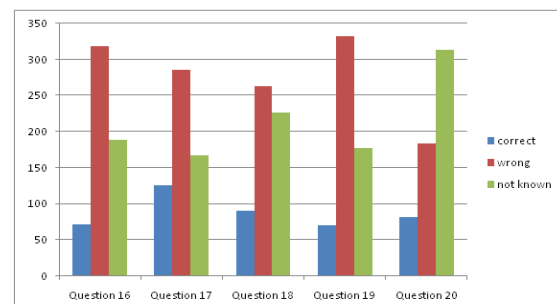
Graph 1:Showing response to questions 1-5.



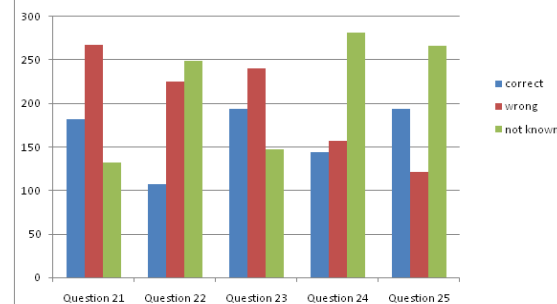
Graph2:Showing response to questions 6-10.



Graph3:Showing response to questions 11-15.



Graph4:Showing response to questions 16-20.



Graph5:Showing response to questions 21-25.

DISCUSSION

Resuscitation is one of the most evolving areas of modern medicine while cardiopulmonary resuscitation (CPR) is a treatment modality aimed at preventing sudden, unexpected death in life threatening situations. Health professionals should have sound CPR/BLS knowledge and skills. Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS) is part of CPR^[1,2]. Basic Life Support (BLS) includes recognition of signs of Sudden Cardiac Arrest (SCA), heart attack, Cardiovascular stroke, foreign body airway obstruction and Automated External Defibrillator (AED)^[3].

Indians are vulnerable even after reaching the hospital during the golden hour due to inadequate training in relation to emergency care. Emergency medical care is a systemic paradigm, where an entire system works towards saving patients life.

The study results showed that nursing students and faculty in the study group were severely lacking in the awareness of BLS. This study emphasized the cognitive approach to the general perception and skills of Basic Life Support, early recognition of stroke and acute coronary syndrome. It is now essential to standardize training in advanced life support and make it a mandatory component of all medical, nursing and para-medical school, undergraduate curricula.^[7] It is also equally important that teachers, school children, public and all lay persons from the community be taught the facts of basic life support and first aid.

The awareness on emergency medicine is increasing and The Medical Council of India has already approved emergency medicine as a separate speciality. Spreading awareness and teaching the basics of advanced life support to the medical and paramedical team as well as teaching BLS and first aid to the community will be the prime responsibility of this new emergency speciality.

“The knowledge of CPR is a major determinant in the success of resuscitation and plays a vital role in the final outcome of acute emergency situations.”^[8] Various studies investigated the awareness of health professionals’ knowledge and experiences of CPR.^[9-11] In a recent study, the awareness was examined among students, doctors and nurses of medical, dental and nursing colleges. The result showed that the awareness of health professionals about CPR was very poor.^[10,11] Very interestingly, one study states that majority of students realize the importance of the CPR skill.

It is just not enough making the students theoretically knowledgeable about CPR but also there is an absolute necessity to encourage them to inculcate, master and practically execute learned CPR procedural techniques in day-to-day life or in future clinical practice. After this comprehensive questionnaire study among medical students the

university introduced BLS training programme which is now mandatory to all personnel’s like medical, dental, nursing students, all interns and also including clinical and non-clinical medical faculties.

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