



Assessment of the knowledge about CPR among the paramedical students

Bhanu Pratap^{1*}, Raushan Kumar², Navreet Boora², Niraj Kumar Sah²

¹ Research Fellow, Radiological and Imaging Techniques, TMU, Moradabad, Uttar Pradesh, India

² Assistant Professor, Department of Radiological Imaging Techniques, College of Paramedical Sciences, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India

DOI: <https://doi.org/10.33545/26649810.2022.v4.i1a.17>

Abstract

Background- CPR is a basic, life-saving ability for health care experts in emergency departments and different fitness care settings. Although scientific results or Cardiopulmonary resuscitation relies upon on more than one factor, together with the preliminary situation of the patient, and the period of the cardiac arrest, acting extraordinary CPR drastically improves patient's results.

Objective: 1. to studies the awareness on basic life support in undergraduate and postgraduate paramedical students 2. Increase public familiarity with CPR for the drawn-out advantage of the local area 3. Recognition, avoidance, and powerful administration of life-threatening crises are the obligation of health care professionals

Methods: This study was prospective, comparative & questionnaire based designed and carried out among paramedical students of College of Paramedical Sciences at (TMU) Teerthanker Mahaveer University Moradabad. Knowledge about CPR of postgraduate, undergraduate and diploma students, from three departments' i.e. radiological imaging techniques, medical lab techniques and optometry were compared. The project was approved by the college review committee

Results: Out of total 600 participants was 263 filled the questionnaire which was students of paramedical colleges of three various departments' i.e. radiological imaging techniques, medical lab techniques and optometry fill the questionnaire. There were 51% students of radiological imaging techniques and 27% students of medical lab techniques and 22% students of optometry department. Out of overall responses recorded, radiological imaging techniques responded to 63% right answer and medical lab techniques recorded to 49% right answer and optometry recorded 50% right answer. According to data the knowledge about BLS among the students of radiological imaging techniques are greater than two rest courses i. e medical lab techniques and optometry department.

Conclusion: From our study we presume that absence of awareness in regards to Basic Life Support/Cardiopulmonary Resuscitation among paramedical understudies is a difficult issue that should be tended to immediately. This poll review showed that exceptional CPR abilities in paramedical understudies were inadequate, which could be improved by very much planned affirmed preparing programs.

Keywords: CPR, BLS, radiology, medical lab techniques, optometry, american heart association, AED, ABCD

Introduction

Unexpected heart failure (UHF) is a clinical crisis. If no longer handled immediately, it reasons startling heart demise. With quick and suitable clinical care, endurance is possible. Heart failure occurs in clinic and out of the clinic^[1]. CPR is a basic, life-saving ability for health care experts in emergency departments and different fitness care settings. Although scientific results or Cardiopulmonary resuscitation relies upon on more than one factor, together with the preliminary situation of the patient, and the period of the cardiac arrest, acting extraordinary CPR drastically improves patient's results. Nevertheless, being well-installed and one of the maximum effective resuscitation measures for sufferers in cardiac arrest, loss of knowledge, inadequate education and insufficient exercise of CPR has been documented among paramedical students^[2]. Serious emergencies can arise anywhere, anytime and to any person. The maximum typically arise throughout the injection of evaluation media with inside the radiological system because of evaluation reaction. This in the long run is the radio technologist to efficaciously manipulate the emergency scenario with inside the radiological department. It is crucial for all paramedical and all of the emergency responders to realize approximately CPR as they come upon life-threatening emergencies of their recurring life^[3].

Start Chain of Survival

Early function of Basic life support has been enlarging the chance of continued existence for a person managing heart failure. To grow the opportunity of surviving a cardiovascular event, rescuer should to agree with the steps in individual chain of continued existence

Chain of Survival for Adult

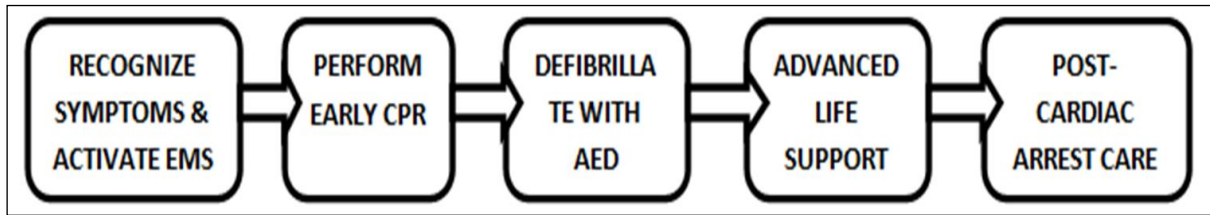


Fig 1: Chain of Survival for Adult

Emergencies in infant and child are not regularly achieved by the heart. Adolescent and infant youngsters every now and again have breathing issues that enlistment heart failure. The first and most critical development of the Pediatric Chain of endurance is abhorrence [6].

Survival Chain for Pediatric

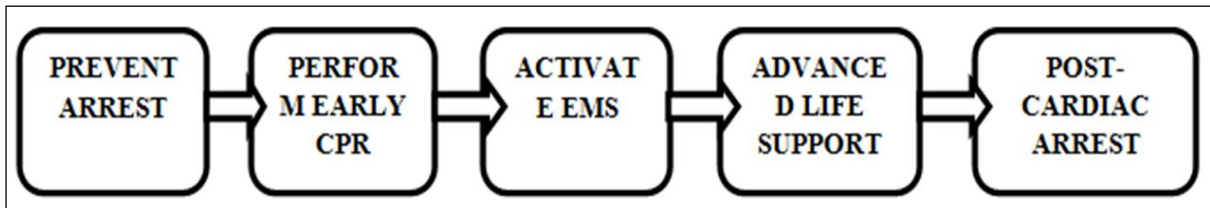


Fig 2: Chain of Survival for Pediatric

Thing to keep in mind before performing CPR

- Approach the patient safely. Don't take any unnecessary danger to yourself
- Check for the reaction by tapping the shoulders and asking uproariously whether the person is fine
- Request that somebody call the ambulance
- Check for the presence of pulse in the neck for 5-10 seconds. Simultaneously, search for chest rise and fall
- In the event that no heartbeat and breathing is discovered beginning CPR

Steps for cardiac pulmonary resuscitation

Step-1 Check for carotid heartbeat on neck. Recollect to not lounging around endeavoring to feel for a heartbeat; feel for near 10 sec. If you don't have any acquaintance with you feel the heartbeat, start cardiopulmonary resuscitations with an example of thirty chest compressions with 2 breaths.

Step-2 Apply effect point of 1 hand on lower half of sternum below chest

Step-3 Place Apply effect point of 1 hand on lower half of sternum below chest

Step-4 fixes your arms and press straight down. Compressions ought to be at any rate 2 creeps keen on setback chest and speed of 100 to 120 compressions every second.

Step-5 is it certain those between every pressure you totally quit pushing on chest & permit the chest divider to get back to its normal location. Inclining or lying on chest between compressions can hold heart back from topping off in the middle of every pressure and make Cardiopulmonary Resuscitation less viable.

Step-6 after 30 compressions, stop compressions & open aviation route by shifting the head & lifting the jaw line.

Place hand lying on individual forehead & slant head back

Lift people jaw by setting your record and center fingers on the lower jaw, lift up

Don't make head slant/jaw line lift on the off chance that you speculated the individual may have neck damage.

All things considered jaw-push is utilized.

For jaw-push move, handle points of lower jaw & lift it with 2 hands, one on each side, pushing the jaw ahead.

In this event that their lips are shut, open lower lip utilizing your thumb.

Step-7 Watch the patient chest fall and afterward rehash mouth-to-mouth breath. Give a sum of two breaths after 30 compressions

Step-8 resumes chest compressions. Change rapidly among compressions & rescue breaths to restrict breaks in chest compressions.

Materials and Methods

Study Type

A questionnaire based Crosssectional study was carried out in college of paramedical sciences at Teerthanker Mahaveer University, Moradabad, (TMU) Uttar Pradesh, India. This study was questionnaire based on Assessment of the knowledge about CPR among the paramedical students.

Study Design

This study was prospective, comparative & questionnaire based designed and carried out among paramedical students of College of Paramedical Sciences at (TMU) Teerthanker Mahaveer University Moradabad. Knowledge about CPR of postgraduate, undergraduate and diploma students, from three departments' i.e. radiological imaging techniques, medical lab techniques and optometry were compared. The project was approved by the college review committee.

Study Area

Students coming to pursue diploma, degree & masters in College of paramedical sciences Teerthanker Mahaveer University Moradabad (TMU) Uttar Pradesh, India.

Study duration

This questionnaire based study carried out for the time period of one year from June 2020 to May 2021 at College of Paramedical Sciences (TMU) Teerthanker Mahaveer University Moradabad Uttar Pradesh, India.

Selection Criteria

▪ Inclusion criteria

1. 2nd year Undergraduate students of RIT, MLT & Optometry
2. 3rd year Undergraduate students of RIT, MLT & Optometry
3. 1st year Postgraduate students of RIT, MLT & Optometry
4. 2nd year Postgraduate students of RIT, MLT & Optometry
5. 2nd year Diploma students of DXRT, DOPTOM, DMLT.
6. Students who are willing to participate

▪ Exclusion criteria

1. Faculty member of paramedical college.
2. First year students of undergraduate students
3. First year diploma students.

Study Population

The size of the population was 600 students. The study population consisted of all students including both male & female who were physically & mentally sound aged between 18-31 of three department i.e. radiological imaging techniques, medical lab techniques and optometry of paramedical science excluding the candidates who fell under exclusion criteria.

Method of Data Collection

Total number of 263 participants were included in the study. Verbal consent was obtained from all students included in this study. The questionnaire was structured by using Google form & was distributed in different whatsapp groups via internet. The questions were fused in the wake of going through different writing identified with that, which comprised of self structured questionnaire divided into two sections. The first section of the questionnaire comprised of segment information including name, gender, age, programme, department, and semester. The second section of questionnaire consisted of 15 basic questions regarding assessing adequate and theoretical practical knowledge of the participant to cardiopulmonary resuscitation & BLS based on American Heart Association 2015 (AHA) guidelines.

Sample Questionnaire

Table 1: Show the sample Questions used in this study

Q no.	Questions
Q1	What does BLS stand for?
Q2	Who need to know BLS?
Q3	Who requires BLS?
Q4	How would you check for breathing in unconscious patients?
Q5	How would you check for circulation in an adult victim?
Q6	In "ABCD" of basic life support "D" stand for
Q7	AED stand for
Q8	Current order of updated cardiopulmonary resuscitation (CPR) intervention for all age groups except infants is
Q9	The recommended universal compression to ventilation ratio with a compression speed at least 100/min in all group is
Q10	The recommended compression rate is
Q11	In CPR, chest compression should be given up to a depth of
Q12	What is the exact location of the chest compression?

Q13	What is the Emergency Medical Service helpline number
	Self-performing and grading Q14-Q15
Q14	Performed BLS by self?
Q15	Self-grading of BLS knowledge level

Setting and Resources

The project setting was done in College of Paramedical Sciences Teerthanker Mahaveer University, located in area of Moradabad district of Uttar Pradesh, India. This University is well established with various paramedical courses with various programmes required for this study including radiological imaging techniques, medical lab techniques and optometry.

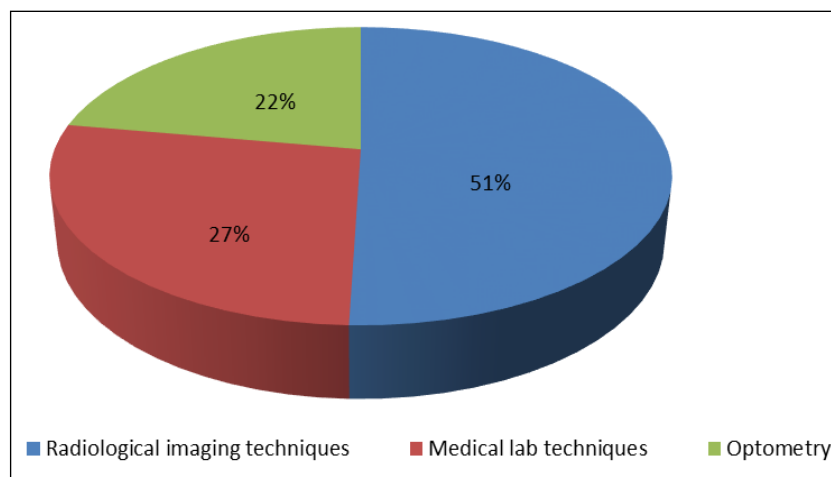
Statistical Analysis

The data collected was compiled, tabulated and analyzed. Analysis was done using Google form.

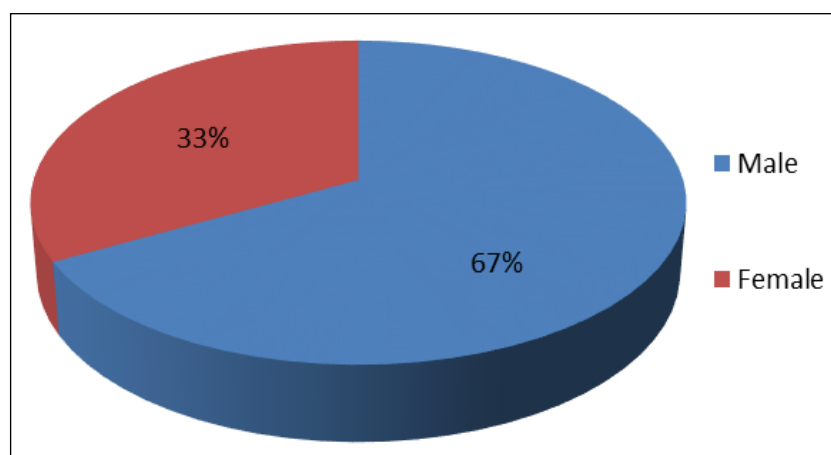
Result

Out of total 600 participants was 263 filled the questionnaire which was students of paramedical colleges of three various departments i.e radiological imaging techniques, medical lab techniques and optometry fill the questionnaire. There were 51% students of radiological imaging techniques and 27% students of medical lab techniques and 22% students of optometry department

The ratio of radiological imaging techniques in the collage of paramedical sciences was more than double of the same in the Optometry and Medical lab techniques.



Graph 1: Represents the percentage of total number of students in each department



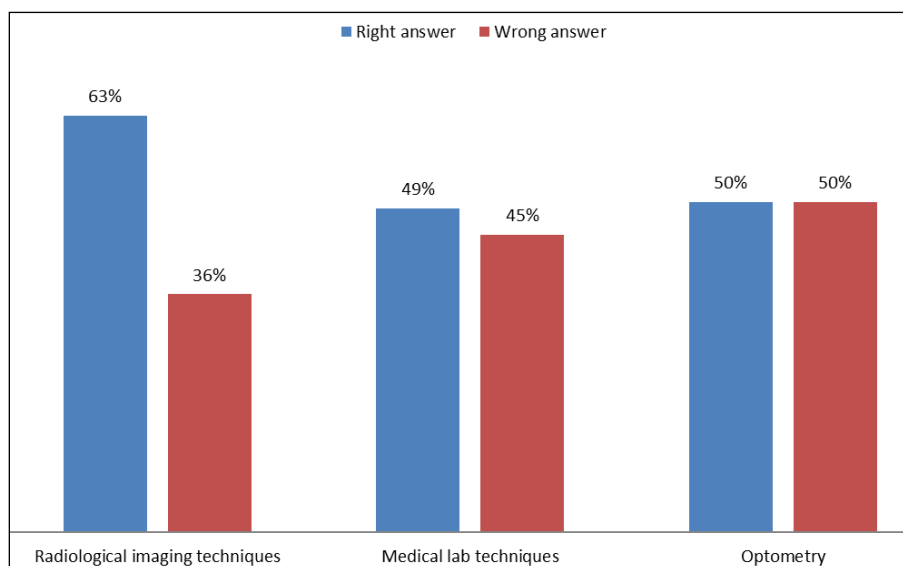
Graph 2: Represents the ratio of male and female respondents

Majority of the participants in radiological imaging techniques 45%, medical lab techniques 21%, optometry 36%, and overall 41%, respectively had not performed the BLS by self, and only few of them had performed the BLS by self-radiological imaging techniques 55%, medical lab techniques 63%, optometry 64%, and overall 59%

Among all three courses, Radiological imaging techniques, medical lab techniques and Optometry, in 263 participants, 37 (14%) students have excellent information about BLS, 106 (40%) students are good while 83 (32%) students below average and 37 (14%) students had poor knowledge. If just talking about radiological

imaging techniques in 132 participants, 16 (12%) have excellent information about BLS and 59 (45%) participants have good information while 43 (33%) have below average or 14 (11%) have poor information about BLS. If talk about medical lab techniques out of 72 participants, 15 participants (21%) have excellent information and 27 (38%) have good information while 19 (26%) below average or 11 (15) have poor information about BLS. If we talk about optometry in 59 participants, 6 (10%) have excellent information and 20 (34%) participants have good information, while 21 (36) have below average or 12 (20%) have poor information about BLS.

Out of overall responses recorded, Radiological imaging techniques responded to 63% right answer and 36% give wrong answer, Medical lab techniques responded to 49% right answer and 45% wrong answer and Optometry responded 50% right answer and 50% give wrong answer.



Graph 3: Graph shows the percentage of correct answer total number of respondents in all over question

Table 2: Item-wise correct responses of respondents (Percentage of correct answer out of 263 respondents)

Questions	RIT-132 Percentage	MLT-72 Percentage	OPTOMETRY-59 Percentage	OVER ALL-263 Percentage
Q1	89% (117/132)	56% (40/72)	83% (44/59)	76% (201/263)
Q2	58% (77/132)	54% (39/72)	39% (23/59)	53% (139/263)
Q3	58% (77/132)	58% (42/72)	41% (24/59)	16% (80/263)
Q4	65% (86/132)	65% (47/72)	59% (35/59)	64% (168/263)
Q5	49% (65/132)	39% (28/72)	37% (22/59)	44% (115/263)
Q6	68% (90/132)	38% (27/72)	51% (30/59)	56% (147/263)
Q7	70% (93/132)	47% (34/72)	51% (30/59)	60% (157/263)
Q8	76% (75/132)	40% (29/72)	44% (26/59)	49% (130/263)
Q9	42% (55/132)	43% (31/72)	41% (24/59)	42% (110/263)
Q10	69% (91/132)	43% (31/72)	49% (29/59)	57% (151/263)
Q11	64% (85/132)	44% (32/72)	53% (31/59)	56% (148/263)
Q12	61% (80/132)	49% (35/72)	37% (22/59)	51% (135/263)
Q13	97% (97/132)	60% (43/72)	72% (42/59)	69% (182/263)

Table 3: Self performance by the respondents in Q14

Question-14	RIT-132 Percentage	MLT-72 Percentage	OPTOMETRY-59 Percentage	OVERALL-263 Percentage
Yes	55% (73/132)	63% (45/72)	64% (38/59)	59% (156/263)
No	45% (59/132)	21% (27/72)	36% (21/59)	41% (107/263)

Table 4: Self grading of respondents in Q15

Question-15	RIT-132 Percentage	MLT-72 Percentage	OPTOMETRY-59 Percentage	OVER ALL-263 Percentage
Poor	11% (14/132)	15% (11/72)	20% (12/59)	14% (37/263)
Below average	33% (43/132)	26% (19/72)	36% (21/59)	32% (83/263)
Good	45% (59/132)	38% (27/72)	34% (20/59)	40% (106/263)
Excellent	12% (16/132)	21% (15/72)	10% (6/59)	14% (37/263)

According to data the knowledge about BLS among the students of radiological imaging techniques are greater than rest two courses i.e medical lab technique and optometry.

Discussion

After collecting information, the qualities were measurably examined and arranged. Among the groups, the sample size was more the radiological imaging techniques (132 students). Less sample size was seen in 59 from Optometry students, 72 from medical lab techniques. [Graph: 1] The ratio of radiological imaging techniques in the collage of paramedical sciences was more than double of the same in the Optometry and Medical lab techniques.

Conclusion

From our study we presume that absence of awareness in regards to Basic Life Support/Cardiopulmonary Resuscitation among paramedical understudies is a difficult issue that should be tended to immediately. The investigation of the gathered information has permitted forming the accompanying ends: Level of BLS information among understudies stays at a medium level; degree of Basic Life Support information is expanding along with the time of understudies and semesters they finished. A fundamentally more elevated level of hypothetical and commonsense information was exhibited by understudies who had gone to extra preparing in BLS. They proposed that BLS (Basic life support) course ought to be remembered for course educational program each year for the understudies alongside a normal reassessment which we unequivocally concur. Such encouraging guidelines should require into account not just the quantity of hours needed to get the information and mastery yet additionally the hardware which would permit to run the classes in the recreation based learning climate This poll review showed that exceptional CPR abilities in paramedical understudies were inadequate, which could be improved by very much planned affirmed preparing programs. At any rate, guaranteed programs preparing essential abilities of CPR ought to be a required part in health care professional's related field like clinical, nursing & paramedical universities & resources. In this examination, we propose to every individual from our local area & particularly medical services experts should join CPR preparing programs.

References

1. Sangamesh NC, Vidya KC, Pathi J, Singh A. Awareness, attitude, and knowledge of basic life support among medical, dental, and nursing faculties and students in the university hospital. *Journal of International Society of Preventive & Community Dentistry*,2017;7(4):161.
2. Zaheer H, Haque Z. Students' Corner-Awareness about BLS (CPR) among medical students: Status and requirements. *J.P.M.A. The Journal of the Pakistan Medical Association*,2009;59(1):57.
3. Kwiecień-Jaguś K, Mędrzycka-Dąbrowska W, Galdikienė N, Via Clavero G, Kopeć M. A cross-international study to evaluate knowledge and attitudes related to basic life support among undergraduate nursing students—A questionnaire study. *International Journal of Environmental Research and Public Health*,2020;17(11):4116.
4. Vural M, Koşar MF, Kerimoğlu O, Kızıkan F, Kahyaoğlu S, Tuğrul S, *et al.* Cardiopulmonary resuscitation knowledge among nursing students: a questionnaire study. *Anatolian journal of cardiology*,2017;17(2):140.
5. Mohammed Z, Arafa A, Saleh Y, Dardir M, Taha A, Shaban H, *et al.* Knowledge of and attitudes towards cardiopulmonary resuscitation among junior doctors and medical students in Upper Egypt: cross-sectional study. *International Journal of Emergency Medicine*,2020;13(1):1-8.
6. Dr Karl Disque, Basic life support provider handbook, presented by save a life, satory continuum publisher, printed in the united states of America, 2018, 1-17.
7. Chandrasekaran S, Kumar S, Bhat SA. Awareness of basic life support among medical, dental, nursing students and doctors. *Indian journal of Anaesthesia*,2010;54(2):121.
8. Ghrayeb FA, Amro NR, Rahseed O, Yagi H, Amro R, Amro B. Knowledge and attitude of basic life support (BLS) among school teachers in Hebron, Palestine. *Int J Res Med Sci.*,2017;5(6):2477-82.
9. Koerber MI, Koehler T, Weiss V, Pfister R, Michels G. Quality of basic life support—a comparison between medical students and paramedics. *Journal of clinical and diagnostic research: JCDR*,2016;10(7):OC33.
10. Owaid Alsharari A, Alduraywish A, Ali Al-Zarea E, Ibrahim Salmon N, Ali Sheikh MS. Current Status of Knowledge about Cardiopulmonary Resuscitation among the University Students in the Northern Region of Saudi Arabia. *Cardiol Res Pract.*,2018;2018:3687472. doi: 10.1155/2018/3687472. PMID: 29983997; PMCID: PMC6015685.
11. Alkandari SA, Alyahya L, Abdulwahab M. Cardiopulmonary resuscitation knowledge and attitude among general dentists in Kuwait. *World journal of emergency medicine*,2017;8(1):19.
12. Al-Turkistani HK. Awareness and knowledge of pediatric cardio-pulmonary resuscitation in the community of Al-Khobar city. *Journal of family & community medicine*,2014;21(2):125.
13. Rajeswaran L. Cardio-pulmonary resuscitations: perceptions, needs and barriers experiences by the registered nurses in Botswana (Doctoral dissertation).