

# Knowledge, attitudes and awareness of Cardiopulmonary Resuscitation in physiotherapists of Karachi—A Cross-sectional Survey

SOBIA HASAN<sup>1</sup>, MUHAMMAD FAREED NASIR<sup>2</sup>, KHURRUM AMIN<sup>3</sup>, SADIA SUNDUS<sup>4</sup>, SHAZIA DAWOOD<sup>5</sup>, SABIKA MINHAJ<sup>6</sup>

<sup>1</sup>Assistant Professor, PhD (scholar), MPhil, Iqra University North Campus, Karachi, Pakistan

<sup>2</sup>Sindh Institute of Physical Medicine & Rehabilitation

<sup>3</sup>Lecturer, Biostatistics, Iqra University North Campus, Karachi, Pakistan

<sup>4</sup>Associate Professor, Anatomy, Iqra University North Campus, Karachi, Pakistan

<sup>5</sup>Assistant Professor, PHD, Biochemistry, Iqra University North Campus, Karachi, Pakistan

<sup>6</sup>Senior Lecturer, Ziauddin University

Correspondence to: Dr Sadia Sundus, Email: [usadsun\\_dr@yahoo.com](mailto:usadsun_dr@yahoo.com), Cell: 03002850489

## ABSTRACT

**Objective:** To study and relate the level of knowledge and attitude regarding CPR in medical faculty of Karachi.

**Research Design:** This was an observational, cross-sectional survey based study.

**Duration:** December, 2020 to January, 2021.

**Methodology:** This study was conducted in various private and public sector hospitals and private rehabilitation centers in Karachi. This was an observational, cross-sectional, survey based study designed to assess CPR knowledge. Data was collected using a self-structured questionnaire comprising of thirty one close-ended questionnaire having 3 parts: Q.1-7 Demographics; Q.8-20 CPR Practices and Q.21-31 Knowledge of CPR.

**Result:** Total Sample of 126 individuals (n=126) was selected for the study. The analysis was done by using SPSS version 22. The P value (>0.05) indicates that the outcomes were insignificant indicating the knowledge of CPR in Karachi.

**Conclusion:** The general awareness regarding CPR was good but first aid skills needs improvement. Professional training programs, hands-on workshops, should be conducted to enhance CPR skills, awareness and knowledge among medical faculty.

**Keywords:** Cardiopulmonary Resuscitation (CPR), Advanced Cardiac Life Support (ACLS), ventricular fibrillation (VF), AHA (American Heart Association), ERC (European Resuscitation Council)

## INTRODUCTION

Cardiac arrest is primary reasons of death globally. Cardiopulmonary resuscitation (CPR) is crucial for clinical practice<sup>1</sup> used in cardiac arrest condition. Outcomes depends on appropriate interventions, like early defibrillation, correct chest compressions and administration of Advanced Cardiac Life Support (ACLS)<sup>2,3</sup> because survival rate of patient with ventricular arrhythmias (VF) cardiac arrest reduces by 7–10% per minute.<sup>3</sup> Reasons of sudden cardiac arrest are suffocation, drowning, electrocution, cardiac & pulmonary ailments.<sup>4</sup>

American Heart Association & European Resuscitation Council develops Chain of Survival to improve the outpatient care of cardiac arrest patients. These are Early Access, Early basic life support, Early Defibrillation, Early ACLS (Advanced Cardiac Life Support).<sup>5</sup> The motive of CPR is to maintain blood circulation because early CPR is an essential aspect, the layman is the crucial hyperlink in Emergency care.<sup>6</sup> This technique also incorporates mouth to mouth breathing to perfuse the body organs.<sup>7</sup>

Being a part of Allied Health Professionals, physical therapists also ethically obligated to implement in their practice safety and risk management measures to ensure patient safety.<sup>8,9</sup> In numerous health care setups varying from group environments like sports fields to private practice and hospital practice.<sup>10</sup> Physical therapists work in collaboration with clinical, nursing or emergency staff to properly respond in an emergency situation.<sup>11,12,13</sup>

This background prompted us to launch an investigation to analyze the knowledge regarding CPR. We presumed that there will be gaps in CPR awareness, low levels of CPR competence, and negative attitudes among Pakistani medical faculty regarding CPR use.

## METHODOLOGY

This study was conducted between various private, public sector hospitals and rehabilitation centers in Karachi. The total number of physical therapists participated in this study was 126. Convenient simple sampling technique was applied. Data was collected by questionnaire comprising of thirty one close-ended questionnaire having 3 parts: Q.1-7 Demographics; Q.8-20 CPR Practices and

Q.21-31 Knowledge of CPR. Questions assessed the respondents' socio-demographic characteristics, CPR skills and attitudes towards acquiring CPR skills among physical therapists of Karachi. SPSS version 22 is used for statistical evaluation. Descriptive data characterized by percentage & frequencies. The physical therapists populace traits had been suggested continuous variables, consisting of CPR education, standards of CPR usage and understanding protocols of CPR had been stated the use of numbers and percentages. we used Chi-square statistics test to see the relations between age, sex, experience of physiotherapy, work place, and postgrad qualification beside CPR training.

## RESULTS

**Demographic Representation:** The data revealed that total number of recruited participants were (n=126). The detail description of demographic characteristics of the participant is represented in table 1. Sample has more females physical therapists than male (female 76%), while 70% were below 35 years and fifteen year experience. More than half (60%) worked in different hospitals and institutions, and the most frequently reported scope of work was musculoskeletal practice (40.5%). The data also indicates that 33% of the participants were formally trained in CPR administration.

**Perceptions and training of CPR:** According to Data one third of the respondents (31%) held current CPR certifications; and qualification above basic life support (BLS) was (44.4%). Respondent had used CPR in an emergency situation was (26.2%), but only (23%) of them were successful. (38.9%) physical therapists recommended a attainment of CPR ≤ 25% in outpatient cases of cardiac arrest. Compulsory addition of CPR training as part of practicing certificate was (56.3%). Illustrated in table 2.

Not Significant result was found, with age ( $\chi^2(4) = 7.536$ ,  $p = 0.110$ ), but significant differences were found with gender ( $\chi^2(1) = 5.986$ ,  $p = 0.014$ ). Those with 0-5 year of physiotherapy experience likewise had altogether more noteworthy in emergency department ( $\chi^2(2) = 5.352$ ,  $p = 0.069$ ).

According to data CPR training in the physiotherapy profession no significant result were found by gender, females (18%) opted more than males (3%) for volunteer CPR training ( $\chi^2(2) = 1.276$ ,  $p = 0.528$ ), and also not significant with age and experience of physical therapist spotted for voluntary status (> 35

years 6%, 21-25 years 9%) ( $\chi^2 (8) = 12.29, p = 0.139$ ), ( $\chi^2 (4) = 0.969, p = 0.914$ ).

**Use of CPR Beliefs:** The result indicated that 33.3% rating neutral to would not prefer to do mouth-to-mouth breathing during CPR and only 35.8% rating agreed and strongly agreed to prefer mouth to mouth breathing. During CPR 26.2% rating neutral to suggest that they would need hand gloves, facial mask, & PPE items and 44.4% rating agreed and strongly agreed to the need of hand gloves, facial mask, & PPE for CPR. When asked whether they had responsibility to mediate and carryout CPR in an emergency at work rating neutral 41.3%, and 27% rating agree and strongly agree illustrate in table-3. Insignificant variances were noticeable when the self-assessment of doing CPR was evaluated via age ( $\chi^2 (16) = 17.51, p = 0.353$ ), experience and gender ( $\chi^2 (8) = 8.09, p = 0.424$ ), ( $\chi^2 (4) = 4.048, p = 0.40$ ). Insignificant variances were identified when the statistics was analyzed via gender, age, and experience shows that are not in favour of mouth-to-mouth aeration in CPR ( $\chi^2 (4) = 1.023, p = 0.906$ ), ( $\chi^2 (4) = 5.38, p = 0.250$ ), ( $\chi^2 (2) = 0.948, p = 0.622$ ). While asking that have they do CPR in emergency department, insignificant variances were found by analization through age, sex and experience of work ( $\chi^2 (16) = 10.99, p = 0.810$ ), ( $\chi^2 (4) = 5.57, p = 0.233$ ), ( $\chi^2 (8) = 9.022, p = 0.342$ ).

**Principles and Practice of CPR Knowledge:** Only few respondents reported accurate duration of CPR (15 to 20 min) if patient not convalesced (27%). Roughly 2/3rd contributors reacted effectively on looking for help when alone with patient of cardiac arrest (65.9%); in unconscious patient breathing should be check (77%); automated external defibrillators (AED) are not advised in all cardiac arrest patients (27%). Only few responded correctly on reassessing the patient after 2min (11.1%) more than half of respondents reported correct answer regarding compression rate during CPR (66.7%). Illustrated in table-4

For protocol knowledge data were analyzed by gender, age, and experience with exemption of time taken to measure respiration, insignificant result were evident where females are more than males (75% v 23%) gave the correct response ( $\chi^2 (1) = .28, p = 0.867$ ), ( $\chi^2 (2) = .398, p = 0.821$ ), ( $\chi^2 (4) = 5.525, p = 0.238$ ).

Insignificant result shown in knowledge of CPR when analyzed thru experience ( $\chi^2 (2) = 3.662, p = 0.160$ ) and age with physical therapists between 21-25 years more likely to be correct than other age group of physical therapists ( $\chi^2 (4) = 5.66, p = 0.226$ ). However with access to the AED advised shockwave to cardiac arrest patient analyzed by gender it was significant ( $\chi^2 (1) = 5.765, p = 0.016$ ).

Automated external defibrillators use on infants and children, physical therapists between 26-29 years gave the correct response but it was insignificant ( $\chi^2 (4) = 5.384, p = 0.25$ )

More physical therapists occupied in musculoskeletal work were correct in responses regarding "looking for assistance if alone" but not significant and when this question analyzed by gender it was still insignificant ( $\chi^2 (2) = 2.004, p = 0.367$ ).

Table 1: Demographic Data (N = 126)

Variable		Frequencies	Percent%
Sex	Man	30	23.8
	woman	96	76.2
Experience	0-5 Years	85	67.5
	6-10 Years	22	17.5
	11-15 Years	19	15.1
Qualification	Yes	53	42.1
	No	73	57.9
Employment Status	Employer	22	17.5
	Employed	60	47.6
	Self Employed	44	34.9
Training	Below 90 days	37	29.4
	180-365 days	27	21.4
	365-730 days	20	15.9
	Above 730days	42	33.3
Age	<= 20	1	0.8
	21 - 25	41	32.5
	26 - 29	39	31
	30 - 34	17	13.5
	35+	28	22.2

Table-2: Perceptions and training of CPR

Statement		Frequency	Percent %
Current CPR certificate	Yes	40	31.7
	Nope	86	68.3
Qualification above BLS	Yes	56	44.4
	Nope	70	55.6
do CPR in emergency earlier	yes	33	26.2
	Nope	93	73.8
If you do it, was it effective?	Yes	29	23
	Nope	17	13.5
	Don't Know	26	20.6
	N/A	54	42.9
Attainment of CPR in outpatient	0-25 %	38	30.2
	26-50 %	39	31
	51-75 %	49	38.9
CPR training for physical therapists	Mandatory APC	71	56.3
	Mandatory CPD	34	27
	Voluntary	21	16.7

Table -3 Use of CPR Beliefs

Statement		Frequency	Percent%
Rate of your	Poor	18	14.3
CPR ability	Fair	32	25.4
	Satisfactory	56	44.4
	Effective	17	13.5
	Highly Effective	3	2.4
If CPR was needed during emergency I don't know how to respond	Strongly Disagree	12	9.5
	Disagree	1	0.8
	Neutral	30	23.8
	Agree	60	47.6
	Strongly Agree	23	18.3
It's my duty to intervene and perform CPR in an emergency	Strongly Disagree	8	6.3
	Disagree	32	25.4
	Neutral	52	41.3
	Agree	29	23
	Strongly Agree	5	4
If CPR was needed I don't know how to respond in community	Strongly Disagree	8	6.3
	Disagree	33	26.2
	Neutral	51	40.5
	Agree	32	25.4
	Strongly Agree	2	1.6
To perform CPR I want hand gloves, facial mask	Strongly Disagree	12	9.5
	Disagree	25	19.8
	Neutral	33	26.2
	Agree	31	24.6
	Strongly Agree	25	19.8
During CPR I would not prefer to do mouth-to-mouth ventilation	Strongly Disagree	9	7.1
	Disagree	30	23.8
	Neutral	42	33.3
	Agree	38	30.2
	Strongly Agree	7	5.6

Note: CPR, cardiopulmonary resuscitation

Table-4 Principles and Practice of CPR Knowledge

Statement	True/False	TRUE		FALSE	
		Frequency	%	Frequency	%
During CPR compression frequency is 100/ min	True	84	66.7	42	33.3
During CPR every rescue breath must be given per second	True	83	65.9	43	34.1
Go for help if you are the only one with diseased person before doing CPR	True	83	65.9	43	34.1
discontinue CPR after 15-20 min if patient not convalesced	False	92	73	34	27
AED Shock will advise for all cardiac arrest patients	False	92	73	34	27
In unconscious patient don't take more than 10 seconds to check respiration	True	98	77	28	22.2
Reevaluate the patient after every two minutes of CPR to see the response	False	112	88.9	14	11.1
AED can be used under 8 years of age	True	60	47.6	66	52.4

## DISCUSSION

Study is designed to assess the knowledge of CPR among physical therapists of Karachi. The need of this study arose due to a research conducted by <sup>20</sup> that CPR skills are mandatory for all medical and paramedical personnel. These skills are considered to be so much important that CPR and first aid training is mandatory in most of the local, national, and international industries, institutions, firms, construction sites, and many other professional and non-professional areas of life. Our findings are supported by <sup>13,14</sup> Upon evaluation of the aforementioned statements we identified that in contrast to a research conducted by <sup>12</sup> in terms of age and work experience, This could be explained by the fact that practice of CPR in Pakistan is the field of clinical health practitioners, as related to developed states that emphasizes CPR education to community, which includes college students as well. <sup>16,18</sup> When compared to a study conducted by <sup>17</sup> it was noticed that 26.2% physical therapists had used CPR in an emergency situation and their CPR skills yielded successful results.

Our results were consistent to the study conducted by <sup>12</sup> which revealed that physical therapists employed in private setups and community hospitals did not consider up-to-date CPR skills and certification in comparison to those in universities, sports activity groups, and other private hospital settings.

Our results were in accordance to the study conducted by <sup>17</sup> revealing that many respondents (83.3%) supported the idea that CPR skills, knowledge, and certification should be an obligatory part of their professional development.<sup>12</sup> This study revealed significantly contrasting results with the study conducted by Jonathan W. et.al, in New Zealand [Jonathon Webber RN. et. al, 2019] when knowledge about AED administration was assessed. Our study showed only 27.2% had correct knowledge of AED administration whereas <sup>12</sup> indicated 66.5% had correct knowledge. This disparity may be due to the fact that the individuals who acquire CPR training do not go for refresher courses and hence the proper knowledge regarding CPR practices fades with the passage of time.

## CONCLUSION

The overall knowledge and skills regarding CPR were not enough. Employed in a hospital ward & proper CPR training were key factors. Outcomes imply prioritization of CPR training because reluctance was due to lack of training. Professional training programs conduction is mandatory in a tertiary care unit to increase CPR skills awareness among health sciences faculty.

**Limitations of Study:** The prime limitation is due to cross-sectional study, merely inferences can be identified and not the causalities. Do not evaluate the hands on skills of participants which is a main aspect of CPR training.

## REFERENCES

1. Ibrahim WH. Recent advances and controversies in adult cardiopulmonary resuscitation. *Postgraduate medical journal*. 2007 Oct; 83(984):649-54.
2. Jarrah S, Judeh M, AbuRuz ME. Evaluation of public awareness, knowledge and attitudes towards basic life support: a cross-sectional study. *BMC emergency medicine*. 2018 Dec;18(1):1-7.
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 Jan;17(11):4116.
4. McNally B, Robb R, Mehta M, Vellano K, Valderrama AL, Yoon PW, Sasson C, Crouch A, Perez AB, Merritt R, Kellermann A. Out-of-hospital cardiac arrest surveillance—cardiac arrest registry to enhance survival (CARES), United States, October 1, 2005–December 31, 2010. *Morbidity and Mortality Weekly Report: Surveillance Summaries*. 2011 Jul 29;60(8):19.

5. Nolan J, Soar J, Eikeland H. The chain of survival. *Resuscitation*. 2006 Dec 1;71(3):270-1.
6. Milan M, Perman SM. Out of hospital cardiac arrest: a current review of the literature that informed the 2015 American Heart Association guidelines update. *Current emergency and hospital medicine reports*. 2016 Dec 1;4(4):164-71.
7. Teng Y, Li Y, Xu L, Chen F, Chen H, Jin L, Chen J, Huang J, Xu G. Awareness, knowledge and attitudes towards cardiopulmonary resuscitation among people with and without heart disease relatives in South China: a cross-sectional survey. *BMJ open*. 2020 Dec 1;10(12):e041245.
8. Cooper S, Johnston E, Priscott D. Immediate life support (ILS) training: Impact in a primary care setting. *Resuscitation*. 2007 Jan 1;72(1):92-9.
9. Gebremedhn EG, Gebregergs GB, Anderson BB, Nagaratnam V. Attitude and skill levels of graduate health professionals in performing cardiopulmonary resuscitation. *Advances in medical education and practice*. 2017;8:43.
10. Pepera G, Xanthos E, Liliou A, Xanthos T. Knowledge of cardiopulmonary resuscitation among Greek physiotherapists. *Monaldi Archives for Chest Disease*. 2019 Nov 12;89(3)
11. Harvey D, O'Brien D, Horner D. Is it time to make regular cardiopulmonary resuscitation training mandatory for all New Zealand registered physical therapists?. *New Zealand Journal of Physiotherapy*. 2019 Nov 1;47(3):137-8.
12. Jonathon Webber RN. Knowledge and perceptions of cardiopulmonary resuscitation amongst New Zealand physical therapists. *New Zealand Journal of Physiotherapy*. 2019 Jul 1;47(2):94-104.
13. Pandit R, Berry AK. 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. *International Journal of Health Sciences and Research*. 2020;10(6):257-63.
14. Alzahrani HT, Alghamdi AS, Saad A, Alzahrani SM, Alghamdi MM, Minqash AS. Awareness and interpretation of basic life support and emergency medical services and its associated factors among students. *Age*. *International Journal of Medicine in Developing Countries*. 2019;3(8):681–685.
15. Alnajjar H, Hilal RM, Alharbi AJ, Alharthi OH, Batwie RA, AlShehri RM, Algethami MR. Evaluation of Awareness, Knowledge, and Attitudes Towards Basic Life Support Among Non-Medical Students at Two Academic Institutions in Jeddah, Saudi Arabia. *Advances in Medical Education and Practice*. 2020;11:1015.
16. Aroor AR, Saya RP, Attar NR, Saya GK, Ravinanthanan M. Awareness about basic life support and emergency medical services and its associated factors among students in a tertiary care hospital in South India. *Journal of emergencies, trauma, and shock*. 2014 Jul;7(3):166.
17. Mbada CE, Hakeem BO, Adedoyin RA, Awotidebe TO, Okonji AM. Knowledge, attitude and practice of cardiopulmonary resuscitation among Nigerian physiotherapists. *Journal of Respiratory and Cardiovascular Physical Therapy*. 2013; 2(2):52-62.
18. Adewale BA, Aigbonoga DE, Akintayo AD, Aremu PS, Azeez OA, Olawuwo SD, Adeleke JD, Kazeem OS, Okojie E, Oguntoyey RA. Awareness and attitude of final year students towards the learning and practice of cardiopulmonary resuscitation at the University of Ibadan in Nigeria. *African Journal of Emergency Medicine*. 2020 Oct 19.
19. Kaihula WT, Sawe HR, Runyon MS, Murray BL. Assessment of cardiopulmonary resuscitation knowledge and skills among healthcare providers at an urban tertiary referral hospital in Tanzania. *BMC health services research*. 2018 Dec;18(1):1-8.
20. Oteir AC, Almhdawi KA, Kanaan SF, Alwidiyan MT, Williams B. Cardiopulmonary resuscitation level of knowledge among allied health university students in Jordan: a cross-sectional study. *BMJ open*. 2019 Nov 1;9(11):e031725.
21. International first aid and resuscitation guidelines 2016. [www.ifrc.org](https://www.ifrc.org/15thMarch2021). Retrieved 15<sup>th</sup>March 2021, from [https://www.ifrc.org/Global/Publications/Health/First-Aid-2016-Guidelines\\_EN.pdf](https://www.ifrc.org/Global/Publications/Health/First-Aid-2016-Guidelines_EN.pdf).
22. Best Practices Guide: Fundamentals of a Workplace First-Aid Program. [www.osha.gov](https://www.osha.gov). Retrieved 15<sup>th</sup>March2021, from <https://www.osha.gov/sites/default/files/publications/OSHA3317first-aid.pdf>.