

Original Research Article

Knowledge, Attitude and Practice of Cardiopulmonary Resuscitation in Adult and Pediatric age group among Medical Professionals

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ABSTRACT

Background: Timely and effective CPR improves survival chances during cardiac arrest. Medical doctors play a significant role in delivering healthcare including emergencies such as cardiac arrest.

Objective: To assess knowledge, attitude and practice of CPR in adult and paediatric age group among medical professionals

Method: The study was cross-sectional comprising of 750 participants, drawn with convenience sampling from phone registry and email databases. CPR Questionnaire consisting of 25 question were sent to them either electronically or were asked to fill out hard copy whichever was convenient to the respondents and analyzed.

Results: Participants included medical interns 180 (24%), MBBS graduates 126 (16.8%), Post graduates 192 (25.6%), Faculties in medical colleges 138 (18.4%) and Specialists in Private Hospitals 114 (15.2%). Out of this sample 246 (32.8%) has BLS certification and 504 (67.2%) had not attended any BLS course. Almost all participants (97.6%) knew about the CPR abbreviation, 79.2 % knew purpose of CPR, 77.6 % answered correctly for question on compression depth in adults and 78.4% knew correct rate of compressions, while 55.2% and 58.4% had knowledge about the depth in infants and child respectively. About 60.8% and 64.8% knew about the compression to ventilation ratio for single and two rescuers in pediatric victims. About 64.8% knew how to do CPR in pregnant patients and fair amount of about 70.4% had correct knowledge about AED use.

Conclusion: CPR knowledge among medical professionals is fair although updated knowledge especially among the newly qualified physicians should be improved for better practice and outcomes during cardiac arrest. We would recommend that Institutions must constantly update their faculties, trainees and students through BLS courses.

Key words: CPR, Knowledge, Adult, Pediatric.

INTRODUCTION

Cardiac arrest (CA) is a top health challenge globally. Emergency cardiac arrests are the biggest cause of mortality worldwide. About 300,000 to 370,000 people die from CA, with 50% of mortality linked to cardiovascular illnesses.[1]

Early detection and treatment of cardiac arrest is crucial, as it can occur both within and outside hospitals. To lower cardiac emergency mortality rates, it is important to learn and practice basic life support (BLS) techniques. The American Heart Association (AHA) has established guidelines for in-hospital and out-of-hospital management of adult cardiac arrest, including recognition, EMS activation, CPR, and defibrillation [2].

CPR is a basic step that can significantly improve survival rates and return of spontaneous circulation (ROSC). Healthcare practitioners must possess extensive understanding of CPR recommendations due to their everyday encounters with life-threatening events.[3] Early CPR beginning is crucial for cardiac and respiratory arrest patients, increasing survival chances.[4] CPR is a series of actions taken to save and sustain a patient's quality of life after CA.[5] The 2015 recommendations aim to provide uniform and successful CPR performance. According to recommendations, rescuers should first identify cardiac arrest and then engage the emergency response system.[6]

The American Heart Association has established guidelines for initiation and performance of CPR for both adults and children, but has not provided guidelines for ending unsuccessful resuscitation efforts. According to the American Heart Association's Emergency Cardiac Care Committee, resuscitation may be discontinued in prehospital settings if the patient is nonresuscitable after an adequate ACLS trial.[7] However, limited research suggests that recommending the duration of CPR efforts is not supported. According to the PALS provider manual and other sources, pediatric out-of-hospital CPR outcomes are poor.[8,9] Approximately 90% of children who have pre hospital cardiac arrest die, and most survivors are neurologically damaged.

Due to limited rules for CPR termination, practitioners rely on their own judgment, which may be influenced by insufficient expertise, particularly with child patients. Despite increasing research on CPR termination, few studies have addressed health professionals' perspectives on when to stop. Additionally, research indicates that long-term survival rates after CPR were 15% or fewer.[10,11]

Hence the present study was done to assess knowledge, attitude and practice of CPR in adult and paediatric age group among medical professionals

MATERIAL AND METHODS

The present cross sectional study was conducted for a period of one year among 750 participants practicing CPR in day to day life. Ethical clearance was taken from institute ethical committee and informed consent was taken through email or verbally from participants after expaling about the study in detail.

The total sample size of 750 was drawn with convenience sampling from phone registry and email databases. Participants were selected on the basis of following inclusion and exclusion criteria:

Inclusion criteria- All medical professionals who have worked for more than 6 months and agreed to participate in the study were included.

Exclusion criteria- All those who were busy at the time of data collection and refused to participate in the study were excluded.

All the demographic data including details like name, gender, age, specialization, years of medical practice and any BLS/ACLS Certification was noted. CPR Questionnaire consisting of 25 questions divided into sections of Basic Knowledge of CPR, CPR techniques, Pediatric and Pregnant Patients and CPR guidelines were sent to medical practitioner either electronically or were asked to fill out hard copy whichever was convenient to the respondents and analyzed.

Data analysis was done using SPSS computer software, version 25.0 for descriptive analysis that generated frequencies, percentages and tabulations. Chi-square tests analysis was done to determine the significant association between knowledge, attitude and practice of the respondents.

RESULTS

Maximum participants (50.4%) were in the age group of 22-29 years and least (20%) were in the age group of above 45 years. Out of total 750 participants 52.8% were male and 47.2% were female as shown in table 1.

Age Group (in years)	Male	Female	Total
22-29	186	192	378 (50.4%)
30-45	108	114	222(29.6%)
Above 45	102	48	150 (20%)
Total	396 (52.8%)	354 (47.2%)	750

Table 1. Participants: Age and Gender wise

Out of all the participants 24% were interns, 16.8% were MBBS graduates, 25.6% were pursuing post graduation, 18.4% were faculties in medical college and 15.2% were specialists in private hospitals as shown in table 2.

Designation	Frequency	Percent
Interns	180	24%
MBBS graduates/doctors	126	16.8%
Pursuing Post graduation	192	25.6%
Faculties in medical colleges	138	18.4%
Specialists in Private Hospitals	114	15.2%

Table 2. Participants according to designation or seniority

Total 23.2% participants had experience of less than 2 years after MBBS, 28% had experience of 3 to 5 years, 30.4% had 6 to 9 years of experience and 18.4% had experience of more than 10 years after MBBS as shown in table 3.

Experience after MBBS	Frequency	Percent
< 2 years	180	23.2%

3-5	126	28%
6-9	192	30.4%
>10	138	18.4%
Table 3. Experience of the Participants		

Total 32.8% participants had attended BLS course whereas 67.2% participants had not attended any BLS course as shown in table 4.

Attended BLS course		
Yes	246	32.8%
No	504	67.2%
Table 4. Participants attending BLS course		

Almost all participants (97.6%) knew about the CPR abbreviation, 79.2 % knew purpose of CPR, 77.6 % answered correctly for question on compression depth in adults and 78.4% knew correct rate of compressions, while 55.2% and 58.4% had knowledge about the depth in infants and child respectively. About 60.8% and 64.8% knew about the compression to ventilation ratio for single and two rescuers in pediatric victims. About 64.8% knew how to do CPR in pregnant patients and fair amount of about 70.4% had correct knowledge about AED use as shown in table 5.

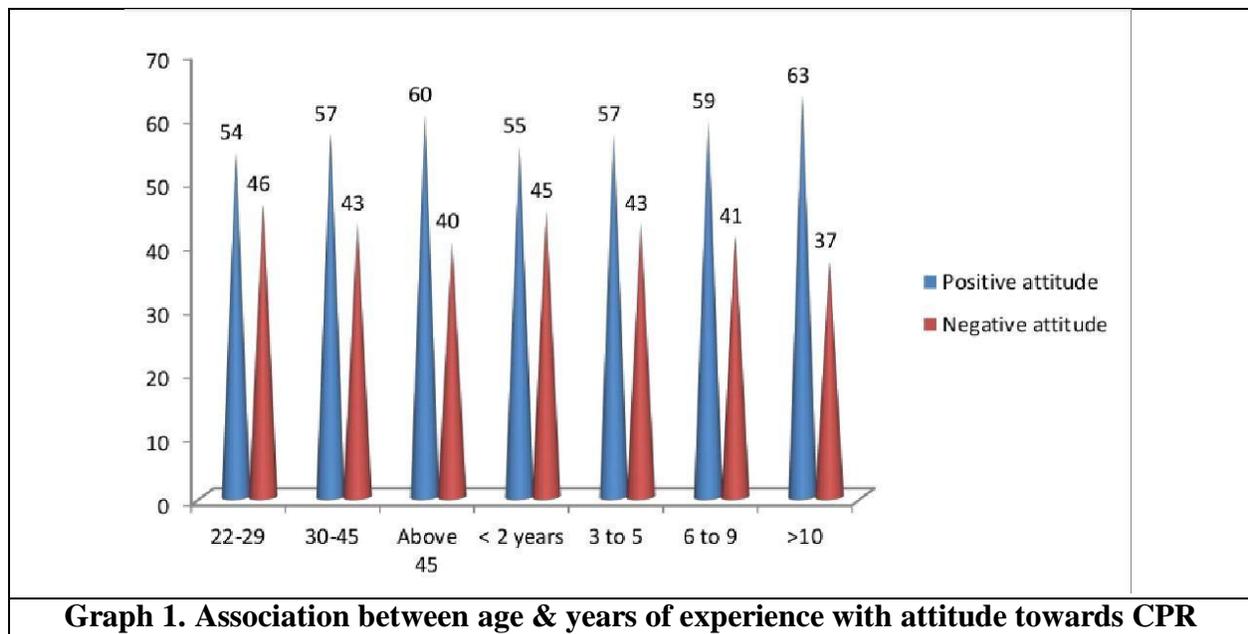
Type of question	Correct		Incorrect	
CPR abbreviation	732	(97.6%)	18	(2.4%)
Purpose of CPR	594	(79.2%)	156	(20.8%)
Starting CPR, scene safety	534	(71.2%)	216	(28.8%)
Compression to Ventilation ratio (adults)	360	(48%)	390	(52%)
Assessment before initiating CPR	270	(36%)	480	(64%)
Technique for rescue breaths	270	(36%)	480	(64%)
Compression depth (adult)	582	(77.6%)	168	(22.4%)
Things to do before shock, safety issues	570	(76%)	180	(24%)
Rate of chest compression	588	(78.4%)	162	(21.6%)
Opening of Airway	252	(33.6%)	498	(66.4%)
Region of chest compression	612	(81.6%)	138	(18.4%)
Pediatric age for CPR purposes	726	(96.8)	24	(3.2%)
Compression depth (Infants)	414	(55.2%)	336	(44.8%)
Compression depth (child)	438	(58.4%)	312	(41.6%)
Compression to Ventilation ratio (child-single rescuer)	456	(60.8%)	294	(39.2%)
Compression to Ventilation ratio (child-two rescuer)	486	(64.8%)	264	(35.2%)
Rescue breaths in infants	492	(65.6%)	258	(34.4%)
CPR on Pregnant patient	486	(64.8%)	264	(35.2%)
Foreign body management	690	(92%)	60	(8%)
Vomiting during CPR management	456	76(60.8%)	294	49(39.2%)
Signs of life during CPR	438	73 (58.4%)	312	52 (41.6%)
Using AED during CPR	528	88 (70.4%)	222	37 (29.6%)
Assessing pulse during CPR	606	101 (80.8%)	144	24 (19.2%)
Stopping CPR	546	91 (72.8%)	204	34 (27.2%)

Manoeuvre to be avoided in trauma patients, while opening airway	516	86 (68.8%)	234	39(31.2%)
Table 5. Questionnaire: frequency and percent answered correctly				

Association between age & years of experience with attitude towards CPR was calculated and it was found that participants with greater age and experience had more positive attitude towards CPR with significant results (p=0.013; 0.001) as shown in table 6, graph 1.

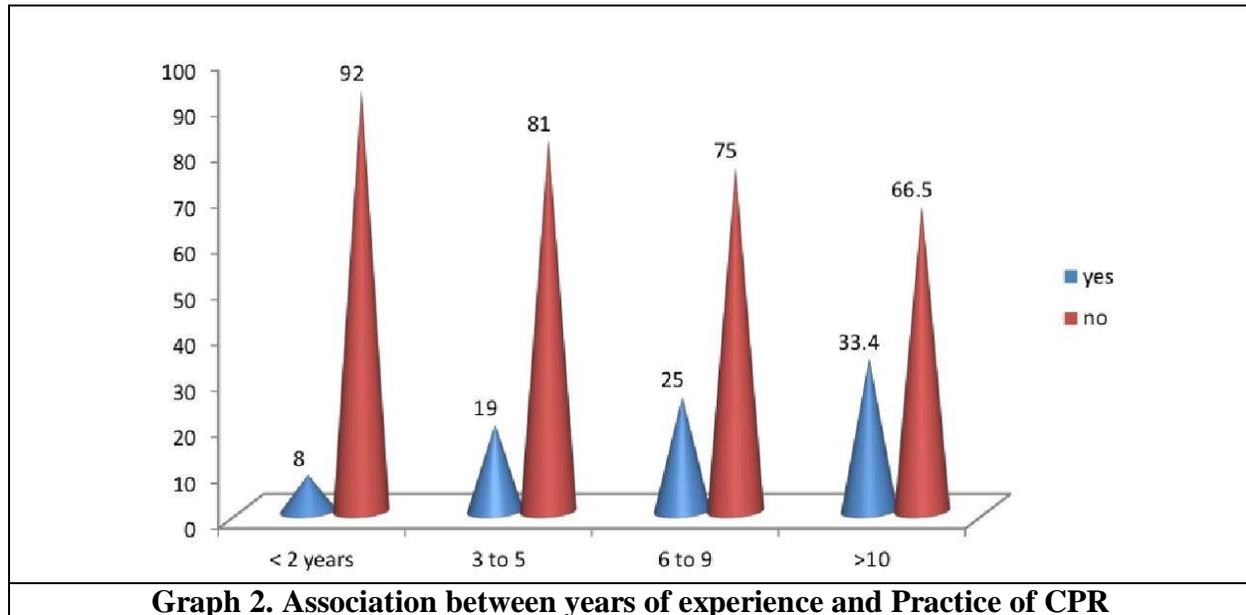
Variable		Attitude		P value
		Positive attitude	Negative attitude	
Age	22-29	204 (54)	174 (46)	0.013
	30-45	127 (57)	95 (43)	
	Above 45	90 (60)	60 (40)	
Years of experience	< 2 years	99 (55)	81 (45)	0.001
	3-5	72 (57)	54 (43)	
	6-9	113 (59)	79 (41)	
	>10	87 (63)	51 (37)	

Table 6. Association between age & years of experience with attitude towards CPR



Association between years of experience with practice towards CPR was calculated and it was found that participants with greater experience had practice CPR most oftenly with significant results (p=0.001) as shown in table 7, graph 2.

Experience after MBBS	Practice of CPR		P value
	Yes	No	
< 2 years	14(8)	166 (92)	0.001
3-5	24(19)	102 (81)	
6-9	48 (25)	144 (75)	
>10	46 (33.43)	92 (66.5)	

Table 7. Association between years of experience and Practice of CPR**Graph 2. Association between years of experience and Practice of CPR**

DISCUSSION

The first and last option for someone who is breathless and without a pulse is CPR. Effective, timely, and well-performed CPR can save lives. To enhance the effectiveness of this emergency procedure, each step of CPR should be performed correctly. Healthcare workers frequently have to react and do CPR due to the nature of their work. But it seems like there are issues with knowledge and skill retention. Nearly all of the studies that have been conducted globally to evaluate medical practitioners' knowledge demonstrate that they do not know enough about CPR. [12, 13] The present study was conducted among 750 medical professionals to knowledge, attitude and practice of CPR in adult and pediatric age group.

According to the present study, medical professionals had fair knowledge about cardiopulmonary resuscitation. The location of chest compressions, the ratio of chest compressions to breaths, the right way to operate an AED, and how frequently rescuers switch roles were among the things that the respondents knew very little about. The low level of knowledge could be linked to inadequate ongoing professional growth and inadequate educational training. Respondents who were older (over 40) and/or had a master's degree or higher in schooling were more likely to be well knowledgeable about cardiopulmonary resuscitation. This could be explained by the fact that responders who are older have more experience, while those who have degrees and postgraduate degrees have had more current education and training. This result is consistent with research showing low CPR awareness among Nigerian healthcare professionals.[14]

The results of this study are consistent with those of a study carried out in Tanzania, which showed that health workers of all cadres had inadequate CPR knowledge and abilities.[15] This discovery is also connected to a study that shown that low knowledge among health workers in Nepal is caused by both a lack of exposure in the clinical setting and a lack of CPR training before to employment, both of which worsen the knowledge over time.[16] The results, however, are at odds with a study conducted in Ethiopia, where 93.3% of the participants demonstrated a high level of CPR understanding.[17]

Particularly when it comes to initiating the CPR procedure, attitude is crucial. The participants in our study saw CPR in general as beneficial. Even though their understanding was lacking, they were willing to provide CPR in an emergency. This is in line with a study's findings that participants were eager to conduct CPR even when they lacked knowledge [16]. Most participants in our survey believed that regular CPR was more effective and preferred it. In contrast, the majority of general practitioners in Ong et al.'s study [18] favored CCR to CPR. While most said they wouldn't think twice about performing CPR, they would rather utilize a barrier of some kind for ventilation. The participants' possible religious constraints could be the cause of this. The responders' concern of contracting diseases from other sources and through the air is another explanation. Our findings also show that the majority of participants thought their level of CPR knowledge was mediocre. One could argue that a doctor's lack of confidence would make it more difficult for them to conduct resuscitation, even though a study found no association between knowledge scores and participants' self-appraisal [19]. Compared to the percentages stated in other studies [20,21], 32.8% of the respondents have taken a BLS course. The study's final goal evaluated how medical personnel practice cardiopulmonary resuscitations. The study's results showed that the majority of participants practiced CPR inadequately. The majority of responders did not check for movement in the chest, offer two breaths, activate the emergency response team, or check the carotid pulse. The participant's lack of knowledge may be the cause of their poor CPR performance. This result is in accordance with research from Greece, where it was shown that nurses' CPR proficiency was lacking due to their disregard for the prescribed protocols.[22] The study is comparable to one conducted in Botswana, which found that nurses' lack of understanding and proficiency contributes to their hesitancy to start CPR.[23]

CONCLUSION

CPR knowledge among medical professionals is fair although updated knowledge especially among the newly qualified physicians should be improved for better practice and outcomes during cardiac arrest. We would recommend that Institutions must constantly update their faculties, trainees and students through BLS courses.

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