



## ORIGINAL ARTICLE

# Knowledge and attitudes towards cardiopulmonary resuscitation: A cross sectional survey on health care providers in clinical practice

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## Abstract

Cardiopulmonary resuscitation (CPR) is a critical, life-saving skill for healthcare professionals (HCPs) in emergency departments (EDs) and other health care settings and are expected to have a profound knowledge of the CPR guidelines. A cross-sectional study was carried out among 160 health care providers to assess the level of knowledge and attitude towards cardiopulmonary resuscitation. Data analysis were done by SPSS software version-20. Total respondents in the study were 160 health care providers (HCP) and among them 80 respondents were doctors and 80 respondents were nurses. Among the respondents, 69% were female and 31% were male. Regarding the CPR training, 51% doctors and 49% had trained in CPR. Regarding performing the CPR, 58% doctors performed CPR and 66.2% nurses had performed CPR in clinical practice. Regarding meaning of the CPR, majority (92%) respondents knew correctly as ventilation and chest compression. More than half 58% respondents correctly knew about cardiac massage as to apply strong compression to the chest wall in certain interval. Regarding component of the CPR, nearly two third (65%) respondents correctly knew as chest compression and ventilation. Regarding sequence of the CPR, 71% respondents incorrectly knew sequence of CPR as Airway-Breathing-Compression (A-B-C) and 29.38% correctly knew as Compression-Airway-Breathing (C-A-B) as the sequence of the CPR. Among the total respondents, 62.5% respondents had average level of knowledge, 18.12% had good level and 19.38% had poor level of knowledge on CPR and CPR training were associated significantly with the CPR knowledge. Among the total respondents 70.62% had neutral attitude, 15.0% had positive and 14.38% had negative attitude to perform CPR. Doctors were more knowledgeable than nurses, and they also had more positive opinions on CPR than nurses. The study showed that CPR training was taken by both health care providers. The study also showed that nurses (53%) performed the CPR more than the doctors in clinical practice. The dissimilarity in knowledge and attitudes among the health care providers suggest that training courses on the CPR should be regularly provided to health care providers specially focusing on nurses in the country.

**Keywords:** Cardiopulmonary resuscitation, knowledge, attitude, chest compression, ventilation, health care provider

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## Introduction

The able to identify and intervene in cardiac arrest early saves lives [1]. Cardiopulmonary resuscitation (CPR) is a critical, life-saving skill for healthcare professionals (HCPs) in emergency departments (EDs) and other health care settings. Although the clinical outcome of CPR depends on multiple factors, such as the initial condition of the patient and the duration of cardiac arrest, performing high-quality CPR significantly improves patient outcomes [2]. CPR has been simplified into a set of skills that can be learnt by anyone, regardless of their medical background [3]. This permits any trained hospital staff member to quickly administer this life-saving treatment [4]. CPR, in particular, is a simple maneuver which if performed correctly can greatly increase the likelihood of return of spontaneous circulation (ROSC) and survival. As healthcare professionals encounter several life-threatening emergencies on a daily basis, they are expected to have a profound knowledge of the CPR guidelines [5]. Sudden cardiac death (SCD) is the greatest cause of mortality in the world, contributing for 15–20% of all deaths [6]. Sudden cardiac death outside of the hospital accounts for more than 60% of all deaths worldwide, making cardiovascular disorders the main cause of death [7]. One of its most major concerns with SCD is that most out-of-hospital cardiac arrests (OHCAs) occur in patients who are experiencing their earliest clinical symptoms of the underlying disease or who have been diagnosed but are considered small risk [8]. An OHCA affects between 250,000 and 300,000 patients each year all around the world [9]. CPR techniques are designed to keep oxygenated blood flowing to essential organs, particularly the brain, which is extremely vulnerable to oxygen deprivation and can result in lasting brain damage in as little as a few minutes, with death occurring in less than ten minutes [10]. The benefit of resuscitation decreases by up to 10% each minute following the beginning of cardiac arrest without warning [11]. Early access, urgent high-quality CPR, quick defibrillation, basic and advanced emergency medical services, advanced life support, and post-cardiac arrest care are the five links in the chain of survival, according to the American Heart Association's 2015 guidelines [12]. Early, high-quality CPR can considerably raise the likelihood of survival for those who experience sudden cardiac arrests [13]. When patients are managed by adequately qualified health care personnel, cardiopulmonary resuscitation has been found to prevent in-hospital cardiac mortality and related mortality [14]. CPR's importance is now widely acknowledged and stressed. CPR

training and familiarization with automated external defibrillators (AEDs) should be included in secondary school curricula, according to the American Heart Association [15].

Despite the fact that CPR is well-established and one of the most efficient resuscitative interventions for patients in cardiac arrest, it has been proven that medical students and younger doctors in both high- and low-income nations lack knowledge, training, and practice (LMICs) [16-20]. Furthermore, many people were afraid of contracting infectious infections if they conducted cardiac compression with mouth-to-mouth ventilation [21]. Early CPR can help individuals survive and have a better neurologic outcome. The survival for patients has increased as a result of targeted education on cardiopulmonary resuscitation for emergency medical clinicians and the general population [22]. Moreover, there is a dearth of data describing knowledge and attitude of health care providers in the direction of conducting CPR in clinical settings. Regardless of the fact that the epidemiology of cardiac arrest has been extensively researched in many industrialized nations, no studies on assessments of CPR knowledge and attitudes have been conducted in our nation. The purpose of this study was to see how well health care practitioners in clinical practice knew about cardiopulmonary resuscitation and how they felt about it. Furthermore, this research was critical in providing data for planners and programmers to use in combating cardiac arrest and its complications by promoting the adoption of CPR training and guidance in our country.

## Materials and Methods

A cross sectional study which was approved ethically by ERC of BUHS was conducted among 160 health care providers and was selected purposively who were working in the respective department in the institute where data collection was taken during a period from September 2018 to December 2019. For data collection, a semi-structured questionnaire was created and used. Pretesting of the research instrument was done before finalization among ten health care providers, who were not part of the final sample. The researcher observed doctors and nurses working in hospitals that met the inclusion criteria both outside and inside. The selected respondents were informed about the study's goal. The data was then obtained via a face-to-face interview, with the responses being recorded in the questionnaire. Each respondent was given a separate questionnaire. Each day, nine to ten respondents were interviewed over the course of five days, and each

interview took about 30-40 minutes, including time to create rapport with participants. The data of this survey were input into a personal computer using the SPSS-PC version 20 application.

**Results**

Total respondents in the study were 160 health care providers (HCP) and among them 80 respondents were doctors and 80 respondents were nurses. Among

them 49 (31%) were males and 111 (69%) were females. Regarding marital status 103 (64%) respondents were married and 57 (36%) were unmarried and their mean age was 30±5.36 years. Regarding educational status of the respondents 73 (91.2%) doctors were bachelor, 7 (8.8%) were masters and majority of the nurses were diploma 70 (87.5%), bachelor 7 (8.8%), and masters 3 (3.8%). (Table 1)

**Table 1.** Distribution of the respondents according to the demographic status (n=160)

Variable	Number	Percentage
<b>Age</b>		
Mean (SD) 30±5.36		
<b>Sex</b>		
Male	49	31%
Female	111	69%
<b>Total</b>	<b>160</b>	<b>100</b>
<b>Marital status</b>		
Married	103	64.4
Unmarried	57	35.6
<b>Total</b>	<b>160</b>	<b>100</b>
<b>Educational level of the respondents</b>		
<b>Doctor</b>		
Masters	7	8.8
Bachelor	73	91.2
Diploma	0	.0
<b>Total</b>	<b>80</b>	<b>100</b>
<b>Nurse</b>		
Masters	3	3.8
Bachelor	7	8.8
Diploma	70	87.5
<b>Total</b>	<b>80</b>	<b>100</b>
<b>Professional designation</b>		
Doctor	80	50.0
Nurse	80	50.0
<b>Total</b>	<b>160</b>	<b>100.0</b>

**Table 2.** Distribution of respondents according to the training status (n=160)

Variable	Number	Percentage
<b>CPR training of the respondent</b>		
<b>Doctor</b>		
Yes	50	51
<b>Nurse</b>		
Yes	48	49
<b>Training adequate to perform CPR</b>		
Yes	80	81.6
<b>Duration of the CPR training</b>		
<1 Year	22	22.4
>1 Year	76	77.6
<b>Total</b>	<b>98</b>	<b>100.0</b>
<b>Perform of CPR</b>		
<b>Doctor</b>		
Yes	46	57.5
<b>Nurse</b>		
Yes	53	66.2

**Table 3.** Association between knowledge about step of sequence of the CPR of the respondent with training status of the respondent (n=160)

Variables	CPR training of the respondent	
	Yes	No
Step of sequence of the CPR of the respondent		
Compression airway breathing(C-A-B)	23(48.9%)	24(51.1%)
Airway breathing compression(A-B-C)	71(78.9%)	19(21.1%)
Don't know	4(17.4%)	19(82.6%)
Chi-square =33.441; df= 2; p<0.000		

**Table 4.** Distribution of the respondents according to association between total knowledge score with professional designation (n=160)

Variables	Poor		Average		Good	
	Frequency (n)	%	Frequency (n)	%	Frequency (n)	%
Professional designation of the respondent						
Doctor	8	10.0	50	62.5	22	27.5
Nurse	23	28.8	50	62.5	7	8.8
<b>Total</b>	<b>31</b>	<b>19.4</b>	<b>100</b>	<b>62.5</b>	<b>29</b>	<b>18.1</b>
Chi-square = 15.017; df=2; p<0.001						

**Table 5.** Distribution of the respondents according to association between total attitude score with professional designation (n=160)

Variables	Negative		Neutral		Positive	
	F	%	F	%	F	%
Professional designation of the respondent						
Doctor	14	17.5	47	58.8	19	23.8
Nurse	9	11.2	66	82.5	5	6.2
<b>Total</b>	<b>23</b>	<b>14.4</b>	<b>113</b>	<b>70.6</b>	<b>24</b>	<b>15.0</b>
Chi-square = 12.448; df=2; p<0.005						

Regarding CPR training of the respondents 51% of the doctors and 49% of the nurses had previously received CPR training. Among the respondents 22% had less than one year while 78% had more than one year of CPR training. The majority (82%) of respondents who received CPR training felt that their training was adequate to perform CPR. (Table 2)

According to the association between knowledge about step of sequence of the CPR with training status of the respondent (n=160), there is a significant association (p<0.000) between step of sequence of the CPR of the respondent with training status of the respondent. (Table 3)

According to an association between total knowledge score with professional designation showed that there is a significant association (P<0.001) between respondent's total knowledge score with professional designation of the respondents. (Table 4)

According to association between total attitude score with professional designation showing that there is a significant association (p<0.05) between respondent's total attitude score with professional designation of the respondents. (Table 5)

## Discussion

In a common emergency circumstance, CPR is a commonly administered lifesaving procedure. While CPR can save a life in and of itself, its timely, effective, and high-quality administration is critical to the outcome. Healthcare personnel as well as competent bystanders, are required to respond and provide CPR. There is, however, an issue. The retention of knowledge and skills necessitates the identification and correction of outdated information.

Among the 160 respondents, 80 were doctors and 80 were nurses who worked in government and non-government hospitals in Dhaka and provided useful

information to determine the level of knowledge and attitude toward cardiopulmonary resuscitation among health care providers in clinical practice.

Among all the participants, 49 (31%) were males and 111 (69%) were females and their mean age was  $30 \pm 5.36$  years. The range of age was found similar with another study done in West Indies Jamaica of health care setting which was between 26 and 30 years and distribution of the respondents were 77 (55%) of female [20]. According to the findings of the study, health care providers having a high level of education in the government & non-government hospital, Dhaka, the rate of health care providers who received CPR training was found to be three fifth (61%) had previously received CPR training and two fifth (39%) had no CPR trained. This rate might be different outside of Dhaka city. Several studies have been undertaken in various nations to examine the level of knowledge, attitudes, and awareness of CPR in respective society. In this study CPR training rate seems to be low comparing to the study conducted in Slovenia which reported 69.4% had CPR training; this, according to the experts, is due to mandatory CPR training in driving schools in this country [21]. The study done in Bahrain found that 22% stated that they have not responded to a CPR event [22]. However, because 78% of the health care workers in this study had been trained in CPR more than one year, it was shown that 82% percent of them would face a situation that needed doing CPR. The study found that majority 147 (92%) respondents knew meaning of the CPR as chest compression and ventilation, only four (3%) knew as chest compression only and 9 (6%) didn't know the meaning of CPR. The study done in the Sultanate of Oman [23] shows that 62.7% of participants correctly identified the two basic components of CPR, chest compression and ventilation. This finding is nearly identical to that of a different poll conducted in the United Kingdom. [24] in which 54% of participants correctly identified the two primary components of community CPR. However, this study found a different result, with a large percentage of respondents correctly identifying the two key components of CPR, due to the fact that the respondents were doctors and nurses. In this study regarding component of the CPR nearly two thirds (65%) respondents knew the component of as both (chest compression & mouth to mouth ventilation), one fourth (27%) of the respondents knew as chest compression only (4%) of the respondents knew as ventilation and only (4%) didn't know about the component of CPR. However, according to another study, 35.5% of individuals said they could only perform cardiac compression, whereas 28.7% claimed

both cardiac compression and mouth-to-mouth ventilation are used in this procedure. These low rates could be due to a lack of repeat CPR training sessions and a low rate of instruction [25]. Regarding sequence of CPR, 71% respondents incorrectly knew sequence of CPR as Airway-Breathing-Compression (A-B-C) and 29.38% correctly knew as Compression-Airway-Breathing (C-A-B) as the sequence of CPR. There is a significant association ( $p < 0.01$ ) between step of sequence of the CPR of the respondent with training status of the respondent. Reasons for the discrepancies between the doctors and nurses are unknown but may be due to a lack of clinical experience of CPR. In accordance with this, a previous study from Pakistan similarly stressed the need for continuous and regular training to improve CPR knowledge among medical students [26]. In this study 62.50% respondents had an average level of knowledge, 18.12% had good level and 19.38% had a poor level of knowledge on CPR. Another study [27] revealed that 6.7% had a good level of expertise, and another study involving nurses in Bahrain indicated that 7% had a good level of expertise [22]. This study differs markedly from this in that the respondents (61%) have received CPR training. According to the findings, 70.62% of respondents had a neutral view toward CPR, 15% had a favorable view, and 14.38% had a negative opinion toward CPR. When it comes to initiating the CPR procedure, attitude is quite important. The participants in our study had a largely neutral attitude regarding CPR. Despite their lack of knowledge, they were eager to perform CPR in an emergency. This is in line with the findings of a study that found that respondents were motivated to do CPR despite their lack of knowledge [28]. Despite the fact that a study found no link between knowledge scores and participants' self-assessment, it is maintained that a health care provider's lack of confidence would have a detrimental impact on his or her ability to lead resuscitation [29].

### **Ethical considerations**

Ethics Review Committee of Bangladesh University of Health Sciences issued the Ethical clearance (Memo no: BUHS/Bio/EA/19/196) and ethics was maintained strictly throughout the study. A letter of cooperation written from the respective department to the institute where data collection was taken prior to the data collection period. Personal information of the participants was kept confidential. Each participant was given an informed consent statement in Bengali to read, which was also explained by the investigator and signed by the individual. Throughout the research, rigorous ethical standards were followed.

## Conclusion

This study indicated that doctors had higher levels of expertise than nurses and that doctors had more positive attitudes on CPR than nurses. It also revealed that both health-care workers had completed CPR training. This study also found that nurses (53%) were performing more than the doctors in clinical practice. However, given the disparity in knowledge and attitudes among health-care providers, frequent CPR training should be provided to all health-care workers, with a special focus on nurses in the country. According to the findings, government and non-government organizations should increase educational activities concerning CPR and enhance training and recertification to improve physician and nurse understanding that would contribute to improvement CPR efficiency in hospitals.

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## Conflict of interest

The authors confirm that they have no competing interests to disclose.

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