

# Knowledge and Attitude of Basic Life Support in the Community of Dammam City, Saudi Arabia

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## Abstract

**Aim:** The purpose of the study was to evaluate the knowledge and attitude of the community about basic life support (BLS) living in Dammam, Saudi Arabia. Furthermore, evaluation of the limitations of training on BLS skills was another study objective.

**Materials and Methods:** This cross-sectional study was conducted between February 2018 and January 2019 in Dammam, Saudi Arabia. Three hundred seventy-two randomly selected individuals participated in the study. Their knowledge and attitude toward BLS was gathered through a questionnaire that got filled by interviewers. The only inclusion criteria were the age, the participant should have been at least 18 years old.

**Results:** The average knowledge score of a participant was 2.02 ( $\pm 1.4$ ) out of 7, where males and Saudi participants had significantly better knowledge about BLS compared to females and non-Saudi. Furthermore, significantly small number of participants had cardiopulmonary resuscitation (CPR) training. However, their attitude was more positive and they were willing to receive CPR training.

**Conclusion:** Attitude toward acquiring knowledge about CPR was very positive. However, their knowledge about the topic was insufficient. People should be aware of the importance of having this training and this can be done through media and social media. Knowledge about the availability of programs at nearby places can also help to motivate people.

**Key words:** Attitude, Basic life support, Cardiopulmonary resuscitation, Emergency, Knowledge

## INTRODUCTION

Sudden cardiac arrest and accidents are the most common types of emergencies. In the United States, the sudden cardiac arrest remains a leading cause of death, and 70% of them occurred at home.<sup>[1]</sup> Outcome of out-of-hospital cardiac arrests (OHCA) remained poor at only 10.8% of survival rate after having arrest outside the hospital. In contrast, 22.3–25.5% of the patients survive and discharge if they had in-hospital cardiac arrest.<sup>[1,2]</sup>

Basic life support (BLS) is a life-saving procedure and skills which are used to save the victim from life-threatening

emergencies. Scientific evidence suggests that survival rates can be improved significantly with early BLS.<sup>[3]</sup> Immediate cardiopulmonary resuscitation (CPR) can double or triple survival rates and CPR plus defibrillation within 5 min can result in survival rates between 50% and 75%.<sup>[4]</sup> There are two key factors to provide CPR successfully, (1) the presence of a person having CPR training and (2) performing the procedure at the earliest.

The likelihood of having trained individuals at the emergency spot can only be possible when there will be an adequate number of trained people in the community. An emergency can happen anytime anywhere. It can be at home, workplace or even while traveling. Hence, the chance of getting an early life support procedure depends onto have anyone near who knows the procedure. According to the World Health Organization, heart disease was the most common cause of death in the Kingdom of Saudi Arabia (KSA), and approximately 25000 people died each year because of a heart attack.<sup>[5]</sup> Furthermore, 80% of those heart attacks came at home<sup>[6]</sup> these statistics also put

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some light on the importance of having at least one family member who can give BLS.

To evaluate the knowledge and attitude, studies had been conducted in KSA.<sup>[7-9]</sup> These studies had university students and community members as well. Outcome of the studies showed the positive attitude of the participants with low level of knowledge. Studies outside the KSA also reported same positive attitude of students, teacher, and parents toward having BLS training.<sup>[10-12]</sup>

Medical and non-medical students were the most common participants in the studies conducted in Saudi Arabia during recent years.<sup>[9,13-15]</sup> A study conducted in the Eastern Province of Saudi Arabia in 2014 which invited the community to participate. However, the study evaluated the community knowledge and attitude about pediatric CPR. To the authors' best knowledge, there was no study conducted in the Eastern Province of KSA which examines the community knowledge and attitude toward BLS in general. Hence, the present study was planned and the aim was to assess the knowledge and attitude toward BLS among the community living in Dammam; furthermore, evaluation of the limitations of training on BLS skills was another study objective.

## MATERIALS AND METHODS

This cross-sectional study was performed between February and June 2018 in Dammam City, Eastern Province of KSA. The sample size was calculated using the formula:

$$\text{Sample size (N)} = \frac{Z^2 \times P \times Q}{E^2}$$

Z: Confidence level = 1.96, P: Prevalence = 0.33, Q: 1-0.33 = 0.67, E: Correction factor = 0.05.

$$N = \frac{1.96^2 \times 0.33 \times 0.67}{0.05^2} = 370$$

P-value was obtained from similar previous study.<sup>[8]</sup> In the inclusion criteria, male or female adults more than 18 years of age could be participants of the study. The study was conducted at Othaim Mall located in Dammam. A random sampling technique was used to enroll the participants in the study.

The questionnaire was adopted from the previous studies after taking permission from authors<sup>[7,16]</sup> and it had five sections: (1) Demographic data, (2) CPR training status, (3) knowledge assessment, (4) attitude toward training, and (5) limitation. The first section had age, gender, nationality,

and socio-economic status (SAR) of the participants. The second section asked about previous CPR training. The knowledge section contained seven questions and the next section was about the attitude which had eight questions. The last section had only one question and it was about the reason for not attending CPR training previously. All questions were closed-ended and participants invited to fill them according to their knowledge. Participation was voluntary. Data were collected through one to one interviews by the research team.

In the questions which were about knowledge, each question had one correct response. Hence, each participant had an option to select the correct answer for the questions. Therefore, the maximum possible correct answers for the knowledge section of a participant would be 7 and minimum could be 0. Hence, total possible score for a participant could vary from 0 to 7. A column was constructed during data entry which reflecting the total knowledge score for each participant.

Statistical Package for the Social Sciences v.22 was employed for data entry and analysis. In the descriptive statistics, frequency and percentages were calculated for demographic and other dependent variables. Bar graphs were constructed to present the responses for knowledge questions and scores. In inferential statistics, to study the relationship between knowledge score and demographic variables students' *t*-test and ANOVA was used.

## RESULTS

A total number of participants who participated and filled the questionnaire completely was 372. Females were more responsive and their participation was higher than males, there were 218 (58.6%) females and 154 (41.4%) males in the study.

Analysis of age revealed that those who were <20 years old were 40 (10.8%), while 116 (31.2%) were between 21 and 30 years, 111 (29.8%) were between 31 and 40 years, 76 (20.4%) were 41–50 years, and 23 (6.2%) and 6 (1.6%) were 51–60 and more than 60 years old, respectively.

Study participants were mostly Saudis (70.2%, *n* = 261) and only 29.8% (*n* = 111) were non-Saudi. It was found that 54.4% of the study population was having monthly income <7000 SAR, 65 (17.5%) were earning 7 to 10,000 a month, 47 (12.6%) getting from 10 to 13,000 monthly, and rest (*n* = 59, 15.9%) were earning more than 13,000 monthly salary.

Evaluation of knowledge questions (seven questions) revealed that the average score for a participant was 2.02 ( $\pm 1.4$ ). The question with the highest proportion was “what

will you do if the patient is breathing but shows no response to verbal stimuli.” About 58.9% ( $n = 219$ ) responded correctly. On the other side, respondents had the least knowledge about “who is allowed to use an Automated external defibrillator AED” only 17 (4.6%) gave the correct answer. One hundred and forty-nine out of 372 (40.1%) knew the Red Crescent contact number [Figure 1a and b]. Demographic variables were also tested with knowledge score; statistics revealed that gender, nationality, SAR, and CPR training were having statistically significant relation with knowledge score [Tables 1 and 2].

Through the assessment of attitude questions, it was found that the attitude of participants, in general, was more positive. About 90.1%,  $n = 335$  of the citizens were willing to receive CPR training, 278 (74.7%) said CPR training should be mandatory, and 92.5% said it should be part of the educational requirement [Table 3].

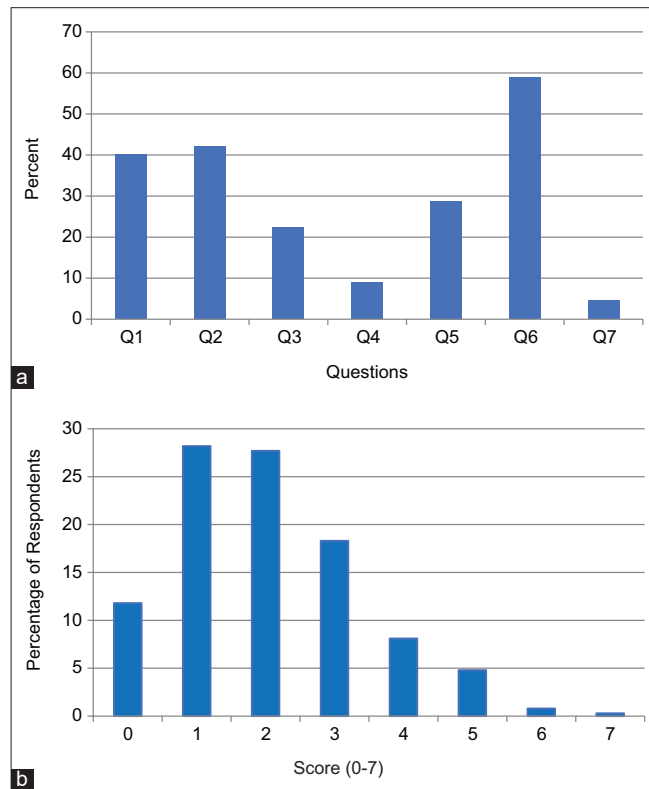
The most common reason for not taking CPR training previously was “not sure where to attend course” followed by “little time,” “unavailability of course,” was also the repeated reason for not attending the training previously.

When participants were asked that why did they not attend any CPR training previously? Out of 218 individuals who

did not receive any training, 70% ( $n = 197$ ) said they did not know where to attend the course. Moreover, only 3.5% and 8.2% said because of a lack of interest and cost of the course, respectively. Time and unavailability of the course were also reported as a hurdle to get trained.

## DISCUSSION

CPR has significant importance to increase the chance of survival in the case of OHCA.<sup>[17-19]</sup> Higher the rate of survival if early CPR provided, hence getting BLS training has been suggested. The importance of trained BLS persons at home becomes vital in the presence of elderly at home (due to the highest probability of encountering cardiac arrest). Studies reported that BLS training increased the chances of survival in the case of emergency OHCA.<sup>[20,21]</sup> Obesity and hypertension are potential factors of cardiovascular disease. Since its increase has been reporting from Saudi Arabia, the chance



**Figure 1: (a) Percentage of correct answers corresponding to each question (b) Percentage of respondents corresponding to knowledge score**

**Table 1: Significance of the association between demographic factors and knowledge**

Variables	n	Mean (SD)	P-value
Gender			
Male	154	2.29 (1.5)	0.001*
Female	218	1.82 (1.23)	
Age			
<21	40	1.95 (1.1)	0.762
21–30	116	2.1 (1.5)	
31–40	111	2.04 (1.4)	
41–50	76	1.91 (1.34)	
51–60	23	2.1 (0.95)	
>60	6	1.3 (0.81)	
Nationality			
Saudi	261	2.15 (1.38)	0.004*
Non Saudi	111	1.7 (1.33)	
Socio-economic status			
<4000	91	1.9 (1.3)	0.005*
4001–7000	110	1.7 (1.2)	
7001–10,000	65	1.97 (1.2)	
10001–13,000	47	2.47 (1.7)	
13001–16,000	27	2.41 (1.47)	
>16000	32	2.47 (1.4)	

\*Statistically significant at 0.05 level of significance

**Table 2: Relationship between CPR training and knowledge**

Response	Previous CPR training?		P-value
	n	Mean (SD)	
Yes	91	2.99 (1.4)	<0.001*
No	281	1.7 (1.2)	
Time since previous CPR training?			
Between 0 and 6 months	22	2.86 (1.7)	0.094
Between 7 and 12 months	9	3.67 (1.2)	
Between 13 and 24 months	16	3.25 (1.2)	
More than 2 years	44	2.89 (1.4)	

\*Statistically significant at 0.05 level of significance. CPR: Cardiopulmonary resuscitation

**Table 3: Participants attitude toward the training of CPR**

Questions	n	Percent
Have you ever encountered a situation that required the use of CPR?		
Yes	92	24.7
No	280	75.3
(If yes) did you resuscitate the person?		
Yes	35	37.2
No	59	62.8
Would you like to receive CPR training?		
Yes	335	90.1
No	37	9.9
If you want more CPR training, what is the reason? (You can choose more than one)		
You think it is very important for everyone who might face an emergency situation	319	85.7
Heart diseases within the family	50	13.4
Wish of avoiding unnecessary death	68	18.3
Other reason		
Would you be willing to take a free CPR course if it was offered?		
Yes	345	92.7
No	27	7.3
Do you think CPR training should be mandatory?		
Yes	278	74.7
No	94	25.3
Do you think that CPR training should be a requirement of educational subjects in the schools?		
Yes	344	92.5
No	28	7.5
Do you think that general places (schools, malls, parks) should have AED?		
Yes	270	72.6
No	102	27.4

CPR: Cardiopulmonary resuscitation

of cardiac events is becoming more common.<sup>[22,23]</sup> Maximize the number of trained individuals in the community can help to provide basic support at the time of need.

It was found from the analysis that over 75% of the general population living in Dammam did not receive CPR training ever. Hence, their knowledge about CPR and its technical aspects was very low, especially when they asked about the combination of chest compression and rescue breathing <25% responded correctly. Similarly, <10% had correct knowledge when they were asked how deep and fast should be chest compression. Furthermore, over 95% of the participants did not know that everyone can use AED. Disturbingly, 60% of the sampled population did not know the number to call in case of any medical emergency. This poor knowledge was because of either participant did have training at all or it was more than a year when they got training. Out of 91 who received training 60 (65.9%) said it was at least a year since they received the training. A study conducted in Qasim also had almost same findings, one-third of that study sample had CPR training and other reason of low knowledge was CPR training taken more than 2 years before the study.<sup>[10]</sup> Some other studies from Saudi Arabia also reported that knowledge among community members was low.<sup>[8,9]</sup>

Beside low knowledge, the attitude of the respondents was highly positive. They were keen to receive CPR

training. A very high proportion of them was agreed to receive training if it is free. Furthermore, most of them showed positive attitude when they asked should it be mandatory for everyone and should it be included as educational requirement of the schools. Although people were willing to get CPR training, it is required to provide them opportunities. Such training programs should be easily accessible for everyone and the best way to this if it provides at their work place. Second, if it is added as part of educational curriculum then it would be great addition to achieve high number of trained individuals. Children are quick learners and motivated easily<sup>[24,25]</sup> and can provide chest compression when 13–14 years old.<sup>[26]</sup>

Further studies in bigger scale are recommended to evaluate the CPR knowledge in the community. It is also required to study hurdles which prevent people to get trained even when they realized its importance. It is also important to study the strength and weaknesses of the program to make it more effective.

The small sample size was one of the study limitations. In addition, data were collected from one place only if multiple sites were used there could be more versatility in the sampled population. The inclusion of children could help to evaluate the opportunities of having BLS training at schools.

## CONCLUSION

Attitude toward acquiring knowledge about CPR was very positive. However, their knowledge about the topic was insufficient. People should be aware of the importance of having this training and this can be done through media. Knowledge about the availability of programs at nearby places can also help to motivate people. It was found that most of the participants did not aware of places where they can attend the course. The busy daily schedule was another hurdle to go for the course hence arranging the course at workplace can help to overcome the problem.

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