

# Attitudes and Awareness Towards Cardiopulmonary Resuscitation Among Preparatory Year Students of Umm Al-Qura University

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## Abstract

**Background:** Cardiopulmonary resuscitation [CPR] is known as a life saving technique significantly use in management of dyspnea, tachycardia, arrhythmias, and other cardiac complications.

**Purpose:** To investigate the knowledge and awareness about cardiopulmonary resuscitation among the preparatory year students of Umm Al-Qura University.

**Methods:** 98 students were randomly selected from preparatory year of Umm Al-Qura University, who filled questionnaires related about their knowledge of CPR that was compared using test analysis.

**Results:** The average knowledge of CPR was 7.97, practice skills was 9.4, and importance level was 10.6 among the students. There was no difference in average level of knowledge, practice skills, and importance level regarding learning of CPR between the students of administrative and scientific programs. There was lack of awareness among the students regarding the importance of learning CPR.

**Conclusion:** The overall knowledge, practice skills, and importance level of CPR among the students was moderate; however, increased knowledge about cardiopulmonary resuscitation will improve the practical skills among students.

## Introduction

Cardiopulmonary disease is recognized as ever mortal threat to the Saudi population. For instance, around 25,000 people in Saudi Arabia face mortal complications because of cardiopulmonary diseases. A significant number of techniques have been developed for providing quality of care to the patients [1]. Cardiopulmonary resuscitation [CPR] refers to a life saving technique that is significantly useful for managing dyspnea, tachycardia, arrhythmias and other cardiac complications. This technique utilizes the combination of chest compression, which is helpful for maintaining the flow of oxygen at blood to the brain and other vital organs [1]. Tragic and hazardous consequences can be occurred due to lack of inability and training to cope with medical emergencies. Previous studies have shown lack of knowledge regarding CPR [2, 3].

## Importance of cardiopulmonary resuscitation

Cardiac arrest is the leading cause of deaths world wide, although the emergency cardiac care has greatly advanced. It is estimated that around 70% of cardiac arrest occurs within non-clinical environment; out of which, around 10% individual survived besides the absence of rudimentary medical care [4]. Majority of patient suffering cardiac arrest usually face mortal complications because of unavailability of immediate CPR or lack of knowledge regarding this technique. CPR is known as a significant element of initial care for the victims suffering from cardiac arrest. The quality of CPR is directly associated with survival from cardiac arrest. The CPR technique restores and maintains the breathing and circulation of blood after cardiac arrest, preventing brain damage and mortality [5]. The CPR technique applied to the patient of cardiac arrest facilitates the flow to the brain and heart till the defibrillator becomes available. Administration of CPR technique is necessary by a professional and skilled individual during emergency cardiac events.

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## Problem statement

Awareness regarding the CPR technique among university students is significant as there is a lack of research related to the awareness of CPR. CPR technique has proved to increase the chance of survival from various cardiac complications; however, the awareness level of CPR in Saudi Arabia is not satisfactory. This study has assessed the knowledge about the practical skills and implication of CPR technique.

## Significance of the study

CPR technique may provide the chance of survival from cardiac arrest in non-clinical environment. Most of the people are unaware about the significance of CPR technique in saving life and improving the quality of community health. Therefore, this study has examined the level of awareness about CPR technique among the university students.

## Aim of the study

The early initiation of cardiopulmonary resuscitation increases the chance of survival after cardiac arrest. This study has aimed to evaluate the knowledge and awareness about cardiopulmonary resuscitation among the preparatory year students of Umm Al-Qura University.

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## Research questions

1. What is the level of awareness among the Umm Al-Qura university students of the preparatory year regarding the CPR technique?
2. What is the attitude of Umm Al-Qura university students about learning and implicating CPR technique?

## Literature Review

CPR technique is defined as a chain of survival by American Heart Association as this technique has provided the greatest chance of survival to the patient of cardiac arrest [6,7]. It is a life saving first aid skill that is practiced across the globe. Despite the significant role played by CPR technique, the attitude towards disseminating, performing, and learning CPR in preparatory students of Umm Al-Qura University is not clear.

### Attitudes towards CPR technique

CPR technique is widely known to be the most evolving area of modern medicine as it has proved to be a life-saving technique in emergency situations. The patients in critical condition at the time of cardiopulmonary arrest; therefore, abrupt CPR needs to be performed for successful resuscitation. Majority of the students [80%] from King Saud University were keen to learn about the performance of CPR technique. Moreover, 45% of the students stated that the training for CPR be made a graduation requirement. It is also necessary for school teachers to have appropriate knowledge about CPR. Among the school teachers in Riyadh, approximately 53% of the teachers believed that the training courses for CPR should be made compulsory for the students [8]. After the advancement in technology, the information about CPR is accessible through media and internet.

Globally, the teachers and students have been assessed to be willing in taking training for CPR. The technique of CPR was well received and implemented when it was introduced in the schools of United Kingdom [9]. It is sign if I can't that every individual should know about CPR to save lives to improve the quality of community health. 67% of secondary school students in Riyadh were positive about learning CPR technique [10]. Although, the knowledge about CPR technique was poor, around 73% of the surveyed individuals wanted to learn more about CPR [11].

### Awareness regarding CPR technique

The survival of patient in case of cardiac arrest depends on the application of CPR technique. Awareness regarding this technique is likely to increase the survival rates of patients suffering from cardiac arrest [12]. Alanazietal [10] investigated that only 35% of students were aware about the basic training of CPR; where as, 58% students did not have any knowledge about the CPR technique. 14.7% students took training for CPR and 85.3% students never took training to learn about this technique, due to lack of awareness regarding its importance [13]. Luteal [14] recruited the university students. It has been observed that the students belonging to non-medical field were 29.9% where as 45.3% of medical university students were ready to perform CPR in n emergency situation [14]. The unwillingness to perform CPR among the students of non-medical field was mainly due to fear of legal dispute sand lack of confidence. There was a positive attitude of students towards learning CPR technique. Majority of school teachers

in Saudi Arabia lack the knowledge about CPR, but 75% were willing to learn about it [9]. If teachers are well trained with basic knowledge about CPR, it is likely that they would train the students and teachers to reinforce their own knowledge.

The study conducted on the university students in Riyadh revealed that 85% of the students, who had some knowledge about CPR believed that their knowledge was not sufficient [1]. Medical students indicated low level of practical application of skills regarding CPR. This may be because the medical students are taught about CPR in later year so study. Practical applications of CPR are demonstrated during the period of house job [6].

### Automated external defibrillator [AED]

Automated External Defibrillator is a portable device that facilitates the delivery of electric shock waves to the heart through chest. These shock waves have the ability to induce normal heartbeat after sudden cardiac arrest that had induced irregular heartbeats. In the case of ventricular fibrillation characterized by unsynchronized and rapid heart rate, the heart immediately needs to be defibrillated. Immediate defibrillation is necessary as the chance of survival for the affected person decreases 7-10% with each minute.

## Methodology

Qualitative and quantitative approaches have been applied as a mixed research design. These methods we reused to explain different characteristics and phenomena associated with awareness regarding CPR technique. The sample comprised of 98 students selected randomly from the preparatory year of UmmAl-Qura University. The students belonged to administrative and scientific programs. Questionnaire was designed to determine the knowledge, awareness, and skills about CPR among preparatory year students. The question are include different items including, level of knowledge about CPR, level of practical skills for CPR, awareness about CPR technique.

The responses of students were processed using Statistical Package of Social sciences (SPSS) version 20.0. The frequency and percentages were calculated for evaluating quality of each item. Lowest value was indicated between 4-7, moderate value 8-11, and high value 12-16. To calculate the dimension for discrimination items and internal structure of coefficient items, correlation coefficient was used. The validity and reliability of questionnaires were checked through Cronbach's alpha correlation, which showed are liable value of the questionnaire (Cronbach's alpha=0.8). The knowledge of CPR among students of administrative and scientific program was compared using t-test analysis.

## Results

The level of knowledge, practical skills, and importance of cardiopulmonary resuscitation has been assessed among the students of Umm Al-Qura University. The average knowledge of CPR among students of administrative and scientific program was 7.97, the average practice skills among them was 9.4, and importance level of cardiopulmonary resuscitation was 10.6 (Table1).

The average level of knowledge about CPR among students belonging to administrative program was calculated to be 7.17, and scientific program was 8.29 with a difference of 1.11. It showed that there was no difference in the knowledge level about CPR among students from administrative and scientific programs (Table 2).

Moreover, finding suggested that there was no difference in the average practice skill of administrative and scientific program students regarding CPR. The average practice skills among students of scientific program was 9.9 and administrative program was 8 (mean difference = 1.9) (Table 2). The average importance level among students of both scientific and administrative field regarding learning of CPR was 10.5 and 10.8 respectively (Mean difference=0.3). It clearly showed that there was no difference in the importance level regarding the learning of CPR among students of both programs (Table 2).

The results depicted that the students were well aware about the importance of learning CPR, but still they want the courses to be optional even if they are free. It clearly indicated lack of awareness among the students regarding the importance of learning CPR.

	Knowledge	Practice Skills	Awareness for Importance
Items No.	3	4	4
Mean	7.97	9.4	10.6
Standard Deviation	2	3	2.5
Median	10	11	9.5
Maximum Value	12	16	16
Maximum Value Frequency	1	1	1
Minimum Value	4	4	4
Minimum Value Frequency	4	2	10
Range	8	12	12

Table1: Statistical description of the participants [N=98]

## Discussion

The study has investigated the knowledge, attitudes, level of knowledge, and practical skills regarding CPR among the students of Umm Al-Qur University, studying administrative and scientific program. It is said that CPR is one of the critical life-saving skills that every individual should know how to perform. Majority of students from King Saud University in Saudi Arabia have been investigated to realize the importance of CPR. Unfortunately, around 85% of the students felt that their knowledge regarding CPR was not adequate [11]. Thus, it is identified that lack of knowledge would result in inability to perform CPR in emergency situations. A study investigated that around 31% of university students in Riyadh had no prior knowledge about the CPR technique. 85% of the students, who were previously aware about this technique, felt that their knowledge regarding this technique was not adequate. Due to lack of knowledge about CPR, only 14% of the students performed CPR in emergency situation [9].

Khader et al. [15] recruited health-college students at Taif University in Saudi Arabia. The results showed that the level of knowledge regarding CPR among the students was not satisfactory. Although, the students belonged to medical profession; they lacked theoretical and clinical training about CPR [15]. Moreover, the university medical students had adequate knowledge about the importance of CPR technique in clinical practice. However, only 20.4% of the students were well-aware for performing CPR properly [16]. Among the medical students, only 14.7% had taken CPR course; whereas, majority of the students [85.3%] had no attended any course about CPR. The attitude and skills regarding CPR was investigated to be poorer among university students. Around 50% of health science graduates knowledge towards CPR was not sufficient [17]. It occurred because of in appropriate training during under graduate course.

	Levene's Test for Equality of Variances		T-test for Equality of Means			
Relationship between the Knowledge Level and the Type of Program						
Level of Knowledge	F	Significance	T	df	Sig [2tailed]	Mean Difference
Equal Variances			-2.15	96	0.13	1.11
Unequal Variances	1.49	0.23	-2.11	47.63	0.017	1.11
Relationship between the Level of Practice Skills and the Type of Program						
Practice Skills	F	Significance	T	df	Sig [2tailed]	Mean Difference
Equal Variances			-2.979	96	0.004	-1.092
Unequal Variances	0.003	0.954	-3.054	52.54	0.004	-1.928
Relationship between the Level of Importance and the Type of Program						
Importance Level	F	Significance	T	df	Sig [2tailed]	Mean Difference
Equal Variances			0.490	96	0.626	0.271
Unequal Variances	0.034	0.854	0.490	49.66	0.627	0.271

Table2: Relationship between Levels of Knowledge, PracticeSkills, Importance Level, and Type of Program.

## Conclusion

The overall attitude and practical skill so preparatory year students of Umm Al-Qura University were moderate. Although, the students had in adequate knowledge about CPR, but they had positive attitudes towards learning. Training about CPR is a significant factor that reinforces the students to initiate CPR. Therefore, there is a need to focus on the improve men to f CPR skills. Similarly, there is also a need to provide training for learning CPR technique among graduates. Effective training program should help in increasing knowledge and awareness of CPR among university students. Future studies are needed to assess the knowledge and attitudes towards CPR among students, specifically related with it simplification.

## Competing Interests

The authors declare that no competing interests exist.

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