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Awareness and Knowledge of Health-College Students of Cardiopulmonary Resuscitation at Taif University, Saudi Arabia

Khaled Abdallah Khader, PhD, RN, Abdulrahman N. Al-Ghamdi, M.D., Hanan A. M. Youssef, PhD, RN, Ahmad A.I. Elryah, PhD, RN, Ibrahim R. Ayasreh, Msc, RN, Nabeel A. Al-Mawajdeh, Msc, RN, Ahmad Alradi Mohammed, Msc, RN

Faculty members of Applied Medical Sciences College / Taif University, Saudi Arabia

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Abstract

Introduction*: Cardiac arrest is the cause of death for thousands of people. Knowledge of Cardiopulmonary resuscitation (CPR) and practice of simple CPR techniques increase the chances of survival of the patient until experienced medical help arrives. Most victims of cardiac arrest don't receive adequate resuscitation within the critical time which reduces the chance of survival. Therefore, it is crucial that everyone in the medical field has knowledge of CPR. The purpose of this study was to assess awareness and knowledge of health-college students about CPR at Taif University.*

Methods: *A cross-sectional survey was used to study 320 health-college students selected conveniently from Taif University. A 20 items questionnaire developed by the researchers was used to collect data about awareness of participants of CPR. The validity and reliability of questionnaire was tested and proved. All ethical issues like consent form and anonymity were considered. Data were analyzed using SPSS (ver. 16) to get descriptive and inferential data of the questionnaires.*

Results: *Most participants scored less than 50%. There were significant ($p<0.05$) differences among health colleges, program and year of study program. Nursing students got the highest score among all participants. In addition, students of the bridging program had higher score than regular students. All questions were answered correctly by at least third of participants. Low rate of correct answers were found in infant CPR, steps of doing CPR and update information of CPR.*

Discussion*: The result of current study reveals lack of awareness of CPR in most health colleges' students. This agreed with most previous studies. Despite significant differences among medical profession in their CPR scores, they didn't reach the acceptable level of awareness. The reason for low scores of CPR survey is lack of theoretical and clinical training of up-to-date CPR in health colleges' curricula. This study recommended giving adequate BLS knowledge and training for all health professionals and included a BLS course in the curricula of health colleges.*

Keywords*: CPR, BLS, Cardiopulmonary Resuscitation, Cardiac Arrest, Awareness, Health College*

Literature review

Cardiopulmonary resuscitation (CPR) is one of the most evolving areas of modern medicine which comprises a series of lifesaving actions that improve the survival rates following cardiac arrest (Kumari *et al*., 2014). Cardiopulmonary arrest (CPA) is a sudden cessation of effective respiration or circulation, excluding patients of chronic diseases and terminal malignancies (Baduni, *et al*., 2016). Cardiac arrests and accidents are the most common type of emergencies with fatal consequences (*Almesned et al*., 2014). An immediate CPR can double or triple the chances of survival (*Almesned et al*., 2014). Survival chances decrease by 7-10% for every min, if CPR is delayed (Sarin & Kappoor, 2006).

Resuscitation "is the act of restoring life or consciousness of one apparently dead" (Srinivas, *et al*., 2014). It is very important that every person in the community know about Basic Life Support to save lives (Chandrasekaran1, *et al*., 2010). Most victims of cardiac arrest don't receive adequate resuscitation within the critical time which reduces the chance of survival. (*Almesned et al*., 2014).

Knowledge of basic life support (BLS) keeps patient survival till medical help arrives (Srinivas, *et al*., 2014; Chandrasekaran1, *et al*., 2010). Knowledge of BLS and practice of simple CPR techniques increase the chances of survival of the patient until experienced medical help arrives (*Almesned et al*., 2014). CPR cannot usually restart the heart, but it makes sure that blood and oxygen continue to circulate through the body, keeping the patient active until help arrives (Marzooq & Lyneham, 2009).

Chandrasekaran *et al.* (2010) carried out a study to find out level of BLS awareness in medicine, pharmacy, nursing and dentistry. The study concluded that none of the students had adequate knowledge of the BLS and most of them (84.82%) had less than 50% score, indicating a poor knowledge in majority of the students studying different disciplines of health sciences. Studies have shown that even trained health professionals have little knowledge about BLS, probably due to insufficient BLS training or lack to interest to practice it. (Alanazi *et al*., 2014).Therefore, it is crucial that everyone in the medical field has knowledge of BLS.(*Almesned et al*., 2014).There is an urgent need that every individual at least one who is associated with health care system, should be educated and facilitated to master the skills of CPR (Kumari *et al*., 2014). BLS is a core skill in which all health care professionals should be proficient, but there is a great deal of variation in the training provided at the undergraduate level (Sudeep *et al*., 2013). It has been reported that BLS awareness was very poor among health professionals like doctors and nurses (*Alanazi, et al., 2014)*. In the United States, BLS training has been recommended for all health‐care professionals since fifty years (Baduni, *et al*., 2016).

It has been strongly recommended to include BLS programs in undergraduate students of different health care study programs *(Alanazi, et al., 2014)*. Researchers have found that the overall attitude towards CPR was positive among students of King Saud University at Saudi Arabia. *(Alanazi, et al., 2014)*.

Need of awareness of BLS principles and correct usage of knowledge in the practicable form is among teaching obligations to the nursing students (Kalhori *et al*., 2012). Literatures have many studies about the knowledge of BLS among health care professionals. While, only little research of BLS knowledge has been conducted among non-medical students. In Saudi Arabia, the literature is limited in regard to the BLS knowledge among health care professionals (Alotaibi *et al*., 2016).

Therefore, the purpose of this study was to assess awareness and knowledge of medical students about BLS and its updated information at Taif University.

Methods

A cross-sectional survey was used to study 320 medical students at Taif University (Nursing, Radiology, Laboratory, and Physiotherapy). Study group consist of students selected conveniently from four health colleges. Ethics approval, Anonymity of respondents, consent form, and other ethical issues were considered.

A 20 items questionnaire was developed by the researchers and tested on pilot group for clarity and reliability. The reliability was 0.87 using Cronbach's alpha to measure the internal consistency. The face and content validity was examined and proved by a panel of expert nurses.

SPSS software (version 16) was used to analyze the collected data. Descriptive and analytical statistics (t-test & ANOVA) were used to describe the characteristics of sample and to test if there are significant differences in knowledge among colleges and other variables. The significance level of 0.05 was considered.

Results

Three hundred and twenty health-college students completed the survey. 63% of students were male and the rest were female. Their age was between 18 and 32 years. 3% participants had previously received BLS training and the rest had not. Analysis of each variable was performed using the independent *t*-test and ANOVA. The results indicated statistically significant differences ($p < 0.05$) in scores of CPR knowledge among health colleges' students (Figure-1). Also, significant differences ($p < 0.05$) in scores of CPR knowledge were found in variables of age, year of study and programs. Most participants scored less than 50%. No one got full mark.

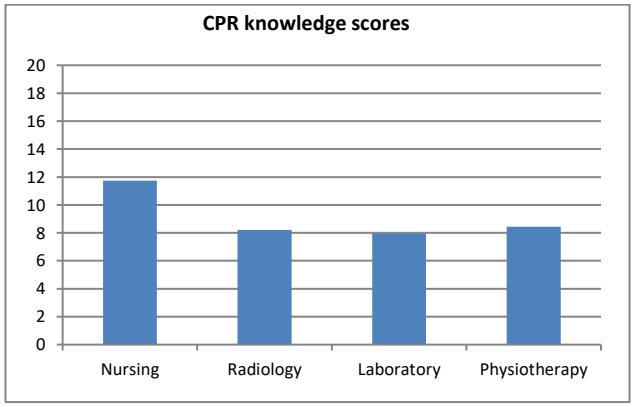

Figure-1: Scores of CPR knowledge for the four health colleges

All questions were answered correctly by at least third of participants. Low rate of correct answers were found in infant CPR, steps of doing CPR and updates of CPR (Table-1).

Table-1: Answering frequency for the CPR sections by the participants

Items	Correctly Answered N=320	Percentage
Definition of CPR	199	62.2%
Checking responsiveness	174	54.4%
Checking pulse and respiration	144	45.0%
Compression-breathing ratio	110	34.4%
Steps of CPR	84	26.3%
Heimlich maneuver for Chocking	120	37.5%
Abdominal Thrust	131	40.9%
Infant CPR	92	28.8%
Child CPR	104	32.5%
Adult CPR	127	39.7%
Recent knowledge of CPR	43	13.4%

Table 2 Mean knowledge scores among the study participants

Variables	Frequency (n=320)	Mean (SD)	*P* value
Gender			0.13
Male	63%	7.23 (0.76)	
Female	37%	8.1 (0.86)	
Age			0.03
18-22	82%	7.31 (0.97)	
More than 22	18%	13.6(1.65)	
Faculty			0.046
Nursing	32%	11.74(2.17)	
Physiotherapy	26%	8.21 (1.61)	
Radiology	19%	7.96(0.92)	
Laboratory	23%	8.34(1.23)	
Year of study			0.63
First year	26%	7.60(3.28)	
Second year	27%	7.27 (2.01)	
Third year	23%	8.11(1.74)	
Fourth year	24%	8.45(2.54)	
Program			0.021
Regular	87%	7.89 (2.66)	
Bridging	13%	11.39 (2.46)	

Only 7.3% of participants got more than 80% correct answers. On the other hand, about 16% students got less than 10% correct answers. This indicates the need for education about resuscitation .The nursing students got the highest score among the four colleges. In addition, students of the bridging program had higher score than regular students (Table-2).

Discussion

The purpose of the current study was to assess awareness of health college students of CPR and their knowledge in performing the resuscitation correctly based on most recent information of AHA guidelines. The result of current study reveals lack of awareness of CPR in most medical colleges. This agreed with most previous studies (Abbas, Bukhari and Ahmad, 2011). A study conducted on a large number of health participants in India concluded that awareness of BLS among students, doctors and nurses of medical , dental, and nursing colleges is very poor (Chandrasekaran *et al*, 2010).

Despite significant differences among medical profession in their CPR scores, they didn't reach the acceptable level of awareness. This may impact negatively on their role in the health institutions and community. Nurses had the highest scores in this study because their curriculum includes more material related to cardiovascular disorders and cardiac arrest.

Although nurses have completed several topics in critical and emergency care including cardiovascular disease, this study show that the majority of nursing student had either poor or insufficient knowledge about BLS which agree with previous studies of Xanthos *et al*, (2012).

Early CPR increase chance of survival after cardiac arrest especially in the first few minutes. In the current study, it showed that all health professionals knew importance of time in CPR even though they had little knowledge of CPR. In addition, they didn't have any information of the new updates of CPR knowledge. Students had only 34.6% right answers regarding compression ventilation ratio. Some students respond by choosing the old ratio of compression to ventilation. This indicated that health college students don't update their knowledge of CPR.

The reason for low scores of CPR survey is lack of theoretical and clinical training of up-to-date CPR in health colleges' curricula. They don't have any opportunity as students to practice real CPR in health institutions. So that, health colleges should adopt high-fidelity simulation as a part of their clinical training to fill the gap between theoretical and clinical education.

All the participants in this study agree the need for CPR training for all health care providers. The students should completed CPR courses on continuous basis to keep them well informed of basic and new information in CPR training.

Our study recommended giving adequate BLS knowledge and training for all health professionals and including a BLS course in the curricula of health colleges.

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