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ORIGINAL ARTICLE

Knowledge and attitude about basic life support and emergency medical services among pharmacy students at King Abdulaziz University, Jeddah, Saudi Arabia

Nabil A. Alhakamy[1*], Ahmad M. Zamzami[2], Fuad A. Bukhari[2], Faisal A. Bukhari[2], Omar A. Almash[3], Mohammed A. Madkhali[3], Abdullah A. Manni[3], Mohammed A. Alrezqi[3]

ABSTRACT

Background: One of the significant causes of death in the Kingdom of Saudi Arabia is road traffic accidents and sudden cardiac arrest. Basic life support (BLS) is a lifesaving intervention. Appropriate knowledge and awareness of BLS and cardiopulmonary resuscitation are essential for any healthcare students. The aim of this study was to evaluate knowledge, attitude, and awareness of pharmacy students towards BLS.

Methods: This cross-sectional study was conducted using an online self-administered survey, Pharmacy students from the second to the sixth years in the program (n = 605) were invited to participate in the study. The survey used for this study was based on a previous survey that has been validated and published already.

Results: We received 235 responses out of 605 invitations with a response rate of (38.84%). Mean age of the participants was 22.58 ± 1.54, 48.1% were males and 51.9% were females. Out of 235, 136 (57.9%) heard about BLS; academic year showed significance in hearing about BLS (p < 0.0001), 139 (59.1%) did not know the full form for automated external defibrillator (AED), 179 (76.2%) wrote down 911 as the emergency number, while 30 (12.8%) wrote it as 997.

Conclusion: Most of the participants' score was below average in knowledge; moreover, some of the participants never had BLS training before. This calls for immediate attention and we suggest that the BLS training program must be integrated into the college curriculum and updated at regular intervals.

Keywords: BLS, emergency medical services, pharmacy students, knowledge.

Introduction

Cardiac arrest and road accidents in the modern world are the most significant causes of death. Basic life support (BLS) providers may intervene early and decrease morbidity and mortality. Over the years, the BLS course was altered considerably to make it more useful for the general population. BLS is a significant element of cardiopulmonary resuscitation (CPR), which involves maintaining appropriate ventilation and circulation in the event of respiratory or cardiac arrest [1].

The adequate knowledge of BLS and CPR is crucial for ensuring that people can provide the needed life-saving interventions in emergencies [2,3]. Healthcare providers are expected to have a sound understanding of BLS as they encounter emergencies very often [4]. Healthcare providers should be sufficiently competent and confident to initiate CPR from the very beginning of their training. BLS training courses for all health care providers have been suggested in the USA since 1966 [5].

Correspondence to: Nabil A. Alhakamy
*Assistant Professor of Pharmaceutics. The Chairman of Pharmaceutics Department, Faculty of Pharmacy, King Abdulaziz University, Jeddah, Saudi Arabia.
Email: nalhakamy@kau.edu.sa
Full list of author information is available at the end of the article.
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The level of knowledge and attitude of health care providers varies, as evidenced by several studies carried out in various areas of the globe. In developed nations, demand for BLS classes is growing. However, training is not regularly practiced in underdeveloped and developing countries. A study undertaken in a hospital in Nepal revealed that there is insufficient understanding of CPR and BLS among medical and paramedical experts [6]. Another research conducted by Somaraj et al. [7] assessing dental intern in an Indian subpopulation, showed that there was an evident absence of understanding linked to medical emergency management

Current condition in Saudi Arabia has shown that health care providers have less understanding of BLS but an optimistic attitude towards BLS training. A study conducted at Qassim University by Al Mesned et al. [8] revealed that health care students and health care providers had insufficient knowledge toward BLS, which needs to be enhanced.

Another research by Alotaibi et al. [9] found out that there was insufficient knowledge toward BLS for dental students and employees. They also had favorable attitudes to acquire it. A study conducted among healthcare students at a Saudi women's university found that BLS knowledge and attitude among female students was unfortunate; however, there was still a favorable attitude towards BLS training [10].

To our knowledge, there is no current literature available on the knowledge and attitude of pharmacist students concerning BLS. Therefore, the objective of this research was to evaluate the knowledge, attitude, and awareness of pharmacist students toward BLS.

Methods

A cross-sectional study was conducted using an online self-administered survey to assess the knowledge of pharmacy students toward BLS and emergency medical services at a tertiary teaching hospital in Jeddah, Saudi Arabia.

Pharmacy students from the second to the sixth years in the program (n = 605) were invited to participate in the study from April 2019 to June 2019. Students from the first year were excluded because it is a preparatory year for them. Students were contacted via their emails (personal and institutional email) with a Google form link of the study. A reminding email was sent every week, to a total duration of 6 weeks.

The survey used for this study was based on a previous survey that had been validated and published already [11]. The 16-item questionnaire composed of four parts; demographic data, awareness toward emergency services, attitude toward BLS, and knowledge toward BLS. The cover page of the questionnaire highlighted that any participant's completion and submission of the surveys implied their consent. The survey did not include the name of the participants to maintain the confidentiality of the participants. Data were sealed with a password and were used for research purposes only.

The sample size (n = 235) was calculated using Raosoft with a 5% margin of error and a 95% confidence interval. Microsoft Excel® was used for data entry and the Statistical Package for Social Sciences Version 21 (SPSS Inc., Chicago, IL) for data analysis. The percentages were measured for all the survey questionnaire items. All statistical test results were considered significant if the p-value was ≤0.05. Data collection was stopped when 80% of the questionnaire surveys were completed, which is in compliance with the American Association of Public Opinion Research recommendations [12].

Results

We had 235 responses out of 605 with a response rate of 38.84%, the mean age of the participants was 22.58 ± 1.54 years, (48.1%) were males and 51.9% were females, the rest of the demographic data is seen in detail in Table 1.

Out of 235 students, 136 (57.9%) heard about BLS, academic year showed significance in hearing about BLS (p < 0.0001), 139 (59.1%) did not know the full form for automated external defibrillator (AED), 179 (76.2%) wrote down 911 as the emergency number, while 30 (12.8%) wrote it as 997, with mean awareness score of 1.81 ± 0.945 (score ranging from 0 to 4) (Figure 1).

***Table 1**. Baseline characteristics of the participants.*

Characteristics	N= 235 (%)
Gender	
Male	113 (48.1)
Female	122 (51.9)
Students' academic year	
Second year	34 (14.5)
Third year	47 (20.0)
Fourth year	63 (26.8)
Fifth year	57 (24.3)
Intern	34 (14.5)
Age (years)	(Mean±SD)
	(21.52±1.786)

N = Number of students, SD = Standard deviation.

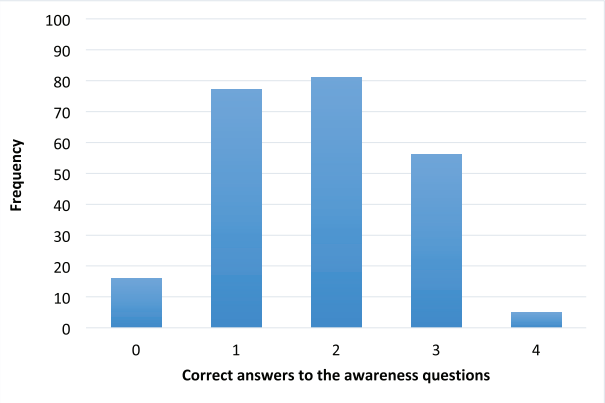

***Figure 1.** Awareness towards emergency services.*

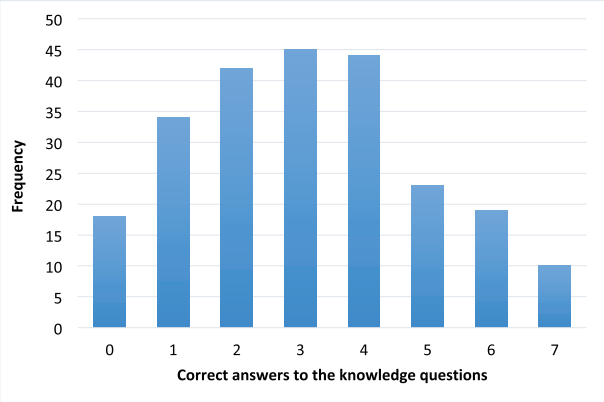

Figure 2. *Knowledge toward BLS.*

One hundred and thirteen (48.1%) participants had previous BLS training, significant with academic year ($p < 0.0001$), 156 (66.4%) and 138 (58.7%) wants more BLS training and think BLS training should be mandatory in the curriculum, with $p = 0.009$ and ($p < 0.0001$) in association with academic year, respectively.

About 120 (51.1%) participants knew the correct sequence of resuscitation in BLS, 145 (61.7%) picked the carotid artery to be felt in an adult patient, 133 (56.6%) believed to know the emergency drugs and their route of administration, 95 (40.4%) estimated the depth of compression for adults to be 4–5 cm, 127 (54%) chose 30:2 ratio of chest compressions to rescue breaths, 121 (51.5%) decided to attempt abdominal thrust on choking person, 71 (30.2%) graded their knowledge to be poor while 65 (27.7%) considered themselves average, all of which had significant relationship with academic year ($p = 0.001$, $p < 0.0001$, $p < 0.0001$, $p = 0.005$, $p < 0.0001$, $p = 0.002$, $p < 0.0001$), respectively, and the mean knowledge score was 3.10 ± 1.854 (score ranging from 0 to 7) (Figure 2).

Discussion

Research studies in Saudi Arabia have identified that the primary cause of death overall is road traffic accidents and sudden cardiac arrest [13,14]. BLS assistance is needed in all significant trauma and cardiac arrest to save lives in a pre-hospital setting.

The BLS program is intended to provide knowledge about several life-threatening emergencies to all healthcare providers as well as most of the people. It also shows training in providing CPR, using an AED, and relieving chokings in a timely and efficient way to deal with such emergencies.

Having extensive knowledge and skills about BLS is obligatory for all health care professionals. In the current situation, skills and outdated information about BLS are the primary issues [15,16]. All health institutions should, therefore, focus on the need to train BLS to all students and interns.

The mean score regarding awareness of BLS was 1.81 ± 0.945 with a score range of 0–4, which is slightly low compared to a study done on pharmacy interns with mean score of 2.64 ± 1.07 [11], this could be due to the fact that their research was done only on interns, as opposed to our study which was conducted on pharmacy students and interns.

The mean score about knowledge of the BLS course among our participants was 3.10 ± 1.854, with a score ranging from 0 to 7, which is slightly close to a study done on pharmacy interns [11], which was 3.88 ± 1.51. Half of our participants (51.1%) knew the correct sequence of resuscitation; these findings conflict with the results in after mentioned study, which stated that only 28.5% know the proper course.

Results showed nearly more than a half of the participants had positive attitude about BLS, similar to previous studies [6,11,17,18], and is associated with academic year, could attribute this finding due to more advancing in academic year means more clinical training, hospital and patient exposures, which will eventually lead to more knowledge regarding BLS, could be also the fact that some hospitals require BLS certificate as a requisite to practice at their facility.

Most of the respondents showed a favorable attitude towards extra BLS training, and believe that these extra sessions will assist them in updating their knowledge. When questioned about the inclusion of the BLS program in their course curriculum, 58% of participants responded favorably. The latest research has shown that integrated BLS training in the curriculum has shown a better outcome than external training [19], various authors have suggested that a BLS training program be integrated into the undergraduate curriculum to ensure early exposure to such a program for healthcare students [20,21].

In the present research, 37% of the total respondents were vague about why they did not receive BLS training, followed by time scarcity by about 30%; some say it is because the cost of the course and very few feel that BLS training is not necessary or they were not interested.

Approximately, 27% of the participants reported having average BLS knowledge. A relatively lot of respondents (30%) stated having poor knowledge scores.

BLS is mainly a practice-based course; we were limited to questionnaire survey and couldn't assess the actual practice of BLS. Second, we conducted the study on a single center, we recommend further studies on multiple centers to evaluate BLS awareness, knowledge, and attitude of the pharmacy students in Saudi Arabia.

Conclusion

Based on the findings of the research, most of the participants' knowledge score was below average and some of the participants never had a BLS course. This issue requires immediate attention. We suggest that the BLS training program should not only be included in the

pharmacy college curriculum but also updated at regular intervals.

List of Abbreviations

AED	Automated External defibrillator
BLS	Basic Life Support
CRP	Cardiopulmonary Resuscitation

Conflicts of interests

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding

None.

Consent for publication

Informed consent was obtained from all individual participants included in the study.

Ethical approval

This study was approved by the Institutional Review Board of King Abdulaziz University, Jeddah, Reference # 401-18, April 2019.

Author details

Nabil A. Alhakamy[1], Ahmad M. Zamzami[2], Fuad A. Bukhari[2], Faisal A. Bukhari[2], Omar A. Almash[3], Mohammed A. Madkhali[3], Abdullah A. Manni[3], Mohammed A. Alrezqi[3]

1. Department of Pharmaceutics, Faculty of Pharmacy, King Abdulaziz University, Jeddah, Saudi Arabia
2. Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia
3. Faculty of Pharmacy, King Abdulaziz University, Jeddah, Saudi Arabia

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