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10.4103/jfcm.JFCM_92_18

Knowledge and attitude of Saudi female university students about first aid skills

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Abstract:

BACKGROUND: First aid is the first and most essential life saving care that can reduce the morbidity of an individual in a health-threatening circumstance. The aim of this study was to assess the knowledge and attitude toward the provision of first aid among students attending Princess Norah University (PNU).

MATERIALS AND METHODS: A cross-sectional study was conducted at PNU in Riyadh, Saudi Arabia, from October 2017 to December 2017. A total of 1000 female students from 15 different colleges completed a self-administered questionnaire.

RESULTS: The mean age was 21 years (range 18-26); 36% study participants were from health colleges and remaining from other colleges. Only 34.7% had good knowledge, 57.5% had moderate knowledge, and 7.8% had poor knowledge on first aid skills. Analysis of knowledge in specific emergency situations showed that the students were more knowledgeable in cases of epistaxis, ingestion of toxins, burns, hypoglycemia, and loss of consciousness. However, they were found to be less knowledgeable in handling situations of seizures, choking, and snake bite. About 20.2% of the students had encountered situations where cardiopulmonary resuscitation was required and 65.3% of these students had not provided first aid because of the lack of knowledge, nervousness, and other issues. Good knowledge was associated with previous first aid training and being a student in a health college.

CONCLUSION: Overall, students had a positive attitude toward first aid; however, they still did not have the knowledge necessary to be able to act in emergency situations. There is a need for increased public health awareness. It is also advisable to introduce first aid courses in all universities and secondary schools.

Keywords:

Emergency medicine, first aid, knowledge, Saudi Arabia, students

Introduction

First aid is the first most essential care given to an injured or an ill individual in a life-threatening circumstance. A first aider should be able to evaluate and take control of the situation and make the effort to keep the injured or sick individual alive in the most ideal condition until medical emergency services arrive. First aid could reduce the demand on hospitals with the avoidance of hospital visits.

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The most potentially life-threatening injuries may show no apparent signs of bleeding; but by using a structured and organized approach to evaluation, these types of injuries can be identified, and lifelong complications avoided. This is achieved by applying the airway, breathing, and circulation (ABC approach) to all assessments.^[1,2]

Around 150,000 individuals die yearly in circumstances where medical aid could have kept them alive.^[3] Studies have shown that 35% of deaths occur the first 5 min after an accident, and 54% after the first 30 min,

How to cite this article: Halawani LM, Alghamdy SD, Alwazae MM, Alkhalayal WA. Knowledge and attitude of Saudi female university students about first aid skills. J Fam Community Med 2019;26:103-7.

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and that present at the accident's site before the arrival of paramedics in more than half of the emergency cases were witnesses.^[4] Provision of first aid such as cardiopulmonary resuscitation (CPR) or control of bleeding by these bystanders, could potentially limit further complications and save lives. In the US, 350,000 individuals die from cardiac arrest outside of the hospital every year. Receiving CPR from bystanders could save lives, but unfortunately, only 46% of people who suffer an out of hospital cardiac arrest get help from an individual who gave first aid. Every year, around 2500 asphyxiate from a blocked airway and 29,000 die from heart attacks. Recognizing medical emergencies and giving first aid immediately could save thousands of lives and reduce death rates by 20%.^[5,6]

Studies have been conducted to assess university students' level of knowledge of first aid. The conclusion was that the level of knowledge of first aid in the majority of the students was inadequate.^[7-9] Studies show that having a past first aid experience is associated with better first aid knowledge. Therefore, the studies concluded that their students showed poor knowledge and had a low level of previous first aid training.^[10,11]

A study in Riyadh concluded that 12% of the students encountered an emergency situation that required CPR. However, only 14% of them were able to perform it because of the lack of knowledge (48 2%).^[12] A study at Taibah University in Medina concluded that health science students lacked knowledge in basic first aid. However, 55% of the students knew how to manage emergency situations after an awareness program was established. This shows that teaching first aid in universities would have a significant impact on the level of knowledge and performance of students.^[13]

Princess Norah University (PNU) is known for its vast campus and facilities. The possibility of medical emergencies is high, so having the knowledge and skills to give first aid in daily life crises can save lives. Our future goal is to have a community where mortality is reduced by people who give first aid. To achieve this, we need to assess the basic first aid knowledge in our youth starting with the young women in PNU. Our aim in this study, was to assess the knowledge and attitude of students attending PNU toward providing first aid.

Materials and Methods

This cross-sectional study was conducted in the largest women's university in the world, PNU in Riyadh, Saudi Arabia, from October 2017 to December 2017. It has 1000 students enrolled in 15 different colleges of the university. To participate in the study, students had to be enrolled in one of the colleges of the university. The

target population size was based on 50% prevalence and 95% confidence interval. The sample size achieved was around 300 but was increased to 1000 to compensate for incomplete data. Participants were selected randomly from PNU students.

Ethical approval was obtained from the Institutional Review Board of PNU and informed written consent was taken from all participants. The study was conducted in accordance with the principles of the declaration of Helsinki. All participants were informed that the study was completely anonymous and voluntary, and all data collected would be kept confidential. Data were collected during college hours by means of self-administered questionnaire completed by students who had agreed to participate.

The self-administered questionnaire used to collect data was adapted from the British Red Cross^[14] to which a few newly constructed questions were added. The questionnaire comprised a total of 23 questions in 3 main parts, consisting of 2 open-ended and 21 closed-ended questions. It included demographics, assessment of students' attitude toward first aid and an assessment of the students' level of knowledge of first aid with multiple choice questions covering different emergency situations such as choking, fractures, epistaxis, burns, asthmatic attacks, poisoning, seizures, loss of consciousness, hypoglycemic attacks, bleeding, and snake bites. The questionnaire was translated into Arabic and to verify accuracy, the Arabic and English questionnaires were given to two faculty members in the university for revision. Some modifications were made and the questionnaire redrafted. A pilot study with 25 participants was done on using the Arabic version of the questionnaire, and the Cronbach's alpha $\alpha = 0.92$. Test retest (reliability) was done on 20 participants and the result was 0.95.

The data were coded, entered and analyzed using the SPSS version 23 (IBM SPSS Statistics for Windows, version 23 (IBM Corp, Armonk, N.Y, USA)) software. Descriptive statistics in terms of means were used to describe criteria of the studied sample. *T*-test was used to find out the association of sociodemographic variables with the level of knowledge on first aid. Value of $P < 0.05$ was considered statistically significant. Multiple regression analysis was done for the knowledge level and attitude of students with several variables such as age, educational level, previous first aid training, and college of enrolment.

Knowledge was scored according to their answers in the different emergency scenarios, those who gave 4 correct answers or less out of the 11 scenarios were considered to have poor knowledge and those who

gave 5–8 correct answers out of 11 were said to have average knowledge, and knowledge was good when the participants answered 9 or more questions correctly out of 11 scenarios. The minimum rank was 1.00 and the maximum rank was 11.00.

Results

A total of 1000 students aged from 18 to 26 years agreed to participate, with a mean age of 21. It was found that 36.1% of the participants were enrolled in health colleges that included; medicine, dentistry, pharmacy, nursing and health rehabilitation, and the rest were from other nonhealth colleges [Table 1]. The assessment of the general attitude of the participants showed that 98% of them believed that first aid training was a necessity, and 92% responded that all professions should be trained in first aid. In addition, only 35.5% of the students felt that the university encouraged them to have this training.

The knowledge of the participants on how to act in common emergencies with different scenarios was assessed. The results showed that only 34.7% had good knowledge, 57.5% had the average knowledge, and 7.8% had poor knowledge.

Analysis of knowledge in specific emergency situations showed that the students were more knowledgeable in cases of epistaxis, ingestion of toxins, burns, hypoglycemia, and loss of consciousness. However, in cases of seizures, choking, and snake bites they were found wanting [Table 2]. Moreover, the participants were asked if they had ever encountered a person in need of a CPR and 20.2% said yes, but 65.3% of those who had had not offered any assistance, 35.2% had not because they did not know how to do CPR 20.1% had been nervous 10% had other issues. Regarding the source of information on how to act in emergencies, 25.9% had drawn on previous first aid training, 24.7% had their information from the internet, for 20.2% the source of information was family and friends, 15.8% had their information from college lectures, and 11.8% from other sources [Figure 1]. In addition, the participants were asked if they knew the Saudi emergency number but 32.6% did not know. Correct answers overall were higher from students with previous training than those who had had no training ($P < 0.0001$). In addition, health college students had better knowledge than those from nonhealth colleges ($P < 0.0001$). The knowledge level and attitude of students were regressed as dependent variables. In Table 3, the regression of knowledge level with other variables demonstrated significance with a higher educational level, having been previously trained in first aid, and mostly being

Table 1: Distribution of study participants by college, PNU, Riyadh, 2017 (n=1000)

College	N (%)
Medicine	146 (14.6)
Pharmacy	58 (5.8)
Preparatory year	50 (5.0)
Computer science	75 (7.5)
Social science	222 (22.2)
College of science	93 (9.3)
Dentistry	28 (2.8)
Health rehabilitation	61 (6.1)
Nursing	49 (4.9)
Business management	50 (5.0)
Languages	56 (5.6)
College of education	56 (5.6)
Design	11 (1.1)
Literature	25 (2.5)
Physiotherapy	19 (1.9)

Table 2: Percentage of correct responses to various emergency situations by students of PNU, Riyadh, 2017 (n=1000)

Scenario	Percentage of correct answers	Percentage of wrong answers
Unconscious patient	73.4	26.6
Suffocation	67.8	32.2
Seizures	49.5	50.5
Epistaxis	84.6	15.4
Burns	81.2	18.8
Hypoglycemia	88.2	11.8
Asthma exacerbation	69.9	30.1
Snake bite	39.6	60.4
Fracture	69.4	30.6
Toxins ingestion	78.5	21.5
Bleeding	50.6	49.4

a healthy college student. However, the regression of attitude of students showed significance only with being previously trained in first aid and being a nursing student [Table 4].

Discussion

In 2012, the Saudi Ministry of Health reported that the majority of emergency cases (89%) seen in the emergency department were related to diseases such as ischemic heart disease, metabolic diseases, hypertensive crises, poisoning, and others. Furthermore, the total number of deaths that year of Saudis was 31,116, attributed mostly to ill-defined symptoms followed by circulatory system diseases, injuries, and poisoning.^[15] These statistics show that as a community there is need for trained individuals who would provide the necessary basic first aid care to limit further disability. Fortunately, the majority of the students at PNU are aware of the importance and necessity of training in first aid. In addition, most agreed that first aid training should not

Table 3: Multiple regression analysis - Effect of various factors on first aid knowledge among students at PNU, Riyadh, 2017

Variables	Slope (β)	Std. error	t	P-Value
Constant	8.300	0.944	8.791	<0.001
Age	-0.063	0.048	-1.297	0.195
Educational level	0.114	0.044	2.611	0.009
Previous training	-0.540	0.117	-4.630	<0.001
Medicine	2.498	0.189	13.189	<0.001
Pharma	1.858	0.285	6.510	<0.001
Preparatory year	0.756	0.270	2.798	0.005
Computer	0.623	0.225	2.770	0.006
Science	0.325	0.209	1.558	0.119
Dentistry	1.917	0.340	5.638	<0.001
Health and Rehabilitation	1.836	0.273	6.717	<0.001
Nursing	2.208	0.282	7.844	<0.001
Business management	0.340	0.264	1.288	0.198
Languages	0.107	0.253	0.424	0.672
Breeding	0.181	0.252	0.716	0.474
Design	0.743	0.516	1.441	0.150
Literature	-0.149	0.351	-0.424	0.671
Physiotherapy	1.892	0.447	4.232	<0.001
Engineering	2.243	1.676	1.338	0.181

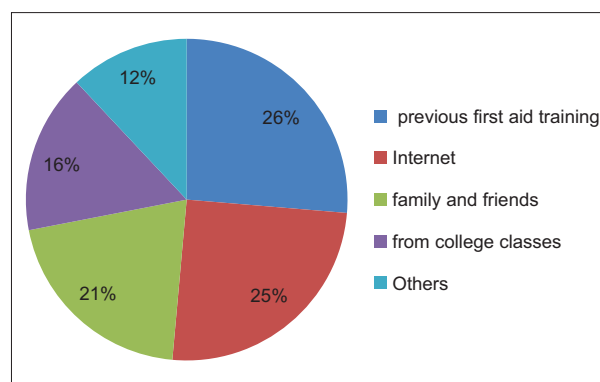
$R^2=0.327$, $F=26.499$, $P\text{ Value}=0.000$, $SSE=2711.080$, $n=1000$

Table 4: Multiple regression analysis - Effect of various factors on attitude towards first aid among students at PNU, Riyadh, 2017

Variables	Slope (β)	Std. error	t	P-Value
Constant	3.521	0.352	10.000	<0.001
Age	-0.006	0.018	-0.305	0.761
Educational level	-0.003	0.016	-0.175	0.861
Previous training	-0.181	0.043	-4.158	<0.001
Medicine	0.054	0.071	0.768	0.442
Pharma	0.040	0.106	0.372	0.710
Preparatory year	-0.066	0.101	-0.653	0.514
Computer	-0.104	0.084	-1.240	0.215
Science	-0.083	0.078	-1.068	0.286
Dentistry	0.177	0.127	1.396	0.163
Health and Rehabilitation	0.107	0.102	1.050	0.294
Nursing	0.210	0.105	1.998	0.046
Business management	-0.061	0.098	-0.626	0.532
Languages	-0.025	0.095	-0.265	0.791
Breeding	-0.171	0.094	-1.814	0.070
Design	-0.079	0.192	-0.413	0.680
Literature	0.001	0.131	0.011	0.991
Physiotherapy	-0.009	0.167	-0.054	0.957
Engineering	-0.688	0.625	-1.101	0.271

$R^2=0.053$, $F=3.049$, $P\text{ Value}=0.000$, $SSE=377.142$, $n=1000$

be a requirement for health professionals only. However, despite their positive attitude towards first aid and their awareness of its importance, this study showed that the students' level of knowledge of the provision of first aid was unsatisfactory; only 34.7% had good knowledge. These results are similar to those in different countries such as China, Shanghai^[16] Singapore^[17] and Jordan.^[18] Surprisingly, more than half of the students (65.3%) who had encountered a situation where CPR was required

**Figure 1: Sources of knowledge about first aid among students, PNU, Riyadh, 2017**

did not provide aid, 35.2% had not because they lacked the knowledge, 20.1% had been nervous and 10% had other issues. A similar trend in the US showed that bystanders did not perform CPR because they panicked (37.5%), 9.1% could not perform it correctly, 1.1% were afraid of hurting the patient.^[19]

Interestingly, when the students were asked what should be done in a case of a snake bite, 60.4% gave the wrong answer, 38.5% answered that they would suck out the blood out with their mouths. This can be due to common myths and cultural ideas here in Saudi Arabia. However, a study in China to assess knowledge of snake bites showed that a high percentage of their respondents said they would suck the venom out of the wound.^[19] This common misconception of such a dangerous ineffective method of dealing with snake bites should be addressed in future first aid sessions for students.

Having previous first aid training was strongly associated with having a good level of knowledge on how to deal with common emergencies. Similar trends were seen in Jordan^[18] and Pakistan.^[10] Another factor that influenced the level of knowledge was being a health science student, as they were more exposed to first aid courses and training.

PNU is known to support continuing education and self-improvement, yet only 35.5% of the students felt the university encouraged first aid training. The university provides first aid training courses; however, many colleges were not aware of them because of where they are held.

Recommendation

Announcements for the first aid courses should be made throughout the entire campus or preferably by adding first aid courses to each college's curriculum. This will be the first step in the training of persons in first aid to hopefully reduce the burden of the consequences of health-threatening situations. Awareness campaigns regarding the importance of first aid training should also be undertaken.

Conclusion

Overall, the students had a positive attitude towards first aid. However, they still did not possess the knowledge necessary to act in emergencies. There is a need for increased public health awareness of emergency first aid. We recommend the introduction of first aid courses in all universities and secondary schools in Saudi Arabia, starting with our largest women's university PNU.

Acknowledgement

The authors of this study acknowledge and thank the two medical students, Atheer AlMutairi and Hattan AlHabshan for providing their assistance in the data collection and Dr.Hala AlMorshedy for providing technical advice in the data analysis.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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