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First Aid Knowledge Among University Students in Jordan

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ABSTRACT

Background: This study has aimed to evaluate the level of knowledge about the first aid process among the university students in Jordan.

Methods: The study population consisted of students of the 14 scientific and unscientific faculties at Yarmouk University, Jordan. Data were obtained via questionnaires from 883 students.

Results: The majority of participants were females (65.9%) with mean age (standard deviation) of 19.9 (2.6) years. Only 29.2% of students had previous first aid experience. When asked, only 11% of students knew the normal respiration rate of an adult in 1 min. Results revealed that female students, having previous first aid experience, and being a student of the health sciences and scientific colleges were the only factors had significant statistical associations with better level of first aid knowledge.

Conclusions: The students' knowledge about first aid is not at an adequate level. It would be advisable that first aid course be handled as a separate and practical course at secondary school level.

Keywords: First aid, knowledge, university students

INTRODUCTION

Accidents and injuries are part of daily events, and many of these injuries are initially treated by untrained personnel due to lack of health care providers on the accident site. These accidents and injuries can cause serious consequences if not dealt with properly. Therefore, implementing correct first aid measures is vital for victims in emergency cases and helps to improve the overall outcome of the first aid process in emergency situations. The National First Aid Science Advisory Board defined first aid as making an assessment and implementing interventions that can be performed by a bystander (or by the victim) with minimal or no medical equipment.[1] However, this implementation requires certain levels of both knowledge and practice.

Several studies have been conducted around the world to evaluate the level of knowledge about first aid among different groups including university students. Some studies showed that a high percentage of students in different countries lack the appropriate first aid knowledge.[2-6] Similarly, different studies showed that the immense majority of peoples had little or no first aid training.[7-9]

Many factors had been shown to be associated with better knowledge, including taking a first aid course during school,[4,5] having a driving license, or having a higher level of education.[8]

Few reports assessing the first aid knowledge were carried out in Arab countries[6,10-12] and most of them reported

that university students have poor levels of first aid knowledge. To the best of researcher's knowledge and experience, no studies have been conducted about general first aid knowledge in Jordan. This gives the research a unique importance in building the cornerstone of the research background in the Jordanian context. It has been reported that Jordan faces a serious and alarming traffic accident problem.[13] Therefore, first aid basics will equip persons around the injured person to reduce the danger posed by the accident and can make the difference between life and death in these situations. Hence, the current study has aimed at evaluating the level of knowledge about first aid process among university students in Jordan.

METHODS

Study design and participants

This cross-sectional study was conducted among university students in the large public university in the north of Jordan using simple random sampling and involved administering a questionnaire. The study included 1500 students from the total 14 colleges at Yarmouk University, Jordan between September and December of 2014. Inclusion criteria for participation involved: Be an enrolled student at Yarmouk University and be a Jordanian citizen.

Study instruments and variables assessment

A new questionnaire was specifically built to collect data in this study. The newly drafted questionnaire was presented to a reviewer panel composed of three members for refinement and re-wording of questions to ensure that statements were understandable and meaningful to the participants, and to ensure that the questionnaire consistently measured what it was intended to measure. Reliability of the surveying instrument was determined by using the internal consistency method. After administering the questionnaire used in this study, the responses to all domains were statistically tested for internal consistency. Cronbach's alpha coefficients for all domains were produced and ranged from 0.77 to 0.91 indicating that the items within each domain are consistent in measuring the same attribute.

The final questionnaire was composed of four sections: Demographic characteristics of students (7 items), general first aid knowledge (6 items), first aid knowledge in various emergency situations (17 items), and attitudes toward first aid education (2 items). The total number of questionnaire items was 25 questions in addition to the 7 demographic characteristics.

To ensure maximum representativeness, questionnaires were handed out to students during the general university requirement classes in which students from all faculties and specializations are registered after getting permission and obtained 15 min out to fill the questionnaire. Participants completed a multiple-choice questions and questions required short answers on their level of knowledge about first aid.

Statistical analysis

All data were analyzed using SPSS (Version 20 for Windows) (SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp). Frequency distribution and descriptive criteria were calculated. Questionnaire responses were compared using Chi-square. $P < 0.05$ was considered to indicate statistical significance in all cases. The study was approved by the Ethics Committee at the faculty of Medicine/Yarmouk University, Jordan and granted the number 30/2014.

RESULTS

A total of 1500 questionnaires were distributed to students of which 1116 (74.4%) were returned. About 20% of the returned questionnaires were incomplete for which they had to be excluded, leaving a total of 883 questionnaires valid for statistical analysis.

Of the 883 questionnaires included in the final analysis, 34.1% participants ($n = 301$) were males and 65.9% ($n = 582$) were females. The average (standard deviation) age of members of the sample group was 19.9 (2.6) years. Most of the respondents were undergraduates (99.3%, $n = 877$) compared with only 0.7% ($n = 6$) postgraduate students. Only 29.2% of the students had previous first aid experience.

The majority of students were studying at literary colleges (59.3%), 31.4% of scientific colleges, 6.3% of physical education college, and the remaining 2.9% were studying in health sciences.

In the general knowledge domain, which asked about the correct civil defense call number, vital signs normal values or limits, and the normal blood sugar, students were more knowledgeable about normal body temperature and the civil defense call number. The percentage of students who reported correct answers about vital signs and other general information are described in Table 1.

About 80% of students gave correct responses of the normal body temperature, however, less than half of students knew the normal pulse rate (48.2%) and normal blood sugar values (46.5%). Only a small percentage of students knew the respiration rate and normal blood pressure values. However, none of these associations was found statistically significant.

The overall knowledge of first aid in different emergency situations has revealed that participants were more

knowledgeable when asked about the position of patients in cardiopulmonary resuscitation (CPR) and care in case of bleeding; however, they were least knowledgeable when asked about the correct position in coma situations and care of stabbing wounds. Participants' correct responses about the care of victims in various emergency situations are shown and ranked in Table 2.

Only gender, faculty, and having previous first aid experience were significantly associated with first aid knowledge. Female students were more knowledgeable than male students in all aspects of first aid knowledge which revealed significant statistical associations.

Table 3 describes the significant associations between the previous experience of students and correct responses of their level of first aid knowledge.

Having previous first aid experience was significantly associated with a better level of first aid knowledge among students when they were asked about vital

signs (body temperature, pulse, respiration, and blood pressure), correct position in case of coma, correct site of doing cardiac messages, how to check pulse in case of coma, burn care, and care in stabbing wounds.

With respect to faculty background, several significant statistical associations have been revealed. These associations are described in Table 4.

Remarkably, health sciences students were more knowledgeable about first aid care in all emergency situations. However, students from the scientific colleges were more knowledgeable than students from other colleges when asked about the correct emergency call civil defense number.

The last two questions in the questionnaire asked students whether the media in Jordan offer enough information about the care or first aid for the situations mentioned in the questionnaire and whether students think that first aid course and training should be handled at secondary schools in Jordan. About three-quarters of students thought that the media does not offer enough first aid information, and about 97% of students believed that first aid course and training should be handled at secondary schools.

DISCUSSION

No similar studies evaluating the level of first aid knowledge among university students in Jordan exist so far. Results of the current study reveal the inability of the majority of the students surveyed to provide efficient first aid in emergency cases. Even with respect to simple

Table 1: Frequency and percentage of students who reported correct answers about vital signs and other general information as per gender

Variable	Male frequency (%)	Female frequency (%)	Total frequency (%)	P
Civil defense call number	218 (72.4)	453 (77.8)	671 (76.0)	0.07
Body temperature	236 (78.4)	474 (81.4)	710 (80.4)	0.28
Pulse rate	156 (51.8)	270 (46.4)	426 (48.2)	0.12
Respiration rate	30 (10.0)	66 (11.3)	96 (10.9)	0.53
Normal blood pressure values	56 (18.6)	129 (22.2)	185 (21.0)	0.21
Normal blood sugar values	129 (42.9)	282 (48.5)	411 (46.5)	0.11

Table 2: Frequency and percentage of students who reported correct answers about the care of victims in various emergency situations as per gender

Emergency knowledge/situation	Male frequency (%)	Female frequency (%)	Total frequency (%)	P
CPR position	202 (67.1)	433 (74.4)	635 (71.9)	0.02
Spinal fracture care	187 (62.1)	443 (76.1)	630 (71.3)	0.000
Bleeding care	175 (58.1)	370 (63.6)	545 (61.7)	0.11
Epistaxis position	130 (43.2)	350 (60.1)	480 (54.4)	0.000
Number of cardiac messages in CPR	130 (43.2)	312 (53.6)	442 (50.1)	0.003
CPR surface nature	134 (44.5)	267 (45.9)	401 (45.4)	0.70
Check respiration	125 (41.5)	270 (46.4)	395 (44.7)	0.16
Coma care	98 (32.6)	239 (41.1)	337 (38.2)	0.01
How to check pulse in coma	110 (36.5)	220 (37.8)	330 (37.4)	0.71
Burn care	114 (37.9)	211 (36.3)	325 (36.8)	0.63
Myocardial infarction signs	95 (31.6)	229 (39.3)	324 (36.7)	0.02
Where to do cardiac message	75 (24.9)	214 (36.8)	289 (32.7)	0.000
CPR messages to respiration ratio	87 (28.9)	179 (30.8)	266 (30.1)	0.57
Bone fracture care	83 (27.6)	160 (27.5)	243 (27.5)	0.97
Number of respiration in CPR	66 (21.9)	152 (26.1)	218 (24.7)	0.17
Stabbing care	50 (16.6)	164 (28.2)	214 (24.2)	0.000
Coma position	77 (25.6)	123 (21.1)	200 (22.7)	0.13

CPR=Cardiopulmonary resuscitation

Table 3: Significant associations between previous experience of students and correct responses of their level of first aid knowledge

Variable	Have previous experience *n* (%)		No previous experience *n* (%)		*P*
	Correct	Incorrect	Correct	Incorrect	
Body temperature	221 (85.7)	37 (14.3)	489 (78.2)	136 (21.8)	0.01
Pulse rate	144 (55.8)	114 (44.2)	282 (45.1)	343 (54.9)	0.004
Respiration rate	49 (19.0)	209 (81.0)	47 (7.5)	578 (92.5)	0.000
Normal blood pressure values	77 (29.8)	181 (70.2)	108 (17.3)	517 (82.7)	0.000
Coma position	71 (27.5)	187 (72.5)	129 (20.6)	496 (79.4)	0.02
Where to do cardiac message	98 (38.0)	160 (62.0)	191 (30.6)	434 (69.4)	0.03
How to check pulse in coma	118 (45.7)	140 (54.3)	212 (37.4)	553 (62.6)	0.001
Burn care	112 (43.4)	146 (56.6)	213 (34.1)	412 (65.9)	0.009
Care in stabbing wounds	74 (28.7)	184 (71.3)	140 (22.4)	485 (77.6)	0.04

Table 4: Significant associations between faculty of students and percentages of correct responses of their level of first aid knowledge

Variable	Scientific colleges/ correct responses %	Literary colleges/ correct responses %	Sport (physical education) college/correct responses %	Health sciences college/ correct responses %	*P*
Civil defense number	81.6	74.8	64.3	65.4	0.01
Body temperature	85.2	78.2	73.2	88.5	0.03
Pulse	63.5	39.3	44.6	73.1	0.000
Respiration	14.1	7.6	10.7	42.3	0.000
Blood pressure	27.4	15.6	26.8	46.2	0.000
Blood sugar	49.1	42.4	57.1	80.8	0.000
Coma position	29.2	19.7	28.6	66.9	0.000
Site of cardiac messages	39.0	29.2	21.4	61.5	0.000
Check respiration	46.9	41.8	50.0	69.2	0.02
How to check pulse in coma	33.9	36.8	48.2	61.5	0.01
Care in spinal fracture	68.2	73.9	58.9	80.8	0.04
Care in stabbing wounds	24.9	24.4	10.7	42.3	0.01

questions (e.g., normal values of the pulse, respiration rate, the number of mouth-to-mouth ventilation or chest compressions in CPR), there are a large number of students, even among those trained in first aid, presenting serious lacks of basic first aid knowledge.

Interestingly, students were less knowledgeable about the correct respiratory rate in an adult in 1 min. Only about 11% of the participants knew the correct respiratory rate. However, respiration is one of the most crucial vital signs of an individual. Similarly, Al-Khamees (2006) reported that university students in Kuwait have poor levels of first aid knowledge.

Results revealed that female students were more knowledgeable than males about first aid measures. This result is supported by the results of an Indian study,[3] which revealed that 11.5% of male students and 15.4% of female students had a good level of knowledge on first aid measures.

Having previous first aid experience was strongly associated with better first aid knowledge of students.

This result is consistent with the results of a Turkish study.[2] Furthermore, in Greece, Hatzakis *et al.* supports this result showing that trained industry workers on first aid were more knowledgeable than nontrained workers.[9] A similar trend was noted among university students in Pakistan.[4,5] Moreover, a study conducted in Austria demonstrated that the monstrous greater part of individuals had next to zero first aid preparing and that there was an immediate relationship between the level of emergency treatment preparing and the nature of first aid measures taken by the general population who attended accidents.[7]

Students from the health sciences and scientific colleges had better first aid knowledge compared to students of literary and sport colleges. In Jordan, joining health sciences or scientific colleges requires students to get higher averages in the high school which indicates the better academic performance of those students. This notion may explain the difference in knowledge between the health sciences and scientific colleges from one side and students from other colleges on the other

side. However, in general, knowledge among students of health sciences is quite surprising. Students from health sciences should be more knowledgeable. However, in fact, health sciences college is just starting at Yarmouk University, and the last batch of students is still in the 1st year during which general university requirements are taught rather than core health sciences courses. Therefore, the low study year may explain this lack of knowledge among students of health sciences college.

Strengths and limitations

Despite the relatively large sample size ($n = 883$), the researcher acknowledges the limitation of this study regarding reliable generalization of results to the whole population of university students in Jordan as the total participants in this particular study were sampled from a single university.

CONCLUSIONS

Overall, first aid knowledge among students at Yarmouk University was considered to be insufficient. To decrease the early mortality and morbidity of accidents and emergencies, first aid should be a standard component and separate course of educational programs introduced at secondary school and college levels as well as in the media. Furthermore, first aid course should be updated at regular intervals throughout different study levels.

The knowledge deficit of first aid measures among university students is evocative that only a minority of people have adequate emergency treatment preparing.

It is suggested that all adults should be able to administer first aid since everyone is expected to experience emergency situations at any time. Therefore, further studies are necessary to maintain adequate training strategy in Jordan.

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