RESEARCH ARTICLE

Knowledge towards first aid among Faculty of Health Sciences students

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Abstract:

Having knowledge related towards first aid in each individual person is important in terms of helping people in emergency situation since injuries are one of the leading causes of morbidity and mortality worldwide. As the occurrence of emergencies has gradually increased in recent years, it is essential to make sure that individuals, including university students, are knowledgeable and adequately trained to deal with such measures. The objective of this study is to determine the level of knowledge towards first aid among students from the Faculty of Health Sciences of UiTM Selangor, Puncak Alam Campus. A quantitative cross-sectional survey with stratified random sampling study was conducted among 313 students. Data were collected using a self-administered questionnaire. A total of 39.78% of participants had a moderate level of first aid knowledge. 61.6% of the participants had experienced taking first aid courses and they significantly have high level of knowledge as $p<0.001$.There are significant associations between sociodemographic and the level of first aid knowledge in term of gender, courses and first aid training experience. Students from the Faculty of Health Sciences at UiTM Puncak Alam Campus demonstrated a moderate level of knowledge about first aid. The university should take a key role in promoting the importance of first aid education among its students.

Keywords: emergency, first aid, health science, knowledge

1. INTRODUCTION

First aid is an emergency treatment given to injuries at the occurrence of accidents and various emergency situations before regular treatment from the medical professionals take place. First aid is not a full medical treatment as it only needs some simple equipment. The purpose of first aid is to stabilize the victims which may help prevent the injury from worsening due to infection or other complications. Accidents and injuries are common, and University students are exposed to these injuries through their daily activities such as driving on the road, and during sports and recreational activities. The injuries related to road traffic crashes increase steadily every year although many rules and regulations had been implemented which includes the usage of AES camera technology, and enforcement of speed limit in accident prone areas. To deal with this situation, the implementation of First Aid skills is one of the best solutions.

According to the National First Aid Science Advisory Board, first aid should be learned by every person, for this it is necessary, that first aid training and education should be provided to everyone. Road traffic accidents for example, have become a major cause of mortality among Malaysian populations including university students. People aged between 15 to 44 years old contributes about 48% global road traffic death (WHO, 2022). First aid knowledge is vital for everyone, as it can save lives during emergencies. Injuries are a leading cause of illness and death globally. With the increase in emergencies, it is crucial that individuals, including university students, are well-trained to respond. This study evaluates the first aid knowledge of students from the Faculty of Health Sciences at UiTM Selangor, Puncak Alam Campus.

2. MATERIALS AND METHODS

2.1 Research design

A quantitative cross-sectional study was applied to describe through numbers, percentages, and averages of the target population in this study as well as to accurately obtain the data and achieve the specific objectives of this research study. The questionnaire was distributed randomly to the students and they were given adequate time to answer all the survey questionnaire regarding knowledge of First Aid.

2.2 Sample selection

The study was conducted among the Health Science students of UiTM Selangor, Puncak Alam Campus. Stratified random sampling was applied in this study to achieve a total of 313 participants.

2.3 Sample size

The sample size (N=315), was calculated based on the previous study, Hong Kong Red Cross (2011) by using Raosoft online calculator. To apply this formula, we chose a 5% of margin error and a 95 % confidence interval.

Furthermore, the response distribution was set at 50%, which gave a larger sample size for this research.

The Raosoft formula used in calculation of the required sample size is as below:

$$x = Z(^{c}/_{100})^{2}r(100-r)$$
$$n = N\,x/((N-1)E2 + x)$$
$$E=\mathrm{Sqrt}[^{(N-n)x}/_{n(N-1)}]$$

Where,
N: the population size
r: fraction of responses that we interested in
Z(c/100): the critical value for the confidence level c.

2.4 Questionnaire

The questionnaire used in this study consists of two parts. (Jamaludin et.al., 2018) . Which are Part A and Part B. The 5 questions in part A elicited socio-demographic data, and 10 questions in part B were related to first aid knowledge. The levels of first aid knowledge were determined using Three-point Likert scale, which is a powerful assessment tool employed to gauge the intensity of opinions, attitudes, and perceptions within a given survey or research context. Participants were categorized as having high levels of first aid knowledge if their scores were 70% or higher. Participants were classified as having intermediate levels of knowledge if their scores were between 50% and 70% and classified as having low levels of first aid knowledge if their scores were below 50%.

2.5 Data Collection

Each student was given detailed explanation on the structure of this study and all information regarding students was kept confidential. All students agreed and volunteered to participate and provide all the necessary information with honesty. They signed the consent form before they proceed with answering the questionnaire. This study was approved by the Ethics Committee, Faculty Research Ethics Committee (FREC), Universiti Teknologi Mara (UiTM) [FERC/FSK/MR/2019/0013].

2.6 Statistical analysis of the data

Data entry and statistical analysis for this study were calculated using Statistical Package for the Social Science (SSPS) version 21. Descriptive data analysis were used to evaluate and determine the frequency, mean, standard deviation and standard error means. A one-way ANOVA test was used to test level of knowledge and association between gender and levels of first aid knowledge. The results were stated in percentage (%). Alpha of 0.05 was set as the significant level for this study. The results were considered significant if the p-value was less than 0.05.

3. RESULTS AND DISCUSSION

3.1 Sociodemographic data

Table 1 shows the sociodemographic characteristics of the students. The ages of the students studied are various and ranging between 20 and 40 years old. The majority of the participants were aged from 18 to 22 (207 students, 65.7%) and only 2 participants aged more than 30(0.6%).

Table 1: Demographic characteristic of the students, N = 315

	Variables	Frequency (n)	Percentage (%)
Gender	Male	112	35.6
	Female	203	64.4
Courses	Nursing	42	13.3
	Medical Laboratory Technology	40	12.7
	Environmental Health	44	14.0
	Medical Imaging	41	13.0
	Physiotherapy	40	12.7
	Occupational Therapy	31	9.8
	Optometry	42	13.3
	Nutrition and Dietetic	35	11.1
Level of Education	First year	96	30.5
	Second year	109	34.6
	Third year	63	20.0
	Fourth year	47	14.9
Age	18-22	207	65.7
	23-25	99	31.4
	26-28	7	2.2
	30 >	2	0.6

Taking First aid course	Yes	194	61.6
	No	121	38.4

Participants were also classified by their year of study at UiTM Puncak Alam Campus. This showed that 96 (30.5%) of the participants were year 1 students, 109 (34.6%) were year 2 students, 63 (20%) were year 3 students, and 47 (14.9%) were year 4 students. The majority of the participants were year 2 students, while the minority were year 4 students. From 315 participants 203(64.4%) were female and the rest are male. Undergraduate students were chosen randomly from each course to represent their population.

Participants were also categorized into two group which are those who had taken, or were taking, first aid courses and those who had never attended any first aid courses. Most of the participants had already taken at least one first aid course (194, 61.6%).

3.2 Knowledge of students towards First Aid.

Based on Table 2 , the majority of participants (n=125, 39.7%) had moderate level of first aid knowledge, while 97 (30.8%) had high level of first aid knowledge, and 93 participants (29.5%) had a low level of knowledge.

Table 2: Percentages of students by their level of knowledge towards First-aid

Level of Knowledge	Frequency	Percentage
High (> 70%)	97	30.8
Moderate (50%-60%)	125	39.7
Low (> 50%)	93	29.5

3.3 Association between level of first aid knowledge with Sociodemographic characteristics

One-way ANOVA test was used to test for an association between gender and levels of first aid knowledge (Table 3). Based on the one way ANOVA test, the level of first aid knowledge differed between genders with a p-value of less than 0.05. Thus, at least one pair of means differ significantly. Post hoc testing is not needed for this study because there were only two groups.

Additionally, association between level of first aid knowledge with course of study was also tested. The ANOVA test was performed to look for mean difference between course of study and their level of knowledge.

Table 3: ANOVA table for Level of First Aid Knowledge and Sociodemographic characteristics (n=315)

Sociodemographic characteristic	Mean (SD)			*F*	Sig
Gender Male Female	3.430	1	3.430	5.830	0.016
Course	9.932	7	1.419	2.452	0.018
Year of Study	3.012	3	1.004	1.692	0.169
First-aid course experience	18.051	1	18.051	33.334	0.000

The analysis revealed the mean scores and standard deviations of first aid knowledge across different student groups. Nursing students had a mean score of 1.64 (SD = 0.656), while Medical Laboratory Technology students had a mean score of 1.70 (SD = 0.723). Environmental Health students had a mean score of 1.93 (SD = 0.818), and Medical Imaging students had a mean score of 1.85 (SD = 0.760). Physiotherapy students reported a mean score of 1.83 (SD = 0.675), Occupational Therapy students had a mean of 1.94 (SD = 0.854), and Optometry students had a mean score of 2.12 (SD = 0.861). Nutrition and Dietetic students had the highest mean score at 2.20 (SD = 0.719).

Levene's test for equality of variances indicated that the assumption of equal variances was met ($p = .109$). The ANOVA test showed a significant difference in first aid knowledge between groups, $F(7, 314) = 2.452$, $p = .018$, indicating that at least one pair of means was significantly different. Post hoc analysis using Tukey's test revealed that Nursing students had significantly higher first aid knowledge compared to Nutrition and Dietetic students ($p < .05$). However, there were no significant differences in first aid knowledge between Nursing students and students from other courses.

These results suggest that while first aid knowledge levels differ among students in different courses, Nursing students possess significantly higher knowledge compared to those in Nutrition and Dietetics. However, no significant

differences were found between Nursing students and students from other health-related programs. This highlights a potential need for targeted educational interventions to improve first aid knowledge, particularly among students in programs like Nutrition and Dietetics.

To investigate the association between year of study and level of first aid knowledge among students, the one way ANOVA was used. Result of the test show no significant difference. The F value was 1.692 and the degrees of freedoms were 3 and 314, with a p-value of 0.169, >0.05. Regarding the first aid training, most of the participants (61.6%) had taken training before, with mean of 1.71 and standard deviation of 0.721. However, 121 students had not taken first aid training previously, with a mean of 2.20 with 0.760 for standard deviation. The F-value was 33.334 and the degrees of freedom were 1 and 314. The p-value of this test was 0.00, <0.05. Hence, at least one pair of means differs significantly.

The present study focuses on the knowledge of Faculty of Health Sciences of UiTM Selangor, Puncak Alam Campus students towards First Aid. All the students have successfully completed the questionnaire without difficulty. At present, there are many similar researches that used undergraduate students as their subjects. However, the difference between the participants was in the students' study background or field of study. As an example, study by Al-Khamees targeted kknowledge and management of first-aid skills between medical and non-medical students at King Saud University, (Al-Khamees, 2006). In their study it was shown that 44.05% (n = 89) of medical students and 32.02% (n = 64.7) of non-medical students had a high level of knowledge about first aid, which was considered to be unsatisfactory. A statistically significant association was found between being a medical student and having a high level of knowledge about first aid (Suhail et al., 2022). Assessment of knowledge towards first aid skills of epilepsy among undergraduate health students in Riyadh province of Saudi Arabia concluded that most undergraduate health students demonstrated poor knowledge scores in delivering seizure first aid (Abdulrahman et al., 2024). A study conducted at the International Islamic University of Malaysia (IIUM) used students from health sciences field or medical related students as their subject (Jamaluddin et al., 2018). In another research regarding first aid knowledge conducted by Swetha et al (2015) specifically used nursing students as the subject of study. Khan et al, (2010) used undergraduate students from many types of field as their research subject such as students from Art college, Engineering college, Business college and Medical college. Apart from undergraduate students, study on the level of first aid knowledge was also done to kindergarten teachers (Ameya., 2018) and secondary school students (Mobarak., 2015). There is also a study that target the school teacher (Joseph., 2015).

For this study, Health sciences students were selected to be the participant. Selection of health sciences students as the subject for this is inspired by a research in IIUM that focused on undergraduate of Nursing, Medicine, Dentistry, Allied Health Science and Pharmacy students. This study showed that most of the student have moderate level of knowledge related to First Aid. Thus, the level of knowledge toward First Aid among undergraduate of Health Sciences student in UiTM Puncak Alam should be tested too. The study in IIUM becomes the main reference because the study at the institution is the only published research related to First Aid knowledge done in Malaysia. Most studies related to first aid knowledge is done in Middle East countries and India where the academic methods and socio demographic data are different from Malaysia.

Knowledge of Students Related to First Aid.

In this study, more than half of the participants were female, reflecting the trend in Malaysian public universities, where female students are over-represented and often outperform male students in exams, leading to higher university enrollment rates (Ismail et al., 2015). Over half of the participants had prior first aid training, likely due to UiTM's policy requiring first-year students to take uniform body courses and Health Sciences students to engage with the Malaysian Red Crescent until their third semester. The study found that 39.7% of students had moderate first aid knowledge, 30.8% had high knowledge, and 29.5% had low knowledge, which aligns with findings from IIUM (Jamaludin et al., 2018). Other studies, particularly in Arab countries and India, reported lower levels of first aid knowledge among students (Khatatbeh et al., 2016; Khan et al., 2010). Although this research did not assess students' attitudes, previous studies suggest that Health Sciences students generally have positive attitudes toward first aid, possibly due to the healthcare-related nature of their courses (Jamaludin, 2018; Khan et al., 2010). However, some research on nursing students in India found negative attitudes toward first aid (Khan et al., 2010).

Association Between Sociodemographic Characteristic and Level of Knowledge Towards First Aid

Khatatbeh et al. (2016) found that several sociodemographic factors, such as having a driver's license, school-level first aid courses, and higher education, were linked to increased first aid knowledge. In this study, gender, course, and first aid training experience significantly influenced knowledge levels, with female students showing greater knowledge, supported by Jamaludin et al. (2018) and Khatatbeh et al. (2016). Nursing students had the highest

knowledge, likely due to their healthcare exposure, as also noted by Swetha et al. (2015). However, no significant difference was found between year of study and first aid knowledge (Joseph et al., 2014). Students with formal first aid training consistently demonstrated better knowledge than those without, echoing findings from Khan et al. (2010) and Jamaludin et al. (2018).

4. CONCLUSION

The students of Faculty of Health Sciences of UiTM Puncak Alam Campus had moderate level of knowledge towards First Aid. The university must play an important role in spreading the value of first aid education among students. Although the subject is already covered in the university curriculum, it is not for all categories of students. This should be a required course for all students in all courses.

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