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A comparative evaluation of first aid knowledge and attitude among medical, dental and pharmacy students in AIMST University, Malaysia

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Abstract

Background: First Aid is regarded as a basic set of skill vital in order to save a life in an urgent situation. The evaluation of level of first aid skills in health science students is pertinent to determine if first aid training is being sufficiently provided.

Aim: To assess the level of knowledge and attitude in providing first aid care by health science students from the faculty of Medicine, Dentistry and Pharmacy in AIMST University.

Methodology: A cross-sectional study conducted on a sample of 222 students from the faculty of Medicine, Dentistry and Pharmacy using a validated optional questionnaire related to first aid.

Results: In terms of knowledge, overall the medical students manage to record the most correctly answered question in comparison to dental and pharmacy students. The p-value calculated was less than 0.05 hence noting that there is a significant difference in terms of knowledge between the 3 faculty. However the p-value obtained for the attitude was more than 0.05 citing no significant difference in attitude among the students from the 3 faculty.

Conclusion: From the results we can conclude that the First Aid Knowledge amongst health science students in AIMST can be improved. The study also showed that the students have a positive attitude towards first aid.

Keywords: First aid, knowledge, attitude, medical students, dental students, pharmacy students

1. Introduction

First aid comprises a variety of easy, yet vital, life-saving skills and techniques performed on an injured person in any life-threatening condition, prior to them receiving professional health care. It is defined as the assessments and interventions that can be performed by a bystander (or by the victim her/himself) with minimal or no medical equipment. A first-aid provider is someone with formal training in first aid, who is not necessarily a healthcare worker^[1].

Thousands of lives are lost each year in situations where first aid could have made the difference, which include around 2,500 who asphyxiate from a blocked airway and 29,000 who die from heart attacks. Intervention of first aid would have made a dramatic difference, in the case of choking, or by recognizing life-threatening signs in the case of heart attack, and caring for someone injured until medical help arrives. Equipped with this knowledge of first aid we can all be the difference between a life lost and a life saved. The future health care providers in the community are students of health science colleges. Health science student generally in their early years of studying are expected by general public to know how to do first aid to an injured patient and save lives^[2]. First aid is not difficult, it needs a good attitude and a few simple steps with adequate knowledge and skills that make anyone deal with any accidents.

Literature search showed, many studies have been performed, worldwide, to assess the level of medical students' knowledge in providing first-aid care. A study was conducted at King Saud University to assess first-aid knowledge amongst medical students^[3]. Another study was also done in Mangalore City in South India knowledge of First Aid Skills Among Students of a Medical College^[4]. But no study has been done to compare the knowledge of first aid among three pillars of health professional's i.e medical, dental and pharmacy in Malaysia. The objective of the present study is to evaluate the knowledge and attitude towards first aid among final year students of medical, dental and pharmacy.

2. Material and methods

This study was a questionnaire-based study conducted on 222 final year students during June-August 2018. The study protocol was reviewed by the Ethical Committee of AIMST University and ethical clearance was obtained. A written consent was obtained from the study participants after explaining about the aim of this study. A validated optional questionnaire concerning first aid was distributed cross sectionally among the 75 final year students from each faculty composed of medical (FOM), dental (FOD) and pharmacy (FOP) within the AIMST University. The questionnaire included 15 closed ended questions which were multiple choice questions on topics about burn, bleeding, choking, fracture, nasal bleeding, seizure, poisoning, asthmatic attack, cpr and loss of consciousness. Any incomplete filled questionnaire was excluded from the study. The data were coded, entered and processed on a computer using SPSS "Version 19, IBM Corp, United States". Data was summarized using percentages, mean, and standard deviation. A chi square test was used to analyze categorical data and ANOVA test was used for variable analysis. p value of < 0.05 was considered to indicate a statistical significance.

3. Result

The total respondents in this research are totaled to 222. Of the 222, majority of the bunch are female which accounts for 62.6% (139) and the rest 37.4% (83) are males. The students included of 3 faculties with 33.3% (74) from pharmacy faculty, 32.9% (73) from dental faculty and lastly 33.8% (75) from medical faculty. Table 1 shows the questions asked to the respondents and the percentage of correct answer by each disciple. Table 2 shows the total score knowledge levels with respect to first aid procedures. The total mean value for the knowledge levels of the 3 faculties is 3.93. The highest mean are respondents from medical faculty with a value of 5.01 followed by dentistry and pharmacy with 3.44 and 3.32 respectively. The table 3 shows that the data collected were calculated using the one way ANOVA to determine the p value for the levels of knowledge of the 3 faculties. Of which a value of 0.000 (p value > 0.05) is obtained for the p value which concludes that there is a significant difference in knowledge between the 3 faculties. In Part II of the questionnaire, Questions 11 to 15 (table 4) were asked to assess the attitude regarding first aid using the Likert scale which ranges from strongly agree, agree, no comment, disagree, strongly disagree. Table 5 shows the total mean value for the attitude levels of the 3 faculties is 20.95. The highest mean obtained are the respondents from the dental faculty with 21.16 followed by pharmacy and lastly medical with 20.97 and 20.72 respectively. Table 6 shows the data collected were calculated for significance using the one way anova to determine the p value for the levels of attitude of the 3 faculties. Of which a value of 0.459 (p value > 0.05) is obtained for the p value which concludes that there is no significant difference in attitude between the 3 faculties.

4. Discussion

In this study, we assessed the first aid knowledge amongst 222 undergraduate students from the Medical, Dental as well as the Pharmacy faculty of AIMST University with a survey consisting of 10 questions regarding first aid knowledge. Such similar studies have also been done before in UAE^[5]. In the present study, none of the participants had complete knowledge on first aid. Similar results were seen in studies conducted in other parts of the world. Lack of knowledge

could be attributed to lack of training or differences in methods of teaching as well as decreased retention of matter of first aid course after certain period.

In this study, the knowledge of knowing the correct emergency contact number in Malaysia was higher amongst medical students whom recorded a total 92% answered correctly against dental students whom recorded 79% and pharmacy student with 77%. This may be due to the fact that medical students are exposed to frequent hospital postings which increase the awareness of emergency contact in comparison to dental and pharmacy students.

For the second question, a total of 21.1% answered correctly pertaining to accidental choking by a foreign body in this study, which was much lower compared to 43.6% cases in the Karachi based study^[6]. 29% medical students, 16% dental student and only 9% of the pharmacy student answered correctly. This shows that medical students are more prepared to manage choking incidents compared to dental and pharmacy students.

Next question was to assess the knowledge of students in managing epistaxis. Students from FOM, FOP and FOD of AIMST University manage to score 42.8% answer correctly on how to manage epistaxis which is lower compared to 43.6% in Karachi based study^[6]. Among all the results collected FOM has the most percentage of correctly answered of 55% which accounts for 41 people on how to stop a nose bleeding. FOP records 40% (30 people) of correct answers whereas FOD is the least amongst the 3 faculty with 33% (24 people). This may be due to the deeper knowledge on handling the medical emergencies by the medical students.

Question 4 was assessing the respondents on how many minutes required cooling a burn with cold water. The first aid management of burns was answered correctly by 73.6% students in this study, as against 23.2% in an Irish study^[7], 13.8% in south Indian study and 32.6% in Kuwait University^[8]. In this study, we can hypothesize that Malaysian are knowledgeable and encounters this situation more than the other countries. FOP answered correctly with a percentile of 42% followed by FOD with 38% and FOM with 36%. The idea behind cooling the burn will reduce pain, swelling and the risk of scarring. The faster and longer a burn is cooled with cold running water, the less the impact of the injury.

For the question regarding the correct ratio of chest compression to rescue breath for use in CPR of an adult casualty was assessed. The sample of our research scored a whopping 95% correct answers from FOM followed by 37% from FOD and 31% from FOP for the correct ratio of chest compression to rescue breaths in CPR. This proves that students from FOM are taught better in CPR compare to the other 2 faculty. This is mainly because they are medical students and are exposed earlier in CPR techniques in their syllabus. The take home message is that knowing the exact compression-ventilation ratio is extremely important, as it ensures that the proper time is allowed for coronary arteries to circulate blood.

In this study, the failure to determine the first and foremost step in administering Basic Life Support (BLS) can put victim in a danger therefore the fact that a high percentage of responders answered wrongly in the correct order to administer BLS is concerning. FOM recorded the lowest percentage of failure to answer correctly which is 67% in comparison to FOD with 84% and FOP with 93%. Overall a total of 80% of the responders failed to answer correctly in par with the study done in Qassim University^[9] which has 75% failure to identify activating Emergency Medical Service

(EMS) as the action to take immediately. Furthermore, an even higher proportion of the responders failed to identify activating EMS as the appropriate action to take immediately after confirming the unresponsiveness of an adult, yet this is necessary to provide the critical advanced life support equipment in a crucial time.

The correct steps to take when someone splashes a chemical into the eye was assessed among the 3 faculty, FOM recorded yet again the highest correctly answered of 31% in steps to manage a chemical splash in the eye. A similar study was done in UAE ^[5] which accounted 63.8% of the medical student who responded correctly. In comparison between the numbers for both studies, medical students in UAE are more equipped with the knowledge to handle a chemical splash in the eye compared to students in Malaysia. This may be due to the lower cases clerked in hospitals in the region of our study. The responders from FOD accounted for 29% of correctly answered and FOP with the lowest of 19%. This may be due to the lack of medicine exposure in pharmaceutical students as they have lesser postings to hospitals than dental and medical students.

In this study, the knowledge of student regarding the speed of chest compression was tested. From the total of 222 respondents, 76 answered correctly which accounts to 34%. This figure is comparatively lower than a similar study done in Qassim University ^[9] which is 54%. The comparison between the three faculties with higher percentile of correct answers starts with FOM followed by FOP and FOD. The speed of chest compressions is important in order to push blood around the body. Chest compressions performed slowly are unlikely to be effective. This trend of higher percentage of correctly answered question by FOM followed by FOP and FOD shows that there is a need to educate the students from Faculty of Dentistry on the knowledge of First Aid.

A real life situation question was asked ‘Your colleague is complaining of breathlessness and a tight pain in the chest. What should you do?’ This question was asked mainly for assessing the confidence of the students in managing a real-life situation rather than just testing their knowledge on First Aid. The respondents can imagine someone who are closest to them and have to perform the necessary steps to save them. This situation is closely related to cardiac arrest. During a heart attack the heart is put under immense strain, sometimes failing altogether. One important step during treatment is to take as much pressure off the heart as possible. Help the conscious patient to rest in the position of greatest comfort, generally in a half-sitting position with support for the back and head. This ensures that they are resting and takes the strain off their body. The half sitting position is the safest position if cardiac arrest occurs. The casualty will collapse instantaneously, so this position will result in fewer injuries. FOM has the most percentage of correctly answered of 51%. FOP records 45% of correct answers whereas FOD is the least amongst the 3 faculty with 36%.

In addition, question regarding the knowledge of students of handling a case where someone drank caustic agent was asked. Among all the 222 respondents, a score of 29.3% correct answer is obtained which is higher than similar studies done in South India ^[5] which is 15.8%. The most accurate answer was by drinking milk, FOM once again scored the highest which is 35% follow by FOD which is 33% and lastly FOP which is 20%. The score is very close among students

from the medical and dental faculty this might be the students more aware in handling this situation compare to pharmacy students.

The table 2 as shown above is a data tabulation of knowledge level of each of the 3 faculties with respect to first aid procedures using the one way ANOVA. From the table, it is shown that students from the medical faculty achieved the highest mean number of correct question out of 75 students which is 5 out of a total of 10 questions asked during the survey compared to dentistry with a mean of 3.4 and pharmacy with a close 3.3 with respective 73 and 74 students in total. This can conclude that medical students are more knowledgeable when it comes to first aid procedures in comparison to dentistry and pharmacy students. This could be due to the fact that medical students have more exposure to the first aid training syllabus and are required to possess such skills compared to pharmacy and dental students.

From the table 3, the p value obtained for the correctly answered question 1 to 10 for all 3 faculties is 0.000. If the p value obtained is less than 0.005 then there is a significant difference between the components calculates hence there is a significance difference between the knowledge levels of students from the 3 faculties. In terms of attitude, for question 11 which asks if it is crucial to learn first aid knowledge in daily life, majority of the students from all 3 faculties strongly agrees that it is crucial to learn first aid knowledge in their daily life. This could be due to the nature of these students who are in the course of health science to possess basic first aid skills. Question 12 which assess whether first aid training should be taught to you during undergraduate studies, again majority of the students from all 3 faculties strongly agrees. This may be due to the high possibility of these students encountering such situation in the clinic and public which requires immediate reaction hence the need to be able to perform and have adequate first aid knowledge and skills.

“Learning first aid is very difficult and complicated” was asked next and most of the respondents from all 3 faculties have no comment regarding this question. Question 14 asking “Is it the responsibility of health science professionals to save life and perform life and first aid” gathered a majority respond of agreeing to this statement. Reason could be due to the sufficient training and knowledge they have received during undergraduate studies as well as their pledge to save life when they encounter a situation which threatens a person’s life. Lastly, question 15 asking “If I have adequate first aid knowledge and skills, I will perform first aid to the people in need” garnered a respond of majority agreeing to this statement.

According to table 5, the data analyzed for all 3 groups in terms of attitude shows that the dentistry student has a higher mean value amongst the 3 faculties which shows that dental students have a positive attitude towards first aid. Pharmacy students record 2nd highest and medical student with the lowest mean for the attitude regarding first aid. This could be due to the fact that first aid procedures are more included in the syllabus of medical students. The p value obtained for the attitude of the overall respondents towards the survey is shown in table 6 which is of 0.459 hence concluding that the attitude between the students of 3 faculty has no significant in this survey. This could be due to the importance of first aid knowledge and skills in the life of a health science professional.

4.1 Table

Table 1: Part I: Questions number 1 to 10 are MCQ which the respondents were asked to choose the most appropriate answer for.

Questions	Fop (%)	Fod (%)	Fom (%)
Q1. What is the emergency contact number in Malaysia?	77	79	92
Q2. When helping an unconscious choking victim, you would give an adult __ back blows and __ abdominal thrusts.	12	22	29
Q3. What will you do to stop nose bleeding?	40	33	55
Q4. For how many minutes (minimum) do you cool a burn with cold water?	42	38	36
Q5. Which is the correct ratio of chest compressions to rescue breaths for use in CPR of an adult casualty?	31	37	95
Q6. What is the correct sequence when helping somebody who has lost consciousness?	9	16	33
Q7. What is the correct step to take when someone splashes a chemical into the eye?	19	29	31
Q8. What speed of chest compressions should you aim for CPR?	36	21	45
Q9. Your colleague is complaining of breathlessness and a tight pain in the chest. What should you do?	45	36	51
Q10. What will you do if you witnessed a person drink caustic agent?	20	33	35

Table 2: Shows the mean value of knowledge scores among three faculties

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
pharmacy	74	3.3243	1.58856	.18467	2.9563	3.6924
dentistry	73	3.4384	1.58102	.18504	3.0695	3.8072
MBBS	75	5.0133	1.54652	.17858	4.6575	5.3692
Total	222	3.9324	1.74634	.11721	3.7014	4.1634

Table 3: shows the calculated p value of knowledge scores between the 3 groups using One way ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	132.811	2	66.406	26.873	.000
Within Groups	541.175	219	2.471		
Total	673.986	221			

Table 4: Part II: Questions 11 to 15 were asked to assess the attitude regarding first aid using the likert scale.

Q11. It is crucial to learn first aid knowledge in daily life.
Q12: First aid training should be taught to you during undergraduate studies.
Q13: Learning first aid is very difficult and complicated.
Q14: It is the responsibility of a health science professional to save life and perform first aid.
Q15: If I have adequate first aid knowledge and skills, I will perform first aid to the people in need.

Table 5: Shows the mean scores with respect to the attitude levels amongst three faculty students regarding first aid.

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
pharmacy	74	20.9730	2.02026	.23485	20.5049	21.4410
Dentistry	73	21.1644	2.16675	.25360	20.6588	21.6699
MBBS	75	20.7200	2.31073	.26682	20.1883	21.2517
Total	222	20.9505	2.16769	.14549	20.6637	21.2372

Table 6: Shows the calculated p value for attitudes in the 3 groups of respondents

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.362	2	3.681	.782	.459
Within Groups	1031.093	219	4.708		
Total	1038.455	221			

5. Conclusion

The future health care providers in the community are students of health science colleges. Based on our research, we can conclude that the First Aid Knowledge amongst health science students can be improved. This should be complemented with practical training or activities in order to increase the students' experiences and confidence in practical procedures. There should also be periodic reinforcements to enhance retention. Hence, if a compulsory formal first aid session is introduced into the curriculum, it will provide students with adequate knowledge and practical skills as proven by a United Arab Emirates based study [5].

From this study, we can also deduced that students from the three aforementioned faculties had a positive attitude towards first aid and believes that it is a pertinent and important skill to have in their lives. More studies should be conducted among the general population to evaluate and create awareness of first aid in our society.

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