A Study on The Clinical Medical Students' Awareness of Cardiopulmonary Resuscitation- A Comparative Study Between Syrian Private University and Damascus University

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Research Article

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Abstract

Background:

The importance of this research lies in that it sheds light on a significant medical issue, that is clinical medical students' awareness of cardiopulmonary resuscitation, as well as comparing this awareness between two major universities in Syria, namely Damascus university and Syrian Private university (SPU). The purposes of this research are to determine the knowledge score on this issue, indicate its importance in practical life, reveal the weak cognitive points, and compare this awareness between the two universities, in an attempt to correct the defect and restore the deficiency in order to achieve a healthier and safer life.

Materials and Methods:

A cross-sectional study was conducted on a sample of clinical medical students at both Damascus university and SPU, by randomly publishing a questionnaire among these students over a period of time spanning from 24/10/2023 to 7/1/2024.

Results:

The sample included 445 students, most of whom were at Damascus university with a percentage of 64% and 58.9% of the sample were female. The results have showed that knowledge score at Damascus university is higher than that at SPU, with the first recording 7.35 points out of 10 and the latter recording 4.15

Conclusion:

This study reveals the number of flaws in the awareness of cardiopulmonary resuscitation among medical students, who are supposed to be the most educated people on this extremely important medical procedure; since correct knowledge and application of it in the appropriate time can help save the lives of many people.

Introduction

Cardiopulmonary resuscitation (CPR) is a lifesaving which is useful in many emergencies. Cardiopulmonary resuscitation is essential in cases of suffocation, near-drowning, electrocution injuries, heart attacks, or any other situation in which a person's breathing or heartbeat has stopped. This involves a combination of rescue breathing and chest compressions, which keep oxygenated blood flowing to the brain and other vital organs until more definitive medical treatment can restore a normal heart rhythm. When the heart stops, the absence of oxygenated blood can cause irreparable brain damage in only a few

minutes. Death will occur within 10 minutes. Time is critical when helping a person in cardiopulmonary arrest. The earlier CPR is performed, the greater the chance of a successful resuscitation. Cardiopulmonary resuscitation is one link in what the American Heart Association calls the "chain of survival". The chain of survival is a series of actions that, when performed in sequence, will double a cardiac arrest victims' chance of survival.3 Modern CPR was developed in the late 1950's and early 1960's. The discoverers of mouth-to-mouth ventilation were Elam and Safar. Later, Kouwenhoven et al discovered the benefits of chest compressions. Finally, both techniques were combined to formulate CPR similar to the way it is practiced today. [1]

Methods

The study was a cross-sectional survey among male and female medical students at the University of Damascus and the Syrian Private University, which was conducted on the university campus in the period from 10/24/2023 to 1/7/2024. The students were selected based on criteria that included young age and the possibility of exposure to situations. Where CPR was required, a pre-structured, anonymous questionnaire consisting of 19 questions was prepared and supported by a fee for performing CPR to collect the required data. Before filling out the questionnaire, the purpose of the study was explained, and verbal consent was obtained from all students participating in the study. The inclusion criteria were medical students at the Syrian Private University and the University of Damascus, males and females registered in the Faculty of Medicine. There were no exclusion criteria. Questionnaires were distributed randomly to the students through electronic questionnaires and some personal interviews. The questionnaires inquired about personal information and knowledge. About cardiopulmonary resuscitation, the sources of this knowledge, skills and interest in cardiopulmonary resuscitation. It also included hypothetical questions and suggestions about appropriate means to increase community awareness of cardiopulmonary resuscitation. After excluding incomplete questionnaires, the sample consisted of 445 students. After completing the data collection, it was reviewed, organized, tabulated, and analyzed. Statistically using the Statistical Package for the Social Sciences, version 28, the Chi-square P value was used when necessary. The P value < 0.05 was considered statistically significant.

Results

Among the 445 students included in the survey, 58.9% were females, 41.1% were males, 64% were students from Damascus University and 36% were from Syrian Private University. The average age was 22.4 ± 1.6, and they were all Syrians. The average university students' grades reached 78.55% with a deviation Standard 12.30%, where the lowest university average for the sample was 21% and the highest average was 99%. It also shows that the data does not follow a normal distribution because the P-value is smaller than 0.05. 56% of the students attended a cardiopulmonary resuscitation course, and only 8.3% of the course was organized by the university for the students, and only 4.6% of them had the course mandatory to complete their study plan. 89.5% of the students attended the course in both its theoretical and practical parts, only 7% theoretical, only 3.5% practical, and it was found that 58.7% of the students

were able to save a person suffering from a stroke. Cardiopulmonary resuscitation outside the hospital and 41.3% are unable. 90.65 of the students find that there is a difference between performing CPR on adults/children/infants. The most common sign among students to identify a person in cardiac arrest by regular rescuers is 100% non-response. Of the rest of the signs, the two signs most known by students are lack of response and lack of 100% normal breathing, and likewise the three signs most known by students are lack of response, lack of normal breathing and lack of pulse 100%.

The average university percentage average for students at the Syrian Private University is 69.32, while the average for students at Damascus University is 83.65. When studying the difference between the two universities, it turns out that the significance of the test is smaller than the significance level of 0.05, meaning that there is a real, statistically significant difference between the averages of students at Damascus University and the Syrian Private University, given By averages, it turns out that the difference is in favor of the University of Damascus, meaning that the university percentage average for Damascus University students is substantially greater than the university percentage average for students at the Syrian Private University.

There are no real significant differences between the students of the two universities regarding the fact that the course is compulsory to complete the course and how many years have passed since you attended the course, as the significance value of the test is greater than the 5% significance level.

While there are real significant differences between the students of the two universities with regard to attending a cardiopulmonary resuscitation course, was the course that you attended organized by your university as part of your course of study, is the course theoretical or practical, and is this course considered sufficient to be able to intervene in the event of a cardiac arrest outside the scope of health care, as the test significance value is less than the 5% significance level.

When comparing the students of the two universities for all questions related to cognitive awareness of the principles of cardiopulmonary resuscitation, it was found that there were real differences with moral significance, as the test significance value was smaller than the 5% significance level.

To compare the level of knowledge between the two universities, each correct answer to the ten awareness questions was given a point, bringing the total to ten points.

It turns out that the average level of knowledge for Damascus University students is 7.35 out of 10 compared to 4.15 for Syrian Private University students (i.e. 73.5% for Damascus University and 41.5% for Syrian University). This means, according to the research evaluation, that knowledge at Damascus University is average, while at Syrian Private University it is weak.

Discussion

Our study clearly indicated that there were apparent differences in students' knowledge of cardiopulmonary resuscitation between the two universities, with the knowledge level remaining generally

low in both universities.

The results of the survey indicated that the largest percentage of students who attended a course on cardiopulmonary resuscitation were from Damascus University, with 81.9% of participants compared to 18.9% from the Syrian Private University, noting that most of them responded that this course was not organized by their university and was not obligatory. It included both practical and theoretical aspects.

However, it is worrying that the majority of students who attended the course from the University of Damascus do not consider it sufficient to intervene in the event of a heart attack in front of them, as 85.7% of those who answered no were from the University of Damascus compared to 14.3% from the private Syrian university.

However, when they were asked whether they felt they were able to save a person suffering from a cardiac arrest, the largest percentage of those who answered yes was for Damascus University students (74.3%).

Turning to the questions about awareness of the principles of resuscitation, awareness in general was better among Damascus University students. When answering the obvious question whether there is a difference between cardiopulmonary resuscitation for adults and children, the majority of those who answered there was no difference or (I do not know) were from the Syrian Private University with a percentage of 75.0. % and 61.8%, respectively.

As for knowledge of the survival rate of a person who suffered a cardiac arrest outside the hospital if cardiopulmonary resuscitation was provided to him, 77.7% of those who knew that it was 491 out of every 1,000 were from the University of Damascus, compared to 22.3% from the Syrian Private University.

Likewise, 82.4% of those who know that a person's chance of surviving a cardiac arrest decreases by about 18–20% every minute that CPR is not performed were from the University of Damascus, compared to 17.6% from the Syrian Private University.

Also, with regard to knowing how to apply cardiopulmonary resuscitation, the results were similar, as those who knew that the correct rate of chest compressions versus ventilation is 30:2, that the correct depth of each compression is (5–6) cm, and that the correct compression rate ranges between (100–120) compressions per minute most of them were from Damascus University, 78.9%, 77.3%, and 74.2%, respectively.

As for the theoretical level of knowledge, we find that the difference between the two universities has diminished somewhat. Of those who knew that the most common cause of heart attack among adults is myocardial infarction, 67.6% were from the University of Damascus and 32.4% were from the Syrian Private University, noting that most of the students are in both universities. Choose the correct answer. This may indicate that medical students may be more familiar with the pathophysiological aspects of

cardiac arrest than they are prepared to actually engage in CPR maneuvers. Knowledge of these matters has been as high as 91% in other international studies. [2]

Moving on to an important question about how to deal with one of the most common cases encountered by the public, which is suffocation, the gap between the two universities has widened again. Among those who knew that if the patient can cough, we are satisfied with just monitoring, the percentage of Damascus University students was 84.9%, while the percentage of Syrian University students was 15.1. % Just! Although a good number of students from both universities answered incorrectly that we perform 5 blows on the back or abdomen or examine the mouth to remove the foreign body, this indicates that medical students - especially at the Syrian Private University - are not completely sure how to deal with suffocation, which It was recently highlighted in a single-center study in Egypt. [3]

When comparing these results with studies conducted in a number of European countries, the results were worse for the results of the University of Damascus regarding a person suffering from choking and coughing, where only 34.9% knew that we are content with observing without doing anything 1431, but they are better than the results of the private Syrian University.

As for the use of an automated external defibrillator (AED), more than half of those who knew that an AED must be used immediately when available from the Syrian Private University, in contrast to the rest of the questions, were 55.6% compared to 44.4% from Damascus University.

This percentage of knowledge in our study was somewhat low compared to the percentage indicated by international studies, where the average percentage of knowledge about the timing of using an automatic defibrillator was 69.7% among students. This percentage ranged between (30.8% in Kosovo, 31.5% in Molva, 44.4% in Bosnia, and the highest percentage is 91.3% in Germany).[2]

Damascus University students also constituted the largest percentage of students who correctly identified the AED code according to the American Society, at 79.6%.

Likewise, the largest percentage of those who were aware that ventricular fibrillation is the only shockable disorder compared to sinus tachycardia, pulseless electrical activity, and asystole were from the University of Damascus, at 74.0%, compared to only 26.0% from the Syrian Private University. What is most disturbing is that a large percentage of Students at the Syrian Private University stated that pulseless electrical activity and asystole are shockable at a rate of 73.7% and 67.6%, respectively, compared to 26.3% and 32.4%, respectively, at the University of Damascus.

It appears that the main reason for this little knowledge of cardiac arrest and associated life-saving techniques among students in general and Syrian Private University students in particular is the presence of a large percentage of students who did not attend the BLS course, most of whom were from the Syrian Private University. In fact, knowledge was higher among students who attended the course compared to students who did not attend it.

Also, the fact that the sample of Syrian Private University students constitutes about half of the sample of Damascus University students may have contributed to some extent to this result.

However, this alone cannot explain the problem, as knowledge appears to be insufficient even among those who have attended a BLS course. Possible explanations for this are:

1- Because the courses are not standardized and do not follow international recommendations, there is a significant percentage of students who attended the BLS course and answered wrong answers to a number of questions, perhaps as a result of a number of courses not adhering to the instructions recommended by the European or American Resuscitation Council. [4–5]

2- The courses focus on the theoretical aspect more than the practical aspect, as students' knowledge of practical information was less than theoretical information in general. This problem can be overcome by using high-accuracy simulation systems, as they have been proven to effectively increase the quality of CPR training.

3- Many students attend a BLS course in the first years of their studies, and the practical CPR skills they have learned quickly deteriorate within just a few months. Therefore, students must constantly update their knowledge through annual retraining courses.

Conclusion

our study indicates that knowledge of the principles of cardiopulmonary resuscitation among medical students at the Syrian Private University is less than among students at Damascus University in the clinical years, with knowledge being insufficient among students of the two universities in general.

In conclusion, it appeared that the cognitive level of the Damascus University student was higher than that of the Syrian Private University student, as the percentage for the Damascus University student was 7.35 out of 10 compared to 4.15 for the Syrian Private University student.

Declarations

Ethical approval:

Ethical approval was obtained from the Institutional Review Board (IRB), Faculty of Medicine, Syrian Private University.

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Availability of supporting data:

The data that support the findings of this study are available from the Corresponding author, upon reasonable request.

Competing interests:

The authors declare that they have no competing interests.

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Not applicable.

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