

# ASSESSMENT OF THEORETICAL AND PRACTICAL FIRST AID KNOWLEDGE AMONG SENIOR STUDENTS IN MEDICAL COLLEGES IN THE GOVERNMENTAL UNIVERSITIES IN SULAIMANI CITY



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## ABSTRACT

### *Background*

Life is characterized by uncertain twists and turns and risky conditions that come out all the time. First aid is the instantaneous action taken to save a life and lessen the effects of injury and illness until medical help is procured. This study aims to assess the knowledge regarding first aid among undergraduate senior students in the governmental medical colleges in Sulaimani city.

### *Objectives*

This study aims to assess the knowledge of theoretical and practical first aid among senior students in governmental universities in Sulaimani city.

### *Subjects and Methods*

Data were obtained via a questionnaire from 157 students. Collected data were tabulated using Microsoft Excel 2013, and all data analyses were done using SPSS version 16.0.

### *Results*

The overall percentage of correct answers was 71.5%, and 28.5% with insufficient knowledge. The highest percentage of correct answers belonged to students from the College of Nursing 38.5%. A significant difference was found among students who had taken first aid courses and/or lectures previously when compared to those who had not, but there was no significant difference between those who work as health professionals and those who do not.

### *Conclusion*

The level of knowledge and awareness of first aid is satisfactory among the senior students, yet further compulsory first aid training programs with practical activities are needed, with more significant and less limited research studies.

**Keywords:** *First aid, Theoretical knowledge, experimental knowledge, Theoretical and Practical Exam, Medical students*

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## INTRODUCTION

First aid comprises various life-saving skills and techniques performed on an injured person in any critical and fatal conditions before 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 <sup>(1)</sup>, Providing emergency treatment and promotion of recovery in minor incidents where applicable can help to decrease the victim's chance of mortality and prevent the condition from deteriorating <sup>(2,3)</sup>.

The importance of first-aid knowledge is becoming increasingly apparent to medical students as they encounter many medical situations in their daily lives outside the hospital that require first-aid intervention to limit the extent of the injury or to improve victim status before medical intervention. Medical college students at some point are taught how to handle emergencies in a hospital emergency setting where the necessities are available. However, the adequate knowledge required for handling an emergency without a hospital setting at the site of an incident or emergency may not be enough <sup>(4,5)</sup>.

Studies show that the knowledge of first aid among medical students has always been a neglected subject. Hence, it should not be surprising to note that even junior Physicians at certain hospitals cannot perform the first aid skills sufficiently. Well-trained medical students should be able to assess the situation and provide care to the victim <sup>(6,7)</sup>.

Many studies have been performed, worldwide, to assess the level of medical students' knowledge in providing first aid care <sup>(8)</sup>. The objectives of this study were thus to assess the senior medical students' knowledge regarding first aid and to identify the emergencies where there is a lack of knowledge.

## METHODS

The research design of a study outlines the basic approach that researchers use to answer their research question <sup>(9)</sup>, To meet the aims and objectives of the study the researcher must select the most appropriate design for achieving the aims of the study <sup>(10)</sup>.

This study has both qualitative and quantitative design, conducted for 157 students in the last stage of different

medical colleges for 24 days (from 12<sup>th</sup> November to 5<sup>th</sup> December) to evaluate their knowledge about first aid measures.

The study was conducted in the medical colleges in the Governmental universities in Sulaimani city, both University of Sulaimani, which is located near Zanko Street, next to Sulaymaniah Teaching Hospital, and Sulaimani Polytechnic University, located in Chwarchra Qtr. The colleges include nursing, Medicine, Pharmacy, and Dentistry College at the University of Sulaimani, and the colleges of the Anaesthesia and Medical Laboratory Department at Sulaimani Polytechnic University.

Parahoo defines a population as "the total number of units from which data can potentially be collected". The population for this study is defined as senior students in medical colleges. The total number of students who participated in answering the questionnaire is 157. 47 students in Nursing college, 9 in Pharmacy, 28 in Medicine, 21 in Dentistry, 27 in Anaesthesia, and 25 students in Medical Laboratory Department <sup>(10)</sup>.

The questionnaire was self-administered i.e. it was answered by the respondents themselves, no interview was taken place. The questionnaire was both mailed and given in person to the class representatives by the researchers and was told to distribute them to all of the senior students after the end of their lectures in their colleges in the university. The respondents took it home and were told to return it within a week. Answering the questionnaire was tested to take approximately 20 minutes.

All necessary directions were given to the prefects and were also mentioned on the 1st page of the questionnaire. In the end, the questionnaires were either retrieved by the researchers or given back by the class representatives. According to Parahoo <sup>(11)</sup>, data analysis is "an integrated part of the research design". With this in mind, we have used the most proper and effective data analyzers. Collected data were entered/ tabulated using Microsoft Excel 2013 and statistical analyses were done using SPSS version 16.0.

## RESULTS

From November to December of 2019, 157 students participated in data collection divided into two universities (Figure 1) and seven colleges (Table one), the highest rate of participating students among nursing students (47 students, 29.94%), while the lowest rate from pharmacy college (9 students, 5.73%). Throughout

this chapter the figured-out data are analyzed and presented systematically in tables and charts that correspond to the objectives of the study as follows:

According to the study some of the students had the experience of working in a hospital, which makes them much efficacy in practicing first aid procedures, Table 2 presents that 73.25% of the respondents do not work in a hospital setting as a health professionals, and 26.75% of participants are currently working in the medical fields, either registered or as a volunteer.

#### **Students who have received First Aid Courses and/or Lectures**

The study shows that: fourth of the students (25.48%) have not received any First Aid courses nor lectures inside or outside the university, while 74.52% of the respondents have received lectures and courses about First Aid. Receiving proper lectures and effective training courses are important because they will affect and increase the individual's level of knowledge regarding first aid (Figure 2).

#### **Basic Theoretical Knowledge Exam Results**

A basic theoretical exam conducted to assess the knowledge of students regarding first aid and its principles, as previously mentioned it is consists of 10 theoretical multiple-choice questions. The study illustrated generally most of the students passed the exam 74%, whereas 16% were failed (Table 3). It also Figured out the rate of passed students according to each university and specific college, it manifests that 82/105 University of Sulaimani students passed the exam along with 34/52 students at the Sulaimani Polytechnic University, with 23/105 students in the University of Sulaimani failing the exam, following 18/52 Polytechnic University students. This shows that almost one-third of the students at Polytechnic University have failed the exam, while about one-fifth of the University of Sulaimani has failed the exam.

#### **Theoretical knowledge exam results concerning the colleges**

Concerning the colleges, Table 4 shows that 42 Nursing students have passed the exam, along with 15 from the College of Dentistry, 22 from the College of Medicine, 3 from Pharmacy College, 9 from the Medical Laboratory Department following 25 students from the College of Anaesthesia. However, 5 Nursing students failed the exam with 6 students each from Dentistry, Medicine,

and Pharmacy College, with 16 students from Medical Laboratory Department, and 2 from the College of Anaesthesia (Table 4). The results also show that the majority of the student who passed the exam are from the College of Nursing (36%), followed by 21% from Anesthesia College, 19% from the College of Medicine, and 13% are from the College of Dentistry. The two colleges with the lowest rate of success are the Medical Laboratory Department (8%) and the College of Pharmacy (3%) (Figure 3).

As shown in data, some students have received the first aid lecture, theory, or practice With this domain, it has not made any significant changes as manifested in Figure 9 and 74.10% of students who have received lectures and/or courses have passed the exam which is almost equal to those students who have passed the exam without receiving any lectures or courses (77%) (Table 5).

Regarding working in hospitals and work experience the results indicate that 30/42 students who work in a hospital setting have passed the exam, while 12/42 failed. 87/115 students who do not work in any hospital setting have passed the exam with 28/115 failing. This again shows that there is not much difference between those who work as a health professional and those who do not, as the chart in figure 4 shows that almost three-quarters of both who work and do not work in the hospital setting have passed the theoretical exam.

**Basic Practical Knowledge Exam Results:** Basic practical exam, as mentioned before, consisted of 10 multiple choice questions regarding practical knowledge about first aid. The analyzed data are presented in tables and charts as follows: Regarding the universities, the result explains as shown in table 6 that 78 students who passed the exam are from the University of Sulaimani, and 30 students from Polytechnic University. Of the 49 students who failed the test, 27 of them are from the University of Sulaimani, the remaining 22 are from Polytechnic University.

Among universities, the study figured out that 78 students who passed the exam are from the University of Sulaimani, and 30 students from Polytechnic University. Of the 49 students who failed the test, 27 of them are from the University of Sulaimani, the remaining 22 are from the Polytechnic University. As regards the colleges, Figure 5 shows that 44 Nursing students passed the exam along with 11 from Dentistry, 18 from Medicine, 5 from Pharmacy, 8 from Medical

Laboratory, and 22 from anesthesia, while 3 nursing students failed the practical exam, followed by 10 each from Medicine and Dentistry, 4 from Pharmacy, 17 from Medical Laboratory, and 5 from Anesthesia. This indicates that fewer students passed this exam compared to the theoretical knowledge exam. The majority of the students who passed the exam, as shown in Figure 6, are from the College of Nursing (41%), followed by 20% of students from Anaesthesia, 17% from College of Medicine, 10% from College of Dentistry, 7% from Medical Laboratory Department, and 5% from College of Pharmacy. The college with the most failed students is Medical

Laboratory with 35%, followed by 21% from Dentistry College, 20% from College of Medicine, 10% from College of Anaesthesia, and 8% from College of Pharmacy. College of Nursing has the lowest rate of students who failed (6%) (Figure 6).

Regarding failed students among those who have received first aid lecture, Figure 7 displays that 33% of the students who have not received any first aid lectures failed the exam, whereas, only 24% of the students who have received lectures and/or courses failed the exam. Concerning working as a health professional in a hospital setting, as shown in Figure 8 below, 19/42 (45.24%) of students who declared working in hospitals have failed the exam with only 23/42 (54.76%) passing it, while 30/115 (26%) of students who do not work in any hospital setting failed the exam, with the majority (74%) passing the practical knowledge exam.

In comparison between the College of Nursing and the other colleges, one can observe that the number of nursing students passing both exams is the most, and nursing students failing the exams are the lowest after college of Anaesthesia.

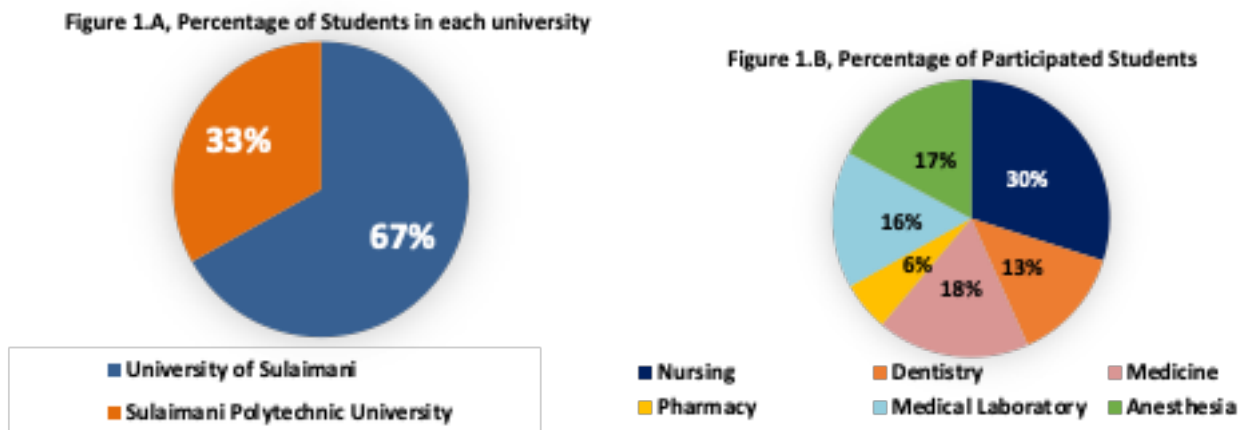


Figure 1. Figure 1. Pie chart showing sample distribution of samples according to Universities.1.A. and colleges.1.B.

Table 1. Distribution of students according to the colleges.

Name of Colleges	Number of Students	% Total
Nursing	47	29.94
Dentistry	21	13.38
Medicine	28	17.83
Pharmacy	9	5.73
Medical Laboratory	25	15.92
Anaesthesia	27	17.20
Sum	157	100.00%

Table 2. Percentage of samples working in medical units.

Working in Hospital	Student(s)	% Total
Yes	42	26.75%
No	115	73.25%
Sum	157	100.00%

\*It presents that 73.25% of the respondents do not work in a hospital setting as a health professionals, and 26.75% of participants are currently working in the medical fields, either registered or as a volunteer.

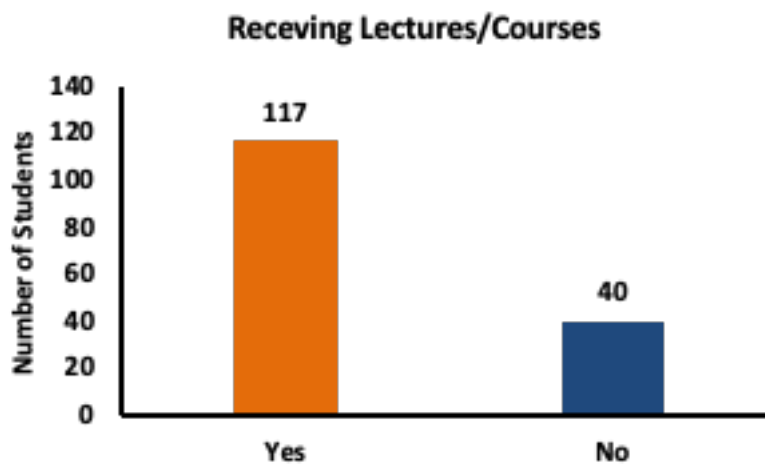


Figure 2. Bar chart shows the number of students who have received first Aid courses.

Table 3. It illustrates the general result of the theoretical exam among students in both universities.

University	Passed	Failed	Sum
University of Sulaimani	82	23	105
Sulaimani Polytechnic University	34	18	52
<b>Sum</b>	116	41	157

Table 4. Theoretical knowledge exam results concerning the colleges.

Colleges	Passed	Failed	Sum
Nursing	42	5	47
Dentistry	15	6	21
Medicine	22	6	28
Pharmacy	3	6	9
Medical Laboratory	9	16	25
Anaesthesia	25	2	27
<b>Sum</b>	116	41	157

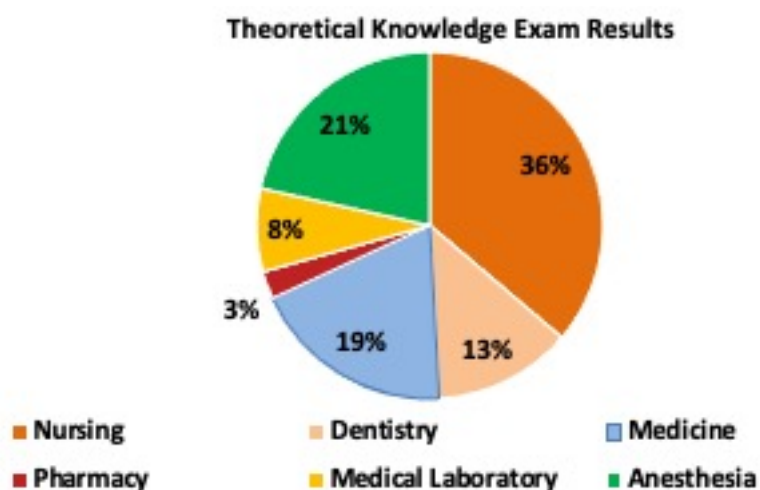
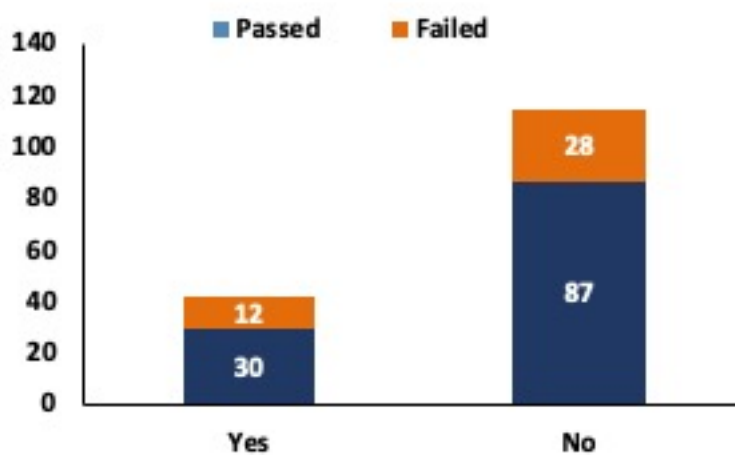


Figure 3. Pie chart shows the distribution of students who have passed theoretical exams according to the colleges.

**Table 5. Exam Results about receiving First Aid Lectures or lecture.**

Received Lectures/Courses	Passed	Failed	% Total
<b>Yes</b>	86	31	74.52%
<b>No</b>	31	9	25.48%
<b>Sum</b>	117	40	100.00%

**Exam Result in Relation to Working in Hospital**



**Figure 4. Results based on working in a hospital setting.**

**Table 6. Table 6. shows the number of passed and failed students in both universities**

University	Passed	Failed	% Total
<b>University of Sulaimani</b>	78	27	66.88%
<b>Sulaimani Polytechnic University</b>	30	22	33.12%
<b>Sum</b>	108	49	100.00%

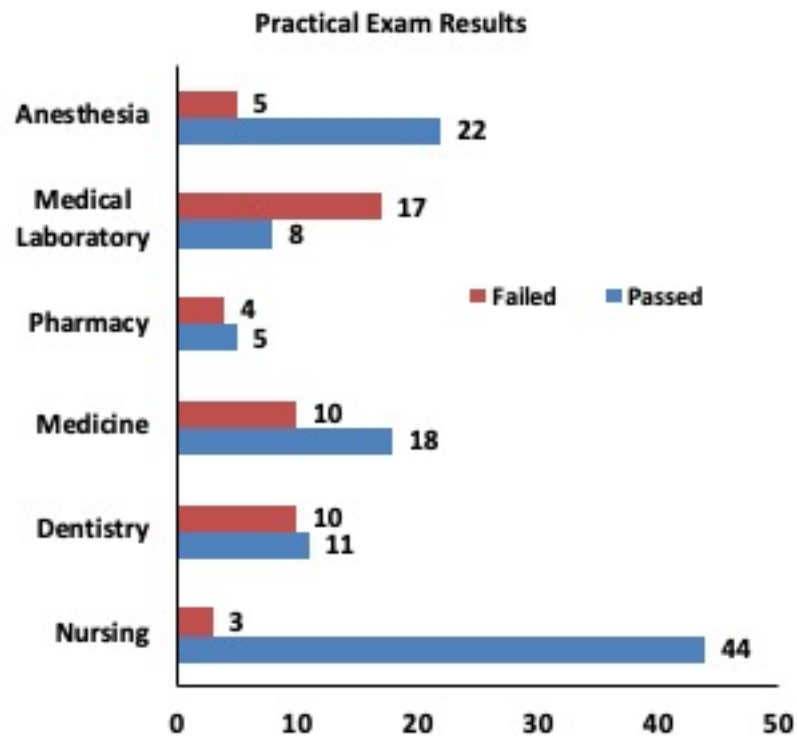


Figure 5. Clustered bar chart shows the practical knowledge exam results to the college.

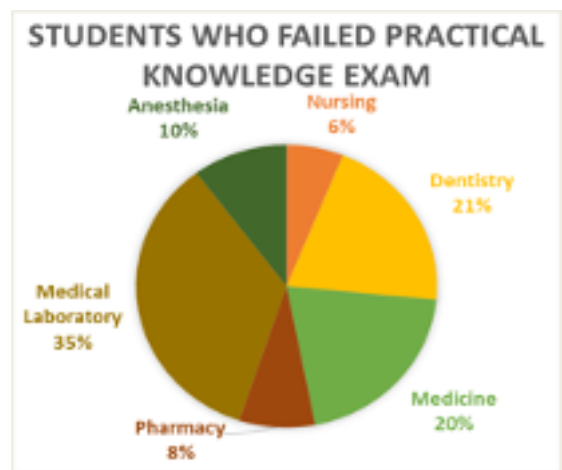
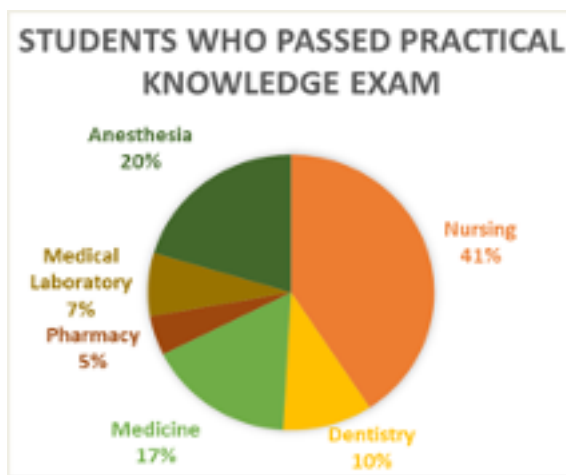


Figure 6.A (Left). Pie chart shows the percentage of students who passed the practical knowledge exam results in regards to the colleges. Figure 6.B (Right). Pie chart shows the percentage of students who failed the exam in regards to the colleges.

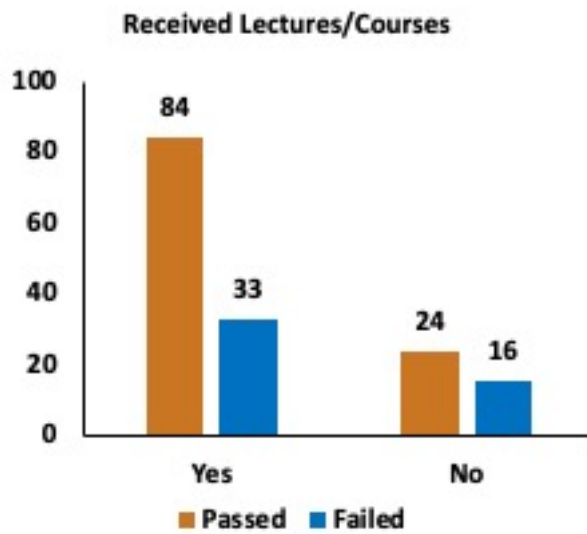


Figure 7. Bar chart shows the exam results concerning receiving lectures/courses.

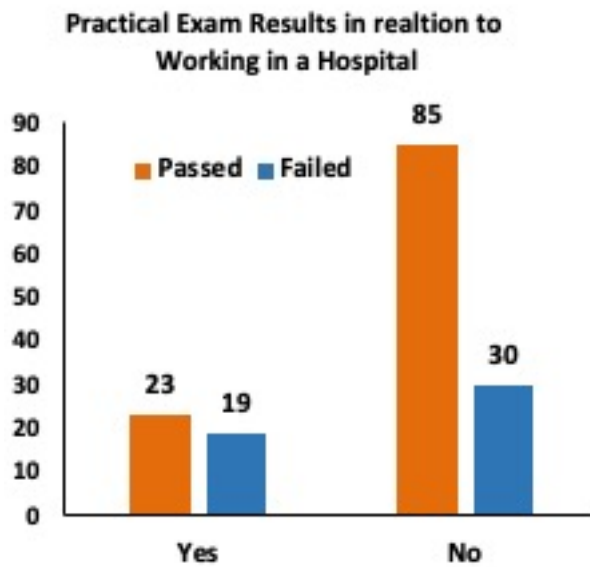


Figure 8. Bar chart manifests the practical knowledge exam results with working in hospital settings.

## DISCUSSION

The first point to be discussed here, and later in the limitations, is the inequality of the number of participants of each college. The researchers have distributed the surveys equally to each college (40 surveys), along with the online questionnaire. However, the number of respondents differs greatly from a college to another, especially the respondents from the college of the pharmacy, which have given back in January, which was a month later after the deadline, with a small number of participants<sup>(12)</sup>. Their class representative had stated the reason for lateness was that they were having exams.

According to the results, it is seen that the majority of students have passed the exams, with about 30% failing. This is much better than the results of a study conducted in Jordan, which reveals the inability of the majority of the students surveyed to provide efficient first aid in emergency cases<sup>(12)</sup>. The study in Karachi<sup>(5)</sup> also shows that the overall mean score of the students was very low (40.3%).

In regards to prior receiving first aid lectures, the studies are different. Research in the Chennai Indi shows that despite 52.5% of medical students have had prior training in the management of medical emergencies, 60.4% of them had poor knowledge about first aid. The study conducted in Chennai showed that there were less than adequate knowledge (52%) and practices (54%) in all groups of participants (resident doctors, hospital consultants, and private practitioners)<sup>(13)</sup>. Some Studies are done previously in Peru<sup>(14)</sup> and South India<sup>(7)</sup> reveal unsatisfactory knowledge even in medical students who were trained in first aid emphasizing on general lack of first aid knowledge. Similarly, in this study, participants who have received first aid lectures and courses did not show satisfactory results as 40% of them failed the practical knowledge exam.

The work of Skitek et al<sup>(15)</sup> comparing the state of knowledge in the field of first aid among 393 students of universities of medical and natural sciences, as well as polytechnics, has shown a need for creating a complementary system of first aid education to guarantee a high quality of knowledge in this field. In the cited work, 68% of students of the medical university concerned evaluated their knowledge of the above-mentioned issues as good or very good, and over 30% of people as insufficient, which is similar to the

current study, as 71.5% of students passed the exams, and 28.5% of students failed.

In regards to working in a hospital and being previously familiar with first aid, the data shows that there is not much of a difference between those students who work in a hospital and those who do not, as 54.8% of them knew the answers to the practical knowledge questions, but the results of the study in King Saud University<sup>(3)</sup> shows that trained students were better at dealing with first-aid situations than untrained students since they have gone through specialized first-aid training courses<sup>(16)</sup>. The current study suggests first aid formally to be a good curriculum for medical students<sup>(17)</sup>, and experiences in practical procedure through using modern techniques like simulation<sup>(18)</sup>.

In conclusion, the overall knowledge of first aid among students from 6 colleges in this study was poor in comparison to student's percentage of receiving courses and lectures, Almost half of the participants who are also health professionals did not know the basic knowledge about first aid, 25.48% of students have not received any lectures or courses inside or outside their college, and the knowledge about practical skills was less than expected. Students having received formal first aid training scored better than those who had no first aid training but still, the mean score itself is quite low emphasizing the need for recertification/ refresher courses to keep oneself updated with the latest developments and improvements. The lack of knowledge of first aid amongst university students is indicative of the fact that only a few people have first aid training.

### Recommendations

First aid training programs should be introduced at college levels to decrease the early mortality and morbidity of accidents and emergencies. Hence, the present study recommends formal first aid sessions to be introduced into the medical curriculum. This should be complemented by hands-on experience or activities to increase students' experiences in practical procedures during medical school followed by its evaluation as there is a problem of assessment of practical competence.

The use of modern techniques like using simulation with the aid of computerized mannequins as an educational and assessment tool has been done before and found to be very effective in a few studies.

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