

A study on Assessment of Knowledge and Attitude towards First Aid in Road Traffic Accidents among College Students of Ahmedabad city, India

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Abstract :

Fatalities and injuries resulting from road traffic accidents (RTA) are a major and growing public health concern in India. The knowledge of first aid amongst medical students and general public has always been a neglected subject. The basic first aid, if provided properly in initial moments of accidents, can be lifesaving. Youth studying at colleges are common victims of RTA in India. Hence the knowledge and ability to perform first aid properly when in need is of utmost importance for them. **Objectives :** To assess the level of knowledge of medical and non-medical students in providing first aid care in road traffic accidents. **Methodology :** This cross sectional study was conducted during March - April 2018, among students of medical and non-medical colleges. The study included those above 18 years of age and attending various colleges of Ahmedabad city, excluding those who did not give consent, concluding in a total of 150 participants. A questionnaire was prepared for assessment comprising total 48 questions. Out of 48 questions, 31 questions which tested the knowledge of the students regarding first aid were graded each of 1 mark. The remaining 17 questions reflected the participants' attitude towards first aid administration and education, were assessed and the recommendations were drawn from them. Out of total 31 marks for knowledge regarding first aid, participants were categorized as follow: 1-10 marks - poor knowledge, 11-20 marks - average knowledge and 21-31 marks - good knowledge. **Results :** Among 150 students, 70(46.6%) students had good knowledge of first aid, out of which 45 were medical and 25 were non-medical. 80 students (53.3%) had average knowledge of first aid of which 30 were medical and 50 were non-medical. **Conclusion & recommendations :** Both groups lacked specifics on judging the status of patient parameters of prioritizing injuries and uses of contents of first aid kit. There was significant association between the knowledge of first aid & field of study. First aid education should be introduced early into the curriculum, with revision at every next tier of education.

Key Words: First aid, Knowledge, Road Traffic Accidents

Introduction :

Fatalities and injuries resulting from road traffic accidents (RTA) are a major and growing public health concern in India. As per the Ahmedabad traffic police department's statistics, around 250 cases of RTA were reported in the city in the first 2 months of 2018 out of which 54 were reported as fatal, 54 were serious and 142 were minor accidents. From these cases 55 died and 232 sustained injuries.⁽¹⁾ First aid is applied to injured or ill persons in any health threatening situation in order to save life, prevent degradation of the situation or contribute to a treatment process before professional medical care is available. This refers to assessments and interventions that can be performed by a bystander (or

by the victim) with minimal or no medical equipment. As the incidence of medical emergencies are on the rise in recent years, it is important to ensure that health personnel and the general public are adequately trained to deal with such events. Studies have found that the knowledge of first aid amongst medical students and general public has always been a neglected subject. A study conducted among medical students in Mangalore by N. Joseph⁽²⁾ found that only 13.8%(21/152) had good knowledge, 68.4% (104/152) had average knowledge & 21%(32/152) students had poor knowledge about first aid. A similar study conducted amongst medical students of MIMER Medical College, Pune by Swati Raietal⁽³⁾ reported that < 20 % students had good knowledge regarding first aid. Hence, there is a need to improve upon the current base of first aid knowledge among students, as the increasing number of road traffic accidents are happening across the country. This can help in reducing the number of

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deaths & casualties. The basic first aid, if provided properly in initial moments of accidents, can be lifesaving. Youth studying at colleges are common victims of RTA in India. Hence the knowledge and ability to perform first aid properly when in need is utmost important for them. With this background, the present study was conducted with an objective; to assess the level of knowledge of medical and non-medical students in providing first aid care in road traffic accidents.

Methodology :

This cross sectional study was conducted during March - April 2018, among students of medical and non-medical colleges. The study included those above 18 years of age and attending various colleges of Ahmedabad city, excluding those who did not give informed verbal consent, concluding in a total of 150 study subjects through purposive sampling, of which 75 were medical students and 75 were non-medical students. The following non- medical colleges were taken into our survey: Engineering College, Architecture College & Law College. Due to time and manpower constraint, 3 non-medical streams were randomly selected. A list of all the colleges of these streams was made and from the list one college was randomly selected from each of these streams. Necessary permission of the respective colleges' authorities for undertaking the said survey and the list of all students enrolled in the college was obtained. From the list of students, 25 students were randomly selected from each of the three enrolled colleges using the random number table. Medical students from one

of the medical college in Ahmedabad city were included. A pre-tested, semi-structured questionnaire was prepared using various sources on the internet⁽⁴⁻⁸⁾. finalized after pilot study, comprising of 48 questions and distributed among study participants. The questionnaire constituted of 3 parts:1) Approach to basic first aid knowledge 2) General knowledge of first aid and 3) Attitude of participants towards first aid education. It included demographic information of students such as name, age, gender, year of study, field of study, residence, religion etc. Various situation based questions commonly occurring in road traffic accidents were included in questionnaire to assess their first aid knowledge.

Out of 48 questions, 31 questions which tested the knowledge of the students regarding first aid were graded each of 1 mark. The remaining 17 questions reflected the participants' attitude towards first aid administration and education, were assessed and the recommendations were drawn from them. Out of total 31 marks for knowledge regarding first aid, participants were categorized as follows; 1-10 marks - poor knowledge, 11-20 marks - average knowledge and 21-31 marks - good knowledge. CHI SQUARE test was used as a test of significance and P value of <0.05 was considered as level of significance. Further, students were asked about their opinion regarding first aid awareness and education needed in the society. Data entry was done using M S Excel 2010 and analyzed using IBM SPSS Statistics for Windows, Version 20.0.Armonk, NY: IBM Corp. software.

Results :

The study participants (150) were distributed equally according to their year of study, i.e., there were 25 students in each category (13 males, 12 females), namely first year, second year & third year, respectively in both the fields of study. All the participants were between 19-22 years of age. The study participants in both groups were assessed regarding their correct knowledge by identification of contents of first aid kit. Figure 1 shows that although only 52/75(69.3%) of Non - medical students had ever seen a first aid kit, a good number of them 63/75(84%) were able to correctly judge the contents of a first aid kit. In group of medical students, it was revealed that 69/75(92%)of students were able to correctly identify the contents of first aid kit. When asked specifically about the uses of

Figure 1: Knowledge about the contents of a first aid kit among study participants

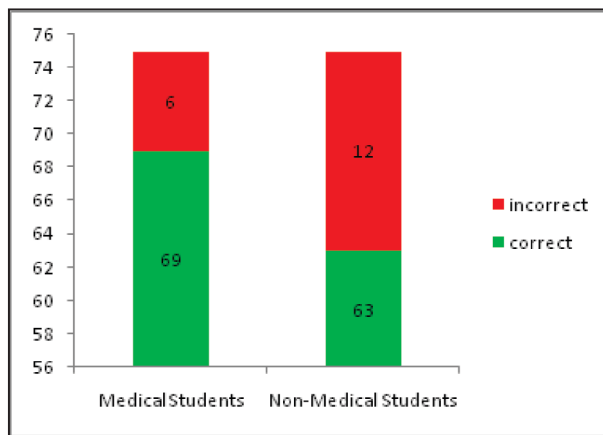


Table 1: Association between need for first aid among study participants in past and their ability to administer the same at present

| Variables | Did they feel that they are able to deal with such a situation at present? | | Total |
|----------------------------------------------------------------------------|----------------------------------------------------------------------------|----|-------|
| | Yes | No | |
| Participants who had ever been in a situation where they needed first aid. | Yes | No | Total |
| Medical students | 48 | 8 | 56 |
| Non-medical students | 13 | 38 | 51 |
| Total | 61 | 46 | 107 |

the contents, like bandages & dressing pads, only 41/75(54.7%) of medical students knew the exact use of bandages, while 38/75(50.7%) of the non-medical students failed to answer correctly the uses of bandages. The same trend was seen regarding the use of dressing pads.

Upon assessing the knowledge regarding ABCD of resuscitation, it was found that all medical students (100%) claimed that they knew about the acronym ABCD of resuscitation, (AIRWAY BREATHING CIRCULATION DISABILITY) but 70/75 (93.3%) of them gave wrong answer and all 75/75 (100%) of non-medical respondents gave the incorrect answer. Similarly, in reference to knowledge about assessment of breathing, all respondents of both groups claimed to know how to assess normal breathing, but on evaluation 63/75(84%) of medical students responded correctly, and 61/75(81.3%) of non-medical students answered correctly. In reference to knowledge about assessment of circulation, an equal number of

respondents in both the fields knew how to assess circulation in the body, at 66/75(88%).

Table 1 shows the association between need for first aid among study participants in past and their ability to administer the same at present. The χ^2 cal value is 39.499 at 5% level of significance (degree of freedom 1) which is greater than χ^2 tab.Total 107 students had history of facing situation where they needed to perform first-aid for themselves or for others. From a total of 56 medical students who have previously been in such situation, 48 of them (85.7%) felt that they were capable to administer first aid. However, of the 51 non-medical students that had been in a similar situation, only 13 of them (25%) felt that they could administer first aid at present. It suggests that past experience for need of first aid is helpful for students to perform related first-aid in present scenario, if similar need arises.

The figure 2 shows that only 51/75(68%) of medical students correctly knew how to perform CPR and the compression to ventilation ratio for CPR, even though a vast majority of them 72/75 (96%) knew what it stood for & its indications. While 42/75(56%) of non-medical students knew that what it stood for and 18/75 (24%) could perform it or answered correctly.

The table 2 shows the number of correct responses of the study participants in various situations that could occur in a road traffic accident. In most of the scenarios, we can see that medical students had more knowledge to deal with asked scenario than non-medical students. However, there were some cases where non-medical students outperformed their medical counter parts, like maintaining airway patency

Figure 2 : Knowledge about the contents of a first aid kit among study participants

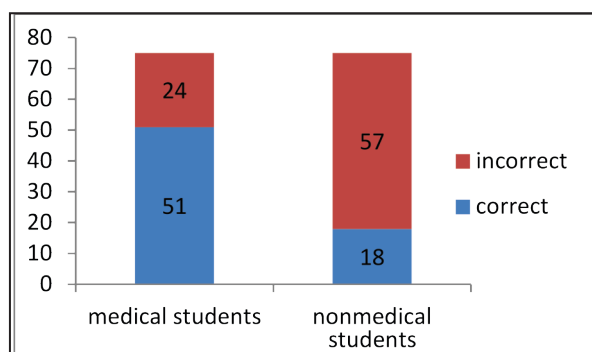
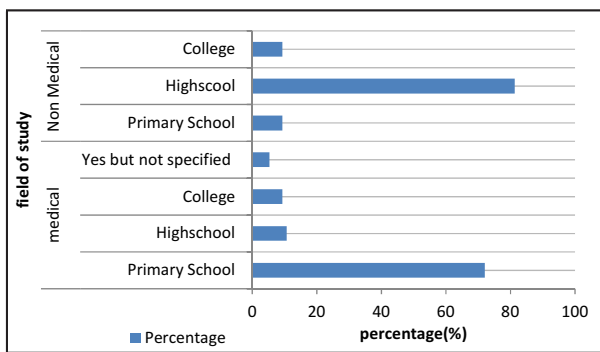


Table 2: Association between need for first aid among study participants in past and their ability to administer the same at present

| Aspects of first aid management | Correct knowledge of medical students (n=75) (%) | Correct knowledge of non-medical students (n=75) (%) |
|---------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------|
| Basics steps in emergency | 45 (60) | 39 (52) |
| Airway patency in an unresponsive & breathing casualty | 21 (28) | 26 (34.7) |
| Order of priority of treatment in a casualty | 59 (78.7) | 24 (32) |
| First aid in bleeding wounds | 37 (49.3) | 27 (36) |
| Reducing the risk for disease transmission in bleeding wounds | 71 (94.7) | 61 (81.3) |
| First aid in soft tissue wounds | 54 (72) | 32 (42.7) |
| Signals of head & spine injury | 42 (56) | 50 (66.7) |
| First aid unsuspected fractures | 32 (42.7) | 12 (16) |

Figure 3: Right time for introduction of first aid education according to the study participants.



in an unresponsive & breathing patient & judging head & spine injuries.

Figure 3 shows that more number of medical students believed that the right time for introduction of first aid into education was primary school 54/75 (72%), while more non- medical students believed it was later, in high school 61/75 (81.3%). 8/75 (9%) students in both categories felt that the right time for first aid training should be in college. A mere 4/75 (5%) of medical students did not specify the right time for introduction of formal first aid training.

Table 3 shows that there was significant association between the knowledge of first aid & field of study. The χ^2 cal value was 10.714, which was greater than χ^2 tab at 5% level of significance (df=1).It can be inferred that medical students have more knowledge than non - medical students regarding first aid. From a total of 75 medical students, 45 were categorized having good knowledge (scoring 67.7% or more) which accounts to 60% of the total medical students. However, majority of the non-medical students, i.e., 50 out of a total of 75(accounting to 66.6% of non-medical students) were categorized having average knowledge (scoring between 35%-64%), with only 25/75(33.4%) falling in the “good knowledge” category.

Discussion :

In the present study, majority of the students knew about First aid, could define in their own words correctly, and felt that knowledge of first aid was beneficial to them and the general public. A majority of medical students (62.7%) had administered first aid at some point, while the exposure to this scenario was less among non-medical students (34.7%).

Table 3: Association between the field of study & the level of knowledge of first aid amongst the study participants

| Variable | Field of study | | Total |
|----------------|----------------|--------------|-------|
| | Medical | Non- medical | |
| Score | | | |
| GOOD | 45 | 25 | 70 |
| AVERAGE | 30 | 50 | 80 |
| TOTAL | 75 | 75 | 150 |
| χ^2 value | 10.714 | | |

Similarly in a study conducted on the knowledge of first aid skills among students of a medical college in Mangalore city by N. Joseph et al⁽²⁾ good knowledge about first aid was observed in 13.8% (21/152), average knowledge in 68.4% (104/152) and poor knowledge in 17.8% (27/152) participants, compared to the present study which states that around 60%(45/75) of medical students have good knowledge of first aid, average knowledge was seen in 40%(30/75). In the former study, all students felt that first aid skills need to be taught from the primary school level onwards and all of them were willing to enroll in any formal first aid training sessions, while in the present study, 72% medical students(54/75) felt that first aid skills should be introduced in primary school and 96%(72/75) medical students were willing to enroll in a formal first aid training session.

A Karachi based study by Khan A. et al⁽⁹⁾ found that 63.2% medical students had good, 28.3% average and 8.3% poor knowledge about first aid. Another study was aimed to evaluate the level of knowledge about the first aid process among the university students in Jordan by Moawiah khatatbeh.⁽¹⁰⁾ In that study about 97% of students believed that first aid course should be handled at high schools, compared to the present study where 72% medical students believed that first aid education should be handled at primary school and 74% non-medical students believed that first aid education should be handled at high school level. In that study, having previous first aid experience was strongly associated with better first aid knowledge of students. Similar trend can be seen in the present study as well. It can be seen that out of 56 medical students

who had a previous first aid experience, 60% students had good knowledge of first aid. This result is consistent with the results of a Turkish study by I. Metin&Mutulu C.⁽¹¹⁾ Concomitantly in the present study, when non-medical students were taken into consideration, 51 had previous exposure to first aid but only 33.3% had good knowledge. In the same study, only 30.1% knew the correct compression to ventilation ratio for CPR in adults, whereas in the present study, 46%(69/150) students gave the correct answer. This result is consistent with the data⁽¹²⁾ which states that the death rate due to road traffic accidents is higher in Jordan (29.4 deaths/100000 accidents) as compared to India (22.5 deaths/100000 accidents).

Conclusion & recommendations :

General First Aid Knowledge and first aid in emergency scenario –

Both groups lacked the specifics on how to approach an emergency, of judging the status of a casualty & the parameters for prioritizing injuries. The uses for the contents of the first aid kit were not clear among both groups. While the respondents had seen a first aid kit and knew what it contained, non-medical students were less likely to equip their vehicle with it, and did not have regular access to it. The students were less likely to be aware of what to do in a specific scenario, such as a biker in a RTA (54 % of the total respondents knowing the correct answer) or an Unconscious and breathing patient, or a patient who is not breathing, and what approach to take (47.3% of the respondents knowing the correct answer) than they were of general knowledge about first aid. The students lacked practical

skill when it came to CPR, or taking the pulse of an infant or caring for different types of wounds.

Attitude of participants towards first aid education:

Most medical students had been formally introduced to first aid in school, whereas non-medical students got most of their information via informal sources of entertainment like radio, television & internet. While medical students believed in introduction of first aid into the primary school curriculum, non-medical students believed in the correct time to be later, in high school. However, both these groups felt that they were more likely now to learn more about first aid and enroll in formal training for first aid.

Recommendations :

First aid education should be introduced early into the curriculum, with revision at every next tier of education. This would build up on the knowledge the students already possess & make them more prepared to deal with road traffic accidents.

A Refresher course at college level on first aid should be introduced, including other basics like road safety & PRACTICAL training sessions, so the knowledge the students have is not simply theoretical. The practical training sessions should include basic life support training along with various situation based training that could occur in a road traffic accident, like severe bleeding, fractures, head & spine injuries etc.

Among medical students, more importance should be given on the specifics of first aid administration like CPR, dressing, how to maintain airway patency, correcting CNS depression etc.

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