Original Research Article

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Awareness and behavior patterns regarding road safety measures among undergraduate medical students of western Uttar Pradesh: a cross-sectional study

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ABSTRACT

Background: More than 1.2 million deaths occur each year on the world's roads. In India, the number of motor vehicles on the road is increasing with the population and economic growth. It has been estimated that if effective and immediate action is not taken, deaths due to road traffic accidents will become the fifth leading cause of deaths by 2020. Objectives was to assess the level of awareness and behavior regarding road safety rules among undergraduate medical students.

Methods: The present cross-sectional study was conducted in a Medical College of western Uttar Pradesh. In the present study 200 final and pre-final year, undergraduate medical students were selected with the help of simple random selection, who drive/use vehicles either of their own or others. The study period was from June 2019 to August 2019.

Results: About 29 percent of participants responded that they do not follow lane rules while driving. Study showed that 72.1% and 42.0% were aware that what documents to be carried with them while driving among those who attend and did not attend any program on road safety measures respectively. About 58.1 % and 38.2% were aware that penalty for driving without a helmet can be imposed among those who attend and did not attend any program on road safety measures.

Conclusions: Awareness of road safety measures among participants was satisfactory, but the gap was also seen between awareness and behavior patterns regarding road safety measures.

Keywords: Awareness and behavioral patterns, Medical students, Road safety measures

INTRODUCTION

More than 1.25 million people die each year on the world's roads and in most countries, the burden of road traffic accidents is increasing day-by-day. It has been estimated that unless immediate action is taken, road traffic accident deaths will rise to the fifth leading cause of deaths by 2020. Road Traffic Accidents (RTAs) were the leading cause of death among individuals aged 15 to

29 years and the second leading cause of mortality among 20-24 years.³ In WHO's South-East Asia Region, road traffic injuries kill approximately 3,16,000 people each year. Deaths due to road traffic accidents account for one-fourth of total global deaths. The South-East Asia region has a similar road traffic death when compared to the global death rate. Rates of road traffic deaths are higher in middle-income countries in comparison to low-income countries.⁴

The condition is not different in our country, where apart from other non-communicable diseases, developing countries such as India are facing the burden of RTAs. In India, the WHO estimated that road traffic fatalities accounted for up to 16.6 per 1,00,000 population.⁵

In September 2015 the United Nations launched the 2030 agenda for sustainable development goal (SDG), in which SDG 3 relates to halve the number of global deaths and injuries from road traffic crashes by 2020, SDG 11 relates to providing access to sustainable transport systems for all, improving road safety and expanding public transport.⁶

Though road traffic accidents are both predictable and preventable, there is still an increasing trend in the morbidity, mortality, and disability due to road traffic accidents, which has become a major public health concern in India. One of the simplest measures to bring down the morbidity and mortality would be to bring about a behavioral change among young adults. For this, the first step would be to assess the current knowledge and attitude of the young generation regarding road safety and traffic rules. With this in mind, the present study was conducted to assess the knowledge and behavior regarding road safety measures among medical students.

Objectives

The objectives of the study were to assess the awareness about road safety measures among undergraduate medical students of a Medical College of western Uttar Pradesh using both types i.e. 2 and 4-wheeler motor vehicles and to determine the behavioral patterns/practice of road safety measures among undergraduate medical students, using both types i.e. 2 and 4-wheeler motor vehicles.

METHODS

The present cross-sectional study was conducted in a Medical College of western Uttar Pradesh, among the selected undergraduate medical students during the period of September 2019 to October 2019.

Sample size

The sample size calculated using formula 4pq/d². Prevalence was taken from a study done by Ratna et al observed behavioral patterns about exceeding the speed limit by 12 percent participants while driving. The sample size was calculated using this as prevalence with a 5% allowable error. The minimum sample size obtained after the calculation was 170. However, a sample of 200 was taken in the study, 100 students from each selected class.

Sampling method

Two classes of undergraduate medical students were selected by using simple random selection technique

using the lottery method. These selected classes were the final and pre-final year. From these classes, only those students were selected who fulfill the inclusion criteria.

Data collection, entry and analysis

Data were obtained from 200 undergraduate medical students with the help of a predesigned, semi-structured questionnaire, 100 from each selected class after getting the informed consent from them. After collection, data were entered in Microsoft excel sheet for analysis and analyzed using SPSS version 24 (SPSS-24.0, IBM Corp., Chicago, USA). P<0.05 was considered statistically significant.

Inclusion criteria

Undergraduate medical students who drive/use both types i.e. 2 and 4-wheeler motor vehicles of their own or others.

Exclusion criteria

Participants who did not give consent for the study were excluded.

RESULTS

The present study showed 37.5% of the male participants had a driving license and 21.5% wear helmet while driving as compared to 15% of female participants with a driving license and only 14.5% who wore a helmet during driving. The study also showed that 14%, 13.5% and 25.5% male participants exceeded the speed limit, using mobile phones while driving and jumped traffic signal respectively, while in comparison to 13.5%, only 2.5% and 11% female participants exceeding the speed limit, using mobile while driving and jumped traffic signal respectively (Figure 1).

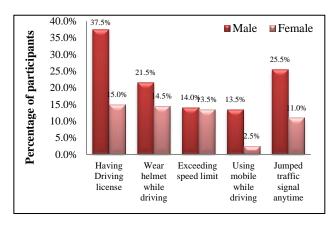


Figure 1: Column graph showing road safety measures behavioral pattern among male and female medical students.

The present study showed 173 participants (86.5%) were of age \geq 22 years. Most of the study participants, i.e., 135 (67.5%) were male, while 65 (32.5%) were female. Only

4 (2%) participants were day scholars while mostly 196 (98%) were hostelers (Table 1).

Table 1: Distribution of the study participants according to their socio-demographic profile (n=200).

Variable	Subgroup	Frequency	Percentage (%)
Age	<22	27	13.5
(years)	≥22	173	86.5
Gender	Male	135	67.5
	Female	65	32.5
Year of education	Prefinal	100	50.0
	Final	100	50.0
Residence	Hostel	196	98.0
	Day scholar	4	2.0

Table 2 showed that among study participants, 180 (90%) were aware that wearing a helmet can save a life, 81% responded that vehicle should overtake only from the right side, 83.5 % participants aware that mobile phone should not be used during driving and speed limit mentioned on signboard should be followed. Correct responses on awareness regarding document to be carried while driving, the penalty for driving without helmet, penalties for driving without seatbelt were observed in 48.5%, 42.5%, 29.5% respectively.

Table 3 showed that regarding observation of behavioral patterns, out of 200 participants, only 106 (53%) had a driving license. About 29 percent of participants responded that they do not follow lane rules while driving, while 12 percent responded that they drive many times after consuming alcohol, only 5 percent participant caught by police for drunk driving and over speeding.

Table 4 showed that 95.3% and 80% were aware that speed limits should be followed among those who attend and did not attend any program on road safety measures respectively, and the difference was statistically significant (p=0.011).

The study further showed that 72.1 % and 42.0 % were aware that what documents to be carried with them while driving among those who attend and did not attend any program on road safety measures respectively and the difference was statistically significant (p=0.001).

The study also showed that 58.1 % and 38.2% were aware that penalty for driving without a helmet can be imposed among those who attend and did not attend any program on road safety measures respectively and the difference was statistically significant (p=0.024).

Table 2: Distribution of the study participants according to awareness regarding road safety measures while using vehicles (n=200).

Recommended road safety measures	Response	Frequency	%
Attended any programs regarding road safety measures	Yes	43	21.5
Wearing helmet can save life	Yes	180	90.0
Overtaking vehicles only from the right side	Yes	162	81.0
Do not use mobile phone while driving	Yes	167	83.5
Follow speed limit mentioned on signboards	Yes	167	83.5
Wearing seat-belt while driving	Yes	179	89.5
Document to be carried while driving	Correct response	97	48.5
The penalty for driving, driving without helmet	Correct response	85	42.5
The penalty for driving without a seatbelt	Correct response	59	29.5

Table 3: Distribution of the study participants according to road safety measures behavioral patterns.

Behavioral patterns	Frequency	%
Having a driving license	106	53.0
Do not wear helmet while riding	72	36.0
Using mobile phones while driving	32	16.0
Exceeding speed limits while driving	45	22.5
Do not wear seat belts while driving or co-driver	61	30.5
Do not follow lane rules while driving	59	29.5
Driving after consuming alcohol	24	12.0
Caught by the police for drunk driving and over speeding	10	5.0

Table 4: Association between having attended any program regarding road safety measure and awareness regarding road safety measure.

Variables	Response	Attended program on road safety measure		Total	Devley
variables		Yes	No		P value
		N (%)	N (%)	N (%)	
Follow good limit	Yes	41 (95.3)	126 (80.2)	177 (88.5)	0.011*
Follow speed limit	No	02 (4.7)	031 (19.8)	33 (11.5)	0.011
Document to be carried while driving	Yes	31 (72.1)	66 (42.0)	97 (48.5)	0.001
	No	12 (27.9)	91 (58.0)	103 (51.5)	0.001
Donalty on duiving without holms	Yes	25 (58.1)	60 (38.2)	85 (42.5)	0.024
Penalty on driving without helmet	No	18 (41.9)	97 (61.8)	115 (57.5)	0.024
Overtake from Rt. Side only	Yes	38 (88.3)	124 (79.0)	162 (81.0)	0.193*
	No	05 (11.6)	033 (21.0)	038 (19.0)	0.195*

^{*} Fisher exact test applied

DISCUSSION

In the present study majority of the participants were 23 to 26 years of age, while in another study conducted by Ratna et al the participants were between 17 to 27 years. This difference may be due to in current study selected participants were pre-final and final year undergraduate students and Ratna et al selected 1st year to final year undergraduate students.⁷

The majority of the participants were males (67.5%) and 37.5% were females.⁷ The same distribution of participants observed by Ron et al and Ratna et al in the present study regarding behavioral patterns, 12% were involved in drunken driving.^{8,9} These findings were similar to the observation in the study conducted by Swamy et al in Chandigarh.¹⁰ In the present study, about 90 percent were aware that wearing a helmet can save a life, about the same observed by Ramya et al, observed where 98 percent of the study participants were aware of the use of a helmet.¹¹

CONCLUSION

Awareness of road safety measures was satisfactory except regarding the penalty for driving without helmet, seat belt, and documents to be carried with vehicles. Some gaps were also seen between awareness and behavior, as 90 percent of participants were aware that helmet could save a life, in spite of this 36 percent of participants did not wear helmets. Same type pattern of gap seen in the case of use of seat belt while driving. It was seen that behavior pattern regarding road safety measures was better in participants who attend programs on the concerned topic as compared to who did not attend the program.

Therefore, that kind of program should be organized on the school/ college level for youngsters by the concerned department/ministry. Further research should be done on this topic may be helpful to control road traffic accidents and generate new ideas for the prevention of accidents on roads.

Limitations

The present study has some limitations. The present study was conducted among medical students. Hence, the study may not be the representative of the general population.

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