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Knowledge, attitude, and practice toward road safety regulations among college students in Telangana state

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Abstract:

BACKGROUND: Road traffic continues to be a major developmental issue and a public health concern. Road accidents in India kill almost 1.5 lakh people annually, and India accounts for almost 11% of the accident-related deaths in the world. Prevention of road traffic accidents is very crucial by creating awareness and taking proper measures toward road safety.

AIMS: The aims of this study were to assess the knowledge about road safety regulations and to assess the attitude and practices regarding road safety regulations.

SETTINGS AND DESIGN: This cross-sectional study was conducted in a pharmacy college.

SUBJECTS AND METHODS: Study participants were all 4 academic years' pharmacy students who know driving two- or four-wheeler motor vehicle. Data were collected from a sample of 132 by predesigned pretested semi-structured questionnaire.

STATISTICAL ANALYSIS USED: Data were presented in proportions with confidence interval using SPSS ver. 22.

RESULTS: 81.1% of the participants knew the minimum age to obtain driving license. Only 16% follow the road signs strictly and 76% wear helmet for long-distance ride. Poor attitude was observed for wearing helmet for short-distance ride, pillion rider wearing helmet, and drink and drive.

CONCLUSIONS: Majority of the participants were aware of road safety regulations. In spite of having positive attitude toward road safety measures by participants, they could not translate attitude into practice.

Keywords:

Driving, helmet, pillion rider, road signs, road traffic accidents

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Introduction

An accident has been defined as an unexpected, unplanned occurrence which may involve injury.^[1] Accidents represent a major epidemic of noncommunicable diseases in the present era. Industrialization and urbanization have enormously increased the number of vehicles on the roads. Road traffic continues to be a major developmental issue and a public health concern. Road accidents are multicausal and are often the result of various factors such as human error, road

environment, and vehicle condition. They involve high human suffering and monetary costs in terms of deaths, injuries, and loss of potential income. According to road safety report 2018, road traffic accidents (RTAs) is a leading cause of death and injury across the world killing more than 1.35 million globally in 2016. As per the World Health Organization, accident-related deaths are known to be the eighth leading cause of death and the first largest cause of death among children aged 5–14 years and adults aged 15–29 years.^[2]

Road transport is the most used mode of transport for movement in India. Road

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accidents in India kill almost 1.5 lakh people annually, and India accounts for almost 11% of the accident-related deaths in the world. According to the road accidents report 2018, the accident-related deaths in India were about 151,417 and 2.4% increase in deaths when compared to the previous year.^[3] Overspeeding, drink-driving, not using helmets and seatbelts while driving, distracted driving using mobile phones while driving, etc., are some of the major risk factors of these RTAs. Hence, prevention of RTAs is very crucial by creating awareness and taking proper measures toward road safety. The goals of the Motor Vehicles Act (MVA), 2019 are to improve road safety, strengthen rural transport, public transport and last-mile connectivity through automation, computerization, and online services and provide an efficient, safe, and corruption-free transport system in the country. The act increased the penalties in respect of offenses such as juvenile driving, drunken driving, driving without license, not wearing helmets, overspeeding, and overloading.^[2]

The rationale of the study is to explore the knowledge, attitude, and practice regarding the road traffic regulations among college students as most of the deaths due to RTA were among younger people. This is a need of the hour to create proper awareness and educate youngsters regarding the road safety measures as they are the future emerging population. This study will provide an opportunity to assess and educate the students in order to decrease the knowledge-practice gap and persuade them toward following road safety measures. With this background, the present study was undertaken among college students in Telangana state.

Subjects and Methods

Study design, setting, and subjects

The study was a descriptive, community-based cross-sectional study conducted from February 1 to February 28, 2019, in a pharmacy college located in field practice area of a medical college in Telangana state. Study participants were all 4 academic years' pharmacy students who know driving two- or four-wheeler motor vehicle. Students who were not willing to participate and persons who have participated in the pilot study were excluded from the study.

Sample size and sampling technique

Census method was used to enroll study participants. A total of 132 students were willing to participate in the study, and hence, the sample size was 132.

Study tool and data collection

Predesigned and pretested semi-structured questionnaire was used as a study tool. The questionnaire was prepared with the guidance of senior faculty of community

medicine department and sociology department and it was validated by conducting pilot study, and necessary changes were made before finalizing the study tool. Reliability was assessed by Cronbach's alpha which was found to be 0.81. The questionnaire consists of sociodemographic variables such as age, gender, and education. It also consists of questions regarding knowledge, attitude, and practice on road safety regulations. Data were collected by face-to-face interview method.

Ethical considerations

The study participants were briefed about the purpose and nature of the study, and informed consent was obtained before data collection.

Statistical analysis

Data were analyzed using IBM SPSS Version 22.0 software (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY). Categorical data were expressed as proportions with confidence interval (95%).

Results

The study included 132 study participants, with majority (74.2%) of them being males and 81.1% being 17–19 years of age [Table 1].

About 81.1% of the participants knew the minimum age to obtain driving license and 97.7% of the study participants knew that it is mandatory to wear helmet while driving scooter/bike in India. Only 23.4% of them knew the average speed limit to be maintained by motorcycles while driving in Telugu states and 65.1% identified the road signs [Table 2].

More than half of the participants (58.3%) have adequate knowledge regarding road safety regulations [Table 3].

About 80.3% of them thought that road signs should be followed strictly and 53.8% thought that pillion rider must wear helmet. Majority (94.7%) of them thought that wearing helmet is necessary for long distance. About 55.3% of them thought that drunk and drive even after taking small amount of alcohol is not advisable

Table 1: Age and sex distribution of study participants (n=132)

	Frequency (%)
Age (years)	
17-19	107 (81.1)
20-23	25 (18.9)
Gender	
Male	98 (74.2)
Female	34 (25.8)

Table 2: Knowledge about road safety regulations (n=132)

Questions related to road safety regulations	Number of students answered correctly (%)
What is the minimum age to obtain permanent license	107 (81.1)
Side of the road to be used by the pedestrian	9 (6.8)
Side of the road to be used to overtake the vehicle	62 (46.9)
In which of these areas triple riding is legally allowed in India?	99 (75)
Is it mandatory to wear helmet while driving scooter/bike in India?	129 (97.7)
What is the speed limit for motorcycles in Telugu states	31 (23.4)
What is the allowed blood alcohol limit for drivers/riders in India	6 (4.5)
Maximum penalty in rupees imposed for driving without license?	87 (65.9)
What does yellow (orange) signal light indicate	36 (27.2)
Identify the road signs (at least 5 out of 10 signs correctly)	86 (65.1)

Table 3: Adequacy of participants knowledge about road safety regulations (n=132)

Knowledge	Frequency (%)	95% CI
Adequate	77 (58.3)	49.4-66.8
Inadequate	55 (41.7)	33.2-50.6

CI=Confidence interval

and 83.3% of the study participants thought that using mobiles while driving is dangerous [Table 4].

Only 16% follow the road signs strictly and 76% wear helmet for long-distance ride. None wore helmet for pillion riding and about 25.6% did driving after consuming alcohol [Table 5].

Discomfort (59.8%), laziness (37.5%), decreased field of vision (30.3%), hair loss (22.3%), and not a style quotient (18.7%) were the most common reasons for not wearing helmet [Table 6].

Discussion

The study included 132 study participants, with majority (74.2%) of them being males and 81.1% being 17–19 years of age. Road traffic awareness among youngsters is the most important aspect toward their safety as they are the future emerging population. According to the MVA, the minimum age to obtain driving license was 18 years which was known by 81.1% of the study participants in the present study. Similar results were reported in a study done among school students in Chennai by Mary *et al.*, where 99.1% of the participants knew the minimum age to obtain driving license.^[4] In a study done in Kerala by Mathew *et al.*, 81.4% of the students below 18 years engaged in driving at least a few times.^[5] Although most of them knew about the legal age of obtaining driving license in India, majority of them drive without carrying it due to which the new law of MVA, 2019 has increased the penalty for driving without license. In the present study, only 6.8% of the study participants knew which side of the road to be used by the pedestrian, which could be a major contributor toward high rate of RTAs among

pedestrians. In a study done among college students in Raichur by Ranjan *et al.*, about 54.2% of them knew which side of the road to be used to reduce accidents.^[6] In the present study, 46.9% of them knew that the right side of the road must be used to overtake the vehicle similar to a study done in Pakistan by Riaz and Shahid, where 47% of them thought that overtaking from left is not a good practice for the drivers.^[7] About 97.7% of the study participants in the present study knew that it is mandatory to wear helmet while driving scooter/bike in India. In a study done by Siviroj *et al.*, about 55.8% of them were aware of danger of not using a helmet.^[8] In the present study, only 23.4% of them knew the average speed limit to be maintained by motorcycles while driving in Telugu states, similar to a study done among road crash victims in Lucknow by Singh *et al.*, where only 21.6% of them maintained the average speed limit while driving.^[9] Only 6.8% of the participants in the present study knew the allowed blood alcohol limit for drivers/riders in India. In a study done by Bachani *et al.*, 87.1% of the respondents agreed that alcohol use heightened the risk of RTAs.^[10] When asked about the maximum penalty imposed for driving without license, 66% of them responded correctly, whereas in a study done by Baniya and Timilsina, only 31.7% knew regarding maximum penalty imposed for driving without license.^[11] In the present study, only 27.5% of the participants knew indication of yellow signal light similar to a study done among college students in Raichur by Ranjan *et al.*, only 33.8% of the participants had correct knowledge of traffic lights.^[6] When asked to identify the road signs 65.1% answered 5 out of 10 signs correctly where as in a study done among students in Karachi by Sangani *et al.*, 63.6% correctly interpreted all the traffic signs.^[12] In a study done among medical students in Agartala by Reang and Tripura, majority of them were familiar with traffic signs of no U-turn (90.6%), dangerous deep (71.3%), and cycle prohibited (91.6%).^[13] In the present study, even though more than half of the participants (58.3%) have adequate knowledge regarding road safety regulations, still there is a need to create more awareness about road safety measures among people as there is an increase in RTA day by day. According to a study done among students

Table 4: Attitude of participants toward roads safety regulations (n=132)

Statements related to attitude toward road safety	Number of students agreed strongly (%)	95% CI
Do you think road signs should be followed strictly	106 (80.3)	72.5-86.7
Do you think wearing helmet is necessary even for short-distance ride	77 (58.3)	49.4-66.8
Do you think wearing helmet is necessary for long-distance ride	125 (94.7)	89.4-97.8
Do you think pillion rider must wear helmet	71 (53.8)	44.9-62.5
Do you think listening to music using earphones while driving bike is dangerous	108 (81.8)	74.2-88
Do you think drink and drive even after taking small amount of alcohol is not advisable	73 (55.3)	46.4-64
Do you think using mobiles while driving is dangerous	110 (83.3)	75.9-89.3

CI=Confidence interval

Table 5: Road safety practice among students who opted strongly agree for attitude-related statements

Questions related to road safety practice (n)	Number of students who answered all the time (%)	95% CI
How often do you follow road signs while driving (n=106)	17 (16)	9.6-24.4
How often do you wear helmet for short-distance ride (n=77)	20 (25.9)	16.6-37.2
Do you wear helmet for long-distance ride (n=125)	95 (76)	67.5-83.2
Do you wear helmet for pillion riding (n=71)	0	0-5.1
Do you use earphones for listening to music during driving (n=108)	5 (4.6)	1.5-10.5
Did you ever drive after consuming alcohol? (n=73) options: yes/no	18 (24.6) (opted yes)	15.3-36.1
Do you attend phone call while driving without stopping the vehicle (n=110)	8 (7.2)	3.2-13.8

CI=Confidence interval

Table 6: Reasons for not wearing helmet (n=112)*

Reason	Frequency (%)
Discomfort	67 (59.8)
Laziness	42 (37.5)
Decreased field of vision	34 (30.3)
Hair loss	25 (22.3)
Not a style quotient	21 (18.7)
Does not have helmet	11 (9.8)
Not anticipating danger because of your driving skills	8 (7.1)
Not anticipating danger as distance is short	6 (5.3)

*Total does not correspond to 100% because of multiple responses

in Saudi Arabia by Al-Khaldi, the degree of knowledge of road traffic regulation was moderate to high in more than 75% of the students.^[14]

In the present study, about 80.3% of them thought that road signs should be followed strictly, but when comes to practice, only 16% of them followed it. In a study done by Baniya and Timilsina, about 59.2% always obeyed the road signs and symbols.^[11] In the present study, majority (94.7%) of them thought that wearing helmet is necessary for long distance and 76% had followed it, similar to a study done among medical students in Gujarat by Kalantharakath and Iyer, where 75% of the riders agreed that helmets are more important only for those who ride bikes for long distances.^[15] About 58.3% of the participants in the present study thought that helmet is necessary for shorter distance, but only 25.9% followed it. In a study done among adolescents by Jennissen *et al.*, 64% of them never wore helmets while driving.^[16] About 44.5% and 25.98% reported that they always wear helmet in studies done by Wadhvaniya *et al.* and Nagendra and Raghavendraswamy, respectively.^[17,18] In the present study, 53.8% thought that pillion rider must

wear helmet, but none of them followed it similar to a study done in Rajasthan by Mathur *et al.*, where 88% % of the passengers didn't wear helmet.^[19] This shows that though most of the students had good awareness, they do not practice it and indicate wide knowledge-practice gap which needs attention to ensure road safety. About 81.8% of the participants thought that listening to music using earphones while driving bike is dangerous and only 4.6% used it. In a study done among medical students in Agartala by Reang and Tripura, 26.9% of the respondents who played music met an accident while driving.^[13] About 55.3% of them thought that drunk and drive even after taking small amount of alcohol is not advisable, but about 25.6% did driving after consuming alcohol. In a study done among RTA patients in Puducherry by Muthukumar *et al.*, 39% of the drivers were under the influence of alcohol at the time of accident.^[20] In the present study, majority (83.3%) of the study participants thought that using mobiles while driving is dangerous and only few (7.2%) of them had attended the call while driving, similar to a study done by Mittal and Garg, where only 3.02% of the participants used phone while driving.^[21] In a study done among drivers in Trinidad by Gopaul *et al.*, about 48.2% thought that the use of mobile phones was very unsafe and 42.7% used phone while driving in a study done by Tajvar *et al.* in Iran.^[22,23]

When asked about the reasons for not wearing helmet, discomfort (59.8%) was the major reason followed by laziness (37.5%), decreased field of vision (30.3%), hair loss (22.3%), and not a style quotient (18.7%). In a study done by Shruthi *et al.*, major concern to buy a helmet was quality (89%), followed by comfort (65%), style/looks (56%), price (46%), and color (44%).^[24]

Strengths and limitations

Highlighting the knowledge, attitude of students regarding road safety regulations and the extent they put it into practice is the strength of the study. Not much literature was available which is another positive aspect of the current study. However, few limitations could not be avoided, particularly restricting to only one type of college students, which limits the generalization of the results.

Conclusions

Majority of the participants were aware of road safety regulations. Poor attitude was observed for wearing helmet for short-distance ride, pillion rider wearing helmet, and drink and drive. In spite of having positive attitude toward road safety measures by participants, they could not translate attitude into practice.

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Conflicts of interest

There are no conflicts of interest.

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