

## Original Research Article

# A study to assess the knowledge and practice of road safety measures among undergraduate medical students of M. R. Medical College, Kalaburagi

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## ABSTRACT

**Background:** Road traffic injuries claim more than 1.25 million lives each year and have a huge impact on health and development. They are the leading cause of death among young people aged between 15 and 29 years globally. In the South East Asian region of the World Health Organization, India alone accounted for 73 percent of these Road traffic accidents (RTA) burden. The importance of road safety measures needs to be emphasized in the prevention of the road traffic accidents. The objectives of the study were to assess the knowledge and practice of road safety measures among undergraduate medical students.

**Methods:** A cross-sectional study was conducted among 310 medical undergraduates of M.R. Medical College from 1<sup>st</sup> September to 1<sup>st</sup> October 2016. Data was collected using pre-tested, semi-structured, self-administered questionnaire. The data collected was analyzed using SPSS version 16. Statistical analysis was done using relevant statistical tests.

**Results:** Out of the 310 students 54.19% were males and 45.81% were females. 90.9% of the participants had driving licence, 32.1% of the students had taken training for driving the car and 66% of the students did not wear helmet. Female students had high knowledge of the road safety measures when compared to male students.

**Conclusions:** The overall knowledge of road safety measures was high among the study participants. Regarding practice behaviours they were not desirable like practice of wearing helmet and exceeding speed limit. Undertaking proper road safety measures are the best available interventions to curb the epidemic of RTA.

**Keywords:** Knowledge, Practice, Road safety, Medical students

## INTRODUCTION

Road traffic injuries are a growing public health issue, disproportionately affecting vulnerable groups of road users. Road traffic crashes and injuries are preventable by enforcement of legislation to control speed and alcohol consumption, mandating the use of seatbelts and crash helmets, and the safer design and use of roads and vehicles.<sup>1</sup> Road traffic injuries claim more than 1.25 million lives each year and have a huge impact on health and development. They are the leading cause of death

among young people aged between 15 and 29 years globally. In the South East Asian region of the WHO, India alone accounted for 73 percent of this RTA burden.<sup>2</sup> Road traffic injuries are an emerging challenge to public health in the world. The burden of disease (represented by disability adjusted life years or DALYs) is taken into account, road traffic injuries are estimated to rank as the third leading cause of death by 2020.<sup>3</sup> Developing countries, such as India face the double burden of already existent communicable diseases and increasing burden of non-communicable diseases

including Road Traffic Accidents (RTAs).<sup>4</sup> The problem of RTAs is compounded by the fact that, the age groups primarily involved in RTA's belong to the most productive age group of 15 to 40 years.<sup>5,6</sup> According to a report published by Ministry of Road Transport and Highways, 56 accidents occur every hour on Indian roads and at least 14 people are killed in these accidents.<sup>7</sup> Simple measures such as awareness and practice of road safety measures can effectively reduce the impact of RTAs on the people's lives.<sup>8</sup> The UN General Assembly has declared 2011-2020 as the "Decade of Action for Road Safety". Thus the importance of road safety measures needs to be emphasized in the prevention of RTA's. Therefore the present study was aimed to assess the knowledge and practice of road safety measures among the medical undergraduate students of M. R. Medical College.

### Objectives

To assess the knowledge and practice of road safety measures among undergraduate medical students.

## METHODS

### Study design

This study was a cross-sectional study.

### Place of study

The place of study was at M R Medical College, Kalaburagi.

### Study period

The study period was 1 month (September 1<sup>st</sup> to October 1<sup>st</sup> 2016).

### Study population

Medical undergraduate students (IV to VII Semester).

### Method of data collection

Informed consent was obtained from the study participants after explaining the purpose of study. Data was collected using pre-tested, semi-structured, self-administered questionnaire.

### Inclusion criteria

Students who agreed to participate in the study.

### Exclusion criteria

Students who were absent for the class during the study period.

### Sampling technique

The participants were selected by convenient sampling technique.

### Sample size

Sample size was 310.

Sample size  $[N = (1.96)^2 \times PQ / d^2 = 310]$ , where  $P=50\%$ , absolute precision ( $d$ ) of 6%,  $\alpha=0.05$  at 95% confidence with 15% non-response] 310 was calculated.

### Ethical clearance

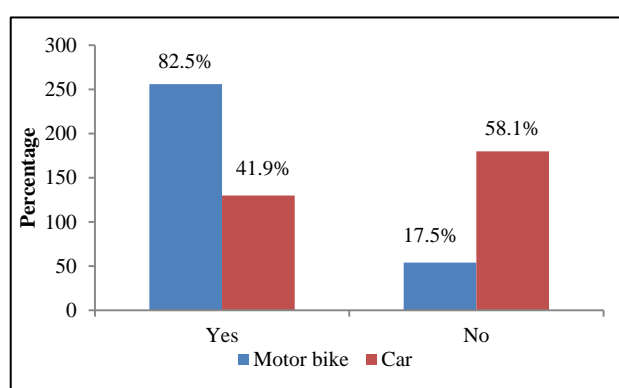
Obtained from the Institutional Ethical Committee of M. R. Medical College, Kalaburagi.

### Data analysis

The data was analyzed by using percentages, Chi-square test etc. using SPSS 16.0 version.

## RESULTS

In total, 310 medical students were studied, the mean age being 21.67 and standard deviation of 3.17. Out of 310 participants, 30 (9.35%) belonged to <20 years and 280 (90.65%) belonged to >20 years, 168 (54.19%) were male and 142 (45.81%) were females, 157 (50.65%) stay in the Home and 153 (49.35%) stay at hostel, 44 (14.19%) come from rural background and 266 (85.81%) come from urban area, 183 (59.03%) belong to class I, 20 (22.58%) belong to class II, 43 (13.87%) belong to class III and 14 (4.52%) belong to class IV (According to Modified Kuppaswamy Classification) as given in Table 1.



**Figure 1: Distribution of participants according to type of vehicle driven.**

Out of 310 students, 82.5% of the students drove a motorbike and 41.9% of them students drove a car (Figure 1).

**Table 1: Sociodemographic details of the participants.**

	Variable	Frequency	Percentage (%)
<b>Age</b>	<20 yrs	30	9.35
	>20 yrs	280	90.65
<b>Gender</b>	Male	168	54.19
	Female	142	45.81
<b>Place of residence</b>	Home	157	50.65
	Hostel	153	49.35
<b>Permanent address</b>	Rural	44	14.19
	Urban	266	85.81
<b>Socio economic class</b>	I	183	59.03
	II	20	22.58
	III	43	13.87
	IV	14	4.52
	V	0	0

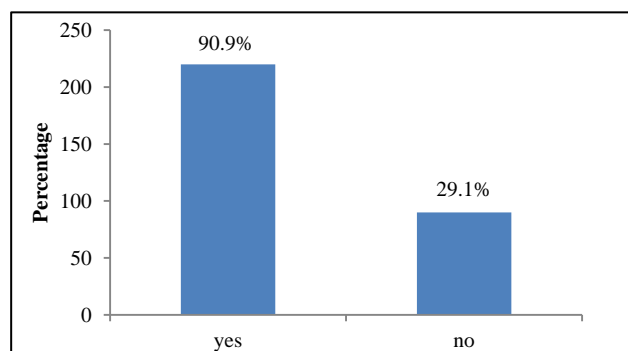
**Table 2: Distribution of participants regarding practice on motor vehicles (n=256)**

Variables	Response	Male	Female	$\chi^2$ test and p value
<b>Use of helmet while driving</b>	Yes	48	30	$\chi^2=0.004$ , $p>0.05$
	No	114	64	Not significant
<b>Drunken driving</b>	Yes	5	0	$\chi^2=2.95$ , $p>0.05$
	No	157	94	Not significant
<b>Use of mobile phone while driving</b>	Yes	35	16	$\chi^2=0.78$ , $p>0.05$
	No	127	78	Not significant
<b>Listening to loud music while driving</b>	Yes	8	2	$\chi^2=1.90$ , $p>0.05$
	No	154	92	Not Significant
<b>Overtaking on left side</b>	Yes	40	24	$\chi^2=0.003$ , $p>0.05$
	No	122	70	Not Significant
<b>Overtaking on right side</b>	Yes	136	65	$\chi^2=11.05$ , $p<0.001$
	No	26	29	Highly significant
<b>Exceeded speed limit</b>	Yes	98	42	$\chi^2=6.02$ , $p<0.05$
	No	64	52	Significant
<b>Put indicator while taking turn</b>	Yes	158	93	$\chi^2=0.61$ , $p>0.05$
	No	4	1	Not significant

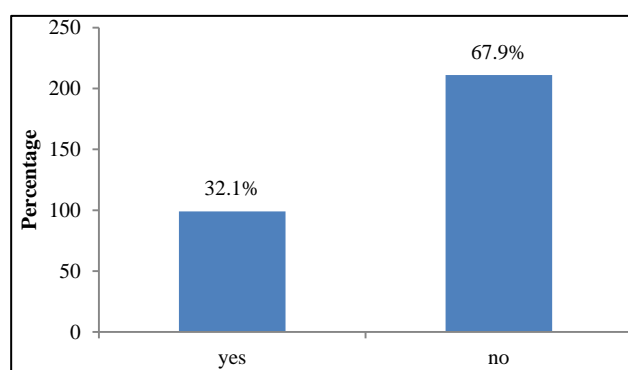
**Table 3: Distribution of participants according to driving a car (n=130)**

Variables	Response	Male	Female	$\chi^2$ test and p value
<b>Use of seatbelt while driving</b>	Yes	57	13	$\chi^2=1.22$ , $p>0.05$
	No	44	16	Not significant
<b>Drunken driving</b>	Yes	15	0	$\chi^2=4.53$ , $p<0.05$
	No	86	29	Significant
<b>Use of mobile phone while driving</b>	Yes	24	6	$\chi^2=0.12$ , $p>0.05$
	No	77	23	Not significant
<b>Listening to loud music while driving</b>	Yes	19	10	$\chi^2=3.19$ , $p>0.05$
	No	82	19	Not significant
<b>Overtaking on left side</b>	Yes	13	4	$\chi^2=0.016$ , $p>0.05$
	No	88	25	Not significant
<b>Overtaking on right side</b>	Yes	94	21	$\chi^2=9.42$ , $p<0.01$
	No	7	8	Highly significant
<b>Exceeded speed limit</b>	Yes	71	7	$\chi^2=20.03$ , $p<0.001$
	No	30	22	Highly significant
<b>Put indicator while taking turn</b>	Yes	86	28	$\chi^2=0.002$ , $p>0.05$
	No	15	1	Not significant

Out of the 310 students, 90.9% of the students had license and 29.1% of the students did not have license (Figure 2).

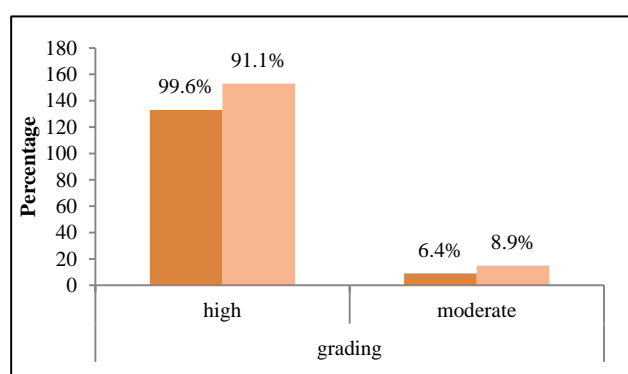


**Figure 2: Distribution of participants according to having driving license.**



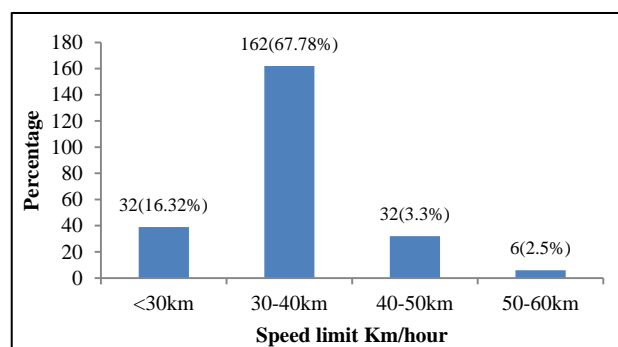
**Figure 3: Distribution according to having received any training for driving the car.**

Out of the 130 students, 32.1% of the students had received training for driving the car and 67.9% of the students did not take any training (Figure 3).



**Figure 4: Distribution according to level of knowledge of participants.**

Out of the 310 students, 99.6% of the female students had high knowledge and 91.1% of the male students had high knowledge, 6.4% of female students had moderate knowledge and 8.9% of the male students had moderate knowledge (Figure 4).

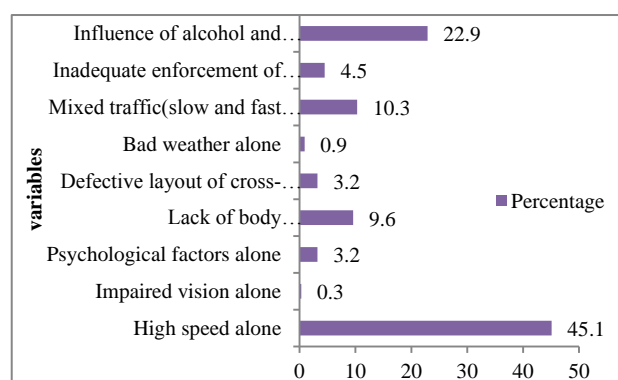


**Figure 5: Distribution of participants according to knowledge of speed limit in the city.**

Out of the 310 students, 32 (16.32%) of the students said that the speed limit in the city should be less than 30 km per hour, 162 (67.78%) said speed limit should be in the range of 30-40 km per hour, 32 (3.3%) said 40-50 km per hour and 6(2.5%) said 50-60 km per hour should be the speed limit in the city (Figure 5).

The above table shows that Majority of respondents (male 136, female 65) were overtaking on the right side while driving ( $p<0.001$ ). Further, majority of the respondents, males (98) and females (42) exceeded speed limit while driving ( $p=0.05$ ) (Table 2).

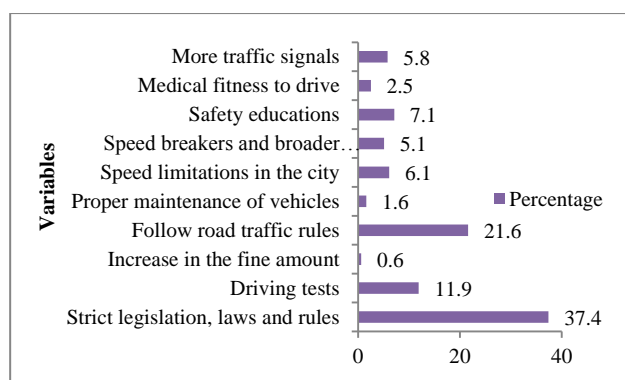
The above table shows that males (15) had drunk while driving ( $p<0.05$ ), majority of respondents (male 94, female 21) were overtaking on the right side while driving ( $p<0.01$ ). Further, majority of the respondents, males (71) and females (7) exceeded speed limit while driving ( $p=0.001$ ) (Table 3).



**Figure 6: Reasons for road traffic accidents.**

The above figure shows that majority of the participants said that the reason for accidents was high speed (45.1%) followed by influence of alcohol (22.9%) (Figure 6).

The above figure shows that majority of the participants said that strict legislation or laws by the government (37.4%) and following the road traffic rules (21.6%) could prevent road traffic accidents (Figure 7).



**Figure 7: How to prevent road traffic accidents.**

## DISCUSSION

Road traffic accidents (RTA's) are the result of many factors, the present study was conducted to assess the awareness and practice regarding road safety measures among under graduate medical students. The mean age of the study participants was 22.45 and majority (54.19%) of the participants were males. Similar findings were reported in studies done by Siviroy and Reang that 67.3% were males and 32.7% were females.<sup>10,11</sup>

Awareness of road safety measures among the participants was high in our study. This may be due to increase in the awareness activities through mass media. Similar findings were reported in a study done by Emmily.<sup>12</sup> However only 173 (86.5%) know that overtaking must be from right side only.

Regarding the practice patterns, nearly 29.1% of the participants were not having a driving license, 67.4% did not take any training for driving the car, 66% of the study participants don't wear helmet and 8% were involved in drunken driving. Our findings were similar to the observation in the study conducted by Swamy et al in Chandigarh.<sup>9</sup> Trivedi also reported that 15% drivers were driving without license.<sup>14</sup> in our study nearly 51(19.9%) participants admitted that they used mobile phone while driving. Furthermore, nearly 140 (54.6%) participants agreed to having exceeded speed limits while driving. Almost similar findings were reported by Kulkarni et al from South India.<sup>8</sup> Salve et al also reported 6.47% of the riders who met accident had drunken driving.<sup>15</sup> In our study the main reasons for accident were high speed (45.1%), influence of alcohol (22.9%) followed by others reasons. In a study done by Salve the main reasons for accident were listening music while driving 66 (20.62%), high speed 46 (14.38%).<sup>15</sup> Redhwan et al reported that most of the participants (72.5%) mentioned that high speed, driver's lack of awareness about traffic regulation and laws, and driver's non-compliance with traffic rules and regulation were the most important cause of road traffic accidents.<sup>13</sup> The behaviours concerning mobile usage and over speeding while driving are highly dangerous to the driver and to the public. Hence, these behaviour patterns need to be addressed through proper

legislative and educative measures. Better practices relating to road safety should be encouraged to reduce the morbidity and mortality related to road traffic accidents.

## CONCLUSION

The overall knowledge and practice of road safety measures was high among the study participants. But regarding the practice behaviours by the participants in certain areas were not desirable, like the practice of wearing helmet, exceeding speed limits etc. Therefore the students should be encouraged to practice optimum road safety measures.

The efforts for increasing road safety measures through signboards, posters and mass media should be strengthened to reduce the morbidity and mortality in relation to road traffic accidents. Motivate the students for usage of road safety measures to enhance its benefits in their own interests. Strict implementation of legislative measures is need of the hour. Further research in this area needs to be conducted to assess the existing situation regarding road safety measures across various sub-groups of populations. Awareness generation and orientation towards road safety issues among the students should be done through periodic trainings.

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*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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