



**International Research Journal of Interdisciplinary & Multidisciplinary Studies (IRJIMS)**

*A Peer-Reviewed Monthly Research Journal*

ISSN: 2394-7969 (Online), ISSN: 2394-7950 (Print)

Volume-II, Issue-IX, October 2016, Page No. 93-101

Published by: Scholar Publications, Karimganj, Assam, India, 788711

Website: <http://www.irjims.com>

---

## **Assessment of Knowledge and Practice Measures Regarding Prevention of Road Traffic Accidents among Undergraduate Medical Students**

**Emmily MK**

*PG student M.P.H., Dept. of Public Health, J.N. Medical College, K.L.E. University  
Belagavi, Karnataka, India*

**Angolkar M**

*Associate Professor & I/C HOD, Department of Public Health, J.N. Medical College,  
K.L.E. University Nehru Nagar Belagavi, Karnataka, India*

**Swati BM**

*PG student M.P.H., Department of Public Health, J.N. Medical College, K.L.E. University  
Belagavi, Karnataka, India*

### **Abstract**

Road traffic accidents and injuries have become a burden worldwide. The World Health Organizations global report on road traffic safety 2015 shows that 1.25 million deaths occur while 20-50 million people sustain non-fatal injury with some permanent disability. Low and middle-income countries account for 90% of the worldwide road traffic accidents and injuries. The objective of this study was to assess the knowledge and practice measures on road traffic regulations among medical students. 400 subjects participated in this study. A self-administered, predesigned and pretested questionnaire was used. Information regarding knowledge on road traffic regulations and practice on preventive measures was collected. Data was entered in to the computer based software -Statistical Package for Social Sciences – IBM version 20 and analyzed in the same by applying appropriate statistical tools. Out of 400, 51% had average knowledge on prevention of Road traffic accidents, 30% had good knowledge and 18% had poor knowledge. Out of 400, 50.8% had a driving license. Regarding the use of helmet while driving, 40.3% participants sometimes used helmet and 34% always used helmet. However, 25.7 never used helmet. Practice on use of seat belt- 42.3% sometime used seatbelt, 45% always used seatbelt, and 12.3 % never used seatbelt. With regard to listening to music while driving, 63% had a habit of doing so. Knowledge among the study participants was good. However, 18% had poor knowledge, which brings us to the conclusion that awareness regarding road safety should be spread.

**Key words: Knowledge, Medical Students, Road Traffic Accidents, Prevention**

---

**Introduction:** Road traffic accident and injuries have become a burden worldwide. The World Health Organizations global report on road traffic safety, 2015 shows that 1.25 million deaths occur while 20-50 million people sustain non-fatal injury with some permanent disability. Road traffic crashes are the leading cause of death amongst people in the age group 15-29 years. In a period of three years (2011-2013), the number of deaths has remained constant with an increase in population by four percent and a sixteen percent increase in motorization.<sup>3</sup> Low and middle-income countries account for 90% of the worldwide road traffic accidents and injuries. In 2014, 52 accidents occurred on Indian roads every hour leaving 16 people dead. There were 4,50,898 road accidents across the nation which lead to a loss of 1, 41,526 lives and 4, 77,731 people injured. Number of road traffic cases increased by 1.8% in 2014 (4, 50,898 Cases) as compared to 2013 (4, 43,001 cases). The purchase of personal vehicles in India keeps increasing .<sup>5</sup> The Indian population showed an increase of 17.64 % over a period of ten years while in the same period the number of registered vehicles increased by 132 % .<sup>6</sup> Road traffic accidents are a burden globally, nationally and particularly to the families of the victims involved. Sixty per cent of Disability Adjusted Life Years (DALYs) due to road traffic accidents is among young people in the age group 15-44yrs and 73% of these are males who are the productive or earning members of the families. This, results in driving the families involved into poverty. The overall cost of trauma globally is overwhelming. According to the WHO the trauma cost is US dollars 518 billion worldwide whereas in the United States alone the cost is US dollars 400 billion<sup>8</sup>. In India, the economic burden of road traffic accidents was 1-3% of the gross domestic product. Inadequate road traffic safety causes India to spend 20 billion per year<sup>9</sup>. We should have a sustainable goal for the future by ensuring healthy lives and promoting well-being for all at all ages and bringing down the number of road traffic deaths drastically by 2020.<sup>10</sup> Road traffic accidents are an unnatural cause of death. There is a need to prevent these accidents, which cause premature deaths. The objective of this study is to assess the knowledge and practice regarding prevention of road traffic accidents.

## **Materials and Methods**

Study design: A cross sectional study

This study was conducted among the medical students in Belagavi city, Karnataka India. This study was conducted during January 2014 to January 2016. Belagavi city has two medical Colleges, Belagavi institute of medical sciences and KLE'S Jawaharlal Nehru ,Medical college. Both colleges were included in the study. The sample size was calculated as  $4PQ/d^2$  that was 390.  $P =$  prevalence 58 and  $q = 100 - p = 42$  and absolute error of 5%. 400 students participated in the study. Simple random sampling technique was used to select the participants. Students present during the data collection period were included and those who did not give consent were excluded. Ethical clearance was obtained from the Institutional Ethical Committee on Human Subjects Research, J.N. Medical College, Belagavi, before the study. All participants were fully informed about the study and written informed consent from each participant was obtain. Pilot study was conducted to validate the study tool. Self-administered structured questionnaire was used to collect the information from the participants.

**Data analysis:** Data was compiled, checked and rechecked for its completeness and missing item. Data was entered in computer-based software Statistical Package for Social Sciences – IBM version 20 and analyzed in the same by applying appropriate statistical tools. Appropriate statistical tools (Descriptive: Frequency and Percentage) and inferential: Chi square test was used to evaluate association between variables were applied.

## Materials and Methods

**Study design:** A cross sectional study

This study was conducted among the medical students in Belagavi city, Karnataka India. This study was conducted during January 2014 to January 2016. Belagavi city has two medical Colleges, Belagavi institute of medical sciences and KLE'S Jawaharlal Nehru, Medical college. Both colleges were included in the study. The sample size was calculated as  $4PQ/d^2$  that was 390.  $P$ = prevalence 58 and  $q$ =  $100-p=42$  and absolute error of 5%. 400 students participated in the study. Simple random technique was used to select the participants. Students present during the data collection period were included and those who did not give consent were excluded. Ethical clearance was obtained from the Institutional Ethical Committee on Human Subjects Research, J.N. Medical College, Belagavi, before the study. All participants were fully informed about the study and written informed consent from each participant. Pilot study was conducted to validate the study tool. Self administered structured questionnaire was used to collect the information from the participants.

**Data analysis:** Data was compiled, checked and rechecked for its completeness and missing item. Coding of data was done before entering the questionnaire. Data was entered in to the computer-based software Statistical Package for Social Sciences – IBM version 20 and analyzed in the same by applying appropriate statistical tools. Appropriate statistical tools (Descriptive: Frequency and Percentage) and inferential: Chi square test was used to evaluate association between variables were applied.

**Results:** Four hundred subjects participated in this study. Out of 400 students, 16(4%) were in the age group  $\leq 17$  years, 71.5% were in the age group 18-20 years, 94(23.5%) between 21-23 years and 1% were twenty four years old. 46% were females and 54% were male while 74.5% belonged to the urban while 25.5% resided in the rural areas.

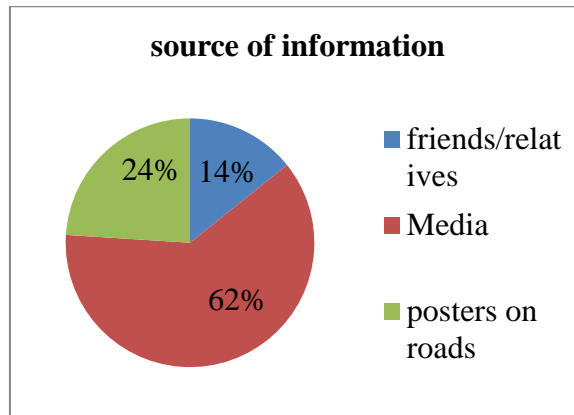
**Table No-1:  
Socio-demographic Distribution of Participants (n=400)**

Variables	Category	Frequency	Percentage
Age (years)	$\leq 17$	16	4.0
	18 – 20	286	71.5
	21 – 23	94	23.5
	24+	4	1.0
Gender	Male	216	54

	Female	184	46
Residence	Rural	102	25
	Urban	298	75

Ninety nine percent of the students have heard about road traffic regulation. The common source of information as media was mentioned by 61.8% students followed by posters on roads 24% and friends and relatives by 14.2 %. Figure no-1.

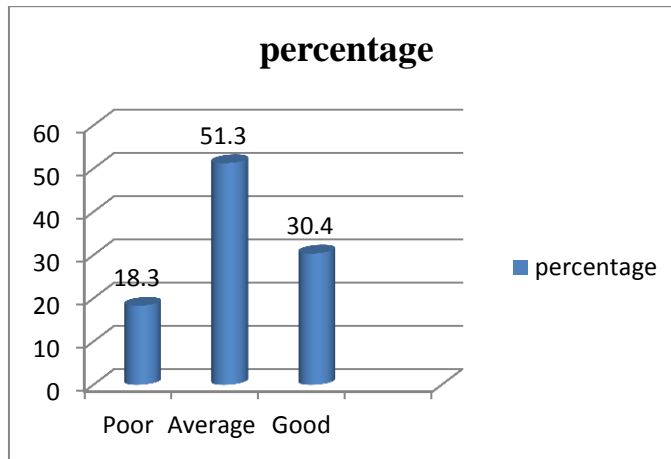
**Figure No-1: Distribution on based on source of Information (n=400)**



Out of 400 students, 55% had been involved in road traffic accident while 45% were not. The type of vehicle involved among the 222 students 60% was due to motorbike, 21% were driving a car, 13% were walking and 1% was using bicycles. Regarding the causes of road traffic accidents, 95% mentioned lack of awareness on road traffic regulations, 98% mentioned drinking and driving, 98% mentioned drivers non-compliance with road traffic regulations, 97% mentioned high speed driving and 99% mentioned use of mobile phones as causes of road traffic accidents. the road traffic accidents and preventive measures mentioned by the students were 93% obey traffic rules, 86.75% drive at the right speed, 80% wear seat belts, 80.3% wear helmets, 89% are attentive to caution signs while driving, and 93.8% avoid drugs and alcohol while driving. Regarding which side to drive on, 85.2% knew the correct driving lane while 7% mentioned that you should drive on the right only, 3% mentioned both right and left and 4.8% didn't know which side to drive on. 79.5% had the correct knowledge on which side to overtake, 10.75% mentioned left only, 32.75% mentioned both right and left while 7% did not know. 96.5% mentioned that they should zebra crossing sign and 88.7% mentioned to check both sides before crossing the road. Regarding the use of alcohol, 71.25% knew that alcohol use before and while driving was prohibited, 97.25% knew it was not safe to drink alcohol before and while driving. Out of 400 students, 45.25% correctly mentioned that the use of mobile phone was prohibited in India while 54.75% mentioned that it was not prohibited. Out of 181 students who correctly mentioned use of mobile phones while driving is prohibited in India, 49.7% correctly mentioned handheld and hands free mobile phones are prohibited in India. 41.5% did not

know which kind of mobile is prohibited and 8.8% mentioned only hand held mobile phones. The overall knowledge of the participants was 18.3% poor knowledge, 51.3% average knowledge and 30.5% good knowledge regarding road traffic accidents.

**Fig no-2: Knowledge score distribution of Participants (n=400)**

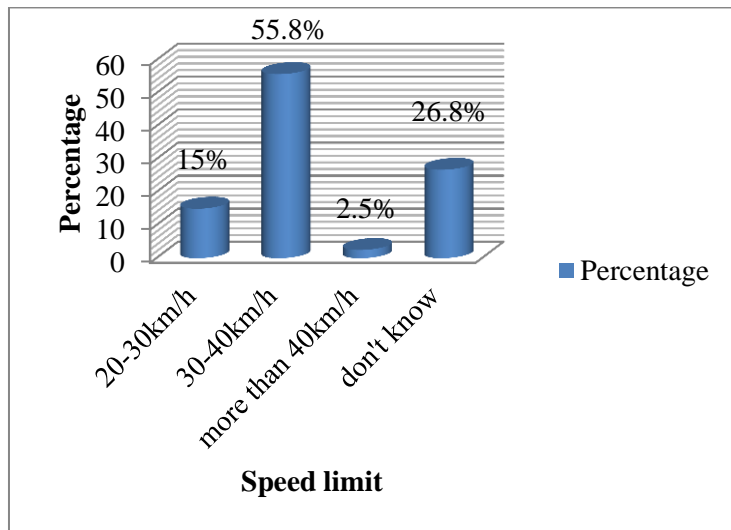


**Practice:** The study revealed that, 76.75% of the students owned motorcycles and 23.25% did not. Out of 400, 50.8% had driving licenses and, 49.3% did not have driving licenses. 40.3% students sometimes used helmet and 34% always used helmet. However, 25.7% never used helmet. 53% have been caught without helmet.

**Table-2: distribution of participants on having motorbike and driving license**

Variable	Option	Frequency (n=400)	Percentage (100)
<b>Having motorbike</b>	Yes	307	77
	No	93	23
<b>Have driving license</b>	Yes	203	50.7
	No	197	49.3

Regarding pillion use of helmet, 67.25% never wore a helmet, while 32.75% did, 42.3% sometime wore seatbelt, 182(45%) always wore seatbelt, 49(12.3%) never wore a seatbelt.

**Fig. 3 Speed limit maintained while driving (n=400)**

55.8% mentioned to maintain speed limit of 30-40km/h, 26.8% did not know, 15% mentioned 20-30km/h and 2.5% mentioned above 40km/h, regarding listening to music while driving, 63% had the habit of listening to music while driving.

**Discussion:** The findings of our study showed that, 51% had average knowledge on prevention of Road traffic accidents, 30% had good knowledge and 18% had poor knowledge. Al-khaldi YM in Aseer region of Saudi Arabia reported moderate degree of knowledge to high in more than 75% of the participants.<sup>13</sup> 98% of the respondents have heard about road traffic regulations wherein the common source of information was the media at 61.8% followed by posters on the road at 24%. This results shows that the media can be a good platform in creating awareness regarding road safety.

Study shows that 85.3% knew that they should drive on the left only and overtake only from right. This was similar to the findings reported by Reang T and Tripura A.<sup>10</sup>

Regarding where to cross when walking, 96.5% mention at the zebra crossing only. However, 1% did not know whereas 88.7% knew they should check both side before crossing. This was similar to the findings reported by Reang T in Tripura India.<sup>10</sup> The present study shows that 71.25% were aware that the law prohibits drinking while driving while 97% mentioned it was not safe to drink alcohol before and while driving. Kulkarni V at al reported similar finding in Mangalore.<sup>14</sup>

Majority of the participants at 55% did not know that the law prohibited the use of mobile phones while driving , 45% mentioned the use of mobile phones while driving was prohibited by law and among them 49% rightly knew that the law prohibited the use of both hand held and hands free mobile phones while driving. Reang T reported similar findings at 84% in Tripura<sup>10</sup> and Kulkarni V in Mangalore<sup>9</sup> reported that 6.1% participants mentioned use of hands free mobile phones while driving was safe Jognand sk et al. in Guntur india

reported 83.48% of students were aware of the risk factors of using mobile phones while driving. This indicates lack of awareness and the need to enforce this law strictly.<sup>12</sup>

In the present study, the majority mentioned that the use of seat belt could prevent injuries sustained in road traffic accidents and everyone should fasten the seatbelt while in a car. Kulkarni V et al reported similar findings in Mangalore.<sup>9</sup> The present study shows that 77% owned motorcycles and 50% had driving licenses. Reang T in his study reported that 43% owned motorcycles<sup>12</sup>. In this present study, the majority did not use the helmet appropriately, 25% never wore the helmet and 40.3% participants sometimes wore the helmet and 34% always wore the helmet. However, Reang T findings shows 90% used the helmet and 46% were caught without a helmet<sup>12</sup>. Similarly, Jognand SK in Guntur reported 79% did not wear a helmet<sup>11</sup>. Trivedi A and Rawal D in Gujarat reported 11.5% of helmet use. Majority (67%) did not use helmet when accompanying someone on a motorcycle<sup>15</sup> This finding shows the high tendency of violation of this rule by young people. Law reinforcement on compulsory wearing of helmet for rider and pillion may enhance the use of helmet among the riders and pillion. In Karnataka, re-enforcement of this law was active from mid January. 46% of the respondents always fastened their seatbelts when in a car. However, 42% sometimes used seatbelts and 12% never fastened the seatbelts. When they remembered to fasten the seatbelt, 52% stopped the car and fastened it, followed by 27% who fastened it immediately while the car was moving and 16% slowed down and fastened the seat belt. Redhwan AA in Malaysia reported similar findings where 36.7% mentioned that they try to slow down and then fasten the seatbelt, followed by 31.2% who stop the car and then fasten it. In both studies the least response reported by the respondents of Redhwan at 7.3% was to fasten the seatbelt when an opportunity arose and at 5% in the present study<sup>11</sup>. Similar finding was reported in study conducted by Alzahran et al.<sup>17</sup> Trivedi A and Rawal D reported 40.2% use of seatbelt.<sup>15</sup>

In the present study, 55.8% maintained the speed limit while driving at 30-40km/h followed by 15% who drove at 20-30km/h and 2.5% who drove at more than 40km/h. 26% did not know the speed at which they were driving. Reang T et al. reported that 56% male and 8% females exceed 40km/h while driving<sup>10</sup> and Kulkarni V reported 68.2% exceed the speed limit while driving.<sup>14</sup> Trivedi A and Rawal D reported 33.5% of study participants maintained 40-50km/h and 50% maintained the speed limit >50km/h while driving.<sup>15</sup>

Almost all participants (98.2%) practiced giving way to emergency vehicles such as an ambulance. Reang T reported that 88% give way to ambulances (83.9%).

Regarding the use of mobile phones while driving, 99% mentioned use of mobile phones was one of the causes of road traffic accidents. However, 63% had the habit of listening to music while driving. Kulkarni V in Mangalore reported that 35% played music while driving<sup>14</sup> and Trivedi A and Rawal D reported 42.4% of study participants used mobile phones while driving. This risk habit amongst young people needs to be addressed through proper measures.<sup>15</sup>

**Conclusion:** The present study revealed that the knowledge of the participants on prevention of road traffic accidents was good. However 18% had poor knowledge. The findings revealed poor knowledge on the prohibition of mobile phones while driving. Proper educational measures can be implemented to create awareness.

**Recommendation:** The use of mass media, road shows, street plays, guest lectures and posters can be good methods to create awareness and they need to be tailor made for the youth to grab and keep their attention in order to get the message across strongly

**Acknowledgement:** The authors are grateful to the KLE'S UNIVERSITY J.N Medical college and department for public health for all their support towards this study.

**Conflict of Interest:** The authors declared no competing interest

### **Bibliography:**

- 1) Park K. Accidents and Injuries. In: Park K, editor. Park's Textbook of Preventive and Social Medicine. 22th ed. Jabalpur, India: M/S Banarsidas Bhanot Publishers; 2013. pp. 374–378.
- 2) Mohan D, Tiwari G, Khayesi N, Nafukho FM .Road Traffic Injury Prevention: training manual, Geneva 2006.[ cited on 15 Nov 2015]. Available on [http://whqlibdoc.who.int/publications/2006/9241546751\\_eng.pdf](http://whqlibdoc.who.int/publications/2006/9241546751_eng.pdf).
- 3) WHO. Global status report on road safety. [cited 2016 Jan 25].Available on [http://www.who.int/violence\\_injury\\_prevention/road\\_safety\\_status/2015/GSRRS2015\\_summary\\_EN\\_final.pdf](http://www.who.int/violence_injury_prevention/road_safety_status/2015/GSRRS2015_summary_EN_final.pdf).
- 4) National Crime Report Bureau. Road traffic accidents report2013 [cited 2014 Nov 5].Available from: <http://www.ncrb.gov.in/ads/2013/ADSI>
- 5) National Crime Report Bureau. Road traffic accidents report2013 [cited 2016 Jan 25].Available from: <http://www.ncrb.gov.in/ads/2014/ADSI>
- 6) Deshpande P. Road safety and accidents prevention in India. International Journal of Advanced Engineering Technology2014; 5(11):64-8.
- 7) Ministry of Road Transport and Highways. Government of India. Transport research wing New Delhi.2013. [Cited on Jan 5 2016.] Available from: <http://revista.dgt.es/images/informe-accidentes-India-2013.pdf> .
- 8) Paniker J, Graham SM, Harrison JW. Global trauma: the great divide. SICOT J. 2015; 1(19):1-6.
- 9) Parsekar SS et al. Road safety in India: a public health concern, Indian Journal of Community Health2015;27(2) 191 .
- 10) Jogdand SK, Yerpude NP, Jogdand SM. Awareness and behavioral pattern with regard to road safety in south India. Int J Biol Med Res. 2013; 4(4): 3590-3592.
- 11) Reang T, Tripura A. Knowledge, practice and determinants among UG medical students regarding road safety, Int J Med Sci. Public Health2014; 3(8):911-5.



- 12) Redhwan AA, Karim AJ. Knowledge, Attitude and Practice Towards road traffic regulations among university students in Malaysia, *International Medical Journal Malaysia*2010;9(2):29-34
- 13) Ahmad S, Gharaibeh, Abu Abdo AM. Assessment of Traffic Safety and Awareness among Youth in Al-Ahsa Region, Saudi Arabia, *Journal of Emerging Trends in Engineering and Applied Sciences (JETEAS)*2011;2(2):210-215.
- 14) Al-Khaldi YM. Attitude and practice towards road traffic regulation among students of health sciences college of Aseer Region, *J Family Community Med*2006;13(3):108-13.
- 15) Kulkarin V, et al. awareness and practice of road safety measures among undergraduate medical students in a south Indian state, *Journal of forensic medicine and legal medicine*2012;9(22) :1-4.
- 16) Trivedi A, Rawal D. Prevalence of road traffic accidents and driving practices among young drivers, *healthline*2011;2(2):72-5 .
- 17) Al-Zahran HA. Knowledge and attitude towards road traffic regulations among students of health sciences college in Taif KSA, *Int.Journal of Medical Science and Public Health*2015;4(2): 241-4
- 18) Lalitha D, Appala SN, Madhavi BD. A Study on Knowledge Attitude And Practice Of Road Safety Measures among College Students in Visakhapatnam City, *J of Evidence Based Med & Hlthcare*2015; 2(42):7437-42.
- 19) Jain A, Menezes RG, Kanchan T, Jain R. Two wheeler accidents on Indian roads – a study from Mangalore, India, *Journal of Forensic and Legal Medicine* ,2009;16:130–3.
- 20) Rao BB, SudhaRani G. Prevalence of road traffic injury and associated factors among patients visiting the emergency department of Osmania general hospital, Hyderabad, Telangana, India, *International Journal of Research in Health Sciences*2015;3(1): 146-9.