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Original Research Article

A cross sectional study on knowledge, attitude, and practice of road safety measures among medical students at GIMS-Kalaburagi, Kalyana, Karnataka

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ABSTRACT

Background: According to the World Health Organization (WHO), an accident is defined as an "unpremeditated event resulting in recognizable damage". The eighth leading cause of death in the world. Most common among children and young ages. Being the young generation in the community, medical students will be able to communicate better regarding precautions related to road safety measures which helps to prevent RTA hence current study was taken. Objectives were to determine the sociodemographic profile of undergraduate medical students at GIMS Kalaburagi. To find the knowledge, attitude, and practice towards road safety measures among medical students.
Methods: Undergraduate medical students of GIMS Kalaburagi were selected as study participants. By using convenience sampling, a semi-structured, pretested questionnaire in the form of Google forms was circulated among all medical students out of which 405 responded.
Results: A total of 405 students were interviewed, among them 63.2% were males,32.1% majority belonged to phase-3 part-1 95.8% of students had 2-wheeler vehicles whereas only 40% were present with a permanent license. Knowledge about traffic signal and road safety measures were 90.4% and 85.7% respectively. Only 10.6% had a good attitude related to no use of horns in no horn zone areas. The majority 84.2% use PUC-certified vehicles whereas 83.7% always use indicators while taking turns and 77.5% always the use rear mirror while driving.
Conclusions: Road traffic accidents are avoidable by proper sense of road safety measures like wearing a helmet, wearing a seatbelt, following all traffic signal rules, avoiding drink and driving which should be encouraged, and also providing IEC and awareness programs among medical students and common people.

Keywords: 4E's, GOI, IEC, Medical students, Road safety measures

INTRODUCTION

An accident is defined as an "Unpremeditated event resulting in recognizable damage" by the World Health Organization (WHO) advisory in 1956.[1] According to the WHO, accidents are the eighth greatest cause of death and account for 1.35 million fatalities annually.[2] In India, 3,54,796 traffic incidents resulted in 1,33,201 fatalities and 3,35,050 injuries in 2020. Road accident fatalities have dropped by 13.9%. In Karnataka, 44,011 accidents were reported in 2015, but this number fell to 34,394 in 2022, a fall in mortality rates of 21.8%.

In the world, among children aged 5-14 years and adults aged 15-29 years road traffic accidents accounted for the highest number of deaths and there are three times higher deaths in lower-income countries than in high-income countries.[2,3] Nearly 73% of all road traffic deaths occur among young males who are almost 3 times as likely to be killed in a road traffic crash as compared to young

females. 70 percent of road accidents are due to overspeeding.[3,4] Road accidents are multicausal such as human error, road environment, vehicle condition, overspeeding, drunk-driving, not using helmets and seatbelts while driving, using mobile phones, etc.[5]

Medical students have come under the younger generation in the community, they will be better able to communicate about the precautions that should be taken to prevent RTA. With this in mind, the present study was focused on evaluating the current knowledge, attitude, and practice among the young generation regarding road safety and traffic rules.

Because of the alarming rise in traffic accidents, particularly involving young people, road safety is becoming a significant concern. Medical students and other members of the younger generation need to be prepared for this to prevent it.

Review of literature

Kasulkar et al did a study in 2017 among 300 students, they found that 98.3% of the students knew about and were using road safety precautions. It was good to see that students were aware of traffic safety.[6]

Singh surveyed 150 medical students in Jaipur, Rajasthan, in 2020 about their knowledge and compliance with traffic safety regulations. 68% had ordinary awareness, 25.3% had strong awareness, and 6% had low awareness. The majority of students demonstrated average knowledge of and practice about driving safety regulations.[7]

Senthil et al did research in 2020, that involved 250 students over the course of one month, and found that 60% of the students had adequate understanding and awareness of the laws governing road traffic and safety measures. The research was good.[8]

Research done by Ratna et al in 2017 among 200 students at Sri Siddhartha Medical College in Tumkur, Karnataka, regarding awareness and behavior patterns regarding road safety measures revealed that 74% of respondents wear helmets, 30.5% interrupt gaps in median collects, 81.5% wear seat belts, 23.5% disobey rules, and the survey as a whole was satisfactory. It is needed to undertake further research in this area to evaluate the existing.[9]

Jadhav et al study on the knowledge and behavior of medical students regarding traffic safety measures in 2017 revealed that the majority of them were aware of traffic signals, 95% of them were wearing helmets, and 81% knew that drinking while driving is dangerous. The trial was successful overall. Due to the alarming rise in traffic accidents, particularly involving young people, road safety is becoming a significant concern. Medical students and other members of the younger generation need to be prepared for this to prevent it.[10]

In 2013 Kulkarni et al conducted a study showing that 81.1% of the participants knew the minimum age to obtain driving license. Only 16% follow the road signs strictly and 76% wear helmets for long-distance rides. The poor attitude was observed in wearing a helmet for short-distance rides, pillion rider wearing a helmet, and drinking and driving. The majority of the participants were aware of road safety regulations. Despite having a positive attitude toward road safety measures by participants, they could not translate attitude into practice.[11]

In 2017 Rang et al conducted a study showing that the majority (67.4%) of the participants were in the age group of 20-25 years and males (53.2%). The majority knew that consumption of alcohol while driving was dangerous, talking while driving distract the driver, cautious driving near school, seat belt to be worn by everyone in the car, loud music in the car distract the driver, should drive in the left lane, overtaking in the right only, give way to ambulance, use of hand free devices was safe while driving, wait patiently when pedestrians were taking too much time in zebra crossing and correct knowledge of speed limit was essential. Males had better knowledge compared to females. The overall knowledge and practice of road safety measures were high among the study participants. Continuous efforts should be on to increase road safety measures through IEC activities to reduce the morbidity and mortality regarding RTAs. Further research was recommended among various sub-groups of the population.[12]

Objectives

To determine the sociodemographic profile of undergraduate medical students at GIMS, Kalaburagi. To determine knowledge, attitude, and practice towards road safety measures among UG medical students.

METHODS

Study design and period

It was a cross-sectional study conducted on undergraduate medical students of GIMS, Kalaburagi. Phase 1, phase 2, phase 3 (part 1 and part 2) medical students were the study subjects. This study was conducted for a period of 3 months i.e. May to July 2023.

Place of study

The study took place at Gulbarga Institute of Medical Sciences, Kalaburagi.

Method of data collection and sample size

The study was done using a semi-structured, pretested questionnaire which was circulated in the form of Google forms among all medical students (phase 1 to 3) of GIMS Kalaburagi. It had two sections. The first section consists

of questions related to socio-demographic profile and the second section is related to knowledge (15 questions), attitude (7 questions), and practice (9 questions) about road safety measures. Out of 600 students, 405 students participated in the study.

Sampling method

Convenience sampling method was employed.

Inclusion criteria

Medical students who were willing to participate in the study were included.

Exclusion criteria

Students not willing to participate in the study.

Statistical analysis

The data was entered into a Microsoft Excel sheet and analyzed using software SPSS version 16.0. Results were represented in the form of frequency and percentage by using tables and diagrams.

Ethical consideration

Ethical clearance was obtained from the respective institutional ethical committee.

RESULTS

The majority belonged to 20-22-year-olds (49.1%) and males (63.2%) who were pursuing phase 3 part 1 (32.1%) with minor contributions from phase 3 part 2 students. The majority prefer using two-wheelers (95.8%) (Table 1).

Table 1: Sociodemographic profile of study participants.

Socio-demographic profile	Category	Frequency (n=405)	Percentage
Age (years)	18-20	187	46.2
	20-22	199	49.1
	≥22	19	4.7
Gender	Male	256	63.2
	Female	149	36.8
Year of study	Phase-1	111	27.4
	Phase-2	118	29.1
	Phase:3 part-1	130	32.1
	Phase:3 part-2	46	11.4
Type of vehicle used	Two-wheeler	388	95.8
	Four-wheeler	17	4.2
Have a driving license?	Yes	242	59.8
	No	163	40.2

Table 2: Knowledge related to road safety measures.

Knowledge	Response	Frequency (n=405)	Percentage
Minimum age to obtain license	16	13	3.2
	18	384	94.8
	20	8	2
Is wearing a helmet and seat belt mandatory	Yes	398	98.3
	No	2	0.5
	Don't know	5	1.2
"Ideal speed breaker" means	3.7 m width	28	6.9
	0.10 m height	40	9.9
	With black and white bands	22	55.4
	All of the above	315	77.8
Presence of traffic police at signals prevent RTA	Yes	368	90.9
	No	24	15.9
	Don't know	13	3.2
Speed limit for motor cycles in Gulbarga (in km/hour)	20-40	79	19.5
	40-60	235	58
	60-80	28	6.9
	>80	9	2.2
	Don't know	54	13.3

Continued.

Knowledge	Response	Frequency (n=405)	Percentage
Side of road to be used by pedestrians	Left	281	69.4
	Right	87	21.5
	Don't know	37	9.1
Is triple riding allowed in India?	Yes	11	2.7
	No	388	95.8
	Don't know	6	1.5
Road safety week is celebrated in which month	January	104	25.7
	March	40	49.9
	May	54	13.3
	December	28	6.9
	Don't know	179	44.2
Maximum penalty imposed for driving without license in Karnataka (in rupees)	500	91	22.5
	1000	90	22.2
	2000	56	13.8
	5000	97	24
	Don't know	71	17.5
No horn zones	Hospitals	46	11.4
	Educational and religious places	24	5.9
	All of the above	335	82.7
What does red, orange, and green signal light indicate respectively	Don't know	8	2
	Get ready, stop, go	7	1.7
	Go, get ready, stop	3	0.7
	Stop, get ready, go	387	95.6
When ambulance is approaching	Allow free passage by driving to the side of the road	375	92.6
	Drive behind the ambulance with great speed	6	1.5
	No preference needs to be given	3	0.7
	Don't know	21	5.2
Allowable blood alcohol limit for drivers in India (per 100 ml)	0.001%	141	34.8
	0.002%	62	15.3
	0.003%	18	4.45
	0.004%	18	4.45
	Don't know	166	41
The presence of adequate street lights, good road conditions, and weather prevent RTA	Yes	374	92.3
	No	20	5
	Don't know	11	2.7
Are you aware of the PUC certificate and its full form	Yes, pollution under control	311	76.8
	No, pollution under control	48	11.9
	Yes, pedestrian under claim	20	4.9
	No, pedestrian under claim	26	6.4

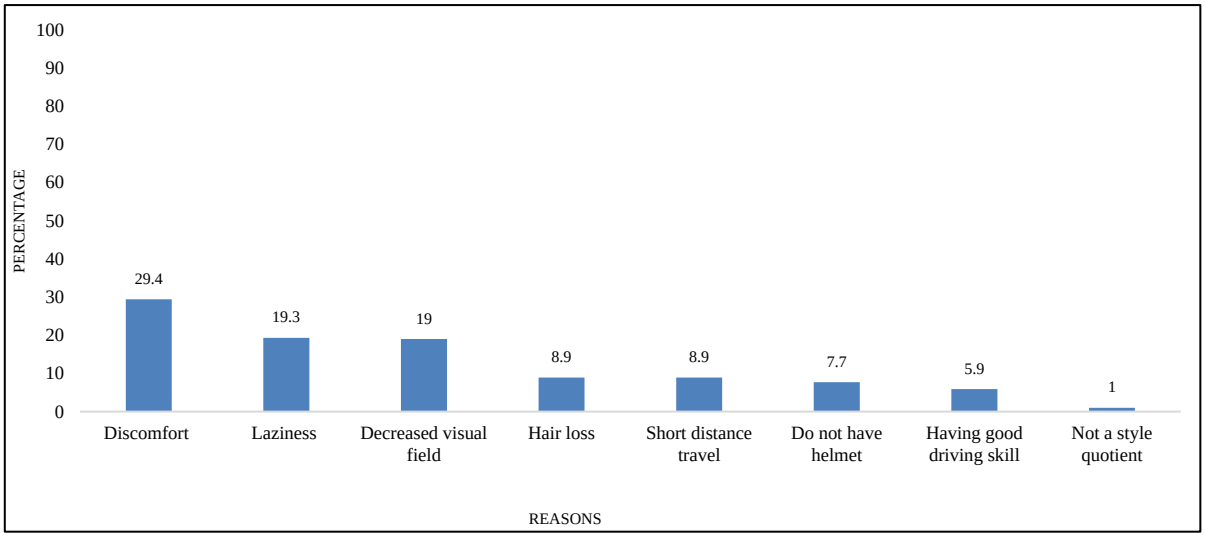

Figure 1: Reasons for not wearing helmet.

Table 3: Interpretation of signs and symbols.

Road signs	Interpretation	Frequency (n=405)	Percentage
	Speed breaker	272	67.1
	Work in progress	234	57.7
	Left curve	240	59.2
	Go slow	308	76.04
	Do not overtake	170	41.9
	U-turn	274	67.6
	Chevron	45	11.1
	Stop	380	93.8
	Petrol pump ahead	234	57.7

Table 4: Attitude related to road safety measures.

Questions	Response	Frequency	Percentage
Driving before acquiring a license is all right?	Yes	65	16
	No	340	84
Pillon should wear a helmet/seat belt?	Yes	380	93.8
	No	25	6.2
Road signs and symbols helps in reducing accidents	Yes	392	96.8
	No	13	3.2
Practicing no horn zones is mandatory?	Yes	363	89.4
	No	43	10.6
Is it legal to use a mobile phone while driving?	Yes	78	19.3
	No	327	80.7
Drink and drive	Yes	49	12.1
	No	356	87.9

Table 5: Practice related to road safety measures.

Questions	Response	Frequency (n=405)	Percentage
Do you wear a helmet while driving?	Yes	163	40.2
	No	242	59.8
As a Pillon, will you wear a Helmet/Seat belt?	Yes	243	59.9
	No	162	40.1
Do you drive after alcohol consumption?	Yes	23	5.7
	No	382	94.3
Using mobile phones while riding?	Yes	360	88.9
	No	45	11.1
Do you use a rear mirror while riding?	Always	314	77.5
	Sometimes	18	4.5
	Never	73	18
Using a PUC certified vehicle?	Yes	341	84.2
	No	64	15.8
Follow traffic signals and road signs	Always	312	77
	Sometimes	9	2.3
	Never	84	20.7
Do you use an indicator	Always	338	83.7

Continued.

Questions	Response	Frequency (n=405)	Percentage
while taking turns?	Sometimes	56	13.8
	Never	10	2.5
Minimum distance maintained between vehicles	<1 Second	42	10.4
	2 Seconds	93	23
	>2 Seconds	270	66.6

94.8% were aware that a license is issued at 18 years of age and 98.3% about wearing helmets and seat belts while driving whereas 58% know the speed limit in Gulbarga city and 95% about the significance of traffic signal lights. 82.7% were aware of no horn zone areas. 95.5% were unaware of the allowable blood alcohol limit while 2.7% of students are informed that triple riding is allowed in India (Table 2).

Though 59.8% of students have a license, 84% said driving is permitted without acquiring a license which could be one of the major reasons for accidents. 59.8% of students don't wear helmets while driving, the reason was majority had discomfort while driving (29.4%) which could be due to bad weather conditions in Gulbarga while the minority (5.9%) said having good driving skills doesn't require a helmet (Figure 1). Though 87.9% were aware that drunk driving is harmful and 5.7% of students had driven when drunk whereas 80.7% about mobile phone usage, 88.9% were using it while driving. 84.2% use a PUC-certified vehicle. 83.7% use indicators while taking a turn and maintain a minimum distance of >2 seconds (66.6%) between vehicles (Tables 4 and 5).

DISCUSSION

In our study, sociodemographic variables show that the majority of responses belonged to the 20-22 age group, male gender, and phase 3 part 1 students whereas a similar study by Kumar et al among 200 medical students in 2019 year, also showed similar findings as the majority belonged to 20-25 age group, male gender but with equal representation of Phase 3 Part 1 and 2.[15]

A study by Ramya et al showed that 65.18% used two-wheelers whereas our study shows 95.8%. 99.2% are aware of traffic signals whereas 95% were aware in our study.[10] The majority were aware of wearing a seatbelt while driving a vehicle. Similar findings were also shown in the Kumar et al and Ramya et al studies.[10,15] 87.7% were aware that drunk driving is harmful and 2.4% drove when drunk which is less when compared to our study because of strict traffic rules.[10]

A study by Srivastava et al among 265 students showed 53.96% have a driver's license which is less when compared to our study (59.8%).[13] A study by Das et al among 168 students showed 84% use indicators while turning which is also similar to our study (83.7%).[14]

Our study tried to cover almost all aspects of questions related to knowledge, attitude, and practice of road safety measures with minimal lacunae when compared to similar studies conducted.

Our study was conducted in a single medical college; hence it is recommended to conduct similar studies in a large population to generalize the study findings. Further research in this area needs to be conducted to assess the existing situation regarding road safety and determinants of morbidity and mortality of road traffic accidents.

CONCLUSION

Our study found that overall knowledge of road safety measures among medical students was satisfactory, but practice was not so. The knowledge didn't translate into practice in some aspects. Accidents are avoidable by a proper sense of road safety measures like wearing a helmet, wearing a seatbelt, following all traffic signal rules, and avoiding drink and driving which should be encouraged. Personal audio devices for listening to music among students are nearly universal and many students while using mobile end up with accidents, so there is a need to develop information education communication activities regarding abstinence. Policy approaches should be considered to enhance appropriate legislation regulating unsafe personal audio device use behavior that undermines road safety with strict traffic rules to be abided by all. The Thrust of road safety is the 4Es in education, enforcement, engineering, and environment. All efforts should be made to improve this issue through signal boards, posters, and mass media.

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