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Research Article

A STUDY ON BASIC KNOWLEDGE AND PRACTICES FOR ROAD TRAFFIC SAFETY MEASURES AMONG UNDERGRADUATE MEDICAL STUDENTS OF UTTAR PRADESH

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ABSTRACT

Objectives: The objectives of this study were to assess the knowledge and practices of road traffic safety measures among undergraduate medical students and recommendation to prevent road traffic accident.

Methods: It was an institutional-based cross-sectional study among undergraduate medical students who knew driving. Total 138 study subjects were purposively selected from three batches. A self-structured questionnaire based on knowledge and practices related to road traffic safety measures with Yes/No answer pattern. Data were collected, compiled, and analyzed using appropriate software.

Results: Overall level of knowledge for road traffic safety measures was good/moderate among 37.7% of medical students each while poor among 24.6% students (more among 1st year/39.3% than 2nd year/19.0%, 3rd year/10.0%) (statistically significant X^2 =13.304, p-value=0.01). Road traffic safety practices were followed by students (%), namely, wearing a seat belt while driving/seating in four-wheeler' by 84.1% and neither keep specified speed limit on road/2.9% nor obey all traffic signals/lights/signs'/2.9%. Few students use mobile phone while driving, namely, 2nd year/19.0% and 3rd year/10.0%. Some students did not follow Road Safety rules viz. "Not Wear Helmet while driving a two-wheeler"(21.7%); "Overtaking from left side"(17.4%); and "drive even when alcoholic"(4.3%).

Conclusions: Knowledge for road traffic rules/regulation was good/moderate among average number of students. Majority of medical students' obey all traffic rules/light signal and signs while some students still did not follow it; use mobile phone while driving/not stop at zebra crossing and neither use indicators while turning nor keep valid DL. To improve the current scenario, road traffic safety rules/measures should be added in our medical curriculum and there is need of frequent awareness campaign related to road safety measures to change their behavior while driving and save their precious life.

Keywords: Road traffic safety, Light signal, Seat belt, Speed limit.

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INTRODUCTION

Road traffic accidents have now become a big public health or injury preventable problem. Each year, about 1.3 million people are dying on world's road and 20–50 million victims with non-fatal injuries [1]. National Annual Report of Road Crash fatalities shows that majority of road deaths were by two-wheelers (37%) and pedestrians 17% followed by light vehicles (16%) of the total victims killed on road. Hit and run cases accounted for 55% of death, while 18–45 year age group young adults accounted for 69.3% of road accident victims in 2019. In road accidental deaths, males (86%) were comparatively more killed than females (14%) in 2019.

Various factors are responsible for road accidents such as human error; road environment; and vehicular condition as described in Haddon's Matrix [2]. Violation of traffic rules is the major killer, namely, over speed (67.3%), followed by driving on wrong side (6.1%), using mobile phone (3.3%), and driving in drunken condition 3.5% of total road accidental deaths. Accidents were more while driving without driving license (15%). No use of helmets accounts 30% of deaths; non use of seat belts 14%; old vehicles of more than 10 years accounted 41%; and overloaded vehicles accounted 10% of road deaths. In India, highest number of road accidental deaths was reported in Uttar Pradesh [3].

Our medical students, that is, younger age group, being the future doctor of the nation, are attending emergencies, always in a hurry and using vehicles, so there is need of assessment of their road traffic activities and this study was undertaken among medical students. Aims and objective of this study was to assess the knowledge of road traffic safety measures among undergraduate students of different batches of Government Medical College and Hospital of Uttar Pradesh and their road safety practices while driving vehicle and recommendation to prevent the incidence of road traffic accident.

METHODS

It was an institutional-based cross-sectional study conducted among undergraduate students of Government Medical College, Shahjahanpur, UP. Duration of study was of 3 months, that is, from January 5, 2022, to April 4, 2022. Participants were selected from total 300 undergraduate medical students of all current batches, that is, 1st year (2021 batch), 2nd year (Batch 2020), and 3rd year (Batch 2019), in our study area of Government Medical College UP. Inclusion criteria were the students who knew driving two or four-wheeler vehicle, willing to participate, and not suffering from any chronic illness and have given informed consent, which were included in this study. Those students who do not fulfill above criteria and not given the consent were excluded from the study. The study subjects were free to leave the study anytime if candidate feels uncomfortable or not willing to continue participation in the study.

Given Pro forma was pretested, self-constructed, and semi-structured set of questionnaire. All eligible candidates of different batches, who

knew driving two or four-wheeler and fulfilling the above inclusion criteria, were selected by applying purposive sampling method. Total 138 undergraduate medical students were selected from different batches viz. 41%, 30%, 29% respectively from 1st year, 2nd year and 3rd year students. Ethical clearance was taken from the Institutional Ethical Committee.

Knowledge about road traffic safety measures was briefed to the medical students and questionnaire pro forma was distributed to each of the eligible participants. Students met at the time of investigator's visit were included in the study. Total 22 set of questions based on knowledge of road traffic safety regulation/measures and their sign were prepared with Yes/No answer pattern. Total correct (yes) answers were counted separately for each filled pro forma of study subject. Overall knowledge score of each individual was categorized on the basis of different level of knowledge, namely, good/moderate or poor. Score of more than 75% was put under good grade and 50–75% were considered moderate, while <50% were graded poor. The validity of the questionnaire was checked by pilot study.

A practice scale was self-prepared depending on the implementation of road traffic safety rules while driving on the road and comprised questionnaire with total ten sets of questions related to road safety rules. Each question items were sub-categorized as follow rule – always, sometimes, or never follow it.

Data were filled in Excel sheet, compiled, and analysis done by applying appropriate software SPSS 21. Descriptive Statistics was applied to analyze frequencies, percentage, mean with standard deviation, Chi-square test, and p value calculation.

RESULTS

Overall frequency distribution of eligible undergraduate medical students (138) of different batches was, respectively, 1st year/56 (41%), 2nd year/42 (30%), and 3rd year/40 (29%) and their mean age was 22.74 years±2.18 and separately for 1st year/21.857 years±1.823, 2nd year/22.33 years±1.934, and 3rd year/24.40 years±1.997 (Table 1).

Table 1: Sociodemographic distribution of undergraduate medical students (year-wise frequency and mean age) under study

Gender		Frequency (n)	Percentage
Study subjects according to gender			
Male		78	56.5
Female		60	43.5
Total		138	100.0
Study Subjects	**Mean Age±SD (in years.)**	**Frequency (n)**	**Percentage**
Frequency distribution of different batches of Undergraduate medical students with their mean ages			
1st year	21.857±1.823	56	41.0
2nd year	22.33±1.934	42	30.0
3rd year	24.40±1.997	40	29.0
Total	22.739±2,18	138	100.0
Residential place		**Frequency (n)**	**Percentage**
Urban		112	81.2
Rural		26	18.8
Total		138	100.0
Drive vehicle frequently on road			
Two-wheelers		128	92.8
Four-wheeler		10	7.2
Total		138	100.0
Source of motor driving learning			
Family members		94	68.1
Friends/Driving school		44	31.9
Total		138	100.0

Male riders (56.5%) were comparatively more than female study participants (43.5%). Most of the students drive two-wheeler 92.8% than four-wheeler 7.2% and majority belong to urban area than rural (81.2%, 18.8%) and most of them learn driving from family members than friends/driving school (68.1%,31.9%) (Table 1).

The knowledge of medical students (%) for different road safety measures/symbols in present study was as follow – "Age to acquire major driving license"/84.8%, "Average City Speed"/81.2%, "Most important reason for road traffic accident" – distracted driving/80.4%, Symbol of "U'-turn prohibited"/82.6%, "Number of Person in Two-wheeler"/95.7%, and "Significance of Red Light"/75.4%. Study participants knew different road sign, namely, –"No entry"/95.7%, "No Parking"/79.7%, "Pedestrian Crossing"/82.6%, "School Ahead"/90.6%, "Horn Prohibited"/81.2%, and "Traffic signal"/78.3%. Majority of students knew about "Mobile phone use while driving is dangerous"/81.9%. Majority of students knew benefits of wearing helmet while driving two wheeler (94.2%); use seat belts while driving four-wheeler (94.2%) (Table 2).

In few aspects of road traffic safety measures, students of 1st year (junior batch) knew better than 2nd and 3rd year as shown, respectively, in percentage, namely, "U'-turn prohibited symbol" (95.9%, 61.9%, and 90.0%), maximum period to renew D.L (42.9%, 47.6%, and 5.0%), highway speed limit' (71.2%, 95.2%, and 10.0%), "Significance of Red Light signal" (85.7%, 57.1%, and 80%), and "Road sign of No Entry" (100%, 85.7%, and 100%). This difference in knowledge among different batches of medical students was found to be statistically significant (p=0.001), while senior medical students knew better than Junior/1st year. students as shown in percentage from 3rd year to 1st year, namely, about "Age to acquire minor driving license" (80%, 57.1%, and 57.1%), road sign of "give way to other vehicle" (95%, 47.6%, and 37.5%), "Imprisonment period for motor vehicle accidents without license and ownership document" (65.0%, 85.7%, and 42.9%), "Limit of Blood Alcohol Concentration" (75.0%, 47.6%, and 64.3%), "Road Sign of No Parking" (100%, 52.4%, and 85.7%), and city speed limit (95.0%, 52.4%, and 92.9%) (Table 2).

Overall level of knowledge for road traffic safety measures among our study participants were poor among 34 (24.6%), namely, 1st year/39.3%, 2nd year/19.0%, and 3rd year/10.0%; moderate among 52 (37.7%), namely, 1st year 25%, 2nd year42.9%, and 3rd year/50%; while good among only 52 (37.7%), namely, 1st year/35.7%, 2nd year/38.1%, and 3rd year/40.0% students (Figure 1). This difference in knowledge among medical students was found to be statistically significant (X^2=13.304, p=0.01) (Table 3).

In the present study, road safety practices used by medical students, namely, "Wear a seat belt while driving/seating in four-wheeler" always by 116 (84.1%) (1st year/85.7%, 2nd year/76.2%, and 3rd year/90.0%); sometimes by 16 (11.6%) and never use it by 06 (4.3%) students; "Keeping specified speed limit while driving" always by 103 (74.6%) students (3rd year/57.5%, 2nd year/85.7%, and 1st year/78.6%); sometimes by 31 (22.5%) while few 04 (2.9%) students do not follow it; "Obey all traffic signals/lights/signs" always by 120 (87.0%) (1st year/78.6%, 2nd year/90.5%, and 3rd year/90.5%; and sometimes by 14 (10.1%) while few 04 (2.9%) never follow it; "never use mobile phone while driving" by 126 (91.3%), but some students of 2nd year/08 (19.0%) and 3rd year/04 (10.0%) were using it.

Few students 18 (13%) never stop at zebra crossing while crossing a road, particularly of 3rd year 12 (30.0%) followed by 2nd year 02 (4.8%) and 1st year 04 (7.5%); sometimes by 34 (24.7%) while average 86 (62.3%) students always follow this rule (Statistically significant X^2=51.69, p=0.001) (Table 4).

Safe practices followed by students while riding, namely, "use indicators and look both sides before turning" always by 72.5% (3rd year/90.0%,

Table 2: Distribution of study subjects according to their knowledge of road safety

Knowledge statement (correct response)	1st year. St. n (%)	2nd year St. n (%)	3rd year St n (%)	Total (n) %	Chi square	p value
Age to acquire minor driving license	32 (57.1)	24 (57.1)	32 (80.0)	88 (63.8)	6.423	0.040
Age to acquire major driving license	48 (85.7)	35 (83.3)	34 (85.0)	117 (84.8)	0.108	0.948
Fine for motor vehicle accident without license and ownership document	36 (64.3)	35 (83.0)	35 (87.5)	106 (76.8)	14.37	0.006
Imprisonment period for motor vehicle accidents without license and ownership document	24 (42.9)	36 (85.7)	26 (65.0)	86 (62.3)	24.96	0.001
Highway speed	40 (71.4)	40 (95.2)	04 (10.0)	84 (60.9)	80.59	0.001
Average city speed	52 (92.9)	22 (52.4)	38 (95.0)	112 (81.2)	32.77	0.001
Most important reason for road traffic accident	42 (75.0)	30 (72.0)	39 (97.1)	111 (80.4)	10.62	0.005
Symbol of "U"-turn prohibited	52 (95.9)	26 (61.9)	36 (90.0)	114 (82.6)	19.53	0.001
Number of person in two-wheeler	52 (92.9)	40 (95.2)	40 (100.0)	132 (95.7)	2.887	0.236
Max. Pd. to renew D.L.	24 (42.9)	20 (47.6)	02 (5.0)	46 (33.3)	84.08	0.001
Significant red light	48 (85.7)	24 (57.1)	32 (80.0)	60 (75.4)	13.39	0.009
Road sign of give way to other vehicle	21 (37.5)	20 (47.6)	38 (95.0)	79 (57.2)	37.00	0.001
Road sign of no entry	56 (100.0)	36 (85.7)	40 (100.0)	132 (95.7)	14.34	0.001
Limit of blood alcohol concentration	36 (64.3)	20 (47.6)	30 (75.0)	86 (62.3)	15.655	0.004
Road sign of no parking	48 (85.7)	22 (52.4)	40 (100.0)	110 (79.7)	37.20	0.001
Pedestrian crossing	44 (78.6)	34 (81.0)	36 (90.0)	114 (82.6)	5.38	0.250
School ahead	51 (91.1)	40 (95.2)	34 (85.0)	125 (90.6)	5.10	0.277
Horn prohibited	50 (89.3)	31 (73.8)	31 (77.5)	112 (81.2)	9.08	0.059
Traffic signal	42 (75.0)	37 (88.1)	29 (72.5)	108 (78.3)	7.86	0.097
Mobile phone use while driving is dangerous	48 (85.7)	31 (73.8)	34 (85.0)	113 (81.9)	5.56	0.235
Wear helmet while on two-wheeler while driving	56 (100)	36 (85.7)	38 (95.0)	136 (94.2)	9.03	0.011
Under traffic rules, use seat belt in four-wheeler	56 (100.0)	34 (81.0)	40 (100.0)	130 (94.2)	19.41	0.001

Table 3: Distribution of undergraduate medical students according to their overall level of knowledge of road safety

Level of knowledge	Ist year Std n (%)	IInd year n (%)	IIIrd year n (%)	Total n (%)	X^2 value	p-value
Good	20 (35.7)	16 (38.1)	16 (40.0)	52 (37.7)	13.304	0.010
Moderate	14 (25.0)	18 (42.9)	20 (50.0)	52 (37.7)		
Poor	22 (39.3)	08 (19.0)	04 (10.0)	34 (24.6)		
Total	56 (100)	42 (100)	40 (100)	138 (100)		

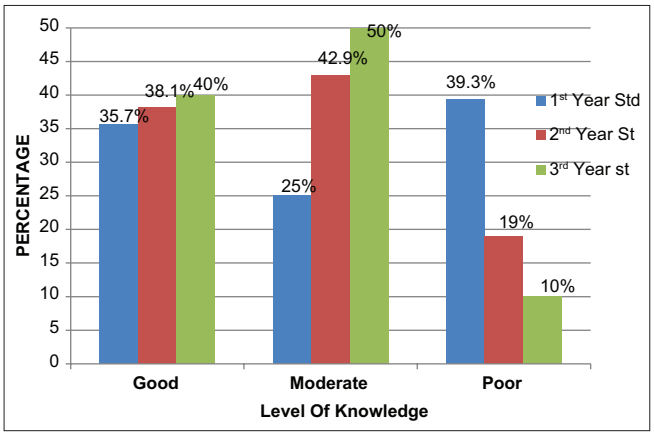

Fig. 1: Diagram showing level of knowledge of road safety measures among undergraduate medical students (%)

2nd year/38.1%, and 1st year/85.7%); sometimes by 20 (14.5%); never used by 18 (13%) students; "Have valid DL and always carried with them" by 70 (50.7%) (1st year/57.1%, 2nd year/57.1%, and 3rd year/35.0%); sometimes by 24 (17.4%) while never carried by 44 (31.9%) student; and "Wearing Helmet while driving a two-wheeler" always by 42 (30.4%), sometimes by 06 (4.3%) while never wear helmet by 30 (21.7%) study subjects. Average students follow "overtaking from right side" always by 82 (60.9%) (3rd year/95.0%, 2nd year/52.4%, and 1st year/42.9%); sometimes by 30 (21.7%), while never followed by 24 (17.4%) students; "not drive when alcoholic" always by 130 (94.2%), while drive even when alcoholic by 06 (4.3%) participants (Statistically significant X^2=20.81, p=0.001) (Table 4).

DISCUSSION

In the present study, most of the study participants used to drive two-wheelers 92.8% and four-wheeler 7.2%. In our study, total 92.8% study participants were two-wheeler riders with male and female students, 56.5% & 43.5% respectively. This was different from findings of Srivastava *et al*. with two-wheeler riders 57.35% (male 66.42% and female riders 42.4%) [4] and Ramya *et al*. study (68.18%) [5]. While similar findings of two wheeler riders were found in Kalbandkeri *et al*. study (82.5%) [6] and Sharma *et al*. Study(84%) [7].

This study depicts female medical students that knew better than male in few aspects of road safety measures/rules as age to acquire minor driving license (71.7%/57.7%), fine for motor vehicle accident without license and ownership document (86.7%/69.2%), and highway speed limit (76.7%/48.6%), while male students knew better about "Imprisonment period for motor vehicle accidents without license and ownership document" (71.8%/50.0%) and "Average City Speed Limit" (94.9%/63.3%) different from Findings of Reang and Tripura with

Table 4: Distribution of study subjects according to practices applied for road safety

S. No.	Practice Statement	MBBS (Std.)	Always f (%)	Sometimes f (%)	Never f (%)	Chi-square	p-value
1	Wear a seat belt when you are driving/seating in a four-wheeler	1st year	48 (85.7)	08 (14.3)	0 (00)	14.803	0.005
		2nd year	32 (76.2)	04 (9.5)	06 (14.3)		
		3rd year	36 (90.0)	04 (10.0)	0 (00.0)		
		Total	116 (84.1)	16 (11.6)	06 (04.3)		
2	Keep specified speed limit in mind while driving	1st year	44 (78.6)	08 (14.3)	04 (7.1)	18.304	0.001
		2nd year	36 (85.7)	06 (14.3)	00 (00.0)		
		3rd year	23 (57.5)	17 (42.5)	00 (00.0)		
		Total	103 (74.6)	31 (22.5)	04 (2.9)		
3	Obey all traffic signals, lights and signs	1st year	44 (78.6	12 (21.4)	00 (0.0)	15.832	0.003
		2nd year	38 (90.5	02 (4.8)	02 (4.8)		
		3rd year	38 (95.0)	0 (0.00)	02 (05.0)		
		Total	120 (87.0)	14 (10.1)	04 (2.9)		
4	Use mobile phone while driving a vehicle	1st year	00 (0.0)	00 (0.0)	56 (100)	29.05	0.001
		2nd year	00 (0.0)	08 (19.0)	34 (81.0)		
		3rd year	04 (10.0)	00 (0.00)	36 (90.0)		
		Total	04 (2.9)	08 (5.8)	126 (91.3)		
5	Stopping at zebra crossing while crossing a road	1st year	52 (92.9)	0 (0.0)	04 (7.1)	51.69	0.001
		2nd year	20 (47.6)	20 (47.6)	02 (4.8)		
		3rd year	14 (35.0)	14 (35.0)	12 (30.0)		
		Total	86 (62.3)	34 (24.6)	18 (13.0)		
6	Use indicators while taking turns and look both sides before turning.	1st year	48 (85.7)	04 (7.1)	04 (7.2)	38.257	0.001
		2nd year	16 (38.1)	12 (28.60)	14 (33.3)		
		3rd year	36 (90.0)	04 (10.0)	00 (0.0)		
		Total	100 (72.5)	20 (14.5)	18 (13.0)		
7	Have valid DL and Carry with every time	1st year	32 (57.1)	04 (7.1)	20 (35.7)	13.939	0.007
		2nd year	24 (57.1)	06 (14.3)	12 (28.6)		
		3rd year	14 (35.0)	14 (35.0)	12 (30.0)		
		Total	70 (50.7)	24 (17.4)	44 (31.9)		
8	Carry and Wear Helmet every time while driving a two-wheeler	1st year	28 (50.0)	0 (00)	28 (50.0)	20.486	0.001
		2nd year	06 (14.3)	04 (9.5)	32 (76.2)		
		3rd year	08 (20.0)	02 (5.0)	23 (75.0)		
		Total	42 (30.4)	06 (4.3)	30 (65.2)		
9	Always Overtake from Right side	1st year	24 (42.9)	12 (21.4)	20 (35.7)	40.72	0.001
		2nd year	22 (52.4)	16 (38.1)	04 (9.5)		
		3rd year	36 (95.0)	02 (5.0)	00 (00)		
		Total	82 (60.9)	30 (21.7)	24 (17.4)		
10	Do not drive when alcoholic	Total	130 (94.2)	02 (1.4)	06 (4.3)	20.81	0.001

Males significantly had better knowledge (81.8%) compared to females (71.7%) [8].

In our study, average number of students knew about different road traffic rules viz. 'Age to acquire minor driving license'(63.8%); 'Fine/ Imprisonment period for motor vehicle accident without license and ownership document'(76.8%/62.3% respectively). Most of the students were aware of wearing helmet while on two-wheeler (94.2%); use seat belts while driving/seating in four-wheeler(94.2%) and stop at pedestrian crossing(82.6%). Majority of participants knew traffic signs of 'School Ahead'(90.6%); 'Horn Prohibited'(81.2%); 'Traffic Signal'(78.3%). Average number of students were aware of 'mobile phone use while driving be dangerous' (81.9%). Our results were similar to findings of Reang and Tripura study for road safety measures viz. "wait patiently for pedestrians on zebra crossing"/88.7% [8]and almost adherent to finding of Jothula and Sreeharshika study with 'age to obtain driving license'/81.1%;'wear helmet while driving scooter/ bike'/97.7% [9]. Results of Sharma *et al*. study viz."age of getting minor driving license"/64% was found to be similar to our finding while different in relation to "Imprisonment period and Fine for motor vehicle accidents without license and ownership document"/26.0% and 37.3%, respectively [7].

In the present study, majority of medical students were aware about different road safety measures/symbols as "Age to acquire major driving license"/84.8%, "Average City Speed"/81.2%, "Most important reason for road traffic accident" – Distracted Driving by loud music or talking/80.4%, and "Number of Person in Two-wheeler"/95.7%. Majority of students knew Road Signs of – "No Parking"/79.7%, "Pedestrian Zebra Crossing"/82.6%, "Slow on looking the sign of School Ahead"/90.6%, "Horn Prohibited"/81.2%, "Traffic signal"/78.3%, and "Mobile phone use while driving is dangerous"/81.9%. This is in adherence with findings of Sharma *et al*. study with "age of getting major driving license"/94%, "significance of red light at signal"/96.7% and symbols of "U'-turn prohibited"/86.0% and sign of "no entry" in 53.3% and "main reason of road traffic accidents"/72.7%, sign of "overtaking prohibited"/71.3%, and "no parking"/74.6%, while results were different for "highway driving speed limit"/23.3% [7]; Reang and Tripura study, "wait patiently for pedestrians on zebra crossing" 88.7% and "knowledge of speed limit"97.4%, talking while driving distract the driver/92.9%, and drive cautiously near school/98.4% [8]; and Sharma *et al*., namely, "Age to get driving license"/91.3% and "Average city speed limit" of a two-wheeler/52.0% [10]; while findings of Jothula and Sreeharshika study (2021) were different as "average speed limit in their states"/23.4% and "road signs"/65.1%, and knowledge regarding road safety regulations/58.3% [9].

In our study, knowledge of some road safety rules was more among students of 1st year, 2nd year in comparison to seniors/3rd year, namely, "Maximum Highway speed" (71.4%, 95.2%, and 10.0%), "U'-turn prohibited symbol" (95.9%, 61.9%, and 90.0%), maximum period to renew D.L (42.9%, 47.6%, and 5.0%), "Significance of Red Light" (85.7%, 57.1%, and 80.0%), and "Road sign of no entry" (100.0%, 85.7%, and 100.0%). This shows that upcoming younger students were comparatively more aware of some road safety measures and this difference in Knowledge among medical students of different batches was found to be statistically significant ($p<0.05$), similar to Reang and Tripura "signs of no U-turn"/90.6% [8].

Basic knowledge to renew driving license, "Average speed limit of two-wheeler in city," highway speed limit (particularly 3rd year/seniors) was found to be poor among medical students. This should be upgraded by frequent road traffic safety campaign at regular intervals.

In the present study, knowledge about road sign was acknowledged more among students of 3rd year (seniors) than 2nd and 1st year, namely, "give way to other vehicle" (95.0%, 47.6%, and 37.5%); "Imprisonment period for motor vehicle accidents without license and ownership document" (65.0%, 85.7%, and 42.9%); "Average City Speed" (95.0%, 52.4%, and 92.9%); "Limit of Blood Alcohol concentration" (75.0%, 47.6%, and 64.3%); "Road Sign of No Parking" (100.0%, 52.4%, and 85.7%) (p=0.001, statistically highly significant) opposite to Sharma *et al*. with safety limit of blood alcohol concentration for driving by 24.5% [10], and similar to Jothula and Sreeharshika study, namely, "Alcohol drink and drive not advisable" 55.3% and using mobile phones, while driving is dangerous 83.3% [9].

The present study depicts overall level of knowledge for road traffic safety and regulation was moderate or good among 37% students each, while 24.6% had poor response. This difference in knowledge was found to be statistically significant (X^2=13.304, p=0.01), while students with poor knowledge were in majority from 1st year followed by 2nd and 3rd year batch (39.3%, 19%, and 10%, respectively). This shows that knowledge of road safety measures is still poor among some medical students, slightly different from Sharma *et al.* study, namely, level of knowledge, inadequate 23.3%, and moderate 58% while adequate level knowledge in few (18.7%) [7].

In the present study, most of the students always prefer good road safety practices viz. use a seat belt while driving four-wheeler," (84.1%); "keeping specified speed limit while driving vehicle (74.6%); Obey all traffic signals/lights/signs on the road, 87%(3rd year 90% more than 1st year 85.7%, and 2nd year 76.2%), this difference was found to be statistically significant (p<0.005), similar to Suresh *et al*. study with "Obey all traffic signals, lights and signs" by 66.7% while different for "Wear a seat belt while driving/seating in a four-wheeler" 36.0% and never follow this by 34.0%, and "Keep specified speed limit in mind" while driving by 43% and never by 10.7% [7].

In our study, most of the students(91.3%) did not use mobile phone while driving". Whilst few of 3rd year students (10.0%) 'use mobile while riding';' not stop at zebra crossing while crossing a road" (13%) (mostly by students of 3rd year/ 30% followed by 2nd year/4.8%, and 1st year/7.1%). Majority of the students(72%) always "use indicators while taking turns and look both sides before turning" (Followed more by students of 3rd year/90% than 2nd year/38.1%, and 1st year/85%) . While Traffic Indicators were never used by 13% students and some (31.9%) never keep valid DL. In our study only some participants(30.4%) always wore helmet while driving two- wheeler while sometimes used by 4.3% and never by 22.2% students. Traffic rules of overtaking from left side never followed by 17.4% participants and few (4.3%) students drove even when alcoholic" (Statistically significant p=0.001). Finding of Suresh *et al*. was slightly different for their study participants in relation to bad road traffic practices viz. sometimes use mobile phone while driving"(32.7%); "Non stopping at zebra crossing while crossing a road (24.7%) but some road safety practices were similar to findings of our study viz. "Use indicators while taking turns and look both sides before turning"(78.7%) ; overtake from the left side(12.7%) / right side(37.3%) and "never drove a vehicle when alcoholic"(85.3%); [7]. Findings of Srivastava *et al*. study was adherent to results of our study viz. 'Always carryy valid DL,' by 53.96% participants but rarely by 12.83% while some do not have valid DL (20.37%); 'Use helmet while riding two-wheeler' only by few students(29.43%)and majority (48.67%) wore helmet occasionally [4] and Sharma *et al*. Study found that 27% of students use helmet when driving a two-wheeler [7]. Whilst finding of Jothula and Sreeharshika was different from our results viz. 'wearing helmet for long distance ride' by 76% students and none wore helmet for pillion riding as well as about 25.6% drove even after consuming alcohol [9] and Reang and Tripura study found drunken driving by few respondents (3.3%); 'used mobile phones while riding' (8.2%); and also 'crossed speed limits '(27.5%) [8].

In the present study, reasons explained by the students, for not always following road traffic safety measures, were due to delay in heavy road traffic, long distance between college and hospital, and call for clinical posting/emergency hospital duty/case study in hospital ward. Few students told that they remain in a hurry on road/follow college trend/ peer pressure/to release extra pressure take alcohol and not obeying road traffic safety measures seriously so there is need of proper behavior change to follow road traffic safety rules and regulation and save precious life of youngsters/future doctors of our nation.

CONCLUSIONS

Knowledge for road traffic rules/regulation was good/moderate among average number of students. More than 75% eligible students knew about "Age to acquire major driving license," "Average City Speed," "Reason of road traffic accident"/Distracted Driving, Symbol of "U'-turn prohibited," "Number of Person in Two-wheeler," "Significance of Red Light;" Road sign of "No entry," "No Parking," "Pedestrian Crossing," "School Ahead," "Horn Prohibited," "Traffic signal," and "Guarded Level Crossing."

Majority of medical students' obey all traffic rules/light signal and signs, while some students still did not follow it; use mobile phone while driving/drive even when alcoholic/cross speed limit/overtake from wrong side/not stop at zebra crossing/not use indicators while turning/not use helmet or seat belt while riding/not keep valid DL

In spite of having good or moderate level of knowledge among participants (particularly 3rd year), they do not follow safe practices of road traffic measures/rules while driving, always remain in hurry for attending emergency hospital duty/ward duty and taking risk on Road.

To improve the current scenario, road traffic safety rules/measures should be added in our medical curriculum to provide behavior change communication and there is need of frequent awareness campaign related to road safety measures to change their behavior while driving and save their precious life.

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CONTRIBUTION

Dr. Sandeep Kumar, Dr. Kamran Javed Naquvi, and Dr. Manjusha Nath had participated in the research study with literature search, definition of intellectual content, compilation of data, and manuscript review.

Concept of present original research article was prepared by Dr. Som Nath and also contributed in preparing design, collection of data, analysis of collected data, statistical analysis, preparing manuscript, and editing of manuscript.

CONFLICTS OF INTEREST

Nil.

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