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Original Research Article

Knowledge and practices towards road safety measures among intern and resident doctors: a cross-sectional study

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ABSTRACT

Background: In spite of ongoing commitment and efforts, road traffic accidents continue to be a leading cause of death and disabilities in India. Adequate knowledge on road safety measures among budding doctors can create awareness and provide preventive counselling to their clients. An attempt was made to assess the knowledge and practices about road safety measures among intern and resident doctors working in tertiary care setting.
Methods: An institution based cross-sectional study was conducted among 168 young doctors of Jorhat Medical College, Jorhat, Assam.
Results: Among the enrolled study participants 54% were intern and 46% were resident doctors. More than half of the participants were male. Knowledge on different, road signs among the young doctors ranges in between 68% to 99%. The dangerous effects of alcohol consumption while driving/riding were known to 93% of the participants. While riding two wheels, only 58% always use helmet with belt and 33% sometimes use mobile phone. Regarding exceed in speed limit in two wheels, 11 (17%) participants informed that they surpass the speed limit and among them 10 (26%) were males which was found to be statistically significant. Among four-wheelers, 48% always use seat belt and 49% sometimes use mobile phone while driving. During four-wheel driving, 21% participants were involved in occasional drinking/smoking and it was found significantly higher in males.
Conclusions: The study revealed that in spite of having adequate knowledge about road safety measures, intern and resident doctors are poor in practicing which warrant motivational and counselling intervention.

Keywords: Drunken driving, Health care providers, Road safety measures, Road traffic accidents

INTRODUCTION

Doctors working in health care facilities have a pivotal role to play as a researcher, counsellor and through direct action by educating public in prevention of road traffic injuries.[1] The number of road traffic accident on the world's roads remains excessively high with 1.35 million people dying each year. Road traffic accident is the 8th major cause of death and currently the most leading cause of death among the age-group of 5-29 years globally.[2] Similar to global trend, India have also witnessed an increasing trend of case fatalities following road traffic injuries to nearly 1.49 lakh in 2018 with Uttar Pradesh registering the maximum spike in mortalities.[3] In India, more than half of deaths are among vulnerable road users such as pedestrians and cyclists which constituted 26% of all deaths and motorcyclists consisted another 28%. Car users represented 29% of all deaths and remaining 17% were unidentified road users.[2] Sustainable Development Goal 3.6 targets to halve road deaths and injuries by 2020 and to provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety particularly by increasing public transport with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities, and older persons by 2030.[2] The years 2011 to 2020 was declared as the "Decade of Action for Road Safety" by UN General Assembly. The Decade of Action seeks to prevent road traffic injuries and deaths that are estimated to take lives of about 1.9 million people yearly by 2020.[4]

The Ministry of Road Transport and Highways published a report stating that 56 accidents occur every hour on Indian roads and at least 14 people are killed in these accidents.[5] Assam one of the states in North East India has high rate of accidents and deaths in relation to number of vehicles on the road.[6] Between 2013 and 2016, the number of two-wheelers and three-wheelers on the world's road increased by 10%. It has been observed that correct use of helmet can lead to reduction of fatal injuries and head injuries by 42% and 69% respectively. Use of seat-belt can also reduce the risk of death among drivers, front seat occupants by 45-50% and also among rear seat occupants by 25%.[2] Road traffic-related injuries and mortalities in developing countries are primarily due to growth in number of motor vehicles, poor implementation of traffic safety regulations, insufficiency of public health infrastructure, poor access to health services, etc. in comparison to the developed countries.[6] Earlier studies in India stated that increase in population, increase in number of vehicles on roads, ignorance for the traffic rules and regulations are some of the major causes of increased injuries and mortality.[7] The simple measure to reduce the morbidity and mortality is to bring about a detectable change in behaviour among young adult including budding health care providers. In everyday practice, it is perceived that young doctors seem to lack adequate knowledge and practices about road safety measures in spite of their pivotal role in risk reduction and injury management. Therefore, it is crucial to understand the same among health care givers. In view of the above, it is prudent to take up a study to assess the knowledge and practices with regard to road safety measures among young doctors.

The objective of the study was to assess the knowledge and practices towards road safety measures among intern and resident doctors of Jorhat Medical College and Hospital.

METHODS

The present study was an institution based cross-sectional study conducted during the period from January, 2021 to March, 2021 among intern and resident doctors of Jorhat Medical College and Hospital, Jorhat. The total numbers of study participants interviewed were 168 for the present study.

The data were collected after obtaining verbal informed consent from the study participants. A standardized structured questionnaire was used for data collection. All the doctors who were willing to participate were included in the study.

Ethical clearance was obtained from Institutional Ethics Committee (H) of Jorhat Medical College, Jorhat. The data were processed and analysed using statistical software, MS Excel 2016 and documented using MS Word 2013. The results obtained were presented in the form of tables and figures. Association was determined using Chi-square test and p value <0.05 was considered to be statistically significant.

RESULTS

Demographic profile

On observing the age distribution of the 168 participants, it was found that the highest number of participants 51%, belonged to the age group 23 to 25 years followed by 41%, from the age groups 26 to 28 years and 7% belonged to 29 to 31 years age group. There were only 1% participants whose age was more than 31 years. Among the total participants 51% were male and 95% were unmarried. Job description of the study participants showed that 54% were interns while 46% were resident doctors.

Types of vehicle drive

Among the 168 research participants, 64 (38%) used two-wheelers, 86 (51%) used four-wheelers and 18 (11%) used both. Among two-wheelers, 38 (23%) were males and among four-wheelers 48 (28%) were females (Figure 1).

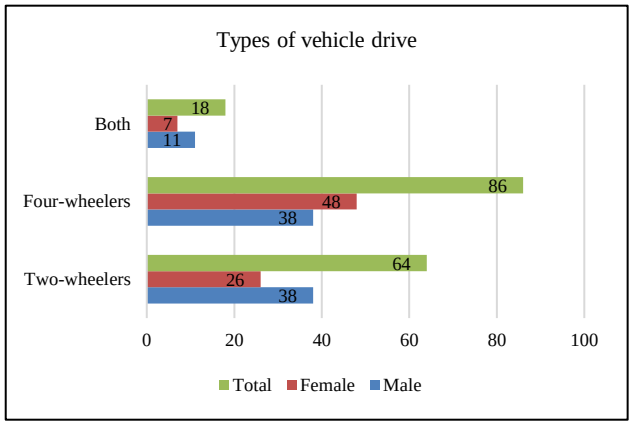

Figure 1: Distribution of participants according to types of vehicle drive.

Knowledge on road signs

We assessed the knowledge of the research participants about type of road traffic signs namely mandatory signs, cautionary signs, informatory signs. It was found that 88% could correctly interpret the mandatory signs, 94% could correctly interpret the cautionary signs and 82% could correctly interpret the informatory signs. Among the mandatory signs, it was observed that 99% could correctly interpret the sign "all motors vehicles prohibited" and only 70% could interpret the sign "compulsory sound horn". Among informatory signs, 99% could correctly interpret the road sign "petrol pump". But to our surprise, it was seen that 20% of the health care providers had wrongly interpret the sign "first aid post" (Table 1).

Table 1: Knowledge on road traffic signs among the participants.

Road signs	Interpretation of signs	Correct response (n=168) (%)	Cumulative correct response (%)
Mandatory road traffic signs			
	No entry	145 (86%)	88%
	All motors vehicle prohibited	167 (99%)	
	Overtaking prohibited	152 (90%)	
	One way	149 (89%)	
	Compulsory left turn	160 (95%)	
	Compulsory sound horn	117 (70%)	
Cautionary road traffic sign			
	School ahead	158 (94%)	94%
	Steep ascent	152 (90%)	
	Pedestrian crossing	164 (98%)	
Informatory road traffic sign			
	Petrol pump	167 (99%)	82%
	Eating place	114 (68%)	
	First aid post	134 (80%)	

Table 2: Distribution of participants according to knowledge on road safety measures.

Variables	Responses	Male (n=85) (%)	Female (n=83) (%)	Total (n=168) (%)	Chi-square test and p value
Importance of road signs	Correct	85 (100%)	82 (99%)	167 (99%)	χ^2=1.03, p value =0.3
	Incorrect	0	1 (1%)	1 (1%)	
Importance of helmet and seat-belt	Correct	85 (100%)	82 (99%)	167 (99%)	χ^2=1.03, p value =0.3
	Incorrect	0	1 (1%)	1 (1%)	
Overtaking from right side	Correct	78 (92%)	78 (94%)	156 (93%)	χ^2=0.31, p value =0.5
	Incorrect	7 (8%)	5 (6%)	12 (7%)	
Ideal distance between vehicles at parking place	Correct	55 (65%)	61 (74%)	116 (69%)	χ^2=1.51, p value =0.2
	Incorrect	30 (35%)	22 (26%)	52 (31%)	
Driving on left side of road	Correct	78(92%)	77 (93%)	155 (92%)	χ^2=0.06, p value =0.8
	Incorrect	7 (8%)	6 (7%)	13 (8%)	
Regular maintenance of vehicle	Correct	83 (98%)	78 (94%)	161 (96%)	χ^2=1.41, p value =0.2
	Incorrect	2 (2%)	5 (7%)	7 (4%)	
Dangerous effects of alcohol	Correct	82 (96%)	74 (89%)	156 (93%)	χ^2=3.38, p value =0.06
	Incorrect	3 (4%)	9 (11%)	12 (7%)	

p value <0.05 is considered to be significant.

Knowledge on road safety measures

Ninety-nine percent of the participants had knowledge regarding importance of road signs and 100% of male participants had knowledge on the importance of wearing seatbelt and helmet. The knowledge on overtaking were known to 93% of participants and 92% knew about driving on the left side of road while only 69% had knowledge on ideal distance between vehicles at parking place. The dangerous effects of alcohol consumption were known to 89% of female participants and 98% of male participants did regular maintenance of their vehicle (Table 2).

Practice of road safety measures

Out of the 64 participants who ride two-wheelers, 37 (58%) participants always wore helmet with belt while riding and among them 21 (57%) were males. With regard to mobile phone users, 67% of the participants stated that they never use mobile phone whereas 33% sometimes use while riding. We found that 55% respondents had the practice of overtaking only from right side and 83% always blew horn before overtaking. Regarding practice of exceeding in speed limit while driving, 11 (17%) participants gave positive response and among them 10 (26%) were males. This was found to be statistically significant. Twelve participants gave positive response on asking about any past history of road traffic accident and among them 11 (92%) were males. This was also found to be statistically significant. It was revealed that 30% budding doctors indulged in occasional drinking/smoking while riding (Table 3).

Out of the 86 participants who drive four-wheelers, 41 (48%) of them always wore seat-belt while driving and among them 24 (59%) were females. While enquiring use of mobile phone during driving we found that 51% of the participants specified that they never use mobile phone while riding a vehicle. We observed that 51% respondents had practice of overtaking always from right side of vehicle and 82% blow their horn before overtaking which was found to be significant. With regard to exceeding speed limit, 69 (80%) participants informed that they do not cross the speed limit specified under MVA act and majority of them were females 40 (58%). Thirteen percent gave positive response on asking about any past history of road traffic accident. It was not uncommon to notice that 21% participants were involved in occasional drinking/smoking while driving and most of them were males. This was found to be statistically significant (Table 4).

Table 3: Distribution of participants in regard to practice of road safety measures on two-wheelers.

Variables	Two- wheelers (n=64)		Total (n=64) (%)	χ^2 test and p value
	Male (n=38)	Female (n=26)		
Use of helmet with belt while riding				
Always	21 (55%)	16 (62%)	37 (58%)	χ^2=4.94, p value =0.08
Sometimes	16 (42%)	6 (23%)	22 (34%)	
Never	1 (3%)	4 (15%)	5 (8%)	
Use of mobile phone while riding				
Always	0	0	0	χ^2=0.08, p value =0.9
Sometimes	13 (34%)	8 (31%)	21 (33%)	
Never	25 (66%)	18 (69%)	43 (67%)	
Overtaking from right side				
Always	24 (63%)	11 (42%)	35 (55%)	χ^2=7.3, p value =0.02*
Sometimes	11 (30%)	6 (23%)	17 (26%)	
Never	3	9 (35%)	12 (19%)	
Blow horn before overtaking				
Always	29 (76%)	24 (92%)	53 (83%)	χ^2=5.8, p value =0.05
Sometimes	9 (24%)	1 (4%)	10 (16%)	
Never	0	1 (4%)	1 (1%)	
Exceeded speed limit				
Yes	10 (26%)	1 (4%)	11 (17%)	χ^2=5.4, p value =0.01*
No	28 (74%)	25 (96%)	53 (83%)	
Use of indicators while turning				
Always	31 (82%)	23 (88%)	54 (84%)	χ^2=0.55, p value =0.7
Sometimes	7 (18%)	3 (12%)	10 (16%)	
Never	0	0	0	
Any history of RTA				
Yes	11 (29%)	1 (4%)	12 (19%)	χ^2= 6.3, p value =0.01*
No	27 (71%)	25 (96%)	52 (81%)	
Drink/smoke while riding				
Always	0	0	0	χ^2=10.14, p value =0.006*
Sometimes	17 (45%)	2 (8%)	19 (30%)	
Never	21 (55%)	24 (92%)	45 (70%)	
Availability of first aid kit				
Yes	25 (66%)	20 (77%)	45 (70%)	χ^2=0.92, p value =0.3
No	13 (34%)	6 (23%)	19 (30%)	

*p value <0.05 is considered to be significant.

Table 4: Distribution of participants in regard to practice of road safety measures on four-wheelers.

Variables	Four wheelers (n= 86)		Total (n=86) (%)	χ^2 test and p value
	Male (n=38)	Female (n=48)		
Use of seat belt while driving				
Always	17 (45%)	24 (50%)	41 (48%)	χ^2=1.13, p value =0.5
Sometimes	21 (55%)	23 (48%)	44 (51%)	
Never	0	1 (2%)	1 (1%)	
Use of mobile phone while riding				
Always	0	0	0	χ^2=0.037, p value =0.9
Sometimes	19 (50%)	23 (48%)	42 (49%)	
Never	19 (50%)	25 (52%)	44 (51%)	
Overtaking from right side				
Always	19 (50%)	25 (52%)	44 (51%)	χ^2=0.15, p value =0.9
Sometimes	14 (37%)	18 (38%)	32 (37%)	
Never	5 (13%)	5 (10%)	10 (12%)	
Blow horn before overtaking				
Always	26 (68%)	44 (92%)	70 (82%)	χ^2=7.83, p value =0.01*
Sometimes	11 (29%)	4 (8%)	15 (17%)	
Never	1 (3%)	0	1 (1%)	
Exceeded speed limit				
Yes	9 (24%)	8 (17%)	17 (20%)	χ^2=0.6, p value =0.4
No	29 (76%)	40 (83%)	69 (80%)	
Use of indicators while turning				
Always	26 (68%)	24 (50%)	50 (58%)	χ^2=.37, p value =0.1
Sometimes	11 (29%)	20 (42%)	31 (36%)	
Never	1 (3%)	4 (8%)	5 (6%)	
Any history of RTA				
Yes	6 (16%)	4 (8%)	10 (13%)	χ^2= 1.14, p value =0.2
No	32 (84%)	44 (92%)	76 (88%)	
Drink/smoke while riding				
Always	0	0	0	χ^2=10.41, p value =0.005*
Sometimes	14 (37%)	4 (8%)	18 (21%)	
Never	24 (63%)	44 (92%)	68 (79%)	
Availability of first aid kit				
Yes	19 (50%)	27 (56%)	46 (54%)	χ^2=0.33, p value =0.5
No	19 (50%)	21 (44%)	40 (46%)	

*p value <0.05 is considered to be significant.

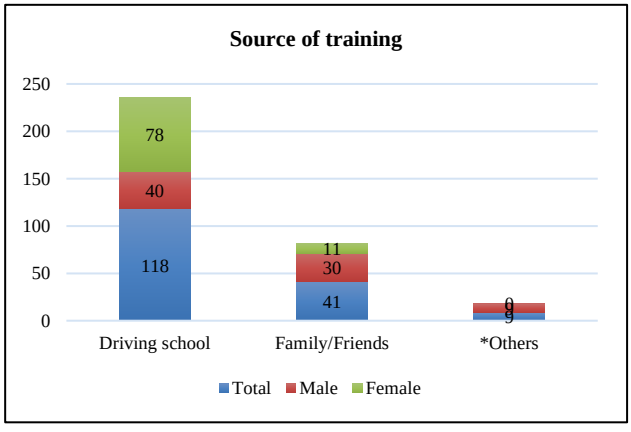

Figure 2: Distribution of participants according to source of training.

*Others includes custodian, neighbours etc.

Source of training

Among 168 participants, it was observed that 118 (70%) participants had their training from driving school, 41 (25%) from family/friends and 9 (5%) had their training from other sources such as custodian, neighbors etc. (Figure 2).

DISCUSSION

In the present study of the total participants, 51% were males. Studies conducted earlier reported male participants between 54.19% and 67.3%.[4,8] Majority of the participants (99%) had knowledge on road signs and also knew about the importance of wearing helmets with belt and seat-belt. In conformity to our findings study conducted by Ramya et al reported that 99.2% of the

participants had knowledge on the road signs and 98.8% also knew about the importance of helmet and seat-belt.[9] Conversely study conducted by Jogdand et al observed that 58% of the participants were vigilant of the same.[10] High knowledge on road signs and understanding the significant importance of wearing seat-belt/helmet among young doctors will act as an enabling factor in motivating vulnerable section for prevention and control of RTA. We observed that 93% research participants had correct knowledge of overtaking from right side and 92% knew about driving on the left side of road. This was similar to findings reported by Emmily et al and Kalbandkeri et al.[4,11] Another study conducted by Kasulkar et al noted that 70% of the participants knew about driving on left side and overtaking from right side, but in a study conducted by Phanindra et al only 24% of the participants had knowledge of the above law.[7,12] Ninety six percent of the participants in our study had well-maintained their vehicle. Earlier study conducted by Reang et al observed that 83% did regular maintenance of their vehicle.[8] Periodic maintenance reduces the odds of the breakdown, and one can drive worry free which in turn reduces the numbers of road accidents. Ninety three percent of the participants knew the dangerous effects of alcohol consumption while driving/riding which showed that a righteous level of knowledge will decrease the risk of road traffic injuries. Similar findings were also observed in previous studies.[8,9] In our study, it was found that 30% of the participants who used two wheelers and 21% of the participants who used four wheelers were involved in occasional drunken driving/riding. Alcohol intake while driving/riding can slow the reaction time and alter visual perception resulting in blurred vision and thus puts pedestrians and riders of motorized two-wheelers at risk. The study conducted by Kulkarni et al reported that 25.2% of the study participants had also practised drunken driving.[13] On the contrary, study conducted by Kalbandkeri et al noted that only 8% of the participants were involved in drunken driving.[4] In our study regarding practice patterns among two-wheelers, it was observed that 58% of the participants always use helmet with belt whereas in the study conducted by Ratna et al 74% of the participants wore helmet with belt while riding.[14] Contrary to these studies conducted by Swami et al and Jogdand et al reported that 57.1% and 79% of the participants did not wear helmet while riding respectively.[10,15] It may be explained that in spite of having knowledge there is variation in practice which is mostly subjective and grounded on the values put by the handlers. Regarding mobile phone users, it was found that a section (33%) of the participants sometimes used mobile phone while riding and almost half (49%) of the participants sometimes used while driving. In conformity to our findings study conducted by Phanindra et al observed that 52% of the participants used mobile phone while driving/riding.[12] Similarly, in a study conducted by Jogdand et al reported that 32% of the participants used mobile phone while driving.[10] Use of mobile phone is an incriminated risk factor for road traffic accidents. Among four-wheelers, 48% of the participants always used seat-belt while driving. This was similar to the study conducted by Ramya et al and Emmily et al.[9,11] Another study conducted by Ratna et al reported that 76% of the participants used seat-belt while driving.[14] Our study confirmed that in spite of having regulatory provision of various safety measures, young doctors working in tertiary setting are not keen enough to implement the same with letter and spirit. It was observed that more than half of the study participants practiced overtaking from right side while riding or driving. The study conducted by Ramya et al noted more than 2/3rd of the participants practiced the same.[9] Our study finding warrants the necessity of awareness training among budding doctors about road safety rules and regulations.

CONCLUSION

In spite of having adequate knowledge about road safety measures intern and resident doctors are poor in practicing the same. Our findings advocate incorporation of the existing road safety rules and measures in competency based medical education curriculum in order to bring changes to the current scenario.

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Ethical approval: The study was approved by the Institutional Ethics Committee Jorhat Medical College, Jorhat

REFERENCES

1. Rutherford WH. The Maurice Ellis lecture for 1986. The responsibility of emergency medicine towards the prevention of road accidents. Arch Emerg Med. 1986;3(3):163-76.
2. World Health Organization. Global status report on Road Safety 2018. Available at: https://www.who.int/violence_injury_prevention/road_safety_status/2018/English-Summary-GSRRS2018.pdf. Accessed on 12 March 2021.
3. Dash DK. India had fewer road accidents but more fatal ones. Times of India. 2019 March 13. Available at: http://timesofindia.indiatimes.com/articleshow/68383679.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst. Accessed on 14 March 2021.
4. Kalbandkeri LR, Boramma G, Ghooli S. A study to assess the knowledge and practice of road safety measures among undergraduate medical students of M. R. Medical College, Kalaburagi. Int J Community Med Public Health. 2018;5(4):1596-01.
5. Ministry of Road Transport and Highways. Government of India. Status paper on road safety in India. Available at: http://www.tsu.trp.nic.in/transport/public/forms/pdfFiles/RoadaccidentinTripura10years.pdf. Accessed on 21 February 2021.
6. Goswami A, Sonowal R. A statistical analysis of road traffic accidents in Dibrugarh, Assam, India. Available from: https://www.researchgate.net

/publication/235339306. Accessed on 28 February 2021.
7. Kasulkar AA, Gupta M. Knowledge and practice of road safety measures in medical students. Indian J Med Sci. 2017;69(3):14-7.
8. Reang T, Tripura A. Road safety knowledge, practice and determinants among undergraduate medical students of Agartala Government Medical College and Govindha Ballabh Pant hospital. Int J Med Sci Public Health. 2014;3(8):911-5.
9. Ramya MS, Jadhav J, Ranganath TS. A study to determine the awareness and behavioural patterns/practice about road safety measures among undergraduate medical students, Bangalore, India-cross sectional study. Int J Community Med Public Health. 2017;4(3):825-30.
10. Jogdand KS, Yerpude PN, Jogdand MS. A study of awareness and behavioural patterns with regard to road safety among medical students in South India. Int J Biol Med Res. 2013;4(4):3590-2.
11. Emmily MK, Angolkar M, Swati BM. Assessment of knowledge and practice measures regarding prevention of road traffic accidents among undergraduate medical students. Int Res J Interdiscipl Multidiscipl Stud. 2016;2(9):93-101.
12. Phanindra D, Chaitanya G. Awareness and practice of road safety measures among college going students in Guntur city. Int J Public Health Res. 2016;3(2):54-8.
13. Kulkarni V, Palanivel C, Kumar N. Awareness and practice of road safety measures among undergraduate medical students in a South Indian state. J Forens Legal Med. 2013;20(4):226-9.
14. Ratna HVK, Rajesh SS, Jayaram A, Rajanna MS, Venkatesh P, Iyengar K. Awareness and behaviour patterns regarding road safety measures among undergraduate students. Int J Community Med Public Health. 2017;4(4):944-8.
15. Swami HM, Puri S, Bhatia V. Road safety awareness and practices among school children of Chandigarh. Indian J Community Med. 2006;31(3):199-200.

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