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### Original Article

# A study of awareness and behavioural patterns with regard to road safety among medical students in South India

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#### ABSTRACT

**Introduction:** Developing countries, such as India face the double burden of already existent communicable diseases and increasing burden of non-communicable diseases including RTAs. In the South East Asian region of the WHO (WHO-SEARO), India alone accounted for 73% of RTA burden. 56 accidents occur every hour on Indian roads and at least 14 people are killed in these accidents. Prevention of RTAs thus, becomes very crucial in order to improve the longevity and the quality of life of the individuals concerned. **Materials and methods:** The present cross-sectional study was conducted among medical students in Guntur, India. The study participants included in the study were undergraduate medical students from 4th to 7th semesters. A pre-tested, semistructured questionnaire was administered to the students after obtaining written informed consent. **Results:** Most of the study participants, 116 (51.79%) used two wheelers, followed by those who used four wheelers, 57 (25.45%). The study participants' awareness regarding road safety measures is observed to be considerably low. Around 80% of students had correct knowledge of driving without helmet as risk factor. **Conclusion:** Awareness generation and orientation towards road safety issues among the medical students should be done through periodic trainings. The efforts for increasing road safety measures through signboards, posters and mass media should be strengthened to reduce the morbidity and mortality in relation to road traffic accidents.

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### 1. Introduction

Road traffic accidents (RTAs) are considered as one of the important public health problems around the world. According to Global Status Report on Road Safety-2009, over 1.2 million people die each year on the roads worldwide and between 20 and 50 million suffer non-fatal injuries. Currently, road traffic accidents are the 9th leading cause of death and are predicted to become the 5th leading cause of death by the year 2020 [1]. The problem of RTAs is compounded by the fact that, the age groups primarily involved in RTAs belong to the most productive age group of 15-40 years [2,3].

Developing countries, such as India face the double burden of already existent communicable diseases and increasing burden of non-communicable diseases including RTAs. In the South East

Asian region of the WHO (WHO-SEARO), India alone accounted for 73% of RTA burden [4]. According to a report published by Ministry of Road Transport and Highways, 56 accidents occur every hour on Indian roads and at least 14 people are killed in these accidents [5]. Prevention of RTAs thus, becomes very crucial in order to improve the longevity and the quality of life of the individuals concerned. A few studies from the region have highlighted the problem status of road traffic fatalities in this part of the country [6-9]. Simple measures such as awareness and practice of road safety measures can effectively reduce the impact of RTAs on the people's lives. The search for studies in relation to road safety measures among young adults yielded few studies across India and abroad [10-15].

The present study is aimed to assess the awareness levels and practice of road safety measures among medical students in south Indian state.

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## 2. Materials And Methods

The present cross-sectional study was conducted among medical students in Guntur, India.

Ethical clearance was obtained from the Institutional Ethics Committee before the commencement of the study. The study participants included in the study were undergraduate medical students from 4th to 7th semesters. Of the total students, those who were excluded from the study were those who didn't give complete information and those not having any vehicles. Hence the sample comprised of 224 students (93 males & 131 females) studying in these classes. The study period was October-November 2010. A pre-tested, semistructured questionnaire was administered to the students after obtaining written informed consent. The questionnaire had two parts, the first part included the general information related to the participants and the second part contained the questions related to awareness and practice of road safety measures. The information collected was analyzed using SPSS version 11.5.

## 3. Results

A total of 224 participants were included in the study. Among them 131 (58.48%) were females and 93 (41.52%) were males. Most of the study participants, 116 (51.79%) used two wheelers, followed by those who used four wheelers, 57 (25.45%). A few participants used both two wheelers and four wheelers 51 (22.76%).

The study participants' awareness regarding road safety measures is observed to be considerably low (Table 1). More than forty percent of students lacked correct knowledge of traffic safety rules. In particular, knowledge of correct speed limit was lacking in 67.3% of the respondents. Girls were more aware of traffic rules to be followed at traffic lights (62.60%) and while crossing zebra lines (55.73%), whereas boys were more versed with rules for pedestrians (58.06%). Around 80% of students had correct knowledge of driving without helmet as risk factor. Around 83.48% of students had correct knowledge of using mobile phones while driving as risk factor.

39.73% of students informed that they were caught for not wearing helmets, & 24.11% for not having license. Students who were in habit of using mobile phones while driving were 32.59%, over speeding was done by 25.45% (Table 2).

**Table 1: Knowledge of students regarding traffic safety**

Correct knowledge of traffic safety rules	Male (n=93) No(%)	Female (n=131) No(%)	Total (n=224) No(%)
Rules to be followed at			
Traffic lights			
Crossing zebra lines	41(44.09)	73(55.73)	114(50.89)
Rule for pedestrians	54(58.06)	53(40.46)	107(47.77)
<b>Legal age at driving</b>			
Without gears	44(47.31)	70(53.44)	114(50.90)
With gears	52(55.91)	65(49.62)	117(52.23)
Is it a risk			
Driving without helmet	74(79.57)	103(78.63)	177(79.01)
Using mobile phones while driving	79(84.95)	108(82.44)	204(91.07)
Drunken driving	85(91.40)	119(90.84)	187(83.48)

incubation, the diameter of the inhibitory zone was measured. The zone size around each antimicrobial disc was interpreted as sensitive, intermediate or resistant according to CLSI criteria.

**Table 2: Traffic rule violations by students**

Correct knowledge of traffic safety rules	Male (n=93) No(%)	Female (n=131) No(%)	Total (n=224) No(%)
Without helmet	41(44.09)	48(36.64)	89(39.73)
Without license	26(27.96)	28(21.37)	54(24.11)
Using mobile while driving	34(36.56)	39(29.77)	73(32.59)
Over speeding	38(40.86)	19(14.50)	57(25.45)
Crossing wrong signal	36(38.71)	14(10.69)	50(22.32)

## 3. Discussion

More than half of the participants included in the study were females. In the present study more than 3/4th of students of the college used their own vehicles (two wheelers and four wheelers) compared to those who used public transport. Similar findings were observed in a study conducted by Al-Khaldi in Saudi Arabia where nearly 70% participants used their own vehicles [11]. The high vehicle usage rate among the study participants can be explained by the fact that most of them belonged to families with higher socio-economic status who can afford vehicles. Even though the study participants have access to a very convenient transport facilities provided by the institution as well as public transport, they resorted to use of personal vehicles. In order to reduce the environmental pollution and save environment, the students should be encouraged to use either public transport or the transport facilities provided by the institutions.

More than forty percent of students lacked correct knowledge of traffic safety rules. The overall knowledge of road safety measures was marginally higher among females than males. Our finding is similar to the observation in the study conducted by Swamy et al. in Chandigarh [13]. However, in another study conducted by Raj et al. the knowledge levels were higher among males [12]. This gender difference in awareness might be attributed to the study settings; the present study and the one conducted by Swamy et al. [13] mainly included urban population while the one conducted by Raj et al. [12] mainly included participants from rural background. Better exposure to media sources and day-to-day exposure to traffic in cities might be the reasons for the better performance of females in our study. However, when sub-topic exploration is done, the participants had more knowledge in relation to certain important risk factors while driving. Similar observations are made in other studies from Malaysia and Aseer region [10-11]. Use of seatbelts is one of the most cost effective way to prevent RTA related morbidity and mortality [16]. The participants' poor knowledge regarding the use of seatbelts raises concern and should be addressed through proper awareness generation programs.

Nearly 40% students caught for not wearing helmets, & 24.11% for not having valid documents. Students who were in habit of using mobile phones while driving were 36.56%. Male students were doing more traffic rule violations as compared to girls. Several

reports from developed countries show that rates of fatal & non fatal injuries from motor vehicle crashes is on the increase owing to non usage of helmets and seat belts. Daniel observed in his study that the relative risk of death among helmet riders as compared to unhelmeted riders was 0.616. Hence many interventions were done & evaluated. Evaluation of interventions is an important aspect of injury prevention like bicycle helmet use increased following demonstration of the impact of helmets on brain injury [7]. Involvement of motorized 2 wheelers, bicyclists in RTA is greater in South East Asia than any other part of world. Some of the major reasons are driving at an early age, heavy mix of motorised and unmotorised vehicles, inadequate vehicle safety standards, neglect of bicyclists safety, absence of safety measures like helmets, seat belts, the rage of drinking & driving, & least adherence to traffic rules. These reasons were witnessed in our study also.

#### 4. Conclusion

In our effort to curb the epidemic of road traffic accidents, undertaking proper road safety measures are the best available interventions. The overall awareness and practice of road safety measures was low among the study participants. Medical students are considered as an asset to a community and the services they ought to provide include not only clinical but also educating the community about practices that can improve the health and lives of people. Awareness generation and orientation towards road safety issues among the medical students should be done through periodic trainings. The efforts for increasing road safety measures through signboards, posters and mass media should be strengthened to reduce the morbidity and mortality in relation to road traffic accidents. Further research in this area needs to be conducted to assess the existing situation regarding road safety measures across various sub-groups of populations.

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