

Study on awareness of road traffic rules among drivers of rural area: A cross-sectional study

Anup Kharde¹, Abhishek Jain², Rutuja Phulambrikar³, Amruta Kharde⁴

¹Department of Community Medicine, Rural Medical College, Pravara Institute of Medical Science, Loni, Maharashtra, India, ²Department of Community Medicine, Rural Medical College, Pravara Institute of Medical Science, Loni, Maharashtra, India, ³Department of Community Medicine, SMBT Medical College, Nashik, Maharashtra, India, ⁴Department of Medicine, SMFRI's Vamanrao Ithape Homeopathic Medical College, Sangamner, Maharashtra, India

Correspondence to: Anup Kharde, E-mail: dranup.kharde@gmail.com

Received: June 26, 2018; Accepted: August 28, 2018

ABSTRACT

Background: Road traffic accidents (RTA) are a pandemic in current era, which destined to rise in the future, due to increase in a number of vehicular population in addition to increase in a number of aggressive road users. Most of RTAs are due to unawareness to road traffic rules. This could result into poor attitude and practices while driving. **Objectives:** The objectives are (1) to determine the awareness of road traffic rules and (2) to study driving practice of drivers. **Material and Methods:** A descriptive cross-sectional study was carried out among drivers of rural area. A total of 207 participants included using simple random method. Information was obtained by face-to-face interview. **Results:** Unawareness found more for the questions such as maximum permissible blood alcohol level while driving and minimum distance between two vehicles. Majority of drivers followed poor driving practices such as drinking and driving, over speeding, and use of mobile phone while driving. **Conclusion:** The present study showed a lack of awareness regarding different traffic rules and poor driving practices among drivers.

KEY WORDS: Traffic Rules; Drivers; Rural; Road Traffic Accidents


INTRODUCTION

A road traffic accident (RTA) is any injury due to crashes originating from, terminating with, or involving a vehicle partially or fully on a public road.^[1] RTAs have emerged as a major global public health problem of this century and are now recognized as “veritable neglected pandemic.”^[2] According to the WHO report, it is estimated that about 13 million people die every year and about 50 million are injured in RTAs.^[3] These accidents are higher in younger age groups. Among young drivers, males under the age of 25 years are almost 3 times as likely to be killed in a car crash

than females.^[4] More than 90% of deaths due to RTAs occur in low-and middle-income countries costing these countries 1–3% of their gross domestic product.^[5]

India is no exception to these global statistics. In India, RTAs are the sixth leading cause of death.^[6] In the South East Asian region of the WHO (WHO-SEARO), India alone accounted for 73% of RTA burden.^[7] According to a report published by the Ministry of Road Transport and Highways, 56 accidents occur every hour on Indian roads and at least 14 people are killed in these accidents.^[8] In the year 2013, about 4, 43,001 accidents took place on Indian roads, and in 2014, this had raised to 4,50,0896.^[6] In India, among 29 states and 7 Union territories, Maharashtra state accounts second largest number of accidents and fourth largest in its related deaths.^[9]

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

Access this article online	
Website: http://www.ijmsph.com	Quick Response code
DOI: 10.5455/ijmsph.2018.0619328082018	

International Journal of Medical Science and Public Health Online 2018. © 2018 Anup Kharde, *et al.* This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), allowing third parties to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material for any purpose, even commercially, provided the original work is properly cited and states its license.

(vehicle), host (human), and environment, an epidemiological triad plays a role in the causation of RTAs. The agent factors include large number of old and poorly maintained vehicles. Rapid urbanization, motorization, lack of appropriate road engineering, non-existent injury prevention programs, and poor enforcement of traffic laws are among the environmental factors causing RTAs. Sharing of the same road by large and small vehicles, pedestrians, and animals makes the situation even worse. However, rather than mechanical, it is human factor that contributes significantly to increasing number of road accidents in India.^[1] Most of the RTAs are due to poor awareness of road traffic rules because unawareness could result into poor attitude and practices while driving. In addition to poor awareness of traffic rules; drunken driving, over speeding, refusal to follow traffic rules, and reckless driving, are reasons for road traffic accidents.

The mortality and morbidity resulting from RTAs are largely preventable. Primary prevention of RTAs includes strictly following traffic rules, awareness of these being a prerequisite. Many studies based on RTAs have been done in urban settings. However, there is a paucity of such studies in rural area. Therefore, considering this background, the present study was undertaken to collect the information on awareness of traffic rules among drivers in rural area and to study their driving practices.

MATERIALS AND METHODS

The Institutional Ethics Committee approval was obtained before beginning of the present study. This was a descriptive type of cross-sectional study conducted at village Loni Bk. of Taluka Rahata of district Ahmednagar. All the drivers who were residents of Loni village and willing to give informed consent were included, and cleaners, drivers' attendant's, and those who were not full-time drivers were excluded from the study. A total of 207 sample sizes were obtained using statistical formula $n = Z^2 \frac{P(1-P)}{d^2}$, where P was expected prevalence and taken as 84%^[10] from previous traffic rule awareness study, Z was 1.96 at 95% confidence level, and absolute precision, i.e., d was taken as 5% or 0.05.

A pilot study was done for validation, practicality, and applicability of the questionnaire. It was carried out using pre-structured questionnaire among 10 drivers. According to answers obtained and difficulties faced during pilot study, rectification was done and questionnaire was modified accordingly. Study questionnaire consisted of three parts; Part I: Included sociodemographic variables, Part II: (a) Questions of traffic rules and laws and (b) traffic symbols, and Part III: Questions on driving practices and RTAs. Data collection was started after constructing a list of persons who were working as drivers on different vehicles. Initially, various educational institutes, car vendors, rental car stands, and auto-rickshaws stands were contacted, and list of drivers was made with their contact numbers. Those who consented for participation were

recruited in the study by simple random sampling technique until the required sample size was reached. Information was collected using face-to-face interview method.

Analysis

Questionnaires were checked for completeness, data were entered in Microsoft Excel, and descriptive statistics were used for the analysis.

RESULTS

The present study was conducted among 207 drivers in the rural area of Loni, to ascertain the awareness of traffic rules, symbols, and driving practices. All participants were full-time drivers, by occupation. The mean age of participants was 40.99 ± 8.1 years, and many of them were in the third and fourth decades of their life [Table 1]. According to the level of education, 14 (6.76%) drivers were illiterate, 26 (12.56%) had education up to primary school, 43 (20.77%) were SSC (10 standard) passed, 116 (56.03%) were educated up to HSC (12th standard), and only 8 (3.86%) were graduates [Table 2].

Of all drivers, only 3 (1.5%) did not have driving license. Knowledge regarding the correct meaning of traffic lights was found to be poor for "yellow lights" as compared to "red" and "green" lights [Figure 1]. Unawareness was found more to questions such as the time limit for vehicle registration, minimum age eligibility for non-gear vehicle driver's license, maximum permissible blood alcohol level while driving, and minimum distance between two vehicles [Table 3].

Distribution of the participants according to the awareness of different traffic symbols has been shown in Table 4. Regarding driving practices, 172 (83%) drivers mentioned

Table 1: Age-wise distribution of the participants (n=207)

Age groups (years)	Number of participants (%)
21–30	22 (10.6)
31–40	80 (38.6)
41–50	76 (36.7)
51–60	28 (13.5)
≥61	01 (0.5)
Total	207 (100.0)

Mean±SD: 40.99±8.1 years. SD: Standard deviation

Table 2: Education status of the participants (n=207)

Education	Number of participants (%)
Illiterate	14 (6.76)
Primary	26 (12.56)
SSC	43 (20.77)
HSC	116 (56.03)
Graduates	08 (3.86)
Total	207 (100)

that they always followed traffic signals, while 21 (10.14%) and 14 (6.76%) reported that they followed traffic rules occasionally and less frequently, respectively. Of 207 drivers, 184 drivers were alcohol drinker; of that, 39.67% (73) had driven vehicle under the influence of alcohol. Of all drivers, 32 (15.45%) mentioned that they had driven vehicle at high speed many times and 74 (35.74%) reported occasional high-speed driving. Regarding the use of mobile phone and seat belts, 81 (39.13%) drivers admitted that they routinely use a mobile phone while driving vehicle and 111 (53.62%) reported that they never use seat belts while driving. In the present study, 36.71% (76) of drivers encountered RTA, and among them, 21.25% (44) and 11.11% (23) had minor and major type of accidents, respectively. Major type of accidents required hospitalization for at least 1 day, while 4.34% (9) of drivers encountered both major and minor types of accidents.

DISCUSSION

RTAs represent a major non-communicable epidemic of the present era. In the present study, varying degrees of unawareness were found among drivers regarding traffic rules and laws. Maximum drivers were found to be unaware

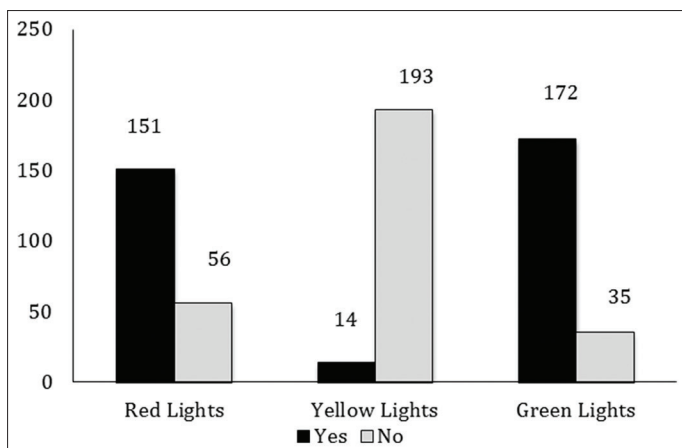


Figure 1: Correct knowledge of traffic lights

Table 3: Distribution according awareness of traffic rules and laws

Questions	Awareness	
	Yes (%)	No (%)
Time limit for vehicle registration	52 (25.1)	155 (74.9)
Minimum age eligibility for non-gear vehicle driver's license	22 (10.6)	185 (89.4)
Permissible blood alcohol limit	30 (14.49)	177 (85.50)
Minimum distance between two vehicles	18 (8.69)	189 (91.30)
Validity of learner's license	80 (38.7)	127 (61.3)
Documents needed to carry while driving	143 (69.1)	64 (30.9)
Side of overtaking of the vehicle	197 (95.2)	10 (04.8)
Use fog light	193 (93.2)	14 (06.8)
Zebra lines	141 (68.1)	66 (31.9)
Types of horn permitted	171 (82.6)	36 (17.4)

for the legally permissible blood alcohol limit and minimum safe distance between two vehicles. In our study, majority of drivers failed to identify the correct meaning of different traffic symbols. In the present study, as compared to red and green traffic light, lack of awareness was more for a yellow traffic light. In the present study, the driving practices of participants were found to be poor. Using a mobile phone while driving, driving a vehicle in high speed, and non-use of seat belts while driving were the predominant poor driving practices. The total proportion of RTAs in the present study was 36.71% Table 5.

Table 4: Distribution according awareness of traffic symbols









Questions	Awareness	
	Yes (%)	No (%)
	47 (22.7)	160 (77.3)
	134 (64.7)	73 (35.3)
	107 (51.7)	100 (48.3)
	183 (88.4)	24 (11.6)
	175 (84.5)	32 (15.5)
	177 (85.5)	30 (14.5)
	189 (91.3)	18 (8.7)
	181 (87.4)	26 (12.6)

Table 5: Distribution of the participants according to driving practices

Driving practices	Responses		
Follows traffic signals	Always (%)	Occasionally	Less frequently
	172 (83)	21 (10.14)	14 (6.76)
Driving under the influence of alcohol [#] (of 184)	Never (%)	Occasionally (%)	Often (%)
	111 (60.32)	26 (14.13)	47 (25.54)
Over speeding	Never (%)	Occasionally (%)	Often (%)
	101 (48.79)	74 (35.74)	32 (15.45)
Use of mobile phones	Never (%)	Occasionally (%)	Often (%)
	73 (35.26)	53 (25.60)	81 (39.13)
Use of seat belts	Never (%)	Occasionally (%)	Often (%)
	111 (53.62)	64 (30.91)	32 (15.45)

[#]Of 207 divers, 23 drivers did not drink alcohol

We compared our study findings with similar studies. In a study conducted by Chakrabarty *et al.*,^[10] about 16–43% of drivers were unaware of the various road signs. Around 34% of drivers did not know vehicle registration documents. Nearly half of the drivers did not know the minimum distance between two vehicles in this study, whereas in our study, it was found to be over 90%. The average level of awareness for various traffic rules and symbols as reported by Chakrabarty *et al.*^[10] was 52–77%. In a study was conducted by Trivedi A *et al.* showed similar kind of poor driving practices among young drivers at Ahmedabad and Vadodara showed similar kind of poor driving practices. The prevalence of RTAs was 41.4% which was more than that seen in our study. Similar to our findings, this study also showed that 42.4% of drivers used mobile phone while driving. The use of seat belts as reported by Trivedi *et al.*^[11] was 14.3% while that in our study was around 15%.

Since it was a cross-sectional study design, non-respondents may have different characteristics than respondents and it may result in bias of the measured outcome. This is a limitation of the present study.

CONCLUSION

The present study concludes that majority of drivers were unaware about the different traffic rules, laws, and symbols, many of them also had poor driving practices, and proportion of RTAs was also high among drivers. Considering all this, to increase awareness about road traffic rules which is critical for safe driving, road safety awareness program should be periodically conducted. Driving license should be issued only after training and successful completion of driving test. Meticulous watch and stringent punishment system should be established by RTO department.

REFERENCES

1. Road Traffic Accidents, National Health Portal. Available from: https://www.nhp.gov.in/road-traffic-accidents_pg. [Last

cited on 2018 Jan 2].

2. Dandona R, Mishra A. Deaths due to road traffic crashes in Hyderabad city in India: Need for strengthening surveillance. *Natl Med J India* 2004;17:74-9.
3. Pden M, Scurfield R, Sleet D, Mohan D, Hyder AA, Jarawan E, *et al.* World Report on Road Traffic Injury Prevention. Geneva: World Health Organisation; 2010. Available from: <http://www.who.int>. [Last cited on 2017 Jan 11]
4. Road Traffic Injuries Fact Sheet. Geneva: World Health Organisation; 2012. Available from: http://www.who.int/violence_injury_prevention/road_traffic/en. [Last cited on 2017 Jan 11].
5. Road Traffic Injuries Fact Sheet. Geneva: World Health Organisation; 2013. Available from: <http://www.who.int/mediacentre/factsheet>. [Last cited on 2017 Jan 10].
6. Estimates of Mortality by Cause for WHO Member States 2008. Geneva: WHO; 2011. Available from: <http://www.who.int/mediacentre>. [Last cited on 2017 Jan 11].
7. World Health Organization. Regional Report on Status of Road Safety: The South-East Asian Region; 2009. Available from: http://www.searo.who.int/entity/disabilities_injury_rehabilitation/pdf. [Last cited on 2018 Feb 02].
8. Ministry of Road Transport and Highways (Government of India). Status Paper on Road Safety in India; 2011. Available from: <http://www.unescap.org/ttdw/common/Meetings/TIS/EGMRoadsafety2011/Status/Countries/India-2010-Status.pdf>. [Last cited on 2018 Feb 02].
9. Government of India 2014: Accidental Deaths and Suicides in India 2014. New Delhi: National Crime Record Bureau, Ministry of Home Affairs; 2014.
10. Chakrabarty N, Gupta K, Bhatnagar AA. Survey on awareness of traffic safety among drivers in Delhi, India. *Stand Int J* 2013;2:106-10.
11. Trivedi A, Rawal D. Prevalence of road traffic accidents and driving practices among young drivers. *Healthline* 2011;2:72-5.

How to cite this article: Kharde A, Jain A, Phulambrikar R, Kharde A. Study on awareness of road traffic rules among drivers of rural area: A cross-sectional study. *Int J Med Sci Public Health* 2018;7(12):969-972.

Source of Support: Nil, **Conflict of Interest:** None declared.