



## Knowledge, Awareness and Practices (KAP) of road traffic rules among a semi-urban Population in Chittoor Region

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### Abstract

**Background** – Road traffic accidents (RTA) are one of the most common causes of morbidity and mortality in India. India accounts for 11% of world's road deaths. Road accidents cause socio-economic burden to the family and to the country. Hence, this study is intended to assess the knowledge, awareness and practices of road traffic rules among semi-urban population.

**Methodology** – A cross-sectional study was conducted among 139 motorists during May 2018. A structured and pre-tested questionnaire was used to collect the data, which was analyzed using SPSS version 21.

**Results** – Out of the 139 respondents 55 % were males and 45 % were females. Only 60% had good awareness regarding traffic rules. 90 % accepted that over speed is the most common cause of RTA's. 32% had previous history of RTA, of which Brake failure is the most common cause. 29 % were not having valid driving license.

**Conclusion** – The results from the study suggest that, there was a significant awareness regarding the road safety. But, most of them were not following the rules. This can be addressed through strict law enforcements and awareness campaigns regarding road safety.

**Keywords:** Road traffic safety, Awareness, KAP, Semi-urban, Accidents, Injury

### INTRODUCTION

Road traffic accidents (RTA) are one of the leading causes of deaths in the entire world. According to WHO global status report on road safety – 2015, RTAs are the leading cause of death among the age group of 15 – 29 years.<sup>1</sup> UN General Assembly has declared 2011 – 2020 as the “Decade of Action for Road Safety”, to control the rise in road traffic injuries and deaths worldwide. There had been a plateau in the numbers of RTAs lately; still, it is insufficient in view of growing number of vehicles on the roads due to rapid urbanization. United Nations General Assembly adopted the Sustainable Development Goals (SDG), whose target is to halve the global number of deaths and injuries from road accidents by 2020. Though

there hasn't been a significant rise in the numbers globally, we should strive to see a decline in the road traffic injuries to achieve our SDG by 2020.<sup>1</sup>

India accounts for around 11% of the world's road deaths, despite of having only 3% of world's vehicles. In South East Asian region of the WHO, India accounts for 73% of RTA's.<sup>2</sup> It has been reported that, there was a significant increase in the number of fatal road accidents in India since 2005. According to the report from MORTH, 55 accidents and 17 deaths happen every hour on our roads.<sup>3</sup> Productive age group of 18-45 years are the most affected, which is devastating and an economic burden, to their families.

It costs around 3% of country's GDP every year for road accidents.<sup>1</sup> though, population has increased only at a rate of 1.4% per year, and road fatalities have a rate of 5% which is alarming. Road traffic accidents are not seen as a major health concern in India, though it takes a huge toll on our economy. Most of the developing countries like India are facing an extra burden due to these RTAs. India is a signatory to, Brasilia Declaration on Road Safety<sup>2</sup> under which by 2020, it has committed to reduce the number of road accidents and fatalities by 50%. According to a report published by Sanjay Kumar on Road Traffic Accidents in India, Andhra Pradesh (16.9) faced higher fatality risk than all India average (11.2).<sup>4</sup>

Prevention of road fatalities can benefit the people by improving their quality of life to a large extent. Knowledge regarding traffic rules and changing the awareness of people towards road safety can reduce the road fatalities. The starting point for any intervention would be to know about their current knowledge and practices regarding road safety.

Literature review for studies on road safety among Peri-urban areas yielded only few results in India. So, the present study was undertaken to assess the knowledge and behavior towards road safety, traffic rules among the semi-urban population.

### Methodology

This cross-sectional study was conducted among 139 commuters in a semi-urban area T. Chavatapalli (M), Chittoor, Andhra Pradesh, India. People above 18 years and those who use any kind of vehicle were selected. Those who were not available at the time of study are excluded. A pre-tested, structured questionnaire which consisted of socio-demographic, knowledge, awareness and practices (KAP) variables

was administered after obtaining informed written consent.

The respondents who possessed valid license, registration and insurance were considered as correct. People who said, "Slow Down", "Observe and Go" for yellow light was considered correct. Those who responded as "Left" for which side should pedestrians use was considered as correct answer. Correct identification of each road traffic sign was awarded one mark. Respondents' awareness towards the safety gear usage and their commitment towards the safety gear were given each mark. Those who said "Always" to the question of wearing safety gear in Highway/Cities was considered as correct. Those who said "Sometimes" to the same question but for rural areas also considered as correct.

The data entry was done manually using Epi-Info 7, later exported to IBM SPSS Version 21 for analysis. The data was summarized using descriptive statistics such as frequency, percentage and Cross tabs. The association between KAP and other variables was tested using Chi-square test.

Each correct answer was scored as one and incorrect answer as zero. The total score of awareness and practices obtained by computing all the related variables was categorized into three categories. Score of >9 was considered as adequate and <8 was considered as inadequate.

### Results

A total of 139 respondents were included in the study. Among them 77 (55.4%) were males and 62 (44.6%) were females. More than half of the respondents were of productive age group (Table 1).

**Table 1: Socio Demographic details of the participants**

Characteristics	Category	Number (%)
Age	18 – 40	77 (55.3)
	41 – 60	53(38.1)
	> 60	9 (6.4)
Gender	Male	77 (55.4)
	Female	62 (44.6)

Educational Status	Illiterate	48 (34.5)
	Primary	51 (36.6)

Occupation	Secondary	19 (13.6)
	Graduate/ Postgraduate	21 (15.1)
	Unemployed	58 (41.7)
	Unskilled	39 (28)
	Skilled	21 (15.1)
	Business	4 (2.8)
	Professional	17 (12.2)







### Knowledge

Knowledge of the respondents regarding road signs and rules was assessed using the questionnaire created. Majority of the people do not know what yellow light indicates. Very few people knew the rules to be followed while overtaking (Table 2). People were aware about Speed limit and No entry signs only mostly, which indicates bad awareness levels (Table 2). By considering all these variables, we can say the awareness levels among the study participants are considerably low.

**Table 2: Knowledge of Study Participants regarding Road Safety**

S. No.	Knowledge regarding Road Safety Measures	Number of Correct Response (n=139)	Frequency (%)
1	Yellow Light indicates “Slow/ Observe and go”	18	12.9
2	Pedestrian Should Use Left side of the road	121	87.05
3	Should check for fuel before using the vehicle	120	86.3
4	Should check for the condition of vehicle	72	51.7
5	Check for vehicles on Front and back while overtaking	19	13.6
6	Indicator usage while overtaking	106	76.2

Table 3: Knowledge Regarding Road Traffic Signs

Traffic Sign	Answered	Total	Males	Females	p-value
	No Entry	96	46	50	.014
	School Zone	69	40	29	.663
	Pedestrian Crossing	74	33	41	.010
	Speed Limit	119	66	53	1.000
	Stop	76	40	36	.583
	Overtaking Prohibited	53	18	35	.001

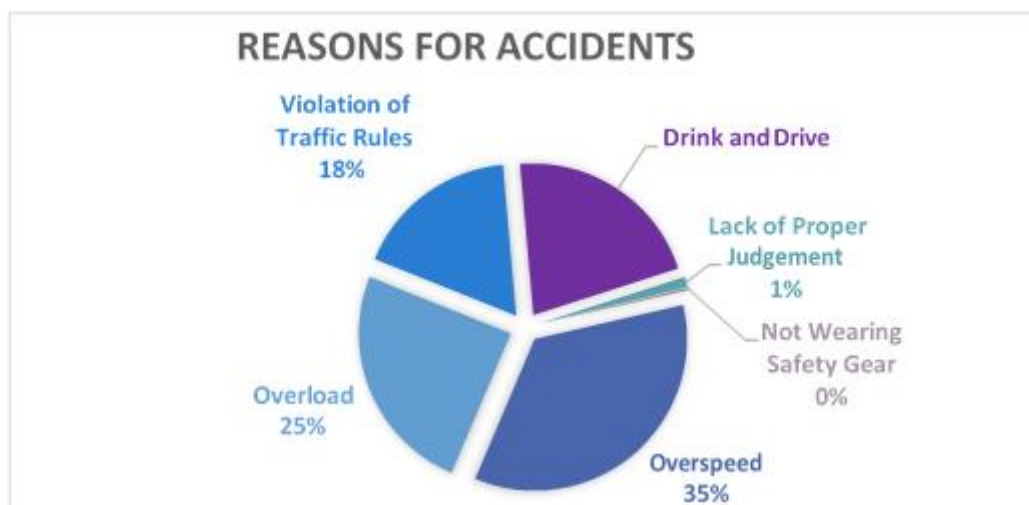
### Awareness

Among the respondents, 92% were willing to use safety gear while driving which indicates a positive awareness towards their safety. But only a few people insisted other drivers to use safety gear (Table 4). Only 11% of the respondents feel that, by using safety gear they can drive safely. 89% says, to reduce incidence of RTA and mortalities by RTA only they are using the safety gear. This suggests their bad awareness towards

road safety. 73% were of an opinion that, people are using safety gear knowing its importance and the remaining 27% told, because of the fines from police. When asked about the reasons for road traffic accidents, 35% were of an opinion that, over speed is the most common cause followed by over load (Figure 1). 21% accepted that Drunk and drive is a cause for RTA, the most common growing cause for RTAs in India.

Table 4: Awareness of participants towards Road Safety

Awareness Regarding Road Safety	Correct Response	Frequency (%)
Using Safety gear while driving	Yes	92.8
Servicing the vehicle	3/ 6 months Once	73.3
Firmness level in Safety gear usage	Very Strong/ Strong	92.7
Insisting other drivers to use Safety gear	Always	38.1
How Safety gear useful to them	Can drive safely	11.5
Why do you think people use safety gear	Know the importance	73.3



**Figure 1: Reasons for Road Accidents according to Respondents**

#### Practices/ Practices

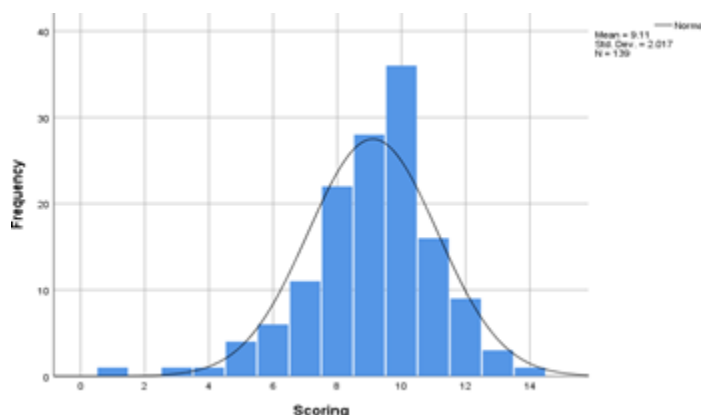
Most of the respondents were using safety gear while driving their vehicle (Figure 2). When asked about what they will do if they are not using safety gear despite having, 118 (84%) told that they will stop their vehicle and use it immediately. 102 (73%) respondents

told that they will call for Ambulance, if they see a road accident happen before them. When asked about their speed limits while travelling in different roads, most of them responded with permissible speed limits (Table 5). All these indicate good practices of the people while driving.

**Table 5: Number of respondents using Safety Gear (n=139)**

Speed Limits while Driving	Mean Value (in KM/Hr.)	Median (in KM/Hr.)
Highway	57.19 $\pm$ 11.48	60
City	44.21 $\pm$ 7.83	50
Rural Area	27.05 $\pm$ 6.75	30

*Based on the responses given by the participants, scoring was given to the participants. Most of them were having adequate knowledge and awareness levels regarding road safety. (Figure 2)*

**Figure 2: Scoring of the Participants**

The differences in knowledge and practice of wearing safety gear while travelling is found to be statistically significant. There is a statistical significance between knowledge adequacy and driving speed in City. There is an association between previous history of RTA and knowledge adequacy (Table 6).

**Table 6: Relationship between knowledge, awareness and practices among the participants**

Practices	Knowledge Adequate	Inadequate	Test	P Value
<b>Safety Gear Usage While Driving</b>			Chi-square=65.086 df=24	<0.0001
Yes	92	37		
No	0	10		
<b>Driving Speed in Highway</b>			Chi-square=75.757 df=60	0.082
<40 km/hr.	1	0		
40 – 60 km/hr.	70	42		
>60 km/hr.	22	4		
<b>Driving Speed in City</b>			Chi-square=197.7 df=60	<0.0001
<40 km/hr.	9	7		
40 – 60 km/hr.	84	39		
<b>Driving Speed in Rural Area</b>			Chi-square=30.08 df=24	0.182
20 km/hr.	44	14		
30 km/hr.	37	27		
40 km/hr.	12	5		
<b>Previous History of RTA</b>			Chi-square=21.335 df=21	0.046
Yes	36	8		
No	56	38		

## Discussion

Road traffic awareness plays a key role in the safety of commuters. This study was conducted to assess the knowledge awareness and practices levels among a semi-urban population. The findings of this study revealed that more than half of the population had

insufficient awareness and practice levels. In this study, males had significantly better knowledge and practice levels compared to females, similar to the study carried out by Raj *et al* among high school students in Tamilnadu, Reang and Tripura *et al* among medical college students in Agartala.<sup>5,6</sup> More exposure



to media and traffic signals might be the reasons for this gender difference. In this study, majority of the respondents were aware about the documents required while driving. Similar results were found in the study conducted by Chakrabarty et al among drivers in Delhi.<sup>7</sup>

Only 12.9% participants had correct knowledge of traffic lights, which is lower than the study done by Mahawar et al among school going teenagers in Indore.<sup>8</sup> The inability to correctly identify the road traffic signals should be dealt immediately as the knowledge regarding traffic signals can reduce the road traffic accidents drastically. Overall awareness about the road traffic signs is 58.4%, which is similar to the findings found in a study among school children in Indore.<sup>8</sup> Knowledge regarding road traffic signs should be improved through IEC activities and road safety education. 87% had knowledge that pedestrians should walk on the left side of road, which is higher than the study conducted by Ranjan DP et al among the adolescents of Raichur.<sup>9</sup> 92% of the participants had knowledge about usage of helmets and seat belts while driving, which is a good sign as safety gear usage can prevent the risk of fatalities in road traffic accidents. This is due to the mandatory laws enforced in this area of the state.

Regarding the practice, 73% had got their vehicles serviced regularly, which is similar to the findings in a study conducted by Kulkarni et al among medical students.<sup>10</sup> Old and badly maintained vehicles can lead to road traffic accidents more often in India. 59.7% respondents had been driving their vehicle in the permissible speed limits, much higher than the studies by Swamy et al, Raj et al and Mahawar et al.<sup>4,8,11</sup> Among those who had been exposed to road traffic accidents, over speeding is the major contributor. There is a statistically significant association between road safety knowledge and participants' behavior on roads, similar to the study conducted by Ibrahim et al, Jha and Mehta.<sup>12,13,14</sup>

## Recommendations

Improving the knowledge regarding road safety through media sources, IEC activities, role plays and educational films.

- Traffic laws should be strictly implemented and penalty for road traffic violations should be increased. Lack of enforcement frequently

undermines the potential of road safety laws to reduce injuries and deaths.

- Conditions of roads and road environments should be improved to provide safer environments for pedestrians and commuters. Black spots must be identified, and proper measures should be taken in those areas like improved sign boards, surveillance.
- Local authorities should have the legislative power regarding speed limits in their area, which will allow them to consider local circumstances such as schools or high concentrations of vulnerable road users.
- A secured national data base of road traffic accidents should be maintained. Quality of the data collected should be harmonized in line with international standards. Comprehensive data facilitates effective road safety management and also an evidence-based strategic approach to the issues of road safety.

## Conclusion

In our effort to curb the road traffic accidents, improving the knowledge and behavior towards road safety are the best possible interventions. In this study, it was revealed that the knowledge and practice levels were good in more than half of the participants. A limitation to the present study is that the findings and their interpretations are restricted to people who use vehicles only. Further research in this area needs to be conducted to assess the existing situation regarding road safety measures across various sub-groups of populations. Mere knowledge does not necessarily translate into improved traffic behavior.

Continuous efforts should be kept to bring about a positive change among the people and reduce the morbidity and mortality due to road traffic accidents.

## References

1. WHO Global Status Report on Road Safety, 2015. Available at: [http://www.who.int/violence\\_injury\\_prevention/road\\_safety\\_status/2015/en/](http://www.who.int/violence_injury_prevention/road_safety_status/2015/en/).
2. World Health Organization. Road Safety in the South-East Asia Region 2015. Available at: [http://www.who.int/violence\\_injury\\_prevention/road\\_safety\\_status](http://www.who.int/violence_injury_prevention/road_safety_status)

3. New Delhi: Ministry of Road Transport & Highways (Government of India); Road Accidents in India 2016. Available from: <http://morth.nic.in/showfile.asp?lid=2904>.
4. Singh, Sanjay. (2017). Road Traffic Accidents in India: Issues and Challenges. Transportation Research Procedia. 25. 4712-4723. 10.1016/j.trpro.2017.05.484.
5. Raj C, Datta S, V J, Singh Z, V S. Study of knowledge and behavioral patterns with regard to road safety among high school children in a rural community in Tamil Nadu, India. Indian J Med Spec. 2011; 2(2).
6. Reang T, Tripura A. Road Safety: knowledge, practice and determinants among undergraduate medical students of Agartala Government Medical College & Govinda Ballabh Pant Hospital. Int J Med Sci Public Health. 2014; 3:911-5.
7. Chakrabarty N, Gupta K, Bhatnagar A. A Survey on Awareness of Traffic Safety among Drivers in Delhi, India. Stand Int J. 2013;1(2):106-10
8. Mahawar P, Dixit S, Khatri AK, Rokade R, Bhurre R, Kirar S, et al. An Educational invention to improve awareness on road safety: A study among school going teenager in Indore. Nat J Comm Med. 2013;4(3):529:32.
9. Ranjan DP, Fahim MA, Kirte RC. A cross sectional study to assess the knowledge, awareness and practice towards road traffic safety among adolescent students of a selected Pre-University college in Raichur city. Int J Community Med Public Health 2018; 5:2446-52.
10. Kulkarni V, Palanivel C, Kumar N. Awareness and practice of road safety measures among undergraduate medical students in a South Indian state. J Forensic and Legal Med. 2012; 30:1-4.
11. Swami HM, Puri S, Bhatia V. Road safety awareness and practices among school children of Chandigarh. Indian J Commun Med 2006;31:199
12. Ibrahim J, Day H, Hirshon J, El-Setouhy M. Road risk-practices and pedestrian injuries among students at Ain Shams University, Cairo, Egypt. J Inj Violence Res. 2012; 4(2):71-8.
13. Jha N. Road traffic accident cases at BPKIHS, Dharan, Nepal. One year in retrospect. J Nepal Med Asso. 1997; 35:241-4.
14. Mehta SP. An Epidemiological study of Road Traffic Accidents cases admitted in Safdar Jang Hospital. New Delhi. Indian J Med Res. 1968, 56(4):456-66.