



## Knowledge Attitude and Practice Regarding Road Safety Among Adolescents in Madikeri, Karnataka: A Descriptive Observational Study

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### KEYWORDS

Knowledge Attitude and Practice, road safety, adolescents

### ABSTRACT:

**Introduction:** A combination of physical and developmental immaturity among children, and inexperience and youth-related lifestyles further increase the risk of young road users, particularly males to road traffic collisions. Improving the knowledge and practice gap among the people in the community can lead to a drastic reduction in road traffic accidents. The goals of the Motor Vehicles Act (MVA), 2019 are to improve road safety, strengthen rural transport, public transport and last-mile connectivity through automation, computerization, and online services and provide an efficient, safe, and corruption-free transport system in the country. **Objectives:** To assess the Knowledge Attitude and Practice regarding road safety among adolescents. **Methodology:** Present cross-sectional Study was carried out in 300 adolescent college (1st and 2nd PUC) going students of Madikeri (100 students from 3 different colleges) during August 1st to 31st 2019 at Madikeri town. **Results:** 66% replied correctly about the side of the road to be used by pedestrians, 85.6% reported correctly the legal age for driving a vehicle. 55.3% reported that it is offensive to drive without license. 65.3% told correctly about the recommended color for head lights of the vehicle. 67.3% were correctly answered the sign of hospital 87% were of the opinion that wearing helmet reduces the chances of injury, 82% were of the opinion that Using mobile phone while driving increases the chance of accidents, 70.6% were opined that owning a driving license for driving a vehicle is necessary, Practice regarding road safety rules and regulations revealed that 89% used zebra cross while crossing road, 75.3% obey road signs and rules. only 9% used Helmet while driving, 33.3% were oversteering, 24.2% were using the mobile phones while driving, 75.7% were driving without license. **Conclusion:** Distribution according to Knowledge regarding road safety rules needs to be improved since most of the areas have knowledge less than 50%. Majority of the participants had satisfactory knowledge about the signs related to traffic. Attitude regarding road safety rules and regulations revealed positive aspect. Regarding the practices, helmet use rate is very less i.e. 9%.

### Introduction

An accident has been defined as an unexpected, unplanned occurrence which may involve injury.<sup>1</sup> Accidents represent a major epidemic of noncommunicable diseases in the present era. Industrialization and urbanization have enormously increased the number of vehicles on the roads. Road traffic continues to be a major developmental issue and a public health concern. Road accidents are multicausal

and are often the result of various factors such as human error, road environment, and vehicle condition. They involve high human suffering and monetary costs in terms of deaths, injuries, and loss of potential income. According to road safety report 2018, road traffic accidents (RTAs) is a leading cause of death and injury across the world killing more than 1.35 million globally in 2016. As per the World Health Organization, accident-related deaths are known to be the eighth leading cause



of death and the first largest cause of death among children aged 5–14 years and adults aged 15–29 years.<sup>2</sup>

The UN General Assembly declared 2011-2020 as the "Decade of Action for Road Safety" with the goal to stabilize and reduce the increasing trend in road traffic fatalities. According to the Youth and Road Safety, Geneva, WHO (2007), Road safety is defined as a measure to reduce the harm resulting from crashes of road vehicles, to convey information to road users, to enhance their knowledge about road safety issues, influence their behavior on the road and prepare them for new safety measures. A combination of physical and developmental immaturity among children, and inexperience and youth-related lifestyles further increase the risk of young road users, particularly males to road traffic collisions. Improving the knowledge and practice gap among the people in the community can lead to a drastic reduction in road traffic accidents.<sup>3,4</sup>

The goals of the Motor Vehicles Act (MVA), 2019 are to improve road safety, strengthen rural transport, public transport and last-mile connectivity through automation, computerization, and online services and provide an efficient, safe, and corruption-free transport system in the country. The act increased the penalties in respect of offenses such as juvenile driving, drunken driving, driving without license, not wearing helmets, over speeding, and overloading.<sup>5</sup>

**Objectives:** To assess the Knowledge Attitude and Practice regarding road safety among adolescents.

### Materials and methods

**Study design:** A cross-sectional Study

**Study period:** August 1<sup>st</sup> to 31<sup>st</sup> 2019

**Study population:** 300 adolescent college (1<sup>st</sup> and 2<sup>nd</sup> PUC) going students of Madikeri (100 students from 3 different colleges)

**Study Area:** Madikeri town

**Study tool:** Predesigned pretested questionnaire

**Inclusion criteria:** PUC students from all 3 Pre university colleges of Madikeri district.

**Exclusion criteria:** Students who did not give consent.

Methods of data collection:

Ethical clearance was obtained from institutional "Ethics Committee". Predesigned and pretested semi-structured questionnaire was used as a study tool. The questionnaire consists of sociodemographic variables such as age, gender, and education. It also consists of questions regarding knowledge, attitude, and practice on road safety regulations. Data were collected by face-to-face interview method. Knowledge scoring was done using scale 0-5 right answers considered as inadequate knowledge and 6-10 right answers considered as adequate knowledge.

### Statistical analysis and methods-

Data was collected by using a structure proforma. Data thus was entered in MS excel sheet and analysed by using SPSS 24.0 version IBM USA. Qualitative data was expressed in terms of percentages and proportions. Quantitative data was expressed in terms of Mean and Standard deviation. Association between two qualitative variables was seen by using Chi square/ Fischer's exact test. A p value of <0.05 was considered as statistically significant whereas a p value <0.001 was considered as highly significant.

### Results

**Table 1: Distribution according to sociodemographic characteristics**

	Variable	Number (%)
Age	16	66 (22%)
	17	210(70%)
	18	44(8%)
Gender	Male	186(62%)
	Female	1114(38%)



Father Education	Illiterate	41(13.6%)
	Primary school	72(24.0%)
	High school	49(16.4%)
	PUC/Diploma	92(30.6%)
	Graduate/Post graduate	46(15.4%)
Mother Education	Illiterate	18(6.0%)
	Primary school	106(35.4%)
	High school	90(30.0%)
	PUC/Diploma	57(19.0%)
	Graduate/Post graduate	29(9.6%)

300 adolescent college (1<sup>st</sup> and 2<sup>nd</sup> PUC) going students of Madikeri (100 students from 3 different colleges). Age wise distribution of the study population showed that majority of the students were aged 17 years i.e. 70% followed by 22% were of 16 years and remaining 8% were of 18 years age. 62% were males and 38% were females. Paternal literacy status revealed illiteracy rate was 13.6%. Majority of the parents were studied up to

PUC/diploma i.e. 30.6%, 24% were studied upto primary schooling, 16.4% upto high school and 15.4% were graduates/postgraduates. Maternal literacy status revealed illiteracy rate was 6%. Majority of the parents were studied up to primary level i.e. 35.4% followed by 30% upto high school. 19% were diploma/PUC holders and 9.6% were graduates/post graduates.

**Table 2: Distribution according to Knowledge regarding road safety rules**

Knowledge regarding road safety rules	Number (Percentage)
Which side of the road to be used by pedestrians while walking on road	198 (66.0%)
Number of persons should travel in a bike/scooty	153(50.6%)
Legal age for driving a vehicle	257(85.6%)
Sign "L" indicates	82(27.3%)
Is it offensive to drive without license	166(55.3%)
Penalty for driving without license	39(13.0%)
From which side overtake of the vehicle can be done	61(20.3%)
Is day time running light is compulsory for new vehicles	111(37.0%)
Is it compulsory to wear seatbelt while moving a car	139(46.3%)
Recommended color for head lights of the vehicle	196 (65.3%)






Distribution according to Knowledge regarding road safety rules revealed the following findings: 66% replied correctly about the side of the road to be used by pedestrians while walking on road, 50.6% told correct number of persons should travel in a bike/scooty.






85.6% reported correctly the legal age for driving a vehicle. 27.3% told the meaning of the sign "L" correctly. 55.3% reported that is it offensive to drive without license. 13% were aware about the penalty for driving without license. 20.3% of the students knows appropriate side to overtake of the vehicle. 37% were aware about day time running light is compulsory for new vehicles.



46.3% told that it is compulsory to wear seatbelt while moving a car. 65.3% told correctly about the recommended color for head lights of the vehicle.

**Table 3: Knowledge regarding traffic signs among adolescents**

Traffic signs	Number(percentage)
	136 (45.3%)
	251 (83.6%)
	172(57.3%)
	276(92.0%)
	202(67.3%)

	201(67.0%)
	114 (38.0%)
	136(45.3%)
	24( 8.0%)
	73(24.3%)

The students were shown the traffic signs and asked about the meaning of the same. 45.3% replied correctly about the speed limit of 50Km/hr, 83.6% told the meaning of no parking correctly, 57.3% told that two-way traffic is not allowed, 92% were aware about the signal colour and its meaning, 67.3% were correctly answered the sign of hospital, 67% talked correctly about the zebra crossing, 38% about the sign of pedestrians, 45.3% about the speed breakers ahead, 8% about overtaking and 24.3% talked correctly about the “U turn”

**Table 4: Attitude regarding road safety rules and regulations**

Attitude regarding road safety rules and regulations	Number (Percentage )
Wearing helmet reduces the chances of injury	261 (87.0%)
Using mobile phone while driving increases the chance of accidents	246(82.0%)
Owning a driving license for driving a vehicle is necessary	212(70.6%)
Wearing seat belt will reduce the chance of head injury during accidents	196(65.3%)
Not obeying traffic rules will increase the chance of road traffic accidents	194(64.6%)

Attitude regarding road safety rules and regulations revealed the findings as follows: 87% were of the opinion that wearing helmet reduces the chances of injury, 82% were of the opinion that Using mobile phone while driving increases the chance of accidents, 70.6% were of the opinion that owning a driving license for driving a vehicle is necessary, 65.3% agreed that wearing seat belt will reduce the chance of head injury during accidents and 64.6% were agreed that not obeying traffic rules will increase the chance of road traffic accidents.

**Table 5: Practice regarding road safety rules and regulations**

Practice regarding Road Safety rules and regulations	Number (Percentage) n=300
Use zebra cross while crossing road	267(89.0%)
Obey road signs and rules	226(75.3%)
Drive vehicles	99(33.0%)
Exposed to Road traffic accidents	107(35.6%)

Practice regarding road safety rules and regulations revealed that 89% used zebra cross while crossing road, 75.3% obey road signs and rules, 33% were driving the



vehicles and 35.6% were exposed to road traffic accidents in the past.

**Table 6: Practice regarding Road safety rules and regulations among adolescents while drove vehicle**

Practice regarding road safety Rules and regulations	Number (percentage) n=99
Wearing Helmet while driving	9 (9.0%)
Crossing speed limit	33 (33.3%)
Using mobile phones while driving	24(24.2%)
Driving without license	75(75.7%)
Borrowing Vehicle from others without parents' knowledge	54 (54.5%)
Caught for the violation of traffic rules	37(37.3%)

Practice regarding Road safety rules and regulations among adolescents while drove vehicle revealed that only 9% used Helmet while driving, 33.3% were overseeing, 24.2% were using the mobile phones while driving, 75.7% were driving without license, 54.5% were borrowing Vehicle from others without parents' knowledge and 37.3% were Caught for the violation of traffic rules.

### Discussion

#### Sociodemographic characteristics of the study population

In our study, 300 adolescent college (1<sup>st</sup> and 2<sup>nd</sup> PUC) going students of Madikeri (100 students from 3 different colleges). Age wise distribution of the study population showed that majority of the students were aged 17 years i.e. 70% followed by 22% were of 16 years and remaining 8% were of 18 years age. 62% were males and 38% were females. Paternal literacy status revealed illiteracy rate was 13.6%. Majority of the parents were studied up to PUC/diploma i.e. 30.6%, 24% were studied upto primary schooling, 16.4% upto high school and 15.4% were graduates/postgraduates. Maternal literacy status revealed illiteracy rate was 6%. Majority of the parents were studied up to primary level i.e. 35.4% followed by 30% upto high school. 19% were diploma/PUC holders and 9.6% were graduates/post graduates. (Table 1)

Ranjan DP et al<sup>6</sup> in their study included 372 participants (204 males and 168 females). Among them, 193 (51.9%)

participants belonged to 11th standard and 179 (48.1%) participants belonged to 12th standard. The age of the participants ranged from 16 to 19 years. The mean age was 16.68±0.75.

This finding is similar to the study done by Mahawar et al in Indore among school going teenagers and Kulkarni et al in south Indian states.<sup>7,8</sup> In a study in Chandigarh, 60% students had correct knowledge on the road safety rule.<sup>9</sup>

#### Distribution according to Knowledge regarding road safety rules

In our study, distribution according to Knowledge regarding road safety rules revealed the following findings: 66% replied correctly about the side of the road to be used by pedestrians while walking on road, 50.6% told correct number of persons should travel in a bike/scooty. 85.6% reported correctly the legal age for driving a vehicle. 27.3% told the meaning of the sign "L" correctly. 55.3% reported that is it offensive to drive without license. 13% were aware about the penalty for driving without license. 20.3% of the students knows appropriate side to overtake of the vehicle. 37% were aware about day time running light is compulsory for new vehicles. 46.3% told that is it compulsory to wear seatbelt while moving a car. 65.3% told correctly about the recommended color for head lights of the vehicle. (Table 2)

Ranjan DP et al<sup>6</sup> in their study reported about the knowledge that among the 372 participants, 196 participants (52.8%) had adequate knowledge and 176 participants (47.2%) had inadequate knowledge on the road safety rules and regulations. According to the motor vehicle act (MVA) the age to get a valid driving license was 18 years. This was known by 99.1% of the participants. Maximum penalty for driving without a valid driver's license was known by only 57.8%. 97.8% and 99.4% participants knew that it is compulsory to put on the seat belt while in a moving car and wear helmet while travelling in two wheelers respectively. 55.4% participants knew that 40 kmph is the normal driving speed limit in the city and only 25.3% participants knew that the permissible blood alcohol limit for driving in India is <40 mg/dl. Only 8 participants knew all the 8 road signs. 162 participants (43.6%) were not able to



identify even one of the 8 road signs. Only 33.8% participants had correct knowledge of traffic lights.

**S.B. Salve et al<sup>10</sup>** in his study on road safety awareness among young adults, reported that the prevalence of accidents was more than double (68.44%) among males as compared to females (31.56%).

In our study, majority of the participants had a satisfactory knowledge about road traffic regulations. Overall, male participants had shown a good awareness over their female counterpart. A comparable finding was observed by Reang and Tripura in his study stating that the majority of the students identified traffic signs correctly and males had significantly ( $p=0.035$ ) better knowledge (81.8%) as compared to females (71.7%).<sup>14</sup>

However, other studies carried out by **V. Kulkarni et al<sup>11</sup>**, **Mahawar et al<sup>12</sup>** and **Swami et al<sup>13</sup>** revealed that the observed awareness was much less than the expected satisfactory level.

The better knowledge of traffic sign among participants, and that is too in male students, might be due to the habit of going out more frequently than girls and more of their exposures to traffic signs in city.

The students were shown the traffic signs and asked about the meaning of the same. 45.3% replied correctly about the speed limit of 50Km/hr, 83.6% told the meaning of no parking correctly, 57.3% told that two-way traffic is not allowed, 92% were aware about the signal colour and its meaning, 67.3% were correctly answered the sign of hospital, 67% talked correctly about the zebra crossing, 38% about the sign of pedestrians, 45.3% about the speed breakers ahead, 8% about overtaking and 24.3% talked correctly about the “U turn” **(Table 3)**

### Attitude regarding traffic signs among adolescents

In our study, Attitude regarding road safety rules and regulations revealed the findings as follows: 87% were of the opinion that wearing helmet reduces the chances of injury, 82% were of the opinion that Using mobile phone while driving increases the chance of accidents, 70.6% were opined that owning a driving license for driving a vehicle is necessary, 65.3% agreed that wearing seat belt will reduces the chance of head injury during accidents and 64.6% were agreed that not obeying traffic

rules will increase the chance of road traffic accidents. **(Table 4)**

**Ranjan DP et al<sup>6</sup>** in their study reported that among the study participants, more than half of the participants had a positive attitude towards road safety rules and regulations.

### Practice regarding road safety rules and regulations

In our study, practice regarding road safety rules and regulations revealed that 89% used zebra cross while crossing road, 75.3% obey road signs and rules, 33% were driving the vehicles and 35.6% were exposed to road traffic accidents in the past. **(Table 5)**

**Ranjan DP et al<sup>6</sup>** in their study reported that among the 372 participants, only 34.6% used zebra crossing for crossing roads, 62.3% followed the road signs and symbols and only 58 participants had the habit of wearing seat belt while in a moving car. 322 participants were driving vehicles. Among them, 22 drove four wheelers, remaining drove two wheelers. Among 88 participants who had been exposed to road traffic accidents, pedestrian accidents accounted for only 7 (7.9%), the remaining 81 (92.1%) were motor vehicle accidents. The most common reason for motor vehicle accidents was high speed in 61 participants, followed by overtaking in 12 participants and bad roads in 8 participants.

In our study, practice regarding Road safety rules and regulations among adolescents while drove vehicle revealed that only 9% used Helmet while driving, 33.3% were overseeding, 24.2% were using the mobile phones while driving, 75.7% were driving without license, 54.5% were borrowing Vehicle from others without parents' knowledge and 37.3% were Caught for the violation of traffic rules. **(Table 6)**

**Ranjan DP et al<sup>6</sup>** in their study reported that among those who drive, 42.9% had the habit of borrowing friend's vehicles and 25.5% drove vehicles without their parent's knowledge. Only 22.4% wore helmet while driving. Only 55.6% participants drove their vehicles within the normal diving speed in the city. 85 participants accepted that the traffic police had held them. Among them, 72 participants were caught for driving without their driving license, 10 for going in triples and 3 for not wearing helmets. 149 (46.3%) participants accepted that



they use mobile phone while driving. Only 49 participants (13.2%) were driving with a valid driving license (Table 5).

In our study we found 46.3% participants use mobile phone while driving. This is similar to study conducted by **Salve et al<sup>10</sup>**, **Yilmaz et al<sup>14</sup>**, **Singh et al<sup>15</sup>**, **Trivedi and Rawal<sup>16</sup>** who reported that almost half of the young drivers use mobile phone while driving.

**Conclusion:** Distribution according to Knowledge regarding road safety rules needs to be improved since most of the areas have knowledge less than 50%. Majority of the participants had satisfactory knowledge about the signs related to traffic. Attitude regarding road safety rules and regulations revealed positive aspect. Regarding the practices, helmet use rate is very less i.e. 9%.

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