

A cross-sectional study to assess the knowledge, attitude, and practice toward road safety rules and regulations among higher secondary school students in rural field practice area of a medical college

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ABSTRACT


Background: India being a developing country faces a double burden of communicable disease and increasing burden of non-communicable disease like road traffic accidents. The year 2000–2011 was declared “Decade of action for road safety” by the UN General Assembly with a goal to reduce and stabilize road traffic accidents. Age groups from 15 to 19 years and second 5 to 14 years are more commonly exposed to road traffic accidents (RTAs), with this background, the study was focused on schoolchildren. **Objectives:** The objectives of the study were as follows: (i) To study the sociodemographic profile of the study population and (ii) to study the knowledge, attitude, and practices of road safety rules and regulations among higher secondary school students. **Materials and Methods:** A cross-sectional study was conducted among 266 higher secondary school students in Lokikere, field practice area of S. S. Institute of Medical Sciences, Davangere. Data were collected using pre-tested questionnaire for a period of 2 months from October 2019 to November 2019. **Results:** Among 266 students, 97.7% of students have received knowledge from their teacher and 61.2% of higher secondary school students have adequate knowledge and positive attitude regarding road safety rules and regulations, even after 95.5% of students having adequate knowledge of age to attain driving license still 23.4% of them drive vehicle without obtaining license, of which 48.3% drive vehicle without parent’s knowledge and 29% of them have been exposed to RTA. **Conclusion:** Majority of the students have good knowledge of road safety. Around 95% of the students have adequate knowledge, 61.2% of students have positive attitude regarding road safety rules. About 23% of the students drove vehicles without license, among whom 48.3% drove vehicles without parents knowledge and 29% of them have been exposed to RTA.

KEY WORDS: Road Traffic Regulations; Road Safety; Higher Secondary School Children; Road Traffic Accident; Rural Community

INTRODUCTION

India being a developing country faces a double burden of communicable disease and increasing burden of

non-communicable disease like road traffic accidents. The year 2000–2011 was declared “Decade of action for road safety” by the UN General Assembly with a goal to reduce and stabilize road traffic accidents.^[1] The reports of the WHO show that more than 1.24 million people die due to road traffic accidents and 20–50 million people suffer non-fatal injuries.^[2] Around 59% of the global road traffic deaths accounts among young adults among whom pedestrians, cyclists are more common. Age groups from 15 to 19 years and second 5 to 14 years are more commonly exposed to road traffic accidents (RTAs).^[3] Around 75% of the accidents occur

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in developing countries though the motor vehicles constitute only around 32%.^[4] Premature deaths, loss of productivity, and injuries leading to human suffering and socioeconomic burden are due to RTAs.^[5] Among Southeast Asia Region of the WHO, India accounts for the highest burden of RTAs.^[6] Poor knowledge and practice among general population on road traffic rules is shown by various studies.^[5,7,8] Very few studies are there among rural school children knowledge and practice on road traffic rules, showing various results.^[7,9] Hence, the current study aims to assess knowledge, attitude, and practices of road safety rules and regulations among higher secondary school students of rural area.

Objectives

The objectives of the study were as follows:

1. To study the sociodemographic profile of the study population
2. To study the knowledge, attitude, and practices of road safety rules and regulations among higher secondary school students.

MATERIALS AND METHODS

A cross-sectional study was conducted among higher secondary school students in three schools in Lokikere, rural primary health center, which is the field practice area of S. S. Institute of Medical Sciences, Davangere. The study was conducted for the period of 2 months (October 2019–November 2019).

Sample Size

All three high schools coming under Lokikere, were included in the study. Complete enumeration was done among schoolchildren and those who were present on the day of the study were considered and the sample size was 266.

Study Tool to Assess Knowledge

A pre-designed, semi-structured questionnaire was used. A total of 14 questions were used to assess knowledge. Two categories were made according to the score, i.e., adequate (8–14) and inadequate (0–7) knowledge.

Methodology

The study was approved by the Institutional Ethical Committee. Permission to conduct the study was taken from school authorities. The students were explained about the study and the questionnaire. Informed consent from students was taken before the questionnaire was administered. The various study variables included were general information, knowledge, attitude, and practice questions on road safety. Forty-five minutes were given for students to complete the questionnaire. This opportunity was utilized and a health education session on road safety was conducted.

Inclusion Criteria

Students who were present on the day of the study were included in the study.

Exclusion Criteria

Students who were absent on the day of the study were excluded from the study.

Statistical Analyses

Data were entered into MS Excel and SPSS 20 was used to analyze. All descriptive variables were presented as frequency and percentages. Graphs were used to describe certain variables.

RESULTS

The study included 266 respondents, among them, 96 (36.2%) belonged to the 10th standard, 82 (32.8%) belonged to the 9th standard, and 82 (30.9%) belonged to the 8th standard. The participant's age ranged from 13 to 16 years. Majority of them 161 (60.8%) belonged to nuclear family and socioeconomic Class III 104 (39.2%) [Table 1].

In our study, majority 77 (29.1%) of fathers were educated up to primary school followed by 62 (23.4%) high school and 54 (20.4%) illiterate, majority 84 (31.7%) of mothers were illiterate, 67 (25.3%) educated up to primary school followed by 48 (18.1%) high school [Figure 1].

Most of the student's father 148 (55.8%) were clerical/shop owner/farmer followed by unskilled workers 54 (20.4%) and

Table 1: Sociodemographic profile of the study participants (*n*=266)

Variable	Category	Frequency	Percentage
Age (in years)	13	18	6.8
	14	88	33
	15	92	34.7
	16	68	25.5
Gender	Male	122	45.8
	Female	144	54.2
Level of class	8 th standard	82	30.9
	9 th standard	88	33
	10 th standard	96	36.1
Type of family	Nuclear	161	60.6
	Joint	96	36
	Three generation	9	3.4
Socio economic status	Class I	40	15.1
	Class II	44	16.6
	Class III	104	39.2
	Class IV	34	12.8
	Class V	44	16.3

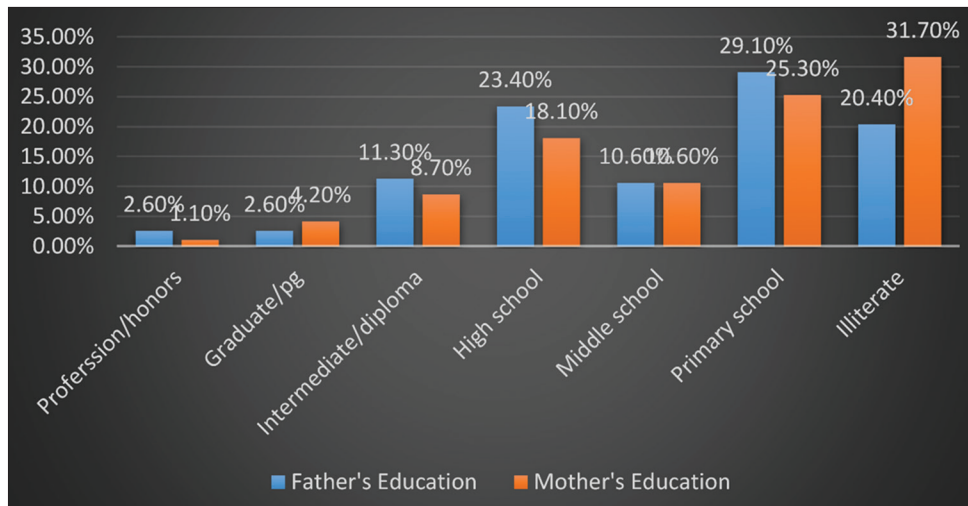


Figure 1: Education status of parents

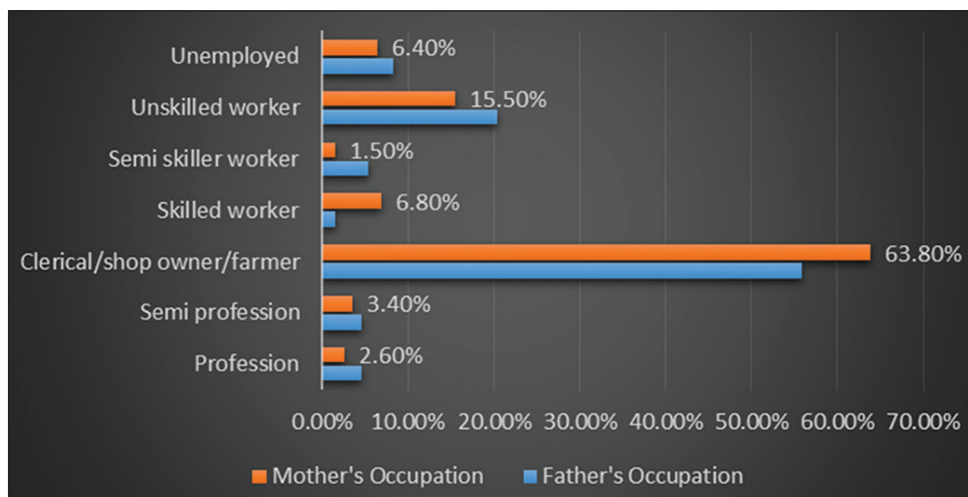


Figure 2: Occupation status of parents

22 (8.3%) patients were unemployed; most of the student's mothers 169 (63.8%) were clerical/shop owner/farmer followed by unskilled workers 41 (15.5%) and 17 (6.4%) patients were unemployed [Figure 2].

Among 266 students, majority of students 127 (47.9%) travel to school by cycle, 55 (20.8%) by school vehicle, 52 (19.6%) are pedestrians, 22 (8.3%) travel by public transport, and 9 (3.4%) travel from private transport [Figure 3].

Majority of students 260 (97.7%) got information about road safety from teachers, 4 (1.5%) from parents, 0.4% from friends, and 0.4% from media [Table 2].

In our study, majority 253 (95.5%) of the participants knew the age to get a valid driving license. Around 130 (49.1%) knew the penalty for driving without a helmet. Two hundred and fifty-three (95.5%) answered one must walk the left side of the road if there is no pavement and 11 (4.2%) on the right side; 222 (83.8%) answered that side one must overtake the vehicle is the right side; 232 (87.5%) answered that pedestrian crossing means zebra crossing but 154 (58.1%) told safe place to cross the road is pedestrian crossing; 18 (6.8%)

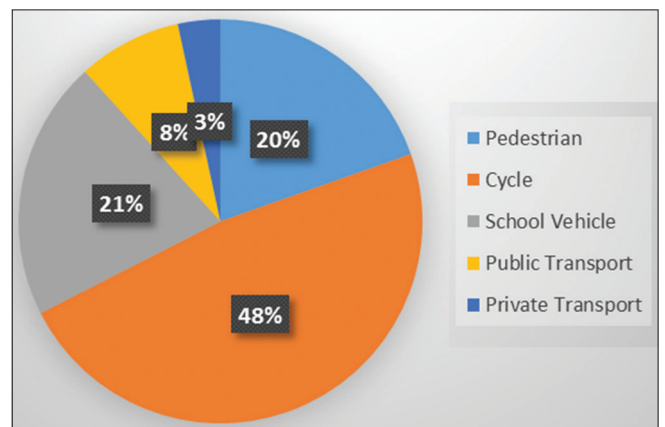


Figure 3: Mode of traveling to school

answered that speed limit for the motorcycles is 70 km/h and 179 (67.5%) answered that normal speed limit for driving in city is 40 km/h; and 206 (77.7%) answered correctly that traffic light signal yellow color denotes get ready [Table 3].

Majority 182 (68.45) answered ≥ 3 road signs correctly. Majority 163 (61.2%) of the students had adequate knowledge,

i.e., answered (8–14) questions correctly, 103 (38.2%) students had inadequate knowledge, i.e. answered <7 questions correctly [Tables 4 and 5].

Majority of the students had a good attitude toward road safety except for using mobile phones while driving and crossing railway gates when closed. Among the 266 participants,

Table 2: Source of information about road safety (n=266)

Source of information	Frequency	Percentage
Parents	4	1.5
Teachers	260	97.7
Friends	1	0.4
Media	1	0.4
Total	266	100.0

Table 3: Knowledge regarding road safety rules and regulations (n=266)

Knowledge regarding road safety rules and regulations	Number with correct response (n=266)	Percentage
Age to get major driving license	253	95.5
Fine for driving without helmet is	130	49.1
Side of the road one must walk if there is no pavement	11	4.2
Side of the road one must overtake the vehicle is	222	83.8
Pedestrian crossing means	232	87.5
Safe place to cross the road is	154	58.1
Speed limit for the motorcycles is	18	6.8
Normal speed limit for driving in city	179	67.5
A traffic light signal yellow color denotes	206	77.7
Permissible blood alcohol limit for driving in India	193	72.8
Road signs (≥3 signs correct)	182	68.4

Table 4: Knowledge regarding road signs (n=266)

Road signs	Number with correct response (n=266)	Percentage
Pedestrian crossing sign	214	80.8
Railway crossing sign	145	54.7
No parking sign	183	69.1
No sound/horn sign	238	89.8
≥3 road signs correctly answered	182	68.4

Table 5: Knowledge level of respondents on road safety rules and regulations

Knowledge level	Frequency	Percentage
Adequate knowledge (8–14)	163	61.2
Inadequate knowledge (0–7)	103	38.2

majority 264 (99.6%) used zebra crossing, 257 (97%) followed the road signage, and 249 (94.0%) had the habit of wearing helmet and wearing seat belts [Table 6].

Sixty-two (23.4%) students drove vehicles without license, 255 (96.2%) look both sides before crossing road, 30 (11.3%) were driving vehicles without parent’s knowledge, and 67 (25.3%) were exposed to a road traffic accident [Table 7].

Among those who drive vehicles, i.e., 62 (23.4%), 30 (48.3%) drove vehicles without their parent’s knowledge, 47 (75.8%) wear helmet while driving two-wheeler, 50 (80.6%) wear seat belt when driving four-wheeler, 58 (93.5%) blow horn before overtaking, 55 (88.7%) use indicator before turning, 54 (87.0%) stopped their vehicles for people to cross the roads, and 18 (29.0%) were exposed to RTA [Table 8].

DISCUSSION

In our study, majority of the students got information about road safety from teachers and knew about correct age of getting driving license. In our study, 90% of students had

Table 6: Attitude regarding road safety rules and regulations (n=266)

Attitude regarding road safety rules and regulations	Number of respondents who agreed (n=266)	Percentage
Should not use cell phones while driving a vehicle	62	23.4
Wearing of helmets while driving two-wheeler is necessary	261	98.5
Owing to driving license to drive a vehicle is necessary	263	99.2
It is compulsory to put seat belt while you are in a moving car	259	97.7
Should not cross closed railway gates	120	45.3

Table 7: Practice regarding road safety rules and regulations (n=266)

Practice regarding road safety rules and regulations	Number of respondents who practice (n=266)	Percentage
Use zebra crossing to cross roads	264	99.6
Obey the road signs and symbols	257	97.0
Wear helmet when traveling in two-wheeler	249	94.0
Wear seat belt when traveling in a four-wheeler	249	94.0
Look both sides before crossing road	255	96.2
Drive vehicles	62	23.4
Exposed to a road traffic accident	67	25.3

Table 8: Practice regarding road safety rules and regulations among those who drive vehicles (*n*=62)

Practice regarding road safety rules and regulations	Number of respondents who practice (<i>n</i> =62)	Percentage
Drive without parents knowledge	30	48.3
Wear helmet when driving two-wheeler	47	75.8
Wear seat belt when driving four-wheeler	50	80.6
Blow horn before overtaking	58	93.5
Use indicator before turning	55	88.7
Stop vehicle for pedestrians to cross even with no traffic signal or traffic police around	54	87.0
Obey the road signs and symbols	60	96.7
Exposed to road traffic accident	18	29.0

adequate knowledge regarding road safety which was higher compared to studies conducted by Mary *et al.*^[1] (50%), Swami *et al.*^[5] (60%), Mahawar *et al.*^[4] (50%), and Indumathy and Thenmozhi^[3] (28%).

Our study showed that majority of the students had good attitude toward road safety, which is similar to a study done by Mary *et al.*^[1] where $\geq 50\%$ of the students had good attitude.

In a study conducted at Chennai, Indumathy and Thenmozhi^[3] showed that 49% of the children who were under age of 18 years where driving vehicles without license and none of them wore helmets while driving, which is high when compared to our study where 23.4% of the students under 18 years drove vehicles without license, but 76% of them wore helmets which may be due to their good knowledge toward helmet uses.

As reported by Mahawar *et al.*^[4] 48% of the students knew the correct side of overtaking, in another study done at Chandigarh^[5] among schoolchildren, only 28% knew the correct side of overtaking vehicles which is less when compared to our study.

Results of the present study showed that 68.4% answered ≥ 3 road signs correctly and majority knew the correct color signals for traffic movement and stopping the vehicle which is similar to the study conducted by Baniya and Timilsina^[10] and Salve *et al.*^[11] respectively.

Limitations

The limitation of the study was that it was done in one rural area, the study could not be generalized, some aspects of practice such as overspeeding and alcohol consumption while driving vehicles could not be covered.

Recommendations

1. Continue conducting awareness programs among schoolchildren so that they have good attitude toward road safety and practice the same
2. Enforcement of strict traffic rules even in rural areas with integrated effort from local leaders, teachers, and parents.

CONCLUSION

As per our results, majority of the students have good knowledge about road safety. About 97.7% of students have received knowledge from their teacher and also reveal that students have adequate knowledge (95.5%) and positive attitude (61.2%) regarding road safety rules, even though 95.5% of students having adequate knowledge, 23% of them drove vehicles without license, among whom 48.3% drove vehicles without parents knowledge and 29% of them have been exposed to RTA.

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