
**“KNOWLEDGE, ATTITUDE AND PRACTICE
REGARDING ROAD TRAFFIC REGULATION
AMONG COLLEGE STUDENTS IN URBAN
AREA”**

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LIST OF ABBREVIATION USED

Sl.No.	ABBREVIATION	EXPANSION OF THE ABBREVIATION
1	GDP	Gross Domestic Product
2	KAHER	KLE Academy of Higher Education and Research
3	JNMC	Jawaharlal Nehru Medical College
4	PUC	Pre University College
5	RTA	Road Traffic Accident
6	SSLC	Secondary School Leaving Certificate
7	SD	Standard Deviation
8	WHO	World Health Organisation

ABSTRACT

INTRODUCTION

Accident is defined as an unfortunate incident that happens unexpectedly and unintentionally, typically resulting in damage or injury. Accidents are not frequently due to ignorance, but are also due to carelessness, thoughtlessness and over confidence. The number of road traffic deaths in the year 2013 were 1.25 million – has plateaued since 2007 despite the global increase in population and motorization and a predicted rise in deaths. 68 countries have seen a rise in the number of road traffic deaths since 2010, of which 84% are low or middle-income countries. Over 3,400 people die on the world's roads every day and tens of millions of people are injured or disabled every year. Children, pedestrians, cyclists and older people are among the most vulnerable of road users.

In 2016, the total number of road accidents in India were reported to be 4,80,652, causing injuries to 4,94,624 persons and claiming 1,50,785 lives. According to Ministry of Road Transport and Highways Transport Research Wing the number of fatal accidents, i.e., accident in which at least one victim dies, has increased consistently since 2005 and seen a sharp rise from 1,31,726 in 2015 to 1,36,071 in 2016. Consequently, accident severity expressed in terms of number of persons killed per 100 accidents, has gone up from 29.1% in 2015 to 31.4% in 2016. In Belagavi, the number of accidents are increasing every year and during the year 2015, number of accidents were 446, number of people injured were 513 and number of deaths were 53. Prevention of Road Traffic Accidents (RTA) thus, becomes crucial in order to improve the longevity and the quality of life of the individuals concerned.

OBJECTIVE

To assess the Knowledge, Attitude and Practice regarding road traffic regulation among college students in Belagavi city.

MATERIAL AND METHOD

A cross sectional study was conducted among pre university college students in Belagavi city for a duration of one year. Total number of pre-university colleges in Belagavi city were 19 and they were divided into 4 groups (North, South, East, West). Randomly one college was selected from each group and from the selected colleges, population proportional sampling was done and a total of 934 students were interviewed using pre-designed and pre-tested questionnaire.

RESULTS

Out of 934 student, correct knowledge regarding reason for RTA were: 711 (76.12%) as high speeding, 676 (72.38%) as drunken driving, 658 (70.45%) as using mobile phone while driving, 614 (65.74%) as driver lack of awareness of traffic regulation and 591 (63.28%) as driver non-compliance with traffic rule and regulation. About 896 (95.94%) of the student told that helmet is necessary to wear while driving a two wheeler vehicle and 873 (93.47%) of the college student told that they should wear seat belt while driving a four wheeler vehicle. Nearly 713 (76.37%) of the college student had the correct knowledge regarding order of traffic lights in the traffic signal. Correct knowledge regarding traffic sign noted in college student were: 920 (98.50%) red light in traffic signal i.e. to stop the vehicle, 621 (66.49%) sign board cycle prohibited, 617 (66.06%) one way sign board and 781 (83.62%) of the student knew

sign board no parking. There was difference in the knowledge score between male and female college student, which was statistically significant ($p = < 0.0001$)

Out of 934 study participant, 822 (88.00%) agreed that usage of seatbelt reduce the risk of injury during an accident, 556 (59.52%) had positive attitude towards drunken driving i.e. random breath testing for alcohol can reduce the number of RTA and 745 (79.76%) of the college students had positive attitude towards road traffic accident victim. In our study, 660 (70.66%) of the participant told that they drive a vehicle, among them 175 (26.52 %) use to ride bicycle, 470 (71.21 %) ride two wheeler with or without gear and 15 (2.27 %) use to drive car. Among the college student who use to drive two and four wheeler vehicle, the favourable practice regarding road traffic regulation noted were: 358 (73.81 %) used dim and dip signal during driving at night, 32 (88.89 %) wore seatbelt always and at times, 418 (88.94 %) used helmet always and at times while driving two wheeler, 369 (76.08 %) practiced slowing down the vehicle when yellow traffic light is on, 430 (88.65 %) used indicator light before turning the vehicle, 407 (83.92 %) always and at times practiced overtaking of other vehicle on their right side and 439 (90.51 %) gave way to cyclist / pedestrian / ambulance always and at times. Among them 72 (14.84 %) had favourable practice score, 66 (13.62 %) had unfavourable and 347 (71.54 %) had neutral practice score. Out of 263 male college students, 25 (9.50%) had favourable practice, whereas out of 222 female participant 41 (18.47%) had favourable practice. Female college students had more favourable practice when compared to male college students and this difference was statistically significant ($p = 0.002$). Out of 386 college student residing in urban areas, 59 (15.28 %) had favourable practice, whereas out of 99 participant residing in rural areas 7 (7.07 %) had favourable practice. College student residing in

urban areas had more favourable practice when compared to college student residing in rural areas and this difference was statistically significant ($p = 0.003$).

CONCLUSION

The present study showed that the knowledge, attitude and practice regarding road traffic regulation was fairly good among the college students. The common reasons cited for road traffic accident were high speed, drunken driving, using mobile phone while driving, driver lack of awareness of traffic regulation and driver non-compliance with traffic rule and regulation. The favourable practice regarding road traffic regulation noted in our study were use of dim and dip signal during driving at night, wearing of seatbelt while driving a car, use of helmet while driving two wheeler, practice of overtaking from right side only and giving way to cyclist/pedestrian/ambulance.

Key words: Knowledge, Attitude, Practice, Road traffic regulation, Pre University College.

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INTRODUCTION

Accident is defined as an unfortunate incident that happens unexpectedly and unintentionally, typically resulting in damage or injury. Accidents are not frequently due to ignorance, but are also due to carelessness, thoughtlessness and over confidence.⁽¹⁾ Road safety is a major public health issue. Every day thousands of people are killed and injured on our roads. Road traffic injuries are a growing public health issue, disproportionately affecting vulnerable groups of road users, including the poor, children and other vulnerable people.⁽²⁾

Road transportation has brought tremendous benefits to society and individuals by making easy access to a wide range of socio-economic services. In India motor vehicle are growing rapidly than the economic and population growth. The gush in motorization ally/coupled with expansion of road network has brought the challenge of addressing adverse effects such as road accidents. Road accidents cause high human suffering and socio-economic costs in terms of premature deaths, injuries, loss of productivity.⁽³⁾

More than 1.2 million people die each year on the world's roads, due to which road traffic injuries has become a leading cause of death globally. Most of these deaths occur in low and middle-income countries because of rapid economic growth accompanied by increased motorization. Road traffic injuries have become a major public health problem in low and middle income countries. Approximately 3% of Gross Domestic Product is lost as a result of road traffic crashes. Road traffic injuries are currently estimated to be the ninth leading cause of death across all age groups globally, and are predicted to become the seventh leading cause of death by 2030.⁽⁴⁾ According to World Health Organization report the number of road traffic deaths

were 1.25 million in 2013 – has plateaued since 2007 despite the global increase in population and motorization and a predicted rise in deaths. Nearly 68 countries have seen a rise in the number of road traffic deaths since 2010, of which 84% are low or middle-income countries. Road traffic death rates in low and middle-income countries are more than double as compared to those in high-income countries. Over 3,400 people die on the world's roads every day and tens of millions of people are injured or disabled every year. Children, pedestrians, cyclists and older people are among the most vulnerable of road users.⁽⁵⁾

In 2016, the total number of road accidents in India were reported to be 4,80,652, causing injuries to 4,94,624 persons and claiming 1,50,785 lives. This would translate, on an average, into 1317 accidents and 413 accident deaths taking place on Indian roads every day or 55 accidents and 17 deaths every hour. As compared to 2015, the numbers of road accidents and injured victims have declined in 2016 by 4.1% and 1.1% respectively. However, the number of persons killed in road crash has increased by 3.2% over the previous year in 2015.⁽⁶⁾ According to Ministry of Road Transport and Highways Transport Research Wing the number of fatal accidents, i.e., accident in which at least one victim dies, has increased consistently since 2005 and seen a sharp rise from 1,31,726 in 2015 to 1,36,071 in 2016. Consequently, accident severity expressed in terms of number of persons killed per 100 accidents, has gone up from 29.1% in 2015 to 31.4% in 2016.

Age profile of road accident victims for the year 2016 reveals that 46.3% (69,851 persons) belongs to the age group of 18 - 35 years and age group of 18-45 accounted for a share of 68.6% (1,03,409 persons) in the total road accident fatalities. There was general declining trend from 2010 in number of road accidents relative to

population, registered vehicles and road length, but the number of person killed per lakh population has not changed, as it is increased to 11.9% in 2016.

The National highways constitute about 2% of the total road network of India, but they contributed for 29.6% of total road accidents and 34.5% of total people killed. The state highway contributed about 25.3% of total accidents and 27.9% of total number of persons killed in road accident in 2016. Traffic junctions are point of conflicts and hence prone to road accidents. About 37% of total accidents took place on junctions in 2016. Among the vehicle categories, two wheelers accounted for the highest share in total number of road accidents (33.8%) in 2016, followed by cars, jeeps and taxis (23.6%), trucks, tempos, tractors and other articulated vehicles (21.0%), Buses (7.8%), Auto-Rickshaws (6.5%) and other motor vehicles (2.8%). The share of two wheelers in total road accidents has increased from 28.8% in 2015 to 33.8% in 2016. Out of total of 52,500 two-wheeler riders killed in road accidents during the year 2016, 10,135 two-wheeler riders (19.3%) were reported to be not wearing helmets. Non-wearing of seat belts were also reported in 5,638 accident deaths during 2016. Intake of alcohol/drugs by drivers resulted in 14,894 road accidents (3.7%) and 6,131 fatalities (5.1%) in 2016. In the total road accidents and total road accident killings, the share of intake of alcohol/drugs by drivers comes to 3.1% and 4.1% respectively. The act of talking on mobile phones while driving has become one of the causes of road accidents. It has resulted in 4, 976 road accidents, 2,138 road accident deaths and injuries to 4,746 number of persons during the year 2016. The total number of Hit and Run cases were reported as 55,942 (11.6%) of the total road accidents in 2016 as against 57,083 cases (10.9%) in 2015. The total number of persons killed in Hit and Run cases in 2016 is reported at 22,962, which is 15.2% of total persons killed.

Tamil Nadu topped the number of road accidents in the entire country with a percentage share of 14.9% followed by Madhya Pradesh (11.2%) and Karnataka (9.2%). In case of road accident deaths, Uttar Pradesh topped the list with a percentage share of 12.8% followed by Tamil Nadu (11.4%) and Maharashtra (8.6%). Tamil Nadu reported maximum number of persons injured in road accidents in the entire country with a percentage share of 16.6% followed by Madhya Pradesh (11.7%) and Karnataka (11.0%) respectively.

According to the analysis of road traffic accident data 2015 by Ministry of Road Transport and Highways Transport Research Wing, total number of road accidents in Karnataka were 44011 and total number of person killed in road traffic accidents were 10856 and total number of persons injured in road traffic accidents were 56972 in 2015.⁽⁶⁾ According to data collected from Traffic division Belagavi the number of accidents are increasing every year, number of accidents in 2014 were 410, number of people injured were 415 and number of deaths were 63. During the year 2015 number of accidents were increased to 446, number of people injured were 513 and number of deaths were 53.⁽⁷⁾ Prevention of Road Traffic Accidents (RTA) thus, becomes crucial in order to improve the longevity and the quality of life of the individuals concerned.

The starting point for any intervention aiming to bring about a greater sense of responsibility and safety among the precious but restless young generation would be to first know about their level of knowledge, attitude and practice regarding road safety regulations and build on it. The present study was aimed to assess the knowledge, attitude and practice regarding road traffic regulation in pre university college students, so that the lack of knowledge which is responsible for road traffic accidents can be assessed and a better overview of the situation can be made.

OBJECTIVE

To assess the Knowledge, Attitude and Practice regarding road traffic regulation among college students in Belagavi city.

REVIEW OF LITERATURE

The road traffic injury problem began before the introduction of the car. However, it was with the car and subsequently buses, trucks and other vehicles, the problem had increased. By various accounts, the first injury crash was supposedly suffered by a cyclist in New York City on 30th May 1896, followed a few months later by the first fatality, a pedestrian in London. Despite the early concerns expressed over serious injury and loss of life, road traffic crashes have continued to this day to exact their toll.⁽⁸⁾ Ninety-percent of road traffic deaths occur in low- and middle-income countries, and while these countries also account for 82% of the world's population, they nevertheless bear a disproportionate number of deaths relative to their level of motorization, as they account for only 54% of the world's registered vehicles. Almost half of all deaths on the world's roads are among those with the least protection – motorcyclists, cyclists and pedestrians. Globally, nearly a quarter of all road traffic deaths are among motorcyclists.⁽⁴⁾

During the calendar year 2016, the total number of road accidents in India were reported as 4,80,652 causing injuries to 4,94,624 persons and claiming 1,50,785 lives in the country. This would translate, on an average, into 1317 accidents and 413 accident deaths taking place on Indian roads every day or 55 accidents and 17 deaths every hour. The highest road accidents victims were accounted among the youths of age group of 18-35 years (46.3 %) and age group of 18-45 years accounted for a share of 68.6% (1,03,409 persons) in the total road accident fatalities. Traffic junctions are points of conflict and hence, are prone to road accidents. About 37% of total accidents take place at junctions.

Among the vehicle categories, two wheelers accounted for the highest share in total number of road accidents (33.8%) in 2016, followed by cars, jeeps and taxis (23.6%), trucks, tempos, tractors and other articulated vehicles (21.0%), Buses (7.8%), Auto-Rickshaws (6.5%) and other motor vehicles (2.8%). The share of two wheelers in total road accidents has increased from 28.8% in 2015 to 33.8% in 2016. Out of total of 52,500 two wheeler riders killed in road accidents during the calendar year 2016, 10,135 two-wheeler riders (19.3%) were reported to be not wearing helmets. Non-wearing of seat belts were also reported in 5,638 accident deaths.

Intake of alcohol/drugs by drivers resulted in 14,894 road accidents (3.7%) and 6,131 fatalities (5.1%) in 2016. In the total road accidents and total road accident killings, the share of intake of alcohol/drugs by drivers comes to 3.1% and 4.1% respectively. The act of talking on mobile phones while driving has become one of the causes of road accidents. It has resulted in 4,976 road accidents, 2,138 road accident deaths and injuries to 4,746 number of persons during the calendar year 2016.

In 2016, the fifty Million-Plus Cities in India accounted for 18.7% total road accidents, 11.8% total persons killed in road accidents and 16.7% total persons injured in road accidents. Chennai had the highest number of road accidents (7,486) while Delhi had the highest number of deaths (1,591) due to road accidents. Accident severity for the combined 50 Million Cities was 19.8% in 2016 as against 14.9% in 2015. The Government has been implementing multi-pronged road safety programmes and initiatives which encompasses mass awareness/education programmes, engineering measures (both road and vehicle), enforcement of safety laws and emergency care to road accident victims.⁽⁶⁾

A study was conducted among the medical students in Belagavi city, Karnataka. Total 400 college students were included in the study. Out of which, 16 (4%) were 17 years of age group, 71.5% were in 18-20 years, 94 (23.5%) between 21-23 years and 1% were 20 years old. About 46% were female and 54% were male. Nearly 74.5% were staying in urban areas while 25.5% in rural areas. Almost 55% of them had meet with road traffic accident in the past year. Regarding the causes of road traffic accidents, 95% mentioned lack of awareness on road traffic regulations, 98% mentioned drinking and driving, 98% mentioned driver's non-compliance with road traffic regulations, 97% mentioned high speed driving and 99% as usage of mobile phones while driving. Most of them 79.5% had the proper knowledge on which side to overtake, 10.75% told left only, 32.75% mentioned both right and left while 7% did not know. Majority 96.5% told that they should use zebra crossing sign while crossing the road and 88.7% mentioned to check both sides before crossing the road. Regarding the use of alcohol, 71.25% had proper knowledge of alcohol use before and while driving was prohibited and 97.25% knew it was not safe to drink alcohol before and while driving. The overall knowledge of the participant: 18.3% poor knowledge, 51.3% average knowledge and 30.5% good knowledge regarding road traffic accidents. Almost 50.8% had driving license and 49.3% did not have driving license. Regarding helmet use 40.3% student used sometimes, 34% used always, 25.7% never used and 53% have been caught without helmet by the traffic police. Regarding the use of helmet by pillion rider 67.25% never wore a helmet while driving, 32.75% did, 42.3% sometime and 45% always. Nearly 12.3% never wore a seatbelt while driving the car. About 55.8% participant mentioned that they should maintain the speed limit of 30-40km/hour in the city, 15% mentioned 20-30km/hour and 2.5% mentioned above 40km/hour and 26.8% did not know the speed

limit. Regarding listening to music while driving, 63% had the habit of listening to music.⁽⁹⁾

The cross sectional study conducted among medical students of S .N. Medical College Bagalkot, Karnataka revealed that, out of 90 study participant, 63 (70%) were male and 27 (30%) were female. Majority were residing in urban area 68 (75.6%) and 22 (24.4%) in rural area. Most of them were in the age group of 18-22 years, 80 (88.9%) and 12 (11.1%) were in 23 years and 26 years old respectively. Nearly 36 participant (40%) owned 2 wheeler and 10% owned car. About 12 (13.3%) told that they had met with an accident in the last year. Nearly 91.1% had correct knowledge regarding legal age for driving and 42.2% have driving license. Almost 47 (52.2%) did not know the legal limit of alcohol. Only 23.3% wore helmet every time and 22.2% reported using mobile phone while driving. Good knowledge was seen among 74 (82.2%) of the participant. Majority had good attitude 80 (88.9%) towards RTA. But the good practice was seen only among 53 (58.9%) participant and 37 (41.1%) had poor practice. The association between sex and knowledge score showed statistically significant difference (p value=0.015). Attitude and practice of traffic rules were not statistically significantly associated with sex of the study subjects.⁽¹⁰⁾

Another similar cross-sectional study was conducted among undergraduate medical students of a medical college in Bengaluru. A total of 540 participant were included in the study. Among them 312 (57.77%) were male and 228 (42.22%) were female. Nearly 352 (65.18%) of the student used only two wheeler, 148 (27.4%) four wheeler and a few participant 40 (7.4%) used both two wheeler and four wheeler. Among the study participant awareness levels regarding traffic signal rules was highest 536 (99.2%), followed by 534 (98.8%) for wearing helmet while driving, 504

(93.33%) for giving way to an ambulance, 490 (90.7%) for following lane rules-that overtaking should be done from the right hand lane side only, Alcohol consumption is dangerous while driving/riding. Among the participant, 469 (86.85%) told they will wait for the pedestrians while crossing, 466 (86.2%) told they use hand signals and blinkers while taking turns, lower levels of awareness was found for usage of seat belts while driving a car 362 (67%) and lowest for using hands free devices as safest way to use mobile phone while driving 350 (64.8%). About 49 (9.07%) have met with an RTA and 13 (2.4%) had practiced drunken driving in the past one year indicating risky practices. ⁽¹¹⁾

A cross-sectional study was conducted among medical students in Mangalore, India. The study participant included in the study were undergraduate medical students from 4th to 9th semester. A total of 260 participant were included in the study. Out of 260 college student 149 (57.3%) were female and 111 (42.7%) were male. Most of the study participant 86 (33%) used two wheeler and 75 (29%) used four wheeler. Nearly 20.4% participant used both two wheeler and four wheeler. The awareness among the study participant regarding road safety measures was considerably low. Female student had a marginally higher awareness level (20.6%) than male student (19.9%). The knowledge levels were considerably lower among the study participant regarding certain important issues such as drunken driving [n = 11 (4.2%), p = 0.02], use of right hand lane while overtaking a vehicle [n = 26 (10%), p = 0.03] and safe method to use mobile phones with hands free devices while driving [n = 16 (6.1%), p = 0.01]. In this study it was also noted that study participant had a better awareness about the traffic signs and it was found to be higher among male (52.5%) than female (50.6%) student. But the difference between them was not statistically significant. The practice of road safety measures was assessed among the

vehicle user subgroup of study participant (n = 214). Among them, nearly 54 participant were involved in drunken driving in the past one year and 44 participant agreed that they use mobile phones without hands free devices while driving. Most of them 146 participant told that they have crossed speed limits many a times. Nearly 78.9 % of the participant told that they regularly maintain their vehicle.⁽¹²⁾

The cross sectional study which was conducted to study awareness and behavioural pattern with regard to road safety among medical student in South India. A total of 224 participant were included in the study. Among them 131 (58.48%) were female and 93 (41.52%) were male. Nearly 116 (51.79%) of the study participant used two wheeler, 57 (25.45%) of them used four wheeler and 51 (22.76%) of the participant used both two wheeler and four wheeler vehicle. Awareness among the study participant regarding road safety measures was considerably low, more than 40% of the study participant lacked correct knowledge of traffic safety rules, knowledge of correct speed limit was lacking in 67.3% of the participant. Female student were more aware about traffic rules that to be followed at traffic lights (62.60%) and while crossing zebra lines (55.73%), whereas male student were more versed with rules for pedestrians (58.06%). Around 80% of participant had correct knowledge of driving without helmet as risk factor. Around 83.48% of student had correct knowledge of using mobile phones while driving as risk factor. Students who were in habit of using mobile phones while driving were 32.59% and over speeding was practiced by 25.45% of the student. Further research in this area needs to be conducted to assess the existing situation regarding road safety measures across various sub-groups of population.⁽¹³⁾

A cross sectional study was conducted among primary school children of rural community in Chennai. A total of 50 children were selected for the study, ten samples were selected from each class of 1st to 5th standard by lottery method. With regards to knowledge about road traffic regulations, out 50 children, 16 (32%) of them had inadequate knowledge, 20 (40%) of them had moderately adequate knowledge and 14 (28%) of them had adequate knowledge. The mean score of knowledge was 12.3 with standard deviation of 4. Regarding practice of road traffic regulations, 22 (44%) of them had poor practice, 24 (48%) had good practice and 4 (8%) had best practice. The mean score of practice was 6 with 1.7 standard deviation. Study revealed that there was a positive correlation between the level of knowledge and level of practice on road safety regulations. The study also showed that there was significant association with age, education and mode of transport of children.⁽¹⁴⁾

The cross sectional study which was conducted to assess the knowledge, attitude and practice towards road safety rules and regulations among Higher Secondary school students in Chennai. The study included 360 respondents with 120 students selected randomly from the three selected schools. Among the study participant 187 (51.9%) were studying in 11th standard and 173 (48.1%) participant were studying in 12th standard. The age of the participant ranged from 15 to 19 years. The mean age was 16.206 years with a standard deviation of 0.9031. Among the 360 participant, 186 (51.7%) had adequate knowledge and 174 (48.3%) had inadequate knowledge regarding road safety rules and regulation. Majority of the participant knew that the legal age for driving was above 18 years of age. Nearly 98.1% and 99.4% participant knew that it is compulsory to wear the seat belt while driving the car and wear helmet while driving two wheeler respectively. Nearly 54.4% participant knew that 40 kmph is the normal driving speed limit in the city and 24.4% participant

knew that the permissible blood alcohol limit for driving in India is <30 mg/100 ml. Only 6 participant knew all the 4 road signs (50 km speed limit, overtaking prohibited, no U-turn and pedestrians prohibited). Almost 184 (51.1%) participant were not able to identify even one of the four road signs. Only 33.1% participant had correct knowledge of traffic lights. Among the study participant, more than half of them had a positive attitude towards road safety rules and regulations. Among the study participant, 293 of them were driving vehicles. Among them, 18 drove four wheeler, 10 drove three wheeler and all of them drove two wheeler. Only 28 participant (9.6%) were driving with a valid driving license, 45% used zebra crossing for crossing roads, 77.5% followed the road signs and symbols and 201(55.8%) participant had the habit of wearing seat belt while driving the car.⁽¹⁵⁾

A cross sectional study was conducted among college students in Trichy, Tamil Nadu, to know the knowledge, awareness and practice regarding road safety rules. The study showed that majority of respondent belonged to the age group of 17-18 years (97.1%). Male (51.8%) and Female student were (48.92%) respectively. Majority of the study participant belonged to rural area (69.47%) and (24.07%) of the participant belonged to urban area. Nearly 58.1% were studying BE and 39.7% of the participant were studying MBBS. In the study group, 78.7% of the respondent told they drive some vehicle and 47.2% of them told that they were trained for driving. About 37% were having driving license and 35% of the participant had been training from driving school. About 25.2% of the study participant told that they had driving license for four wheeler vehicle and 13.5% of them had two wheeler driving license. The most common type of vehicle driven by study participant was motor bike (65.6%). Coming at distant second was cycle which was driven by 18.8% of students. Nearly 32.1% of the respondent told that they received information regarding first aid

during their training for driving. About 32.9% told that they always use dim and dip signal during night driving and 41% told that they never use this signal during night driving. Almost 48.3% of the respondent told that they slow down the vehicle when the yellow signal is on while, 8.6% told they never follow this rule. About 33.1% of the respondent told that they always overtake the vehicle in their right side, while 27.9% told they never follow this rule. According to the study the most maximum driving speed in which the participant drive their vehicle is in the range of 61-80 km/hour (24.5%) while about 13.3% of the respondent told they drive their vehicle at speed greater than 100 km/hour. About 24.3% of respondent told that they use helmet while 33.7% told they use but not always and 32.3% told they never use helmet while driving. Nearly 20.7% of respondent told that they use seat belts while driving and 35% told they never use. Although 67.1% of the participant told they never use mobile while driving but 35.4% of them told they answer the call while driving. Another matter of concern is that 34.8% of the respondent hear music while driving. Most of them 85.7% felt that it is not safe to consume even minimum amount of alcohol before driving and 5% felt it is okay to consume little alcohol before driving. This study shows the knowledge regarding the safety rules and practice was found to be very inadequate among the study participant. Further research is needed to validate these finding.⁽²⁾

A cross sectional study was conducted in the field practice area of rural health centre of Pondicherry Institute of Medical Sciences. The study population was high school students from all four high schools in the field practice area, which included two government and two private schools. The total numbers of high school students enrolled were 541 out of which, students who were present and willing to participate were 485 (89.64%). The mean age of the study participant was 14.07 ± 1.042 (range

12-18) years. Nearly 277 (57.1%) were girls. Boys had significantly better knowledge than girls in most aspects. Nearly 236 (48.45%) of the student were able to identify all three traffic lights correctly. None of the student were able to identify correctly all five traffic signs (school zone, no parking, 50 kilometers speed limit, no entry and no overtaking). Only 7 (1.44%) of the student identified 4 of the signs correctly with boys doing better than the girls. Nearly 46 (58.97%) study participant who were from private schools, were able to identify at least one of the traffic signs correctly as compared to 172 (42.26%) government school students and the finding was statistically significant. About 383 (78.96%) student said that they were using bicycles. Almost 158 (32.57%) student had ridden motorised two wheelers while only 4 had license. Nearly 33 (20.88%) of the student used helmets while riding two-wheelers. 5 student had even driven a four-wheeler though they were ineligible. Study also revealed that 55 (11.34%) school children had been involved in road traffic accidents in the past one year.⁽¹⁶⁾

The cross sectional study which was carried out amongst adolescents attending academic coaching classes in Aurangabad city. Out of 1051 adolescent, 81.45% were in age-group of 15-17 years, 13.04 % were in age-group of 17-19 years & 5.51 % were below 15 years of age. About 599 (56.99%) were boys & 452 (43.01%) were girls. Nearly 533 (50.71%) adolescent were using two wheeler without gear. Among them, 374 (70.17%) were girls, whereas 159 (29.83%) were boys. About 228 (21.68%) were using two wheeler with gear, among them maximum were boys i.e. 206 (90.35%) and 22 (9.65%) were girls. Only 34 (3.24%) were using four wheeler and in this boys to girls ratio was 50-50%. Out of 1051 adolescents, all were aware about red and green colour road traffic signals, and 892 (86.9%) of them were aware about yellow colour. Awareness for Red & Green signals colour was more compared

to Yellow colour signal & this difference was statistically significant ($p=0.000$). The awareness about road traffic signs was good amongst 448 (42.63 %) adolescent, 447 (42.53%) had average and 156 (14.84%) poor awareness respectively. Results revealed that boys had good awareness towards road traffic signs compared to girls and the difference was statistically significant. Nearly 131(12.46%) student were having permanent driving license and 205 (19.51%) were having learning license. Use of helmet while driving was very less i.e. 208 (19.79%) among them 130 (62.5%) were boys and 78 (37.5%) were girls. Percentage of using helmet was more amongst boys compared to girls and this shows statistical difference. Percentage of driving with triple seats, perform stunts, using cell phone while driving, driving in drunken state was significantly higher among boys 212 (75.18%), 105 (77.78%), 217 (62.90%) and 57 (85.09%) respectively as compared to girls i.e. 70 (24.82%), 30 (22.22%), 128 (37.10%), 10 (14.93%) respectively and difference was statistically significant. Signals and lane discipline was followed by maximum student 719 (68.41%) and 775 (73.74%) respectively, but traffic signs were not followed by 697 (66.32%) student. This study showed the main reason for accident was listening to music while driving 66 (20.62%), 46 (14.38%) high speed 42 (13.13%) other persons mistake and 41 (12.81%) not following traffic signals.⁽¹⁷⁾

Another study was conducted among medical students of Mayo medical college Barabanki, India to assess risk perception and practice towards road traffic safety. The study participants were 4th and 6th semester of MBBS students. A total of 297 student participated in the study. Nearly 193 were boys and 104 were girls. The mean age of the study participants was 20.3 ± 1.5 years. About 58% participant have own vehicle and 69% of them were having valid driving license. Among all participant, nearly 4.73% experienced road traffic injured in the past. Majority of boys

82 % had a satisfactory understanding regarding road traffic rules and 98 % regarding traffic signs and signals. Nearly 55 % of the girls had satisfactory understanding regarding road traffic rules and 66 % regarding traffic signs and signals. Only 36 % of the girls were aware of the safety provided by the helmet while driving. Nearly 89 % boys and 80 % girls were aware regarding drunken driving. The overall knowledge appeared to be satisfactory except for few determinants like talking in mobile phone while driving and condition of the vehicle. A good number of participant responded satisfactorily for the reason for road traffic accidents i.e. 88% told excess speed and 64% alcohol consumption. According to the study 82 % of them told they follow traffic rules and 85 % told they use helmet while driving. Majority of participants admit that they exceed speed limit (62%) and 73% told they did not follow lane discipline. Moreover, they even didn't practice to wear seatbelts (92%) when driving four-wheeler. A few student (25%) disclosed that they practice drunken driving.⁽¹⁸⁾

The descriptive cross sectional study was conducted to assess the knowledge attitude and practice towards road traffic safety regulations among 150 health science students in Uttarakhand. Results of the study were, majority of the student (73.9%) were in the age group of 18-19 years and nearly equal numbers of them were male (52.7%) and female (47.3%) student. Almost 75.3% were either rural or suburban dwellers. Study showed that 61.3% did not have driving license but still they drive two wheeler (84%) and four wheeler (16%). Among them 3.3% of them had learned driving from a formal driving school and 62% of them also mentioned that they had history of road traffic accidents. Nearly 23.3% had low level, 58% had moderate level and only few of them 18.7% had high level of knowledge about Road Traffic Safety. The Mean attitude score of the student regarding the Road Traffic Safety was 24.12 ± 3.5 . The mean percentage of attitude score was 75.4% with range of 8-32. It was

found that good number of student always practiced healthy road traffic safety regulation such as use indicator while taking turns (78.7%), blow horn before overtaking (77.3%), obey traffic signals, lights and signs (66.7%). However, many of them endanger their life by never practicing very crucial road traffic safety regulations such as never wearing helmet (36%), seat belts (34%), sticking to zebra crossing (24.7%) and following specified speed limits (10.7%).⁽¹⁹⁾

The study which was conducted among undergraduate medical student of Agartala Government Medical college and Govinda Ballabh, Pant Hospital Tripura regarding knowledge, practice and determinants of road safety revealed that majority (67.4%) of the participant were in the age group of 20-25 years. Nearly 165 (53.2%) of the study participant were male and 69.0% belonged to urban areas. About 83 (26%) of the participant were studying first year followed by 23.5%, 20.6%, 20.0% and 9.0% from the 4th, 3rd, 2nd and 5th year respectively. Almost 267 (86.1%) participant were from nuclear family. Majority 98.7% of the participant knew that driving after consuming alcohol was dangerous, 92.9% knew that talking in mobile phone while driving distracts the driver, 98.4% told that one should drive carefully near school, 96.1% had knowledge regarding seat belt should be worn by everyone in car, 91.6% knew loud music in the car distract driver, 84.8% knew that they should drive in the left lane, 80.6% knew that over taking should be done on right side only, 88.1% give way to ambulance, 88.7% wait patiently when pedestrians were taking too much time in zebra crossing and 97.4% thought correct knowledge of speed limit was essential. Male had significantly ($p=0.035$) better knowledge (81.8%) compared to female (71.7%) student. Majority (88.4%) were not familiar with traffic signs of no stopping, (88.4%) stop before proceeding, (83.9%) give way. Most of the participant were familiar with traffic signs of no U turn (90.6%) and cycle prohibited (91.6%). It

was found that 3.3% of the respondent did drunken driving, 8.2% used mobile phones, 27.5% crossed speed limits, 83% did regular maintenance of vehicle, 74.7% used seat belt, 90.1% used helmet, 90.1% did regular updating of documents, 26.8% played music, 24.2% gossiped with others in vehicle, 18.7% did frequent overtaking and 15.9% did frequent overtaking on left. This study was an attempt to include most of the important aspects of road safety measures with adequate sample size but limited to one medical college only; hence, cannot be generalized.⁽²⁰⁾

One more observational study was conducted among car drivers of Delhi for the purpose of ascertaining knowledge of Road Rules and Signs. A total of 102 car drivers were selected. It was further divided into 76 drivers from Special Police Guard and 49 commercial drivers (taxi drivers). Level of education and economic conditions were same in both the group. Nearly 58% drivers were in the age group of 25-35 years followed by 35-45 years age group 28%. The older drivers i.e., between the age group 46-60 years were only 9% of the total sample population. According to the educational status of the participant 10% drivers were below matriculate, 52% drivers were matriculate 25% were educated up to high school and 13% were graduates. Nearly 89% of drivers were found to have awareness regarding seat belt usage while driving, 40% of the participant were not much aware about the safe way of stopping the vehicle during emergency while driving on road and safe place of parking the vehicle (39%). About 52% to 77% of the participant showed average and above average level of awareness.⁽²¹⁾

The study conducted in Chandigarh, to assess the road safety and practices among 787 school children revealed that 479 were male and 308 were female participants. Nearly 67.3% of the participant were lacking in knowledge regarding

speed limit. Girls were more aware of traffic rules to be followed at traffic lights (63%) and while crossing zebra lines (41.2%). Around 60% of school children had correct knowledge of risk factors. The awareness was almost same in both government & private Schools as well as in male & female student. Nearly 450 (57.1%) of the participant were not using helmet while driving, 171 (21.7%) did not have driving license, 228 (29%) were over speeding and 465 (59.1%) did not wear seatbelt while driving a car.⁽²²⁾

A Cross sectional Education intervention study was done among 159 students of age group 16-18 years studying in Bal Vinay Mandir School Indore. Driving on the left side of the road was known to 70.4% of the students. Whereas after intervention the number increased to 95.6% which showed statistically significant association. Use of helmet for protection was known to 89.3% whereas after intervention the number increased up to 98.7%. Nearly 72.3% of the student knew that mobile use is prohibited while driving and is punishable while after the intervention 91.2% of the student knew of the same. Student's average knowledge about rule for overtaking in pre-test and post-test were 47.65% & 83% respectively. About 35.2% of the student knew that they should overtake from right side of the road while after intervention the number increased to 84.9%. Before the intervention only 21.4% of the student knew to slow down vehicle near a zebra crossing while after intervention the number increased to 75.5%. Out of the 159 student surveyed only 35.2% of the student knew the indication of yellow traffic sign while after the intervention the number increased up to 63.5%. Only 23.3% of the student knew the use of low beam of light in night while after intervention the number increased to 67.3%. Before the intervention only 23.3 % of the student knew the sign of railway crossing while after intervention the number increased to 86.3%. Prior to the intervention only 38.4% of the student knew

that sign of one way road while after the intervention 71.7% of the student knew of the same. Before the intervention only 21.4% of the student have knowledge about the sign of speed limit which increased to 74.2%.⁽³⁾

Another random observational study was conducted in Islamabad. In the study out of 500 questionnaires, 300 were filled by 4 wheel vehicle holder (both driver/passenger), 100 were filled by 2 wheel vehicle holder (both driver and passenger) and 100 were pedestrian. Overall 300 (60%) were driver, 100 (20%) were passenger and 100 (20%) were pedestrian. Observational study on spot of interview revealed that there was either no use or wrong use of seat belts and helmets up to 21%. Legislative aspects were at last but not least with 17% incidence with either under age driving, driving without license and legal documents. Nearly 87% (261) road traffic accidents were due to traffic law negligence and 13 % (39) with undetermined cause. Over speeding was at the top with 67 % (175) followed by bad vehicle status and illegal driving 33 % (86).⁽²³⁾

Another study was conducted to know the knowledge, attitude and practice regarding road safety among 100 peri-urban School children in Tulsapura, Lahore. Among the respondent, 42% were female, 58% were male and 90% were between the age of 9-13 years. Major representation was from classes 4 (22%) and 7 (21%) while only one child participated from class 9. Most of the study participant (88%) had driven bicycles while motorbikes were used by 27%. The student of class 4, 5 and 6 were not able to recognize the road signs (56%) but the rest of the student easily identified the road sign. The awareness regarding traffic sign was found to be slightly higher among male (52%) than female (51%) students. The knowledge level of study participant regarding road signs was considerably high especially in case of what do

the traffic signal lights indicate (94%), not to horn (79%) zebra crossing (95%) and pedestrian prohibited (75%). Around 88% of children have driven a bicycle but only 10% wore a helmet. The use of helmet among 27% of student who had driven a motorbike was 16%. Among the study participant, 29% had been involved in a road side accident and 69% of student agreed that driving without a valid license is an offence. Majority of them agreed that chance of accidents increased when riding bikes and motorcycles without a helmet (89%) and using mobiles while driving (92%). This study also revealed that good knowledge does not necessarily translates into prudent traffic practices. In this study helmet use among cyclist was lower than among motorcyclists. The study implies about importance of the road safety measures which need to be emphasized by teachers, parents and media in order to inculcate safe practices and prevention of accidents among young children.⁽²⁴⁾

A cross-sectional study conducted among 109 the students of Management and Science University, Shah Alam, Malaysia, noted that, the mean age of the participant was 20.94 ± 1.89 year, minimum age was 18 years and maximum was 26 years. Majority of the participant 89 (81.7%) lived in the city and 51 (46.8%) student were from the Nursing Department. About 60 (55%) of the participant had a driving license. More than half of the student 70 (64.2%) had not been involved in road traffic accident. Nearly 85 (78%) participant mentioned that they had moderate knowledge about road traffic regulations and 79 (72.5%) told that high speed, drivers' lack of awareness about traffic regulation and laws, and drivers' non-compliance with traffic rules and regulation were the important causes of road traffic accidents. Nearly 93.6% participant were very strongly/ strongly convinced about the importance of wearing seat belt while driving. Almost 55% of the participant had driving licenses. Approximately 35.7% had been involved in one or more than one road traffic

accident. This study found a positive relationship between road traffic accidents and age of university student in Malaysia. Also this study found a positive relationship between road traffic accidents and attitude of the participant.⁽²⁵⁾

Another cross sectional study was conducted for data searching related to road traffic incidence in Malaysia from the relevant agencies such as the Ministry of Health Malaysia, Royal Police Force, and Malaysia Institute of Road Safety Research through their official websites and PubMed search. The three agencies are well established and recognized by the Malaysian government in dealing with data collection for the injury nationwide. Of the cause of trauma, 80 % is due to RTI, and the most vulnerable road users such as pedestrian and motorcyclist are affected the most. Of all RTI, 70 % is contributed by the motorcycle crash, and there are a significant number of deaths for both rider and pillion rider of the motorcycle than for other types of vehicles. Most of these victims were young adolescents, and many of them did not hold any valid driving license. In terms of admission to hospital in Malaysia, motorcycle-related injuries are the leading cause of admission (79.9 %) followed by motorcar (10.7 %) and others 9.4 %. Human error is the main reason to be blamed, specifically the attitude of the rider on the road.⁽²⁶⁾

The study was carried out to investigate traffic regulations knowledge and awareness among drivers in Salalah, Sultanate of Oman. The main findings showed that a very low percentage of participant fully complied with speed limits; the majority used mobile phone during driving and drove when feeling fatigued. Interestingly, some of participant lacked the knowledge of traffic signs and a high percentage of participant were knowledgeable of wrong driving practices, which could be the main reason for the high rate of accidents in this region.⁽²⁷⁾

In an another study to assess the traffic safety and awareness among students at King Faisal University and selected high schools in Al- Ahsa, Saudi Arabia was carried out. The total number of participant were 1007 and the average age was 21.5 years. The level of education of participant was 48.41% high school student and 50.97% university student. Nearly 70% were involved in accident as driver, with 55% were involved in one to two accident and 15% have taken part in at least three accidents. Almost 26% of participant fully complied with speed limits and 82% fully complied with traffic signals. Among the participant 12% always used seatbelts, 13% stopped driving when feeling tired or fatigued, and 85% used mobile phone during driving, while only 7% of these participant always used free hands mobile phone devices. Nearly 10 to 15% did not know regarding sign boards like: Stop, Merging into a Main Street, Do not Pass, and School Crossing Zone Signs. While 20% did not know regarding Do not enter Sign. High percentage of participant were knowledgeable of wrong driving practice. When asked about the reason for road traffic accidents excessive speed came first, then lack of attention, incompliance with traffic regulations, stunts, and finally lack of experience. Only 13 % of the participant used seatbelt while driving the vehicle and 50% of participant thought that it played a major role in reducing accident. In this study participant expressed that using mobile phones while driving had an effect on the number of accidents, only 9% thought that it had no effect, which coincided with ranking lack of attention as the second main cause for accidents as indicated.⁽²⁸⁾

The study on Knowledge and attitude toward road traffic regulation among 120 students of Health Sciences College in Taif Region, Kingdom of Saudi Arabia revealed that the mean age of the participant was 21 ± 1.6 years with minimum 18 years, and maximum 23 years. The majority of the participant, 90 (75%), mentioned

that they had moderate knowledge about road traffic regulation, and most of them 80 (66.6%), mentioned that high speed, drivers' lack of awareness about traffic regulation and laws, and drivers' noncompliance with traffic rules and regulation were the important causes of RTAs. When the participant were asked about the importance of the use of seat belt, 102 student (85%) were very strongly/strongly convinced of its importance. However, on the reasons for using seat belts, 72 student (60%) felt convinced of its use, followed by 24 student (20%) as seat belt has become compulsory practice, 10 participant liked to comply with regulation (8.3%), and then seat belt is a civilized phenomenon for 4 participant (3.3%). Forgetfulness and restriction of movement represent the majority of causes regarding difficulties the student face when using the seat belt (79.1%). Majority of the student (58.3%) had the opinion that seat belts have the ability to reduce the rate and complications of RTAs, and the major reason for using the seat belt was that the drivers were afraid of punishment (59.16%). The use of seat belts had increased after the legislation, but there are still problems with compliance because of the negative attitudes. This study showed that the majority of the student had good knowledge about road traffic regulations. However, in the absence of comprehensive test in the study, the response of the study subject has to be viewed with caution.⁽²⁹⁾

Another cross sectional study was conducted among medical students of Ain Shams University in Cairo. A total of 450 students were included to assess the driving style and behaviour. The mean age of the 450 participant was 20.8 ± 1.6 , 61.6% of them were male and 38.4% were female. Nearly 69 % of student reported that they met with road traffic accident, of which 63.5% were simple accidents with minimal car affection and no human injuries. The maximum speed of driving was ranging from 40 to 240 km/hour with a mean of 126.4 (SD \pm 35.5, median=120 km/hour). The

driving style and behaviour like exceeding limited speed, driving before having license, disregarding road signs, driving opposite direction, non-use of car safety belt, answering a mobile call during driving, violation and drive under risky conditions were significantly higher among male student. Significant factors associated with students' involvement in car accidents were: answering mobile phone during driving ($\chi^2 = 22.4$, $p < 0.001$), fast driving at any occasion ($\chi^2 = 6.63$, $p < 0.05$), disregarding road signs ($\chi^2 = 6.2,1$ $p < 0.05$), involvement in car races ($\chi^2 = 4.87$, $p < 0.05$), loud stereo music ($\chi^2 = 10.7$, $p < 0.01$), driving under stress ($\chi^2 = 8.33$, $p < 0.01$), severe fatigue ($\chi^2 = 18.7$, $p < 0.001$), drive in bad visibility ($\chi^2 = 18.8$, $p < 0.001$), use of alcohol ($\chi^2 = 7.59$, $p < 0.01$) and sedative drugs ($\chi^2 = 5.06$, $p < 0.05$), sudden crossing of pedestrian ($\chi^2 = 6.1$, $p < 0.05$) and drive with a bad vehicle condition ($\chi^2 = 8.6$, $p < 0.01$). Driving before having a license, disregarding traffic lights, non use of seat belt, car checking, availability of car maintenance tools and fire extinguisher, not keeping the right lane when driving slowly were not significantly associated with involvement in road traffic accidents.⁽³⁰⁾

A study was conducted among 1598 young people aged 11- 24 years old from two counties - Cluj and Hunedoara - situated in the North West part of Romania. The study sample consisted of 630 junior high school student aged 11-15 years old (324 boys and 306 girls, 498 from urban area and 132 from rural area), 568 senior high school student aged 15-19 years old (281 boys and 287 girls, 325 from urban area and 243 from rural area) and 400 university student with age between 19 and 24 years (200 boys and 200 girls). The results of the study showed that around 80% of the junior high school students and more than 90% of the senior high school students and university students did not wear helmet while driving the vehicle. With regard to seatbelt in the car, they were used more frequently than the helmet when cycling, but

still more than one third of the junior high school student and senior high school student and a quarter of the university student did not use seatbelt or used them rarely. Nearly 15% of the university student who drove recognized that they drove after they used alcohol at least once during their life. More boys than girls (19.6% vs 8.3%) engaged themselves in this risky behaviour.⁽³¹⁾

MATERIAL AND METHOD

According to census 2011 statistics the population of Belagavi city was 48,88,157.⁽³²⁾ Total vehicles registered and kept for use were: 21,36,040 two wheeler and 1,59,163 four wheeler.⁽³³⁾

SOURCE OF DATA

Pre-university college students from four colleges of Belagavi city.

STUDY DESIGN

A Cross sectional study.

STUDY PERIOD

One year – 1st January to 31st December 2017.

SAMPLE SIZE

Sample size was calculated using the formula:

$$n = \frac{4pq}{d^2}$$

Where,

n = sample size

p = 30% (prevalence of knowledge)⁽²⁾

q = (100 - p) = (100 - 30) = 70.

d = relative error 10% of p, i.e. 10% of 30% = 3.

$$n = \frac{4 \times 30 \times 70}{3 \times 3}$$

$$= 933.$$

SAMPLING METHOD

Total number of pre-university colleges in Belagavi city = 19

These 19 colleges were divided into 4 groups (North, South, East, West)

Randomly one college was selected from each group. From the selected colleges, population proportional sampling was done.

Name of the college	Total students	Number of students selected for study
GSSC Pre-university college, Tilakwadi	900	253
RLS college, college road	688	193
Jyoti pre-university college, camp	1616	454
People tree pre- university college, Nehru nagar	120	34
Total	3324	934

SAMPLING PROCEDURE

The Sampling frame was prepared using attendance register.

Using computer generated random number the desired number of study participants were selected.

INCLUSION CRITERIA

College students studying in selected colleges.

EXCLUSION CRITERIA

College students who were absent on the day of data collection.


















ETHICAL CLEARANCE





The study was approved from JNMC Institutional Ethics Committee (**Letter no.- MDC/DOME/13 dated. 17/10/2016**)

DATA COLLECTION

Permission to conduct study was sought from the principal of each college. A suitable time for data collection was fixed. All the study participants were informed about the purpose of the study and after obtaining written informed assent and consent from the students, data was collected by interview using a pre-designed and pre-tested questionnaire.

TO ASSESS THE KNOWLEDGE REGARDING ROAD TRAFFIC REGULATION FOLLOWING TRAFFIC SIGNS WERE USED

Traffic sign	What is this sign?	Traffic sign	What is this sign?
 (Red)	Red light indicate vehicles to stop at the traffic signal. ⁽³⁴⁾		Indicates narrow road ahead. ⁽³⁵⁾
	Indicates one way. ⁽³⁵⁾		Indicates no parking. ⁽³⁵⁾
	Indicates school ahead be caution. ⁽³⁶⁾		Indicates circle / roundabout. ⁽³⁴⁾
	Indicates cycle prohibited. ⁽³⁵⁾		Indicates left turn prohibited. ⁽³⁵⁾
	Indicates hospital ahead. ⁽³⁶⁾	 (Green)	Green light indicates vehicle to go at traffic signal. ⁽³⁶⁾
	Indicates bus stop. ⁽³⁵⁾		Indicates work in progress / men at work. ⁽³⁴⁾
	Indicates horn prohibited. ⁽³⁶⁾		Indicates no entry. ⁽³⁴⁾
 (Amber/ yellow)	Yellow light indicates get ready to go at traffic signal. ⁽³⁶⁾		Indicates speed breaker / hump ahead. ⁽³⁶⁾
	Indicates overtaking prohibited. ⁽³⁵⁾		Indicates speed limit 45. ⁽³⁶⁾
	Indicates right reverse bend. ⁽³⁶⁾		Indicates resting place ahead. ⁽³⁵⁾
	Indicates fuel station ahead. ⁽³⁵⁾		Indicates eating place ahead. ⁽³⁵⁾

	Indicates steep ascent. ⁽³⁶⁾		Indicates railway crossing ahead. ⁽³⁴⁾
	Indicates no changing lane. ⁽³⁴⁾		Indicates Y-interaction. ⁽³⁴⁾

DATA ANALYSIS

- The data was tabulated and master chart was prepared. Data collected in the questionnaire was coded and entered into Microsoft excel sheet. Data was analysed using Statistical Package for Social Sciences (SPSS), trial version 24.0. The collected data was expressed as percentage, mean, median and standard deviation. Statistical analysis was done using Pearson’s Chi- Square test to find out the association between two variables. A probability value (p value) of less than 0.05 was considered as significant.

Score

Knowledge regarding road traffic regulation: For every correct answer one mark and wrong and don’t know answers were considered as zero. Knowledge score was divided according to marks scored by each participant.

- **Good knowledge score:** Above (Mean + SD)
= Above (23.98+6.91)
= Above 30.89
- **Average knowledge score:** (Mean + SD) to (Mean – SD)
= 30.89 to 17.07

- **Poor knowledge score:** Below (Mean - SD)
= less than (23.98 - 6.91)
= less than 17.07

Attitude regarding road traffic regulation: For every positive question five mark was given for agree strongly, four for Agree, three for Undecided, two for Disagree and one for Disagree strongly. For negative questions five for Disagree strongly, four for Disagree, three for Undecided, two for Agree and one for Agree strongly. Attitude score was divided according to marks scored by each participant.

- **Positive attitude:** Above mean = 45.29
- **Negative attitude:** Below mean = < 45.29

Practice regarding road traffic regulation: For every positive question four marks was given for Always, three for At times, two for Rarely and one for Never. For negative question four marks was given for Never, three for Rarely, two for At times and one for Always. Practice score was divided according to marks scored by each participant.

- **Favourable practice:** Above (Mean + SD)
= Above (24.18 + 4.52)
= Above 28.7
- **Neutral practice:** (Mean + SD) to (Mean – SD)
= (24.18 + 4.52) to (24.18 – 4.52)
= 28.7 to 19.66
- **Unfavourable practice:** Below (Mean – SD)
= Below (24.18 – 4.52)
= Below 19.66

DEFINITION OF STUDY VARIABLES

- **Age:** Age was recorded to the nearest completed years.
- **Illiterate:** A person who cannot read and write any language.
- **Primary school:** A person who has studied upto seventh standard.
- **High school:** The person who has studied upto tenth standard.
- **Post SSLC:** The person who has studied up to Pre-University College second year or diploma/ITI course.
- **Graduate:** A person who has completed a course of study in higher education at college or university.
- **Nuclear family:** The family consisting of married couple along with their dependent children.
- **Joint family:** It consists of more than one married couples and their children who live in the same household.
- **Broken family:** A family consists of widow/widower/divorcee living with or without their dependent children.

RESULTS

The present cross sectional study was conducted in pre-university colleges of Belagavi during the period of January to December 2017

A total of 934 students participated in the study. The data obtained was tabulated and analysed under the following headings:

- I. Socio-demographic profile of study participant
- II. Knowledge regarding Road traffic regulation
- III. Attitude towards Road traffic regulation
- IV. Practice regarding Road traffic regulation

I. Socio-demographic profile of study participant

Table 1: Distribution of the study participant according to socio-demographic profile

Socio-demographic profile	Number	Percentage
Age (in years)		
16	179	19.16
17	572	61.24
18	175	18.74
19	8	0.86
Sex		
Male	378	40.47
Female	556	59.53
Residential area		
Urban	724	77.51
Rural	210	22.49
Class they study		
PUC 1	496	53.10
PUC 2	438	46.90
Total	934	100

In the present study, out of 934 study population, 179 (19.16%) were in the age group of 16 years, 572 (61.24%) of them belonged to 17 years, 175 (18.74%) belonged to 18 years and 8 (0.86%) were 19 years old. In the current study, 378 (40.47%) were male and 556 (59.53%) were female study participant respectively. In this study, 724 (77.51%) study participant were residing in Urban area and 210 (22.49%) belonged to Rural area. Out of 934 student, 496 (53.10%) of them were studying in PUC 1 and 438 (46.90%) were studying in PUC 2 year.

Table 2: Distribution of the study participant according to Religion

Religion	Number	Percentage
Hindu	711	76.12
Muslim	175	18.74
Christian	20	2.14
Jain	26	2.79
Sikh	2	0.21
Total	934	100

In the current study, 711 (76.12%) of study participant were Hindus by religion, 175 (18.74%) were Muslim, 20 (2.14%) were Christian, 26 (2.76%) were Jain and 2 (0.21%) belonged to Sikh religion.

Table 3: Distribution of the study participant according to literacy status of the parent

Literacy status	Father's literacy status	Mother's literacy status
	No. (%)	No. (%)
Illiterate	65 (6.95)	92 (9.85)
Primary school	148(15.85)	186 (19.91)
Secondary school	181(19.38)	206 (22.05)
Post SSLC	275(29.44)	307 (32.87)
Graduate	265(28.38)	143 (15.32)
Total	934 (100)	934 (100)

In the present study, 307 (32.87%) of mothers of study participant had studied beyond SSLC, 206 (22.05%) had studied upto secondary school, 186 (19.91%) had studied upto primary school, 143 (15.32%) were graduate and 92 (9.85%) were illiterate. In regards to literacy status of fathers of study participant 275 (29.44%) had studied beyond SSLC, 265 (28.38%) were graduate, 181 (19.38%) had studied upto secondary school, 148 (15.85%) had studied upto primary school and 65 (6.95%) were illiterate.

Table 4: Distribution of the study participant according to occupation of the parent

Occupation	Father's occupation	Mother's occupation
	No. (%)	No. (%)
Business	222 (23.77)	-
Government employee	76 (8.14)	18(1.93)
Private employee	430 (46.03)	75 (8.03)
Farmer	206 (22.06)	25(2.67)
Housewife	-	816(87.37)
Total	934 (100)	934 (100)

In the present study, 816 (87.37%) of mothers of study participant were housewife, 75 (8.03%) were private employee, 25 (2.67%) were farmer and 18 (1.93%) were government employee. In regards to occupation of fathers of study participant 430 (46.03%) were private employee, 222 (23.77%) were doing business, 206 (22.06%) were farmer and 76 (8.14%) were government employee.

Table 5: Distribution of the study participant according to type of family

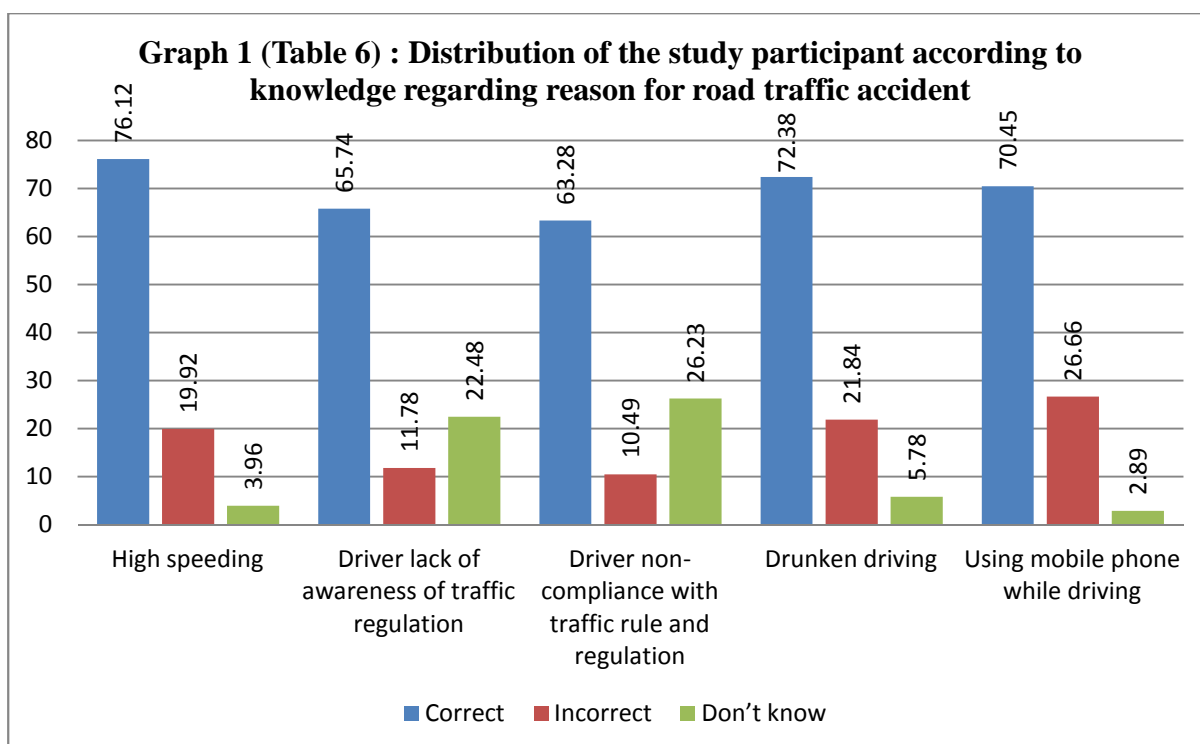
Type of family	Number	Percentage
Joint	270	28.90
Nuclear	587	62.85
Broken	77	8.25
Total	934	100

In the current study, 270 (28.90%) of study subject were staying in joint family, 587 (62.85%) were staying in nuclear family and 77 (8.25%) belonged to broken family.

II. Knowledge regarding road traffic regulation

Table 6: Distribution of the study participant according to knowledge regarding reason for road traffic accident

Knowledge regarding reason for RTA	Correct No. (%)	Incorrect No. (%)	Don't Know No. (%)	Total No. (%)
High speeding	711(76.12)	186(19.92)	37(3.96)	934(100)
Driver lack of awareness of traffic regulation	614(65.74)	110(11.78)	210(22.48)	934(100)
Driver non-compliance with traffic rule and regulation	591(63.28)	98(10.49)	245(26.23)	934(100)
Drunken driving	676(72.38)	204(21.84)	54(5.78)	934(100)
Using mobile phone while driving	658(70.45)	249(26.66)	27(2.89)	934(100)

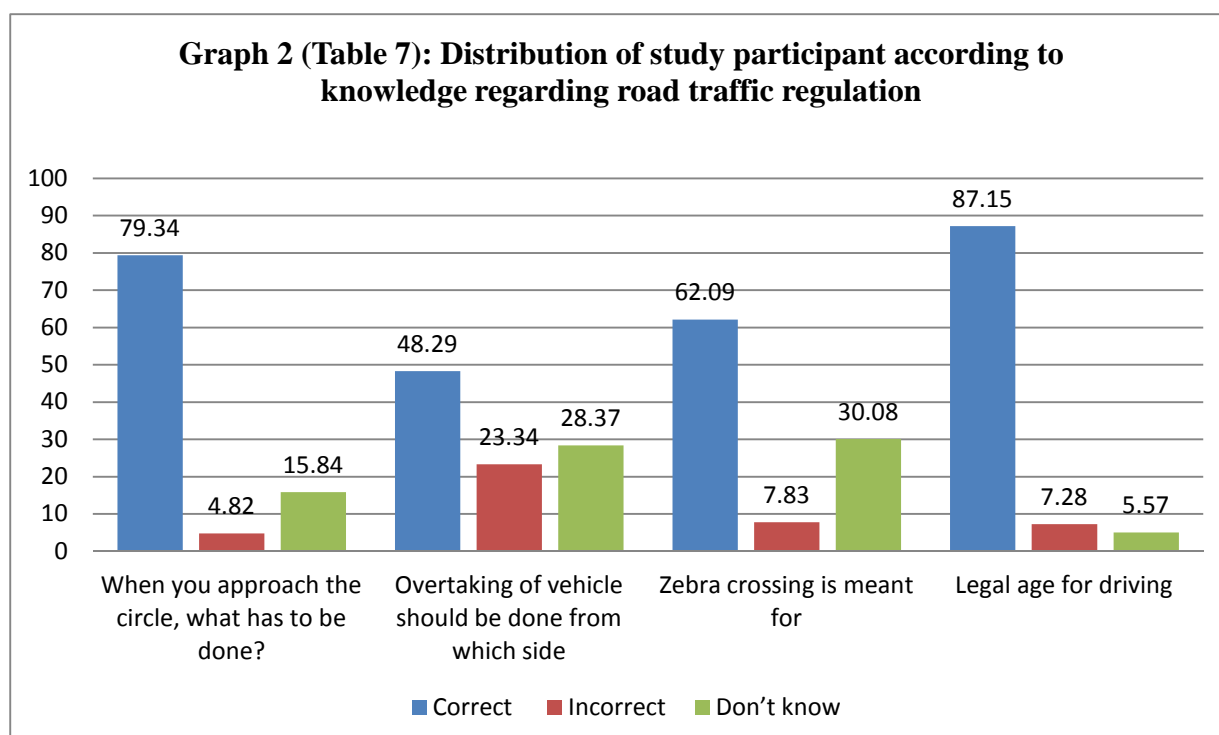


In the present study, out of 934 student, correct knowledge regarding reason for RTA were: 711 (76.12%) as high speeding, 676 (72.38%) as drunken driving, 658 (70.45%) as using mobile phone while driving, 614 (65.74%) as driver lack of awareness of traffic regulation and 591 (63.28%) as driver non-compliance with traffic rule and regulation. Incorrect knowledge regarding reason for RTA noted in our study subjects were: 249 (26.66%) thought that using mobile phone while driving doesn't cause RTA, 204 (21.84%) drunken driving, 186 (19.92%) high speed driving, 110 (11.78%) driver lack of awareness of traffic regulation and 98 (10.49%) driver non-compliance with traffic rule and regulation. In spite of 2/3rd students who had correct knowledge regarding reason for RTA, there were quite a few who did not have knowledge. They were: 245 (26.23%) as driver non-compliance with traffic rule and regulation, 210 (22.48%) as driver lack of awareness of traffic regulation, 54 (5.78%) as drunken driving, 37 (3.96%) as high speeding and 27 (2.89%) as using mobile phone while driving.

Table 7: Distribution of study participant according to knowledge regarding road traffic regulation

Knowledge regarding road traffic regulation	Correct	Incorrect	Don't know	Total
	No. (%)	No. (%)	No. (%)	No. (%)
When you approach the circle, what has to be done?	741(79.34)	45(4.82)	148(15.84)	934(100%)
Overtaking of vehicle should be done from which side	451(48.29)	218(23.34)	265(28.37)	934(100)
Zebra crossing is meant for	580(62.09)	73(7.83)	281(30.08)	934(100)
Legal age for driving	814(87.15)	68(7.28)	52(5.57)	934(100)

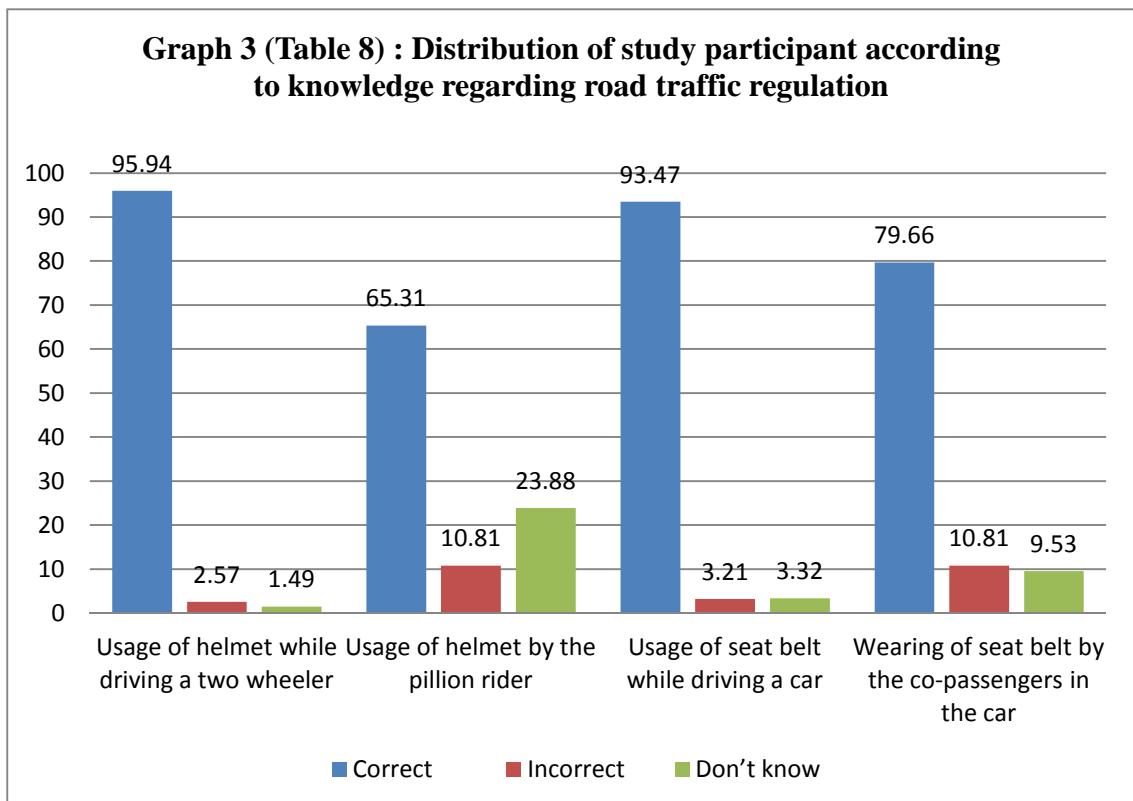
Graph 2 (Table 7): Distribution of study participant according to knowledge regarding road traffic regulation



In the present study, 741 (79.34%) of the study participant knew that they should wait for the vehicles which are already in the circle to pass when they approach roundabout / circle, 45 (4.82%) of them said they should not wait for the vehicles which are already in the circle and 148 (15.84%) of the participant told that they did not know what to do when they approach the roundabout / circle. Nearly 451 (48.29%) of the participant told that overtaking of vehicles should be done from right side, 218 (23.34%) of them told that overtaking should be done from left side and 265 (28.37%) of them told that they did not know from which side they should overtake. About 580 (62.09%) of the participant told that zebra crossing is meant for people to cross, 73 (7.83%) of them told that zebra crossing is meant for vehicle to stop at the signal and 281 (30.08%) of them told that they did not know for what zebra crossing is meant for. Majority 814 (87.15%) of the participant told correctly about the legal age for driving, 68 (7.28%) of the participant told the legal age for driving as 17 years and 52 (5.57%) of them told that they don't know the legal age for driving.

Table 8: Distribution of study participant according to knowledge regarding road traffic regulation

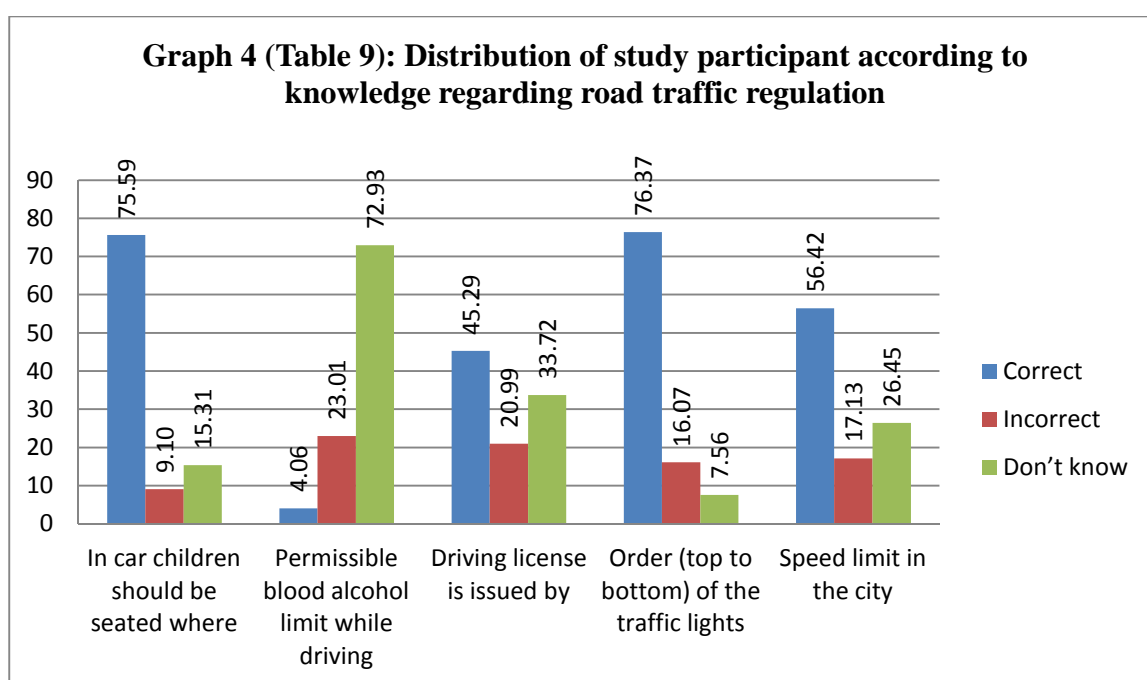
Knowledge regarding road traffic regulation	Correct No (%)	Incorrect No (%)	Don't know No (%)	Total No (%)
Usage of helmet while driving a two wheeler	896(95.94)	24(2.57)	14(1.49)	934 (100)
Usage of helmet by the pillion rider	610(65.31)	101(10.81)	223(23.88)	934(100)
Usage of seat belt while driving a car	873(93.47)	30(3.21)	31(3.32)	934(100)
Wearing of seat belt by the co-passengers in the car	744(79.66)	101(10.81)	89(9.53)	934(100)



In the current study, 896 (95.94%) of the student told that helmet is necessary to wear while driving a two wheeler vehicle, 24 (2.57%) of the participant told it's not necessary to wear helmet while driving and 14 (1.49%) of them told that they don't know about the usage of helmet. Almost 610 (65.31%) of the participant said that helmet should be used by pillion rider also while driving the two wheeler vehicle, 101 (10.81%) of them told it's not necessary to wear helmet by pillion rider while driving and 223 (23.88%) of them told that they don't know about the usage of helmet by pillion riders. Majority 873 (93.47%) of the college student told that they should wear seat belt while driving a four wheeler vehicle, 30 (3.21%) told it's not necessary to wear seat belt while driving and 31 (3.32%) of them told that they don't know about the usage of seatbelt while driving a four wheeler. Nearly 744 (79.66%) of the study participant told that it is necessary to wear seat belt by co-passenger also, 101 (10.81%) of them told it's not necessary to wear seat belt by the co-passengers in the car and 89 (9.53%) of them told that they don't know about the wearing of seatbelt by the co-passenger in the car.





Table 9: Distribution of study participant according to knowledge regarding road traffic regulation

Knowledge regarding road traffic regulation	Correct	Incorrect	Don't know	Total
	No (%)	No (%)	No (%)	No (%)
In car children should be seated where	706(75.59)	85(9.10)	143(15.31)	934(100)
Permissible blood alcohol limit while driving	38(4.06)	215(23.01)	681(72.93)	934(100)
Driving license is issued by	423(45.29)	196(20.99)	315(33.72)	934(100)
Order (top to bottom) of the traffic lights	713(76.37)	150(16.07)	71(7.56)	934(100)
Speed limit in the city	527(56.42)	160(17.13)	247(26.45)	934(100)







In our study, 706 (75.59%) of the student told that children should be seated at back, 85 (9.10%) of the participant told wrong that children should be seated in front and 143 (15.31%) of them told that they don't know regarding seating position of the children in the car. Only 38 (4.06%) of the participant had correct knowledge about permissible blood alcohol limit while driving that is 0.02g/dl, 215 (23.01%) of them told more than 1g/dl and 681 (72.93%) of them told they don't know about the permissible blood alcohol limit while driving. About 423 (45.29%) of the student told that driving license is issued by RTO, 196 (20.99%) of them told driving license is issued by police department or post office and 315 (33.72%) of them told that they don't know who issues the driving license. Nearly 713 (76.37%) of the college student had the correct knowledge regarding order of traffic lights in the traffic signal, 150 (16.07%) of them told order of traffic light as yellow-red-green light and 71 (7.56%) of them told that they did not have knowledge regarding the order of traffic lights. Almost 527 (56.42%) of the participant told correct about the speed limit in the city i.e. <40 km / hour, 160 (17.13%) of them told speed limit in the city is more than 40km / hour and 247 (26.45%) of them told that did not have knowledge regarding speed limit in the city.

Table 10: Distribution of study participant according to knowledge regarding traffic sign

Knowledge regarding traffic sign	Correct	Incorrect	Don't know	Total
	No (%)	No (%)	No (%)	No (%)
	920(98.50)	9(0.96)	5(0.54)	934(100)
	617(66.06)	127(13.59)	190(20.35)	934(100)
	358(38.33)	483(51.71)	93(9.96)	934(100)
	621(66.49)	69(7.39)	244(26.12)	934(100)





In our study, correct knowledge regarding traffic sign noted in college student were : 920 (98.50%) red light in traffic signal i.e. to stop the vehicle, 621 (66.49%) sign board cycle prohibited, 617 (66.06%) one way sign board and 358 (38.33%) sign board school ahead. The incorrect knowledge regarding traffic sign board perceived in our study were: 9 (0.96%) thought red light means to go, 127 (13.59%) told one way sign board as u- turn, 483 (51.71%) of them told school ahead sign board is meant for public to walk and 69 (7.39%) of them told cycle prohibited sign board as no parking for cycle. About 5 (0.54%), 190 (20.35%), 93 (9.96%) and 244 (26.12%) of study participant were not aware regarding sign board: stop signal, one way, school ahead and cycle prohibited respectively.

Table 11: Distribution of study participant according to knowledge regarding traffic sign

Knowledge regarding traffic sign	Correct	Incorrect	Don't know	Total
	No (%)	No (%)	No (%)	No (%)
	147(15.74)	320(34.26)	467(50.00)	934(100)
	373(39.93)	61(6.53)	500(53.54)	934(100)
	781(83.62)	16(1.71)	137(14.67)	934(100)
	610(65.31)	63(6.75)	261(27.94)	934(100)





In the current study, 781 (83.62%) of the student had correct knowledge regarding sign board no parking, 610 (65.31%) sign board roundabout, 373 (39.93%) sign board narrow road and 147 (15.74%) sign board right reverse bend. Among the participant, 320 (34.26%) of them told zig-zag road for right reverse bend sign board, 63 (6.75%) of them told recycle for roundabout sign board, 61 (6.53%) of them told double road or thick road for narrow road sign board and 16 (1.71%) of them told vehicle prohibited for no parking sign board. Nearly 500 (53.54%) of them told they did not have knowledge about the narrow road sign board, 467 (50.00%) of them regarding right reverse bend sign board, 261 (27.94%) sign board roundabout and 137 (14.67%) regarding no parking sign board.

Table 12: Distribution of study participant according to knowledge regarding traffic sign

Knowledge regarding traffic sign	Correct	Incorrect	Don't know	Total
	No (%)	No (%)	No (%)	No (%)
	571(61.13)	67(7.18)	296(31.69)	934(100)
	833(89.19)	4(0.43)	97(10.38)	934(100)
	810(86.72)	16(1.71)	108(11.57)	934(100)
	851(91.11)	23(2.46)	60(6.43)	934(100)





In the present study, 851 (91.11%) of the subject had correct knowledge about the green signal i.e. to drive the vehicle, 833 (89.19%) about the sign board fuel station ahead, 810 (86.72%) about the sign board hospital ahead and 571 (61.13%) of the participant told correct about the sign board no left turn. The incorrect knowledge noted in our study subject were: 67 (7.18%) of them told no entry for the sign board no left turn, 23 (2.46%) of them told wait / halt sign for green signal, 16 (1.71%) of them told eating place / lodge for the sign board hospital ahead and 4 (0.43%) of them told telephone booth for the sign board of fuel station ahead. About 296 (31.69%) of student told they did not have knowledge about the sign board no left turn, 108 (11.57%) about the sign board hospital ahead, 97 (10.38%) about the sign board fuel station ahead and 60 (6.43%) of the student old they don't know for what the green signal is meant for.

Table 13: Distribution of study participant according to knowledge regarding traffic sign

Knowledge regarding traffic sign	Correct	Incorrect	Don't know	Total
	No (%)	No (%)	No (%)	No (%)
	706(75.59)	44(4.71)	184(19.70)	934(100)
	582(62.31)	44(4.71)	308(32.98)	934(100)
	302(32.33)	168(17.99)	464(49.68)	934(100)
	611(65.41)	36(3.85)	287(30.74)	934(100)




In the present study, 706 (75.59%) of study population had good knowledge regarding the sign board bus stop ahead, 611 (65.41%) about the sign board eating place, 582 (62.31%) about the sign board work in progress and 302 (32.33%) about the sign board resting place. Among the college student the incorrect knowledge noted were, 168 (17.99%) of them told hospital ahead for the sign board resting place, 44 (4.71%) of them told railway track for the sign board bus stop ahead, 44 (4.71%) of them told cleaning the city for the sign board work in progress and 36 (3.85%) of them told resting place for the sign board eating place. Almost half of them 464 (49.68%) told they were unaware regarding the sign board resting place, 308 (32.98%) about the sign board work in progress, 287 (30.74%) about the sign board eating place and 184 (19.70%) about the sign board bus stop ahead.

Table 14: Distribution of study participant according to knowledge regarding traffic sign

Knowledge regarding traffic sign	Correct	Incorrect	Don't know	Total
	No (%)	No (%)	No (%)	No (%)
	226(24.20)	111(11.88)	597(63.92)	934(100)
	755(80.84)	18(1.93)	161(17.23)	934(100)
	828(88.65)	23(2.47)	83(8.88)	934(100)
	411(44.00)	138(14.78)	385(41.22)	934(100)




In our study, out of 934 participant, 828 (88.65%) of them told correct about the sign board of horn prohibited, 755 (80.84%) about the sign board of hump ahead, 411 (44.00%) about the sign board steep ascent and 226 (24.20%) about the sign board of no changing lane. The incorrect knowledge noted among students were, 138 (14.78%) told ghat section ahead for the sign board steep ascent, 111 (11.88%) told no overtaking for the sign board of no changing lane, 18 (1.93%) told road is blocked for the sign board of hump ahead and 23 (2.47%) told no smoking for the sign board of horn prohibited. Nearly 2/3rd 597 (63.92%) of the college student told that they did not have knowledge about the sign board of no changing lane, 385 (41.22%) about the sign board steep ascent, 161 (17.23%) about the sign board hump ahead and 83 (8.88%) told they don't know about the sign board of horn prohibited.

Table 15: Distribution of study participant according to knowledge regarding traffic sign

Knowledge regarding traffic sign	Correct	Incorrect	Don't know	Total
	No (%)	No (%)	No (%)	No (%)
	434(46.47)	90(9.64)	410(43.89)	934(100)
	409(43.79)	119(12.74)	406(43.47)	934(100)
	477(51.07)	100(10.71)	357(38.22)	934(100)

In the present study, 477 (51.07%) of the college student told correct about the sign board no entry, 434 (46.47%) about the sign board y- interaction and 409 (43.79%) sign board no overtaking. The incorrect knowledge regarding traffic sign board perceived in our study were: 119 (12.74%) told go straight for the sign board of no overtaking, 100 (10.71%) told no road for the sign board of no entry and 90 (9.64%) told road diversion for the sign board y-interaction. About 410 (43.89%) of them told they did not know the sign board y- interaction, 406 (43.47%) told they did not know the sign board no overtaking and 357 (38.22%) told they did not know the sign board no entry.

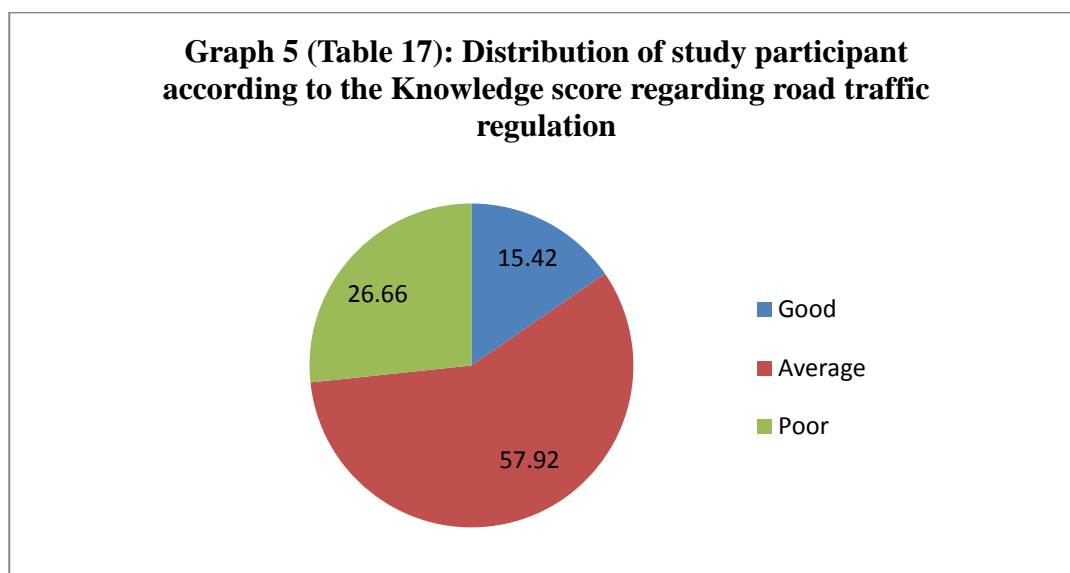
Table 16: Distribution of study participant according to knowledge regarding traffic sign

Knowledge regarding traffic sign	Correct	Incorrect	Don't know	Total
	No (%)	No (%)	No (%)	No (%)
	676(72.38)	43(4.60)	215(23.02)	934(100)
	785(84.04)	42(4.49)	107(11.47)	934(100)
	666(71.30)	18(1.93)	250(26.77)	934(100)

In the current study, 785 (84.04%) of the student had correct knowledge regarding yellow traffic light, 676 (72.38%) about the sign board railway crossing ahead and 666 (71.30%) about the sign board speed limit 45. The incorrect knowledge noted were, 43 (4.60%) told zebra crossing for the sign board of railway crossing, 42 (4.49%) told proceed for the amber / yellow signal and 18 (1.93%) of them told 45 km for the sign board of speed limit. Among the participant, 250 (26.77%), 215 (23.02%) and 107 (11.47%) told they did not have knowledge regarding sign board speed limit 45, railway crossing ahead and yellow traffic light respectively.

Table 17: Distribution of study participant according to the Knowledge score regarding road traffic regulation.

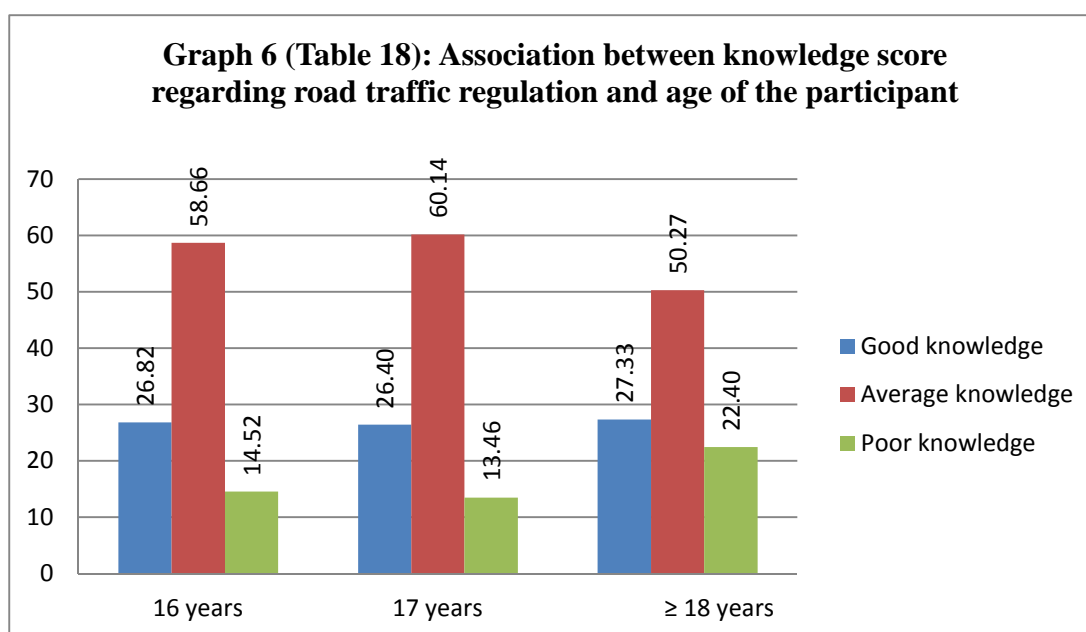
Knowledge score	Number	Percentage
Good (> 30.89)	144	15.42
Average (17.07 to 30.89)	541	57.92
Poor (< 17.07)	249	26.66
Total	934	100



In the current study, among the study participant the mean knowledge score was 23.98 with standard deviation of 6.91, median was 25 and the range was 4 to 36. Good knowledge regarding road traffic regulation was noted in 144 (15.42%) of the student, 541 (57.92%) had average knowledge score and 249 (26.66%) had poor knowledge mean score.

Table 18: Association between knowledge score regarding road traffic regulation and age of the participant

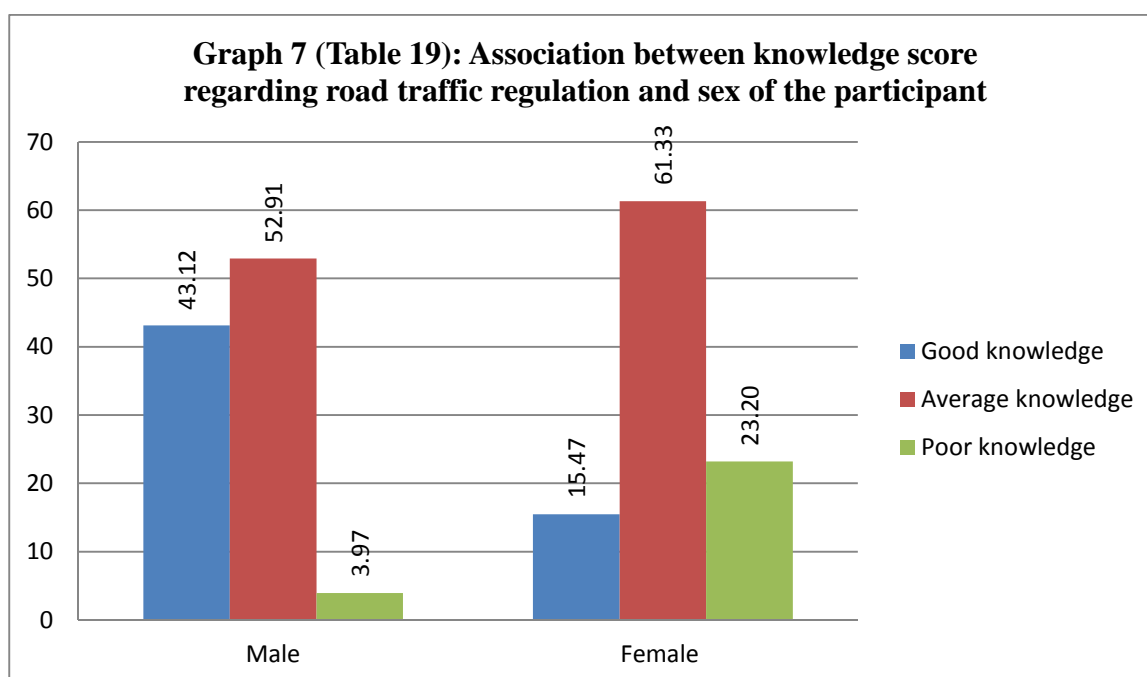
Age (in years)	Good knowledge	Average knowledge	Poor knowledge	Total
16	48(26.82)	105(58.66)	26(14.52)	179(100)
17	151(26.40)	344(60.14)	77(13.46)	572(100)
18	50 (27.33)	92 (50.27)	41 (22.40)	183 (100)
$\chi^2 = 9.70 \quad df = 4 \quad p = 0.045$				



In the current study, good knowledge regarding road traffic regulation was slightly higher (27.33%) in the age group ≥ 18 years and almost similar (26.82% and 26.40%) in the age group of 16 and 17 years. Higher (58.66% and 60.14%) average knowledge score was noted in the 16 and 17 years age group. The least (13.46%) poor knowledge score was seen in the age group 17 years. As the age of the study participant increased the knowledge score also increased and this association was found to be marginally statistically significant ($p = 0.045$).

Table 19: Association between knowledge score regarding road traffic regulation and sex of the participant

Sex	Good knowledge	Average knowledge	Poor knowledge	Total
Male	163(43.12)	200(52.91)	15(3.97)	378(100)
Female	86(15.47)	341(61.33)	129(23.20)	556(100)
$\chi^2 = 121.29 \quad df = 2 \quad p = <0.0001$				



In the present study, out of 378 male college student, 163 (43.12%) of them had good knowledge regarding road traffic regulation, 200 (52.91%) had average knowledge and 15 (3.97%) had poor knowledge. Whereas out of 556 female student 86 (15.47%) had good knowledge, 341 (61.33%) had average and 129 (23.20%) of them had poor knowledge. There was difference in the knowledge score between male and female college student, which was statistically significant ($p = < 0.0001$)

Table 20: Association between knowledge score regarding road traffic regulation and place of residence of the participant

Place of residence	Good knowledge	Average knowledge	Poor knowledge	Total
Urban	194(26.80)	426(58.84)	104(14.36)	724(100)
Rural	55(26.19)	115(54.76)	40(19.05)	210(100)
$\chi^2 = 2.81 \quad df = 2 \quad p = 0.25$				

In our study, out of 724 subjects residing in urban area 194 (26.80%) had good knowledge regarding road traffic regulation, 426 (58.84%) had average knowledge score and 104 (14.36%) had poor knowledge mean score. Among 210 of the students, residing in rural area 55 (26.19%) had good knowledge, 115 (54.76%) and 40 (19.05%) had average and poor knowledge score respectively. Although the students residing in rural area had higher prevalence of poor knowledge score compared to the students residing in an urban area, the association was not statistically significant ($p = 0.25$).

III. Attitude towards road traffic regulation**Table 21: Distribution of study population according to reason why do people drive fast**

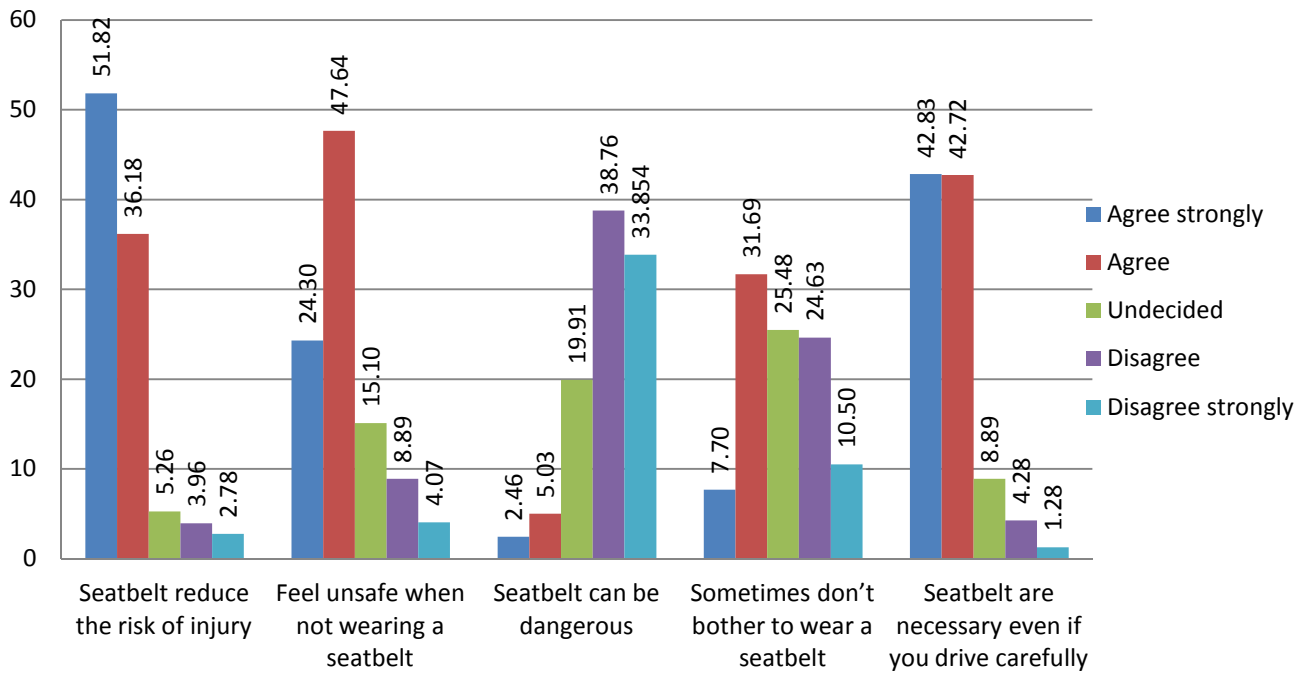
Why do people drive fast	Number	Percentage
One reason		
In a hurry	515	55.14
for excitement or fun	193	20.66
to be cool and impress friends	174	18.63
Two reason	20	2.14
Three reason	32	3.43
Total	934	100

In the present study, 882 (94.43%) of the participant gave one reason for why people drive fast, the commonest being in a hurry (55.14%) followed by for excitement or fun (20.66%) and to be cool and impress friends (18.63%). Nearly 20 (2.14%) of college students gave two reasons and 32 (3.43%) gave three reasons in various combinations of the above said reasons for driving fast.

Table 22: Distribution of study participant according to attitude towards wearing of seatbelt

Wearing of seatbelt	Agree strongly	Agree	Undecided	Disagree	Disagree strongly	Total
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
Seatbelt reduce the risk of injury	484(51.82)	338(36.18)	49(5.26)	37(3.96)	26(2.78)	934(100)
Feel unsafe when not wearing a seatbelt	227(24.30)	445(47.64)	141(15.10)	83(8.89)	38(4.07)	934(100)
Seatbelt can be dangerous	23(2.46)	47(5.03)	186(19.91)	362(38.76)	316(33.84)	934(100)
Sometimes don't bother to wear a seatbelt	72(7.70)	296(31.69)	238(25.48)	230(24.63)	98(10.50)	934(100)
Seatbelt are necessary even if you drive carefully	400(42.83)	399(42.72)	83(8.89)	40(4.28)	12(1.28)	934(100)

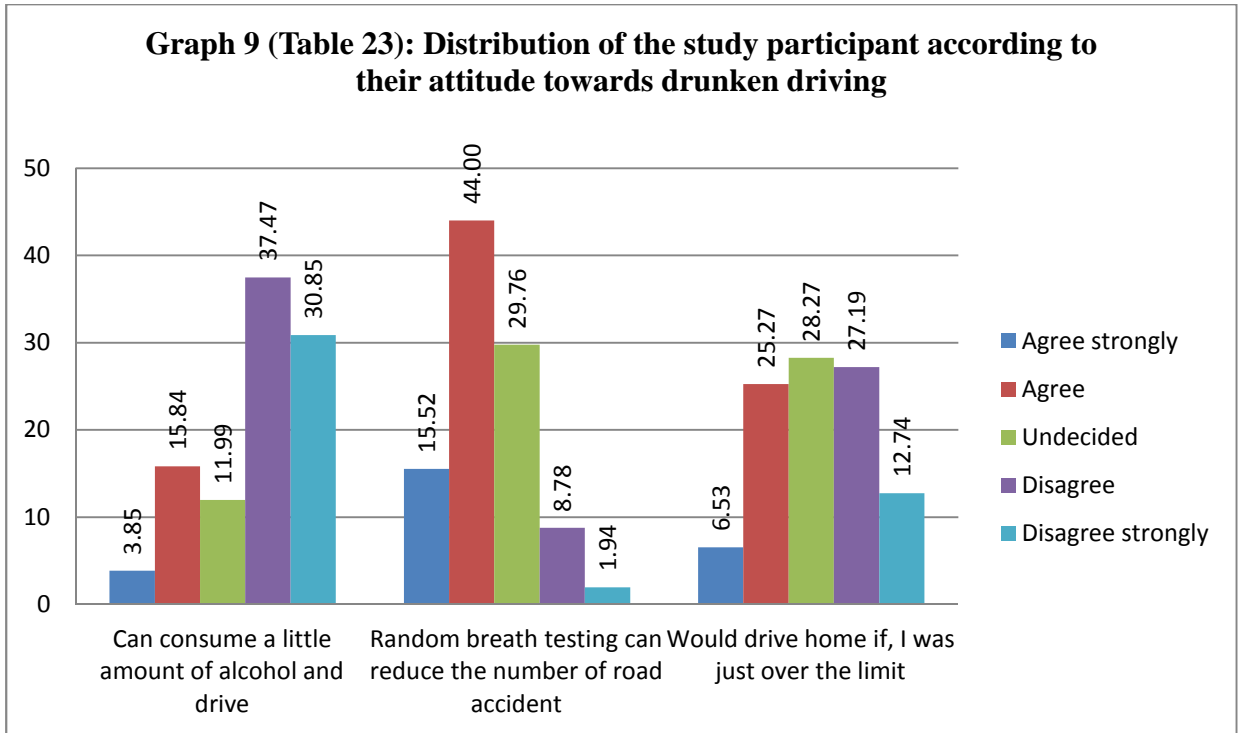
Graph 8 (Table 22): Distribution of study participant according to attitude towards wearing of seatbelt



In our study, out of 934 study participant, 822 (88.00%) agreed that usage of seatbelt reduce the risk of injury during an accident, whereas 63 (6.74%) students disagreed and 49 (5.26%) where undecided. Most of them 678 (71.94%) felt unsafe when not wearing a seatbelt while driving a vehicle, 121 (12.96%) felt safe without a seat belt and 141 (15.10%) were undecided. Majority 799 (85.55%) of the college students felt that seatbelt was necessary even if you drive the vehicle carefully, 52 (5.56%) did not feel so and 83 (8.89 %) were undecided. The negative attitudes noted among our study participants were 70 (7.49%) who felt seatbelt can be dangerous and 328 (35.13%) sometimes they do not bother to wear a seatbelt.

Table 23: Distribution of the study participant according to their attitude towards drunken driving

Drunken driving	Agree strongly	Agree	Undecided	Disagree	Disagree strongly	Total
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
Can consume a little amount of alcohol and drive	36(3.85)	148(15.84)	112(11.99)	350(37.47)	288(30.85)	934(100)
Random breath testing can reduce the number of road accident.	145(15.52)	411(44.00)	278(29.76)	82(8.78)	18(1.94)	934(100)
Would drive home if, I was just over the limit	61(6.53)	236(25.27)	264(28.27)	254(27.19)	119(12.74)	934(100)

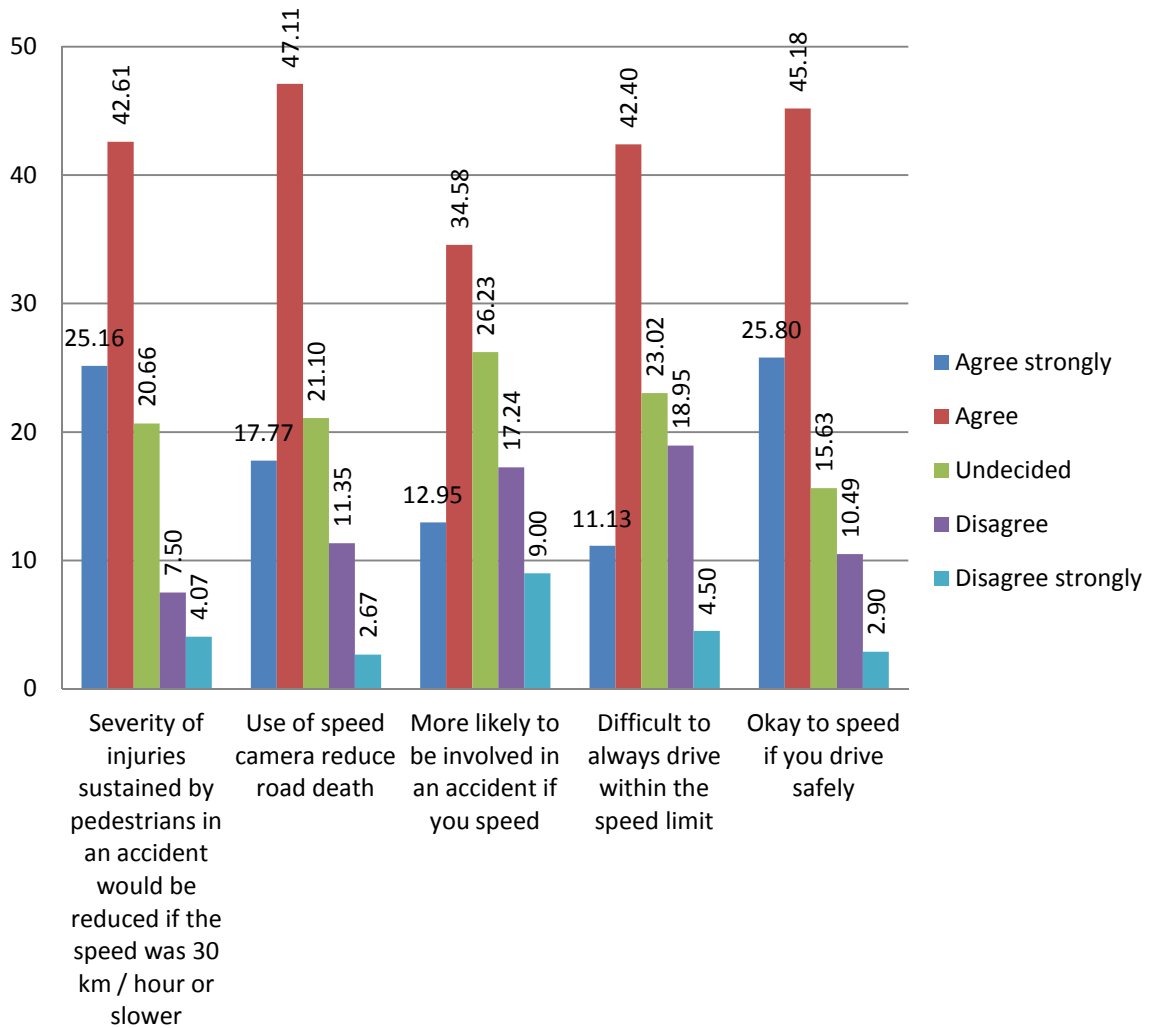


In the present study, out of 934 college student studied, 556 (59.52%) had positive attitude towards drunken driving i.e. random breath testing for alcohol can reduce the number of RTA, 100 (10.72%) felt not so and 278 (29.76%) were undecided. More than 2/3rd 638 (68.32%) felt that it is dangerous to consume a little amount of alcohol and drive a vehicle but 184 (19.66 %) felt that it was okay to consume a little amount of alcohol and drive. Nearly 1/3rd 297 (31.80 %) of the students felt that they can drive a vehicle home even if they are just over the permissible alcohol limit and 264 (28.27%) were undecided.

Table 24: Distribution of the study participant according to their attitude towards speeding

Attitude towards speeding	Agree strongly	Agree	Undecided	Disagree	Disagree strongly	Total
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
Severity of injuries sustained by pedestrians in an accident would be reduced if the speed was 30 km/hour or slower	235(25.16)	398(42.61)	193(20.66)	70(7.50)	38(4.07)	934(100)
Use of speed camera reduce road death	166(17.77)	440(47.11)	197(21.10)	106(11.35)	25(2.67)	934(100)
More likely to be involved in an accident if you speed	121(12.95)	323(34.58)	245(26.23)	161(17.24)	84(9.00)	934(100)
Difficult to always drive within the speed limit	104(11.13)	396(42.40)	215(23.02)	177(18.95)	42(4.50)	934(100)
Okay to speed if you drive safely	241(25.80)	422(45.18)	146(15.63)	98(10.49)	27(2.90)	934(100)

Graph 10 (Table 24): Distribution of the study participant according to their attitude towards speeding



Out of 934 study participant, 633 (68.22 %) and 606 (64.88 %) felt that severity of injuries sustained by pedestrians in an accident would be reduced if the speed of the vehicle was 30 km/ hour or slower and usage of speed camera reduce road death respectively. Nearly half 444 (47.53 %) of the students felt that there are more likely to be involved in an accidents if they speed. The negative attitude towards speeding noted in our study were 500 (53.53 %) it is difficult to always drive within the speed limit and 663 (70.98 %) it is okay to speed if you drive safely and carefully.

Table 25: Distribution of the study participant according to their attitude towards road traffic accident victim

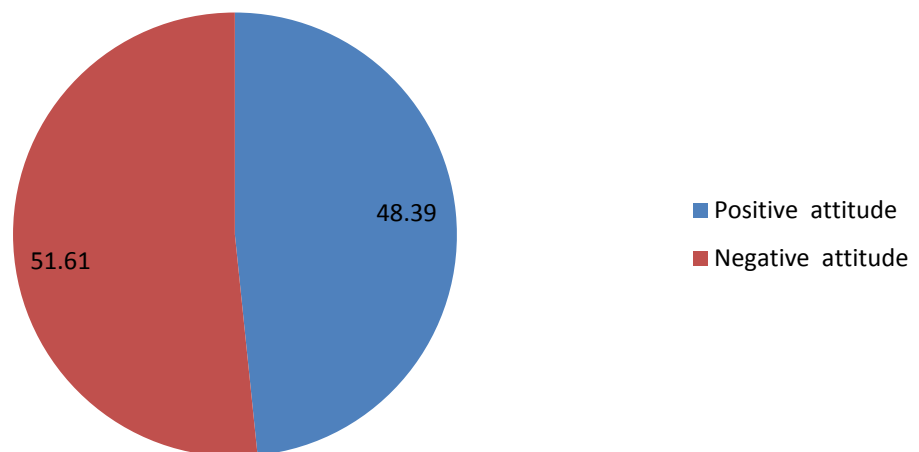
Attitude towards road traffic accident victim	Number	Percentage
Positive		
Take the victim to the hospital	396	42.40
Call 108 ambulance	343	36.72
Call the police	6	0.64
Negative	35	3.75
No response	154	16.49
Total	934	100

In our study, 745 (79.76%) of the college students had positive attitude towards road traffic accident victim like 396 (42.40%) told that they will take the victim to the hospital, 343 (36.72 %) will call 108 ambulance and 6 (0.64 %) told they will call police. The negative attitude was noted in 35 (3.75 %) participant, main reason being police issues and 154 (16.49 %) did not give response.

Table 26: Distribution of the study participant according to the attitude score regarding road traffic regulation.

ATTITUDE SCORE	Number	Percentage
Positive attitude (≥ 45.29)	452	48.39
Negative attitude (<45.29)	482	51.61
Total	934	100

Graph 11 (Table 26): Distribution of the study participant according to the attitude score regarding road traffic regulation



In the current study, among the study participant the mean attitude score was 45.29 with standard deviation of 4.62, median was 45 and range was 33 to 60. Out of 934, 452 (48.39 %) of them had positive attitude towards road traffic regulation and 482 (51.61%) of them had negative attitude.

Table 27: Association between attitude score towards road traffic regulation and age of the participant

Age (in years)	Positive attitude No (%)	Negative attitude No (%)	Total No (%)
16	91(50.83)	88(49.17)	179(100)
17	271(47.38)	301(52.62)	572(100)
18	90(49.18)	93(50.82)	183 (100)
$\chi^2 = 0.71 \quad df = 2 \quad p = 0.70$			

In the current study, out of 179 aged 16 years, 91 (50.83%) had positive attitude regarding road traffic regulation and 88 (49.17%) had negative attitude. About 271 (47.38%) participant who were aged 17 years and 90 (49.18%) aged 18 years had positive attitude. Although positive attitude towards road traffic regulation increased with age the association was not found to be statistically significant ($p = 0.70$).

Table 28: Association between attitude score towards road traffic regulation and sex of the participant

Sex	Positive attitude No (%)	Negative attitude No (%)	Total No (%)
Male	195(51.58)	183(48.42)	378(100)
Female	257(46.22)	299(53.78)	556(100)
$\chi^2 = 2.59 \quad df = 1 \quad p = 0.11$			

In the present study, out of 378 male college student, 195 (51.58%) had positive attitude toward road traffic regulation and out of 556 female student 257 (46.22%) had positive attitude. The association between them was not statistically significant ($p = 0.11$).

Table 29: Association between attitude score towards road traffic regulation and place of residence of the participant

Place of residence	Positive attitude No (%)	Negative attitude No (%)	Total No (%)
Urban	341(47.09)	383(52.91)	724(100)
Rural	111(52.85)	99(47.15)	210(100)
$\chi^2 = 2.16 \quad df = 1 \quad p = 0.14$			

In the present study, positive attitude towards road traffic regulation was noted slightly more in students who were residing in rural areas (52.85 %) compared to students residing in urban areas (47.09 %). The association between them was not statistically significant ($p = 0.14$).

IV: Practice regarding road traffic regulation

Table 30: Distribution of the study participant according to driving a vehicle

Driving a vehicle	Number	Percentage
Yes	660	70.66
No	274	29.34
Total	934	100

In the present study, 660 (70.66%) of the participant told that they drive a vehicle and 274 (29.34%) don't drive the vehicle. Out of 660 participant, 175 (26.52 %) use to ride bicycle, 470 (71.21 %) ride two wheeler with or without gear and 15 (2.27 %) use to drive car. Among 660 student who use to ride a vehicle, 581 (88.03 %) drove only one type of vehicle, 51 (7.73 %) two type of vehicle, 23 (3.48 %) three type of vehicle and 5 (0.76 %) four type of vehicle.

Table 31: Distribution of the study participant according to practice of driving license

Driving license	Number	Percentage
Yes		
Leaners license	93	14.09
Permanent license	12	1.82
No	555	84.09
Total	660	100

In our study, 105 (15.91%) of the participant had driving license and 555 (84.09 %) did not have driving license. Among 105, 93 (14.09 %) and 12 (1.82 %) had learners and permanent license respectively. Only 51 (7.73 %) of student had attended driving school and all of them had received first aid training at the driving school.

Table 32: Distribution of the study participant according to the age at which they started driving

Age(in years)	Number	Percentage
Less than 18	460	94.86
More than 18	25	5.14
Total	485*	100

*175 participant excluded (bicycle riders)

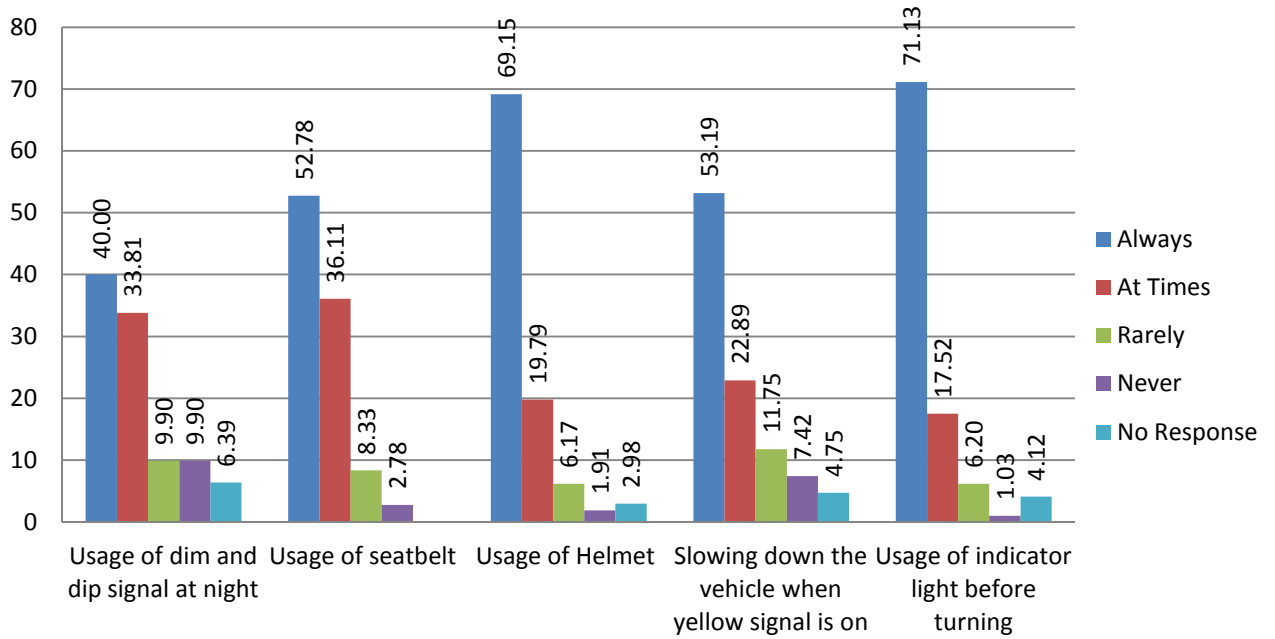
Among the study participant who practice driving a vehicle, 460 (94.86%) of them started driving when they were less than 18 years of age and only 25 (5.14%) of them started driving when they crossed 18 years of age.

Table 33: Distribution of the study participant according to practice of road traffic regulation

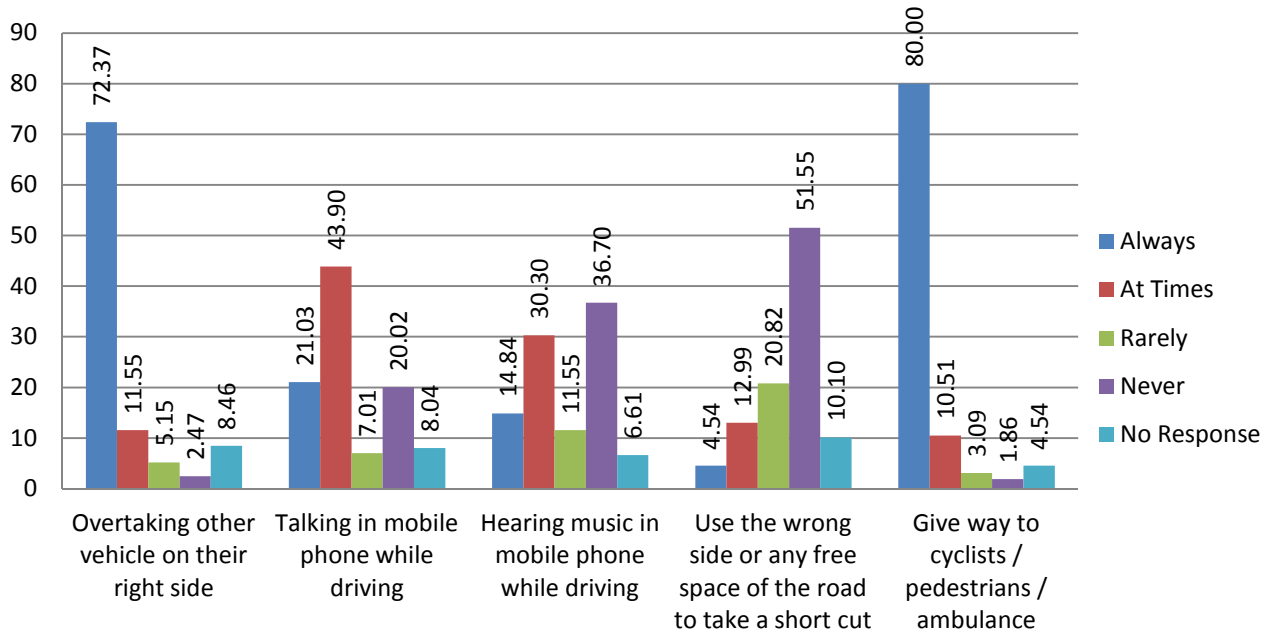
PRACTICE OF ROAD TRAFFIC REGULATION	Always	At Times	Rarely	Never	No Response	Total
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
Usage of dim and dip signal at night	194(40.00)	164(33.81)	48(9.90)	48(9.90)	31(6.39)	485* (100)
Usage of seatbelt	19(52.78)	13(36.11)	3(8.33)	1(2.78)	0 (0.0)	36** (100)
Usage of Helmet	325(69.15)	93(19.79)	29(6.17)	9(1.91)	14(2.98)	470*** (100)
Slowing down the vehicle when yellow signal is on	258(53.19)	111(22.89)	57(11.75)	36(7.42)	23(4.75)	485* (100)
Usage of indicator light before turning	345(71.13)	85(17.52)	30(6.20)	5(1.03)	20(4.12)	485* (100)
Overtaking other vehicle on their right side	351(72.37)	56(11.55)	25(5.15)	12(2.47)	41(8.46)	485* (100)
Talking in mobile phone while driving	102(21.03)	212(43.90)	34(7.01)	98(20.02)	39(8.04)	485* (100)
Hearing music in mobile phone while driving	72(14.84)	147(30.30)	56(11.55)	178(36.70)	32(6.61)	485* (100)
Use the wrong side or any free space of the road to take a short cut	22(4.54)	63(12.99)	101(20.82)	250(51.55)	49(10.10)	485* (100)
Give way to cyclists/pedestrians /ambulance	388(80.00)	51(10.51)	15(3.09)	9(1.86)	22(4.54)	485* (100)

* 175 excluded (bicycle riders) **36 = 15 + 21 four wheeler user***485 – 15 = 470 two wheeler user

Graph 12 (Table 33): Distribution of the study participant according to practice of road traffic regulation



Graph 13 (Table 33): Distribution of the study participant according to practice of road traffic regulation



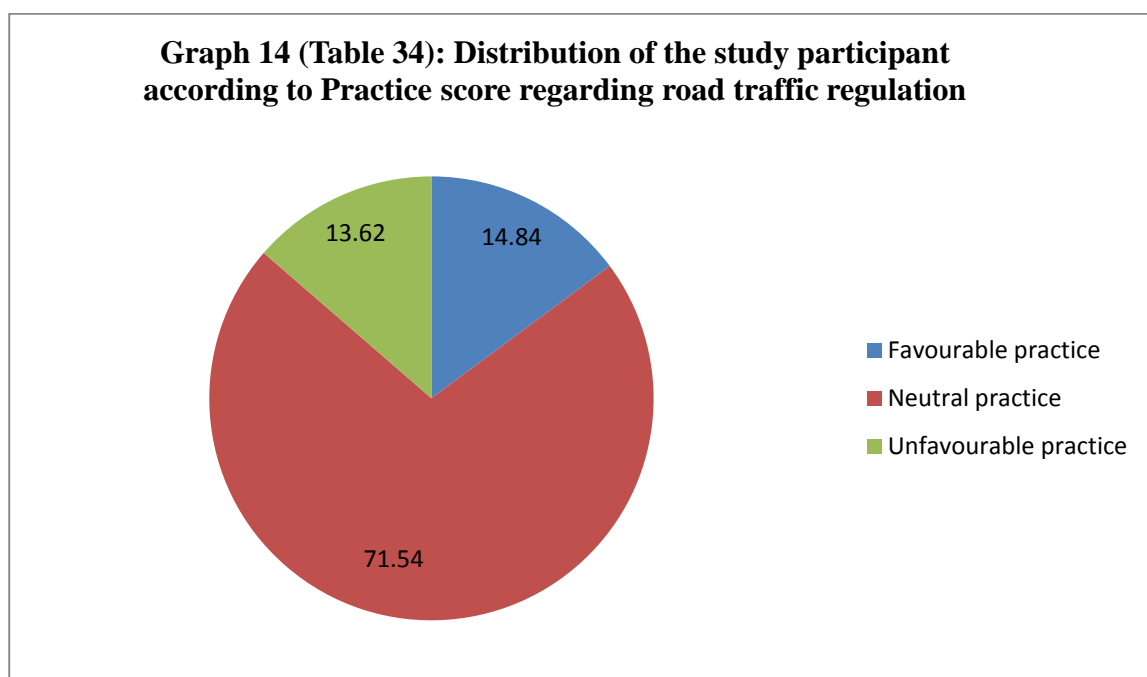
Among the college student who use to drive two and four wheeler vehicle, the favourable practice regarding road traffic regulation noted were: 358 (73.81 %) used dim and dip signal during driving at night, 32 (88.89 %) wore seatbelt always and at times, 418 (88.94 %) used helmet always and at times while driving two wheeler, 369 (76.08 %) practiced slowing down the vehicle when yellow traffic light is on, 430 (88.65 %) used indicator light before turning the vehicle, 407 (83.92 %) always and at times practiced overtaking of other vehicle on their right side and 439 (90.51 %) gave way to cyclist / pedestrian / ambulance always and at times. The unfavourable practice were 314 (64.93 %) talking in mobile phone while driving, 219 (45.14 %) hearing music in mobile phone while driving and 85 (17.53%) practice use wrong side or any free space on the road to take short cut always and at times. The non-response rate varied between 2.98 % to 10.10%

Have you met with road accident in the past 6 months: Out of 660 college student, 33 (5.00 %) had history of RTA in the past 6 months. Out of 33 who had met with an accident 22 had sustained injuries and 11 had caused injuries to the others. Among those who meet with an accident 23 of them required treatment.

Table 34: Distribution of the study participant according to Practice score regarding road traffic regulation.

PRACTICE SCORE	Number	Percentage
Favourable practice (> 28.7)	72	14.84
Neutral practice (19..66 to 28.7)	347	71.54
Unfavourable practice (< 19..66)	66	13.62
Total	485*	100

* 175 excluded (bicycle riders)



In the current study, out of 485, the mean practice score was 24.18 with standard deviation of 4.52, median was 25 and with range from 3 to 34. Among them 72 (14.84 %) had favourable practice score, 66 (13.62 %) had unfavourable and 347 (71.54 %) had neutral practice score.

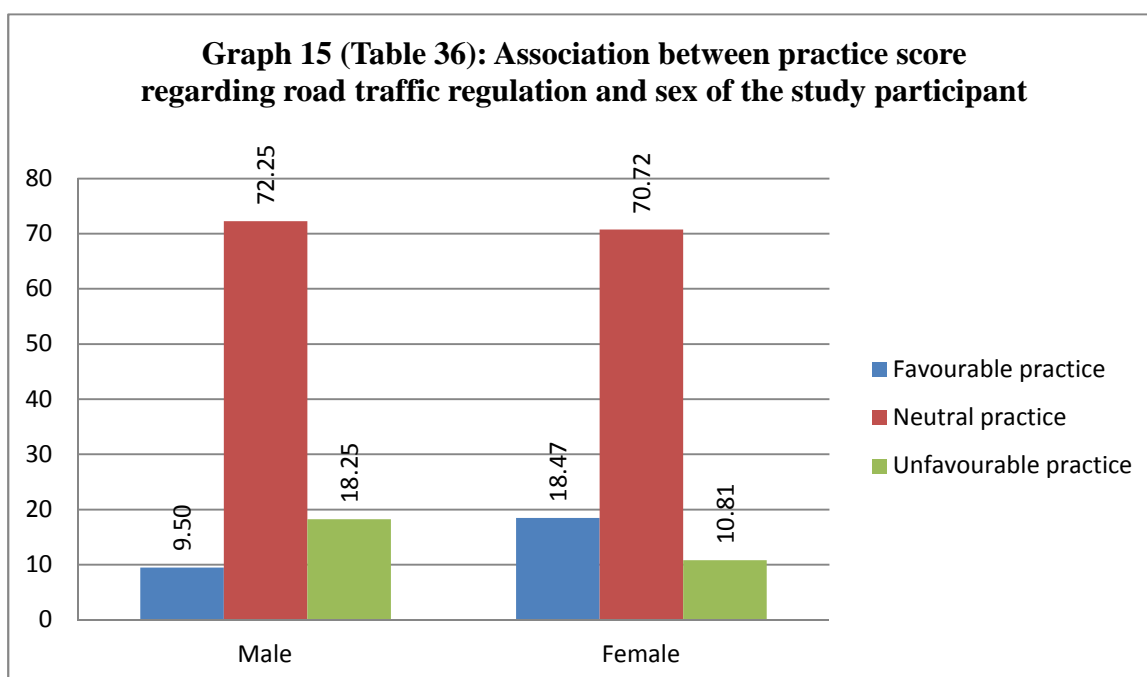
Table 35: Association between Practice score regarding road traffic regulation and age of the study participant

Age (in years)	Favourable practice No (%)	Neutral practice No (%)	Unfavourable practice No (%)	Total No (%)
16	9(10.59)	63(74.11)	13(15.30)	85(100)
17	50(16.03)	224(71.79)	38(12.18)	312(100)
18	13(14.77)	60 (68.18)	15 (17.05)	88 (100)
$\chi^2 = 2.96 \quad df = 4 \quad p = 0.56$				

In the current study, out of 485 participant, favourable practice of road traffic regulation was highest (16.03 %) in the 17 years age group followed by 18 years (14.77 %). The neutral practice of road traffic regulation was highest (74.11 %) in the 16 years age group followed by 17 years (71.79 %). Unfavourable practice of road traffic regulation was noted more (17.05 %) in the students aged 18 years. The association between them was not statistically significant ($p = 0.56$).

Table 36: Association between practice score regarding road traffic regulation and sex of the study participant

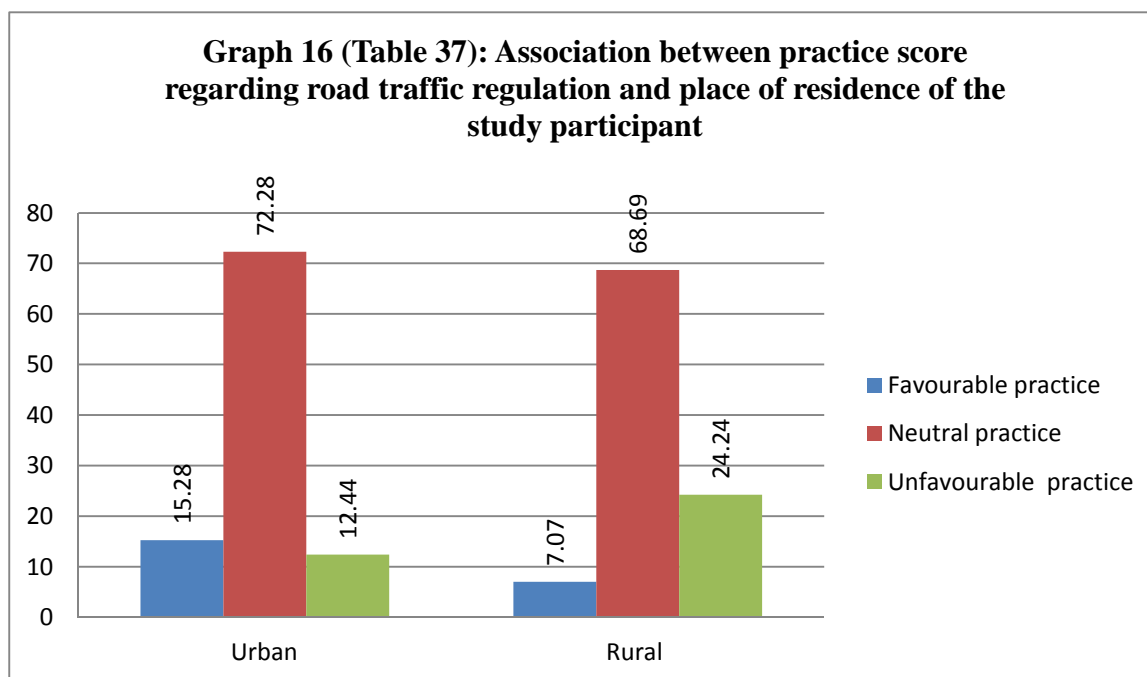
Sex	Favourable practice No (%)	Neutral practice No (%)	Unfavourable practice No (%)	Total No (%)
Male	25(9.50)	190(72.25)	48(18.25)	263(100)
Female	41(18.47)	157(70.72)	24(10.81)	222(100)
$\chi^2 = 11.63 \quad df = 2 \quad p = 0.002$				



In the present study, out of 263 male college students 25 (9.50%) had favourable practice, whereas out of 222 female participant 41 (18.47%) had favourable practice. Female college students had more favourable practice when compared to male college students and this difference was statistically significant ($p = 0.002$)

Table 37: Association between practice score regarding road traffic regulation and place of residence of the study participant

Place of residence	Favourable practice No (%)	Neutral practice No (%)	Unfavourable practice No (%)	Total No (%)
Urban	59(15.28)	279(72.28)	48(12.44)	386(100)
Rural	7(7.07)	68(68.69)	24(24.24)	99(100)
$\chi^2 = 11.44 \quad df = 2 \quad p = 0.003$				



In the present study, out of 386 college student residing in urban areas 59 (15.28 %) had favourable practice, whereas out of 99 participant residing in rural areas 7 (7.07 %) had favourable practice. College student residing in urban areas had more favourable practice when compared to college student residing in rural areas and this difference was statistically significant ($p = 0.003$)

DISCUSSION

The present cross sectional study was conducted among pre university college student of Belagavi city during the period of January to December 2017

Table 1: Distribution of the study participant according to socio-demographic profile

In the present study, 19.16% were in the age group of 16 years, 61.24% of them belonged to 17 years, 18.74% belonged to 18 years and 0.86% were 19 years old. Out of 934 student, 378 (40.47%) were male and 556 (59.53%) were female study participant respectively. In this study, 77.51% study participants were residing in Urban area and 22.49% belonged to Rural area. In the current study 53.10% of them were studying in PUC 1 and 46.90% were studying in PUC 2 year.

A study conducted in Aurangabad among adolescents attending academic coaching classes reported that 81.45% participant were in the age group of 15-17 years, 13.04 % were in the age group of 17-19 years.⁽¹⁷⁾ In a study conducted in Mangalore among medical students reported that 57.3 % were female and 42.7 % were male, which was similar to the finding noted in our study.⁽¹²⁾ In the study conducted in Belagavi city among medical students revealed that 46% were female, 54% were male, 74.5 % were residing in urban area and 25.5 % were residing in rural.⁽⁹⁾ A study conducted in Bagalkot among medical students reported that 70% were male and 30% were female whereas in our study female participant were than male participant.⁽¹⁰⁾ The study conducted in Bengaluru among undergraduate medical students reported that 57.77% were male and 42.22% were female this finding was similar to our study.⁽¹¹⁾ In the study conducted in Chennai reported that 51.9% were studying in 11th standard and 48.1% were studying in 12th standard.⁽¹⁵⁾

Table 2, 3, 4 and 5: Distribution of the study participant according to Religion, literacy status of parent, occupation of parent and type of family

In the current study, 76.12% of study participant were Hindus by religion, 18.74% were Muslim, 2.14% were Christian, 2.76% were Jain and 0.21% belonged to Sikh religion. Regarding the literacy status of the parents of study participant, 32.87% of mothers of study participant had studied beyond SSLC, 22.05% had studied upto secondary school, 19.91% had studied upto primary school, 15.32% were graduate and 9.85% were illiterate. In regards to literacy status of fathers of study participant 29.44% had studied beyond SSLC, 28.38% were graduate, 19.38% had studied upto secondary school, 15.85% had studied upto primary school and 6.95% were illiterate. Nearly 87.37% of mothers of study participant were housewife, 8.03% were private employee, 2.67% were farmer and 1.93% were government employee. In regards to occupation of fathers of study participant 46.03% were private employee, 23.77% were doing business, 22.06% were farmer and 8.14% were government employee. Nearly 28.90% of study subject were staying in joint family, 62.85% were staying in nuclear family and 8.25% belonged to broken family.

In the study conducted in Chennai among higher secondary school students revealed that 3.6 % of mothers of study participant had studied beyond SSLC, 44.2 % had studied upto secondary school, 16.9 % had studied upto primary school, 1.4 % were graduate and 33.9 % were illiterate. Our study showed that the literacy rate was higher in the mothers compared to this study. In regards to literacy status of fathers of the study participant 6.9 % had studied beyond SSLC, 2.5 % were graduate, 50% had studied upto secondary school, 13.1 % had studied upto primary school and 27.5 % were illiterate.⁽¹⁵⁾

Table 6: Distribution of the study participant according to knowledge regarding reason for road traffic accident

In the present study, correct knowledge regarding reason for RTA were: 76.12% as high speeding, 72.38% as drunken driving, 70.45% as using mobile phone while driving, 65.74% as driver lack of awareness of traffic regulation and 63.28% as driver non-compliance with traffic rule and regulation.

In the study conducted in Belagavi among medical students reported that 95% mentioned lack of awareness on road traffic regulations, 98% mentioned drinking and driving, 98% mentioned drivers non-compliance with road traffic regulations, 97% mentioned high speed driving and 99% mentioned use of mobile phones as causes of road traffic accidents. The results were higher than our findings, as the study was done among the medical students of Belagavi city.⁽⁹⁾ Another study was conducted in Malaysia among students of management and Science University revealed that, 78% of the study participant told that high speed, drivers lack of awareness about traffic regulation and laws and driver non-compliance with traffic rule and regulation were the important causes of road traffic accidents. These results were almost similar to our study.⁽²⁶⁾ The study conducted in Saudi Arabia among students of health science college reported that 66.66% of the participant mentioned that high speed, driver lack of awareness about traffic regulation and laws and driver noncompliance with traffic rules and regulation were important cause of road traffic accidents this result was similar to our study findings.⁽²⁹⁾

Table 7, 8 and 9: Distribution of study participant according to knowledge regarding road traffic regulation

In the present study, the correct knowledge regarding road traffic regulation noted were: 95.94% of the student told that helmet is necessary to wear while driving

a two wheeler vehicle, 93.47% of them said that they should wear seat belt while driving a four wheeler vehicle, 87.15% of the participant told correctly about the legal age for driving, 79.66% of the study participant told that it is necessary to wear seat belt by co-passenger in a car also, 79.34% of the study participant said they should wait for the vehicles which are already in the circle to pass when they approach roundabout / circle, 76.37% of the college student had the correct knowledge regarding order of traffic lights in the traffic signal, 75.59% of the student told that children should be seated at back and 62.09% of the participant told that zebra crossing is meant for people to cross. The five leading incorrect answer regarding road traffic regulation noted in our study were: 23.34% of the participant told that overtaking should be done from left side, 23.01% of them told that permissible blood alcohol limit while driving more than 1g/dl, 20.99% of them told driving license is issued by police department or post office and 17.13% of them told speed limit in the city is more than 40 km / hour. Nearly 2/3rd of the participant (72.93%) told they did not know about the permissible blood alcohol limit while driving, 33.72% of them told that they don't know who issues the driving license, 30.08% of them told that they did not know for what zebra crossing is meant for and 23.88% of them told that they don't know about the usage of helmet by pillion riders.

In the study conducted in Chennai among higher secondary school students reported that 99.4 % of the participants told that helmet is compulsory while driving two wheeler and 98 % of them told it is necessary to wear seat belt while driving the four wheeler the finding were similar to our study. Nearly 54.4% participant knew that 40 km/hour is the normal speed limit in the city. About 24.4% participant knew the permissible blood alcohol limit for driving.⁽¹⁵⁾ In another study conducted in Bagalkot among medical students, 91.1% of the participant knew that the legal age for

driving as 18 years which was slightly higher from our study.⁽¹⁰⁾ One more study conducted in Tripura among undergraduate medical students revealed that 96.1 % of the participants told that it is necessary to wear seat belt by co-passenger in the car.⁽²⁰⁾ In the study conducted in Belagavi among medical students reported that, 96.5% mentioned that zebra crossing is meant for people to cross. Slight difference was seen from our study as the study participant were undergraduate students, 79.5% had the correct knowledge on which side to overtake a vehicle, 10.75% mentioned left only, 32.75% mentioned both right and left while 7% did not know. Regarding the use of alcohol, 71.25% had proper knowledge i.e. use of alcohol before and while driving was prohibited. About 55.8% of the student mentioned that they should maintain the speed limit of 30-40 km/hour and 26.8% did not know and this finding was similar to our study.⁽⁹⁾ In the study conducted in Bengaluru among undergraduate students reported that 98.8% had a good knowledge regarding usage of helmet while driving two wheeler and 67% of the participant had the knowledge about the usage of seatbelt while driving the car this finding was lesser than our study report. And regarding overtaking of the vehicle 90.7% followed the lane rules-that overtaking should be done from right hand side only this finding was higher than our study report.⁽¹¹⁾ A study conducted in Mangalore among medical students reported that 10% of the participant told that they use right hand lane while overtaking a vehicle.⁽¹²⁾ The study conducted in south India among medical students reported that 67.3% of the study participant lacked the correct knowledge regarding speed limit in the city whereas our study reported it as 43%. About 62.60% of the participant were aware about traffic lights in the signal the findings were higher in our study report. About 55.73% of the students had knowledge about the zebra crossing and the findings were similar to our

study. Almost 80% of student had correct knowledge regarding the usage of helmet while driving our study showed higher results than this study report.⁽¹³⁾

Table 10, 11, 12, 13, 14, 15 and 16: Distribution of study participant according to knowledge regarding traffic sign

In our study, correct knowledge regarding traffic sign noted in college student were: 98.50% red light in traffic signal i.e. to stop the vehicle, 91.11% green signal i.e. to drive the vehicle, 89.19% about the sign board fuel station ahead, 88.65% sign board of horn prohibited, 86.72% about the sign board hospital ahead, 84.04% yellow traffic light, 83.62% sign board no parking, 80.84% about the sign board of hump ahead, 75.59% sign board bus stop ahead, and 72.38% about the sign board railway crossing ahead. The incorrect knowledge noted were: 51.71% of them told school ahead sign board is meant for public to walk, 34.26% told zig-zag road for right reverse bend sign board, 17.99% of them told hospital ahead for the sign board resting place, 14.78% told ghat section ahead for the sign board steep ascent and 13.59% told one way sign board as u- turn. Nearly 2/3rd (63.92%) of the college student told that they did not have knowledge about the sign board of no changing lane, 53.54% narrow road sign board, 50.00% of them regarding right reverse bend sign board, 49.68% told they were unaware regarding the sign board resting place and 43.89% of them told they did not know the sign board y- interaction.

In the study conducted in Aurangabad revealed that 86.9% of the participant were aware about red light in traffic signal, the finding from our study was bit higher.⁽¹⁷⁾ Whereas in another study conducted in Mangalore reported that 83.1 % of the participant had knowledge regarding cycle prohibited sign board.⁽¹²⁾ A study conducted in Tripura among medical students reported that 91.6% of the participant were familiar with sign board cycle prohibited the findings were higher than our study

report.⁽²⁰⁾ A study conducted in Indore reported that, 38.4 % of the participant had correct knowledge regarding the sign board one way the finding was much lesser than our study reported.⁽³⁾ The study conducted in Pondicherry among high school students reported that 48.5% of the student were able to identify all the three traffic lights in the signal, only 1.44% of the student identified 4 of the signs correctly and 58.97 % student identified at least one of the signs (school zone, no parking, no entry, 50 kilometre speed limit and no overtaking).⁽¹⁶⁾

Table 17, 18, 19 and 20: Distribution of study participant according to the Knowledge score regarding road traffic regulation and its association with age, sex and place of residence of the participant.

In the current study, among the study participant the mean knowledge score was 23.98 with standard deviation of 6.91, median was 25 and the range was 4 to 36, Good knowledge regarding road traffic regulation was noted in 15.42% of the student, 57.92% had average knowledge score and 26.66% had poor knowledge mean score. As the age of the study participant increased the knowledge score also increased and this association was found to be marginally statistically significant ($p = 0.045$). Out of 378 male college student, 43.12% of them had good knowledge regarding road traffic regulation, 52.91% had average knowledge and 3.97% had poor knowledge. Whereas out of 556 female student 15.47% had good knowledge, 61.33% had average and 23.20% of them had poor knowledge. There was difference in the knowledge score between male and female college student, which was statistically significant ($p = < 0.0001$). Out of 724 subjects residing in urban area 26.80% had good knowledge regarding road traffic regulation, 58.84% had average knowledge score and 14.36% had poor knowledge mean score. Among 210 of the students, residing in rural area 26.19% had good knowledge, 54.76% and 19.05% had average and poor knowledge

score respectively. Although the students residing in rural area had higher prevalence of poor knowledge score compared to the students residing in an urban area, the association was not statistically significant.

The study conducted in Belagavi among medical student reported that 18.3% had poor knowledge, 51.3% average and 30.5% good knowledge regarding road traffic rule and regulation this finding was similar to our study report.⁽⁹⁾ A study conducted in Bagalkot among medical students reported that good knowledge was seen among 82.2% of the study participant which was much higher than our study report. The association between sex of the study participant and knowledge score showed statistically significant difference, this finding was similar to our study.⁽¹⁰⁾ In the study conducted in Utrakhand among health science students reported that 18.7 % had high level of knowledge, 58% had moderate level and 23.3 % had low level of knowledge regarding road traffic regulation.⁽¹⁹⁾ A another study conducted in Chennai among primary school children of rural community revealed that 28% of them had adequate knowledge, 40% of them had moderately adequate knowledge and 32% of them had inadequate knowledge regarding road traffic regulation these findings were higher than our study report.⁽¹⁴⁾ The study conducted among higher secondary school students reported that 51.7% had adequate knowledge and 48.3% had inadequate knowledge regarding road traffic rule and regulation. The study also showed that there was significant association between age of the participant and the level of knowledge the findings were almost similar to our study results.⁽¹⁵⁾ The study conducted in Malaysia among students of management and science university reported that 78% participant had moderate knowledge about road traffic regulation.⁽²⁵⁾ A study conducted in Saudi Arabia among students of health science

college revealed that 75% of the participant had moderate knowledge and majority had good knowledge regarding road traffic rules and regulation.⁽²⁹⁾

Table 21: Distribution of study population according to reason why do people drive fast

In the present study, 94.43% of the participant gave one reason for why people drive fast, the commonest being in a hurry 55.14%, followed by for excitement or fun 20.66% and to be cool and impress friends 18.63%. Nearly 2.14% of college students gave two reasons and 3.43% gave three reasons in various combinations of the above said reasons for driving fast.

Table 22: Distribution of study participant according to attitude towards wearing of seatbelt

In our study, out of 934 study participant, 88.00% agreed that usage of seatbelt reduce the risk of injury during an accident, 85.55% of the college students felt that seatbelt was necessary even if you drive the vehicle carefully and 71.94% felt unsafe when not wearing a seatbelt while driving a vehicle. The negative attitudes noted among our study participants were 7.49% felt seatbelt can be dangerous and 35.13% told sometimes they do not bother to wear a seatbelt.

In the study conducted in Saudi Arabia reported that 58.3% of the participant had the opinion that seat belt have the ability to reduce the rate complication of road traffic accidents this finding was lesser then our study result.⁽²⁹⁾ One more study conducted in Saudi Arabia revealed that 50% of participant thought that seat belt played a major role in reducing accidents this finding was also lesser compared to our study.⁽²⁷⁾

Table 23: Distribution of the study participant according to their attitude towards drunken driving

In the present study, 59.52% had positive attitude towards drunken driving i.e. random breath testing for alcohol can reduce the number of RTA, 68.32% felt that it is dangerous to consume a little amount of alcohol and drive a vehicle but 19.66 % felt that it was okay to consume a little amount of alcohol and drive. Nearly 1/3rd (31.80%) of the students felt that they can drive a vehicle home even if they are just over the permissible alcohol limit and 28.27% were undecided.

In the study conducted in Tripura reported that 98.7 % of the participant felt that it is dangerous to consume a little amount of alcohol and drive this find was higher than our results.⁽²⁰⁾ A study conducted in Belagavi among medical college students reported that 97.25% of the participant told that it is not safe to drink alcohol before driving.⁽⁹⁾ The study conducted in Tirchy among medical student reported that 85.7% felt it is not safe to consume even minimum amount of alcohol before driving.⁽²⁾

Table 24: Distribution of the study participant according to their attitude towards speeding

Out of 934 study participant, 68.22% and 64.88% felt that severity of injuries sustained by pedestrians in an accident would be reduced if the speed of the vehicle was 30 km/ hour or slower and usage of speed camera reduce road death respectively. Nearly half (47.53%) of the students felt that there are more likely to be involved in an accidents if they speed.

Table 25: Distribution of the study participant according to their attitude towards road traffic accident victim

In our study, 79.76% of the college students had positive attitude towards road traffic accident victim like 42.40% told that they will take the victim to the hospital, 36.72 % will call 108 ambulance and 0.64 % told they will call police.

Table 26, 27, 28 and 29: Distribution of the study participant according to the attitude score regarding road traffic regulation and its association with age, sex and place of residence of the participant.

In the current study, among the study participant the mean attitude score was 45.29 with standard deviation of 4.62, median was 45 and range was 33 to 60. Out of 934, 48.39% of them had positive attitude towards road traffic regulation and 51.61% of them had negative attitude. The association between attitude score and age, sex and place of residence of the study participant was not statistically significant.

In the study conducted in Bagalkot reported that, 88.9% of the participant had good attitude which was much higher than our study reported this difference might be due to the age factor of the study participant.⁽¹⁰⁾ A study conducted in Chennai among higher secondary school student reported that more than half of the participant had positive attitude this finding was similar to our study report.⁽¹⁵⁾ The study conducted in Utrakhand among health science student reported that the mean attitude score of the student regarding road traffic safety was 24.12 ± 3.5 .⁽¹⁹⁾

Table 30, 31 and 32: Distribution of the study participant according practice regarding road traffic regulation

In the present study, 70.66% of the participant told that they drive a vehicle and among them, 26.52 % use to ride bicycle, 71.21 % ride two wheeler with or without gear and 2.27 % use to drive car. Only 15.91% of the participant had driving

license, among them 14.09 % and 1.82 % had learners and permanent license respectively. Among the study participant who practiced driving a vehicle, 94.86% of them had started driving when they were less than 18 years of age and only 5.14% of them started driving when they had crossed 18 years of age.

In the study conducted in Bengaluru among undergraduate students reported that 65.18% of the student used two wheeler, 27.4% four wheeler and 7.4 % used both two wheeler and four wheeler, there was some difference in the findings reported in our study due to age factor of our study participant.⁽¹¹⁾ In the study conducted in Belagavi among medical college students reported that 50.8% of the participant had driving license compared to our study the findings were much higher as the study participants in our study were pre university college students.⁽⁹⁾ The study conducted in Bagalkot among medical students reported that 40% owned two wheeler and 10% owned car, our study showed more in both the categories even though the age of our study participant was less than 18years.⁽¹⁰⁾ A study conducted in Mangalore among medical students reported that 33% used two wheeler, 29% used four wheeler and 20.4% used both two wheeler and four wheeler.⁽¹²⁾ In the study conducted in Chennai reported that 9.6 % of the participant were driving with a driving license which was similar to our study report.⁽¹⁵⁾ In the study conducted in Tamil Nadu reported that 13.5 % had driving license which was similar to our study findings.⁽²⁾

Table 33: Distribution of the study participant according to practice of road traffic regulation

Among the college student who use to drive two and four wheeler vehicle, the favourable practice regarding road traffic regulation noted were : 73.81% used dim and dip signal during driving at night, 88.89% wore seatbelt always and at times, 88.94% used helmet always and at times while driving two wheeler, 76.08% practiced

slowing down the vehicle when yellow traffic light is on, 88.65% used indicator light before turning the vehicle, 83.92% always and at times practiced overtaking of other vehicle on their right side and 90.51% gave way to cyclist / pedestrian / ambulance always and at times. The unfavourable practice were 64.93 % talking in mobile phone while driving, 45.14% hearing music in mobile phone while driving and 17.53% practice wrong side or any free space on the road to take short cut always and at times.

A study conducted in Belagavi among medical student reported that 40.3% student used helmet sometimes, 34% used always, 25.7% never used helmet while driving two wheeler. Regarding the use of helmet by pillion rider 67.25% never wore a helmet while driving, 32.75% did, 42.3% sometimes and 45% always. Nearly 12.3% never wore seatbelt while driving car these results were comparatively on lower side to what our study reported.⁽⁹⁾ In the study conducted in Tamil Nadu reported that 32.9% responded that they always use dim and dip signal during night driving, 20.7% of respondent told that they use seat belt while driving, 24.3% told that they use helmet while 33.7% told they use but not always, 35.4 % of them told they use mobile while driving and 34.8% of the respondent hear music while driving, finding of our study was higher than this study.⁽²⁾ In the study conducted Utrakhand reported that 78.7% of the participant told that they always use indicator while taking turn.⁽¹⁹⁾ A study conducted in Tripura reported that 74.7% of the participant told they use seat belt while driving car, 90.1% used helmet while driving two wheeler, 16% did frequent overtaking on left these findings were similar to our study report.⁽²⁰⁾ A study conducted in Chennai among higher secondary school students reported that 55.8% participant had the habit of wearing seat belt while driving the car.⁽¹⁵⁾ The conducted in Pondicherry among high school students revealed that 20.88% of the

participant used helmet while riding two wheeler this result was also lesser compared to our study report.⁽¹⁶⁾ A study conducted in Cluji and Hunedoara among young people aged 11-24 years old reported that 80% of junior and 90% of senior high school student did not wear helmet while driving two wheeler and more than one third of the junior high school student and quarter of senior high school student did not use seatbelts while driving a car.⁽³¹⁾

Table 34, 35, 36 and 37: Distribution of the study participant according to Practice score regarding road traffic regulation and its association with age, sex and place of residence of the study participant.

In the current study, out of 485, the mean practice score was 24.18 with standard deviation of 4.52, median was 25 and with range from 3 to 34. Among them 14.84 % had favourable practice score, 13.62 % had unfavourable and 71.54 % had neutral practice score. The association between practice score and sex and place of residence of the study participant was noted.

In the study conducted in Bagalkot among medical students reported that 58.9% participant had good practice and 41.1% had poor practice regarding road traffic rule and regulation, compared to our study the practice score was higher in this study.⁽¹⁰⁾ A another study conducted in Chennai among primary school children reported that 48 % had good practice, 44% had poor practice and 8% had best practice regarding road traffic regulations and the findings were found to be higher than our study.⁽¹⁴⁾

CONCLUSION

The present study showed that the knowledge, attitude and practice regarding road traffic regulation was fairly good among the college students. The common reasons cited for road traffic accident were high speed, drunken driving, using mobile phone while driving, driver lack of awareness of traffic regulation and driver non-compliance with traffic rule and regulation. More than 90 % of the participant had correct knowledge about usage of helmet while driving two wheeler and usage of seatbelt while driving the car. Majority of the students new the legal age for driving, had good knowledge regarding what should be done when they approach roundabout/circle and usage of seatbelt by the co-passenger's in the car. Nearly 65% of the student had correct knowledge regarding usage of helmet by pillion rider and the use of zebra crossing. More than 80% of the student identified the road traffic sign board like red, yellow, green traffic lights in the traffic signal, hospital ahead, no parking, horn prohibited, fuel station ahead and hump ahead.

More than 85% of the college student agreed that usage of seatbelt reduces the risk of injury during an accident and they felt that seatbelt are necessary even if you drive the vehicle carefully. Almost 60% had positive attitude towards drunken driving i.e. random breath testing for alcohol can reduce the number of RTA and 68.32% felt that it is dangerous to consume little amount of alcohol and drive a vehicle. More than 65% of the participant felt that severity of the injuries sustained by pedestrians in an accident would be reduced if the speed of the vehicle was 30km/hour or slower and usage of speed camera reduce road traffic death. Almost 80% of the student had a positive attitude towards road traffic accident victim.

The favourable practice regarding road traffic regulation noted in our study were use of dim and dip signal during driving at night, wearing of seatbelt while driving a car, use of helmet while driving two wheeler, practice of overtaking from right side only and giving way to cyclist/pedestrian/ambulance.

LIMITATION

Following limitations were noted in our study

- Assessment of practice of road traffic regulation was not observed.
- The study was conducted among pre-university college students of Belagavi city, thus the result may not represent the knowledge, attitude and practice of the whole community.
- The findings and their interpretations are restricted to pre-university college students only. Therefore cannot be generalized.

RECOMMENDATION

Based on our study findings, the following recommendations are done.

- Awareness generation and orientation towards good practice of road safety by periodic re-orientation training program organized by road traffic department at individual college level.
- Strict parental vigilance and guidance to children for usage of vehicles to avoid the risky behavior's
- Behavior Change Communication talks / pictures representing safe road practices in order to overcome the risky practices among the younger population can be conducted at the school, colleges and other institutions
- Strict enforcement of traffic rules and regulations by road traffic department.
- Aspects of prevention of road traffic accidents should be incorporated in the curriculum which enables the students to develop advanced knowledge thereby road traffic accident can be prevented.
- Further research in this area is required, to assess the existing situation regarding road safety measures across various sub-groups of populations.

SUMMARY

The present study was conducted among pre university college students of Belagavi during the period January to December 2017. It was carried out to assess the knowledge, attitude and practice regarding road traffic regulation. Totally there were 19 pre-university college in Belagavi city we divide them into four groups and one college was selected randomly from each group and a total of 934 students were interviewed using pre-designed and pre-tested questionnaire.

Out of 934 college students, 572 (61.24%) belonged to 17 years of age group, more than half 556 (59.53%) were female participant, 724 (77.51%) were residing in urban area and 496 (53.10%) and 438 (46.90%) were studying in PUC I and PUC II respectively.

Response given by the participant regarding reason for RTA were: 76.12% as high speeding, 72.38% as drunken driving, 70.45% as using mobile phone while driving, 65.74% as driver lack of awareness of traffic regulation and 63.28% as driver non-compliance with traffic rule and regulation. Nearly 26.66% thought that using mobile phone while driving doesn't cause RTA, 21.84% drunken driving, 19.92% high speed driving, 11.78% driver lack of awareness of traffic regulation and 10.49% driver non-compliance with traffic rule and regulation. Majority on the student 79.34% knew that they should wait for the vehicles which are already in the circle to pass when they approach a roundabout/circle and 15.84% of the participant did not know what to do when they approach a circle. About 62.09 % of the participants told zebra crossing is meant for people to cross, 48.29 % told that overtaking should be done from right side and 23.34 % told from left side. About 87.15 % had the correct knowledge regarding legal age of driving.

Majority 95.94% of the student told that helmet is necessary while driving the two wheeler vehicle, 65.31 % told that helmet should be used by pillion riders also only few of them told that helmet is not necessary. Regarding seatbelt 93.47% told that they should wear seat belt while driving, 79.66% told it is necessary to wear seatbelt by co passenger in a car also. About 72.93% of the participants were unaware about the permissible blood alcohol limit while driving.

About 26 traffic sign board were included in the questionnaire to assess their knowledge regarding traffic signs. Most of them 98.50 % had the correct knowledge regarding red light in traffic signal, 91.11% green signal, 89.19% fuel station ahead, 88.65% horn prohibited, 86.72% hospital ahead, 84.04% yellow traffic light, 83.62% no parking and 80.84% hump ahead. About 63.92% of the student told they don't have knowledge about no changing lane, 53.54% narrow road ahead sign board, 50% right reverse bend, 49.68% resting place, 43.89% y-interaction and 41.22% steep ascent. In the present study, 15.42% had good knowledge, 57.92% average and 26.66 % had bad knowledge score regarding road traffic regulation. And the difference in the knowledge score was statistically significantly associated with age and sex of the participant.

Out of 934 study participant, 94.43% gave one reason, 2.14% two reason and 3.43% gave three reason for why people drive fast. About 88% of the college student agreed that usage of seatbelt reduce the risk of injury during accident, 85.55% felt that seatbelt was necessary even if you drive carefully and 7.49% of the student felt that seatbelt can be dangerous. When asked regarding drunken driving more than 2/3rd of the student felt that it is dangerous to consume little amount of alcohol and drive, 59.52% had positive attitude towards random breath control can reduce the number of

RTA and 64.88% felt that speed camera reduce road death. About 48.39% of the student had positive and 51.61 % had negative attitude toward road traffic regulation.

In our study, 70.66% of the study participant told that they drive/ride the vehicle, among them 26.52% use to ride bicycle, 71.21 % ride two wheeler with or without gear and 2.27% use to drive car. But only 15.91% had driving license. Among the college student who drive 88.94 % used helmet while driving, 88.89% wore seatbelt while driving car, 88.65% used indicator light before turning, 83.92% practiced overtaking of other vehicle on their right side and 90.51% gave way to cyclist/pedestrian/ambulance always and at times. The unfavourable practices were 64.93 % talking in mobile phone, 45.14% hearing to music while driving and 17.53% used wrong side to overtake the vehicle. Among the participant the favourable practice score was noted in 14.84%, unfavourable in 13.62% and 71.54% had neutral practice score regarding road traffic regulation. This difference in the practice score showed statistically significant association with sex and place of residence of the study participant.

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ANNEXURE – I – ETHICAL CLEARANCE CERTIFICATE



K.L.E.UNIVERSITY'S
JAWAHARLAL NEHRU MEDICAL COLLEGE,
NEHRU NAGAR, BELAGAVI-590010 (KARNATAKA-INDIA)
(Accredited 'A' Grade by NAAC)

Website: <http://www.jnmc.edu>
E-Mail : dome@jnmc.edu

Phone: (+ 91-(0)831 Office : 2471350
Principal: 2471701
Fax No. +91 (0)831 – 2470759

Ref: MDC/DOME/13

Date: 17/10/2016

To,

PG student in Community Medicine,
J.N.Medical College,
BELAGAVI.

Sub: Institutional Ethical Clearance for the study.

With reference to the above, we wish to inform you that your proposed research project titled **“KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING ROAD TRAFFIC REGULATION AMONG COLLEGE STUDENTS IN URBAN AREA”**, is ethical and justifiable. The proposed research project has been cleared by the JNMC Institutional Ethics Committee on Human Subjects Research.

(Dr. Arathi Darshan)
Member Secretary
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College, Belagavi.

(Dr. Ganga Pilli)
Chairman,
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College, Belagavi.

ANNEXURE – II – PERMISSION LETTER FROM COLLEGE



K.L.E. University
JAWAHARLAL NERHU MEDICAL COLLEGE, BELAGAVI.
Accredited 'A' Grade by NAAC (2nd Cycle)

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DEPARTMENT OF COMMUNITY MEDICINECollege Office – 91-831-2471350, Dept 91-831-2444065 Email jnmc@sancharnet.in commmed@jnmc.edu

Ref. No.: SPM/

Date: 31/05/2017.

From,

Post-graduate Student
Dept. of Community Medicine
KLE University
J.N.Medical College, Belagavi.

To,
The Principal,
People Tree Pre-University College,
Nehru Nagar,
BELAGAVI.

(Through Proper Channel)

Sub: Request for permission for data collection in college.

Respected Sir/Madam,

I am a post-graduate student in the Department of Community Medicine, KLE University J.N.Medical College, Belagavi, my Dissertation topic is "Knowledge, Attitude and Practice regarding Road Traffic Regulation among College Students in Urban Area", under the guidance of Professor of Community Medicine, JNMC, Belagavi.

I need to interview and collect information from students of your college for research purpose. Kindly permit me to do the same. The data will be kept confidential and used for research purpose only.

Thanking you,

Yours sincerely,

Permission granted
J. N. Nagar



P. R. Walvekar

(Dr. (Mrs.) P.R. Walvekar)
Professor & Head,
Dept. of Community Medicine
J. N. Medical College, Belagavi.



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K.L.E. University
JAWAHARLAL NERHU MEDICAL COLLEGE, BELAGAVI.
Accredited 'A' Grade by NAAC (2nd Cycle)

DEPARTMENT OF COMMUNITY MEDICINE

College Office – 91-831-2471350, Dept.91-831-2444065 Email : jnmc@sancharnet.in, commed@jnmc.edu

Ref. No.: SPM/

Date: 31/05/2017.

From

Post-graduate Student
Dept. of Community Medicine
KLE University
J.N.Medical College, Belagavi.

To,
The Principal,
KLE Society's,
RLS College, College Road,
BELAGAVI.

(Through Proper Channel)

Sub: Request for permission for data collection in college.

Respected Sir/Madam,

I am a post-graduate student in the Department of Community Medicine, KLE University J.N.Medical College, Belagavi, my Dissertation topic is "Knowledge, Attitude and Practice regarding Road Traffic Regulation among College Students in Urban Area", under the guidance of _____ Professor of Community Medicine, JNMC, Belagavi.

I need to interview and collect information from students of your college for research purpose. Kindly permit me to do the same. The data will be kept confidential and used for research purpose only.

Thanking you,

Yours sincerely,

Permitted
B: 29/05/17



P. R. Walvekar
(Dr. (Mrs.) P.R. Walvekar)
Professor & Head,
Dept. of Community Medicine
J. N. Medical College, Belagavi.



K.L.E. University
JAWAHARLAL NERHU MEDICAL COLLEGE, BELAGAVI.
Accredited 'A' Grade by NAAC (2nd Cycle)

depart_LH_Un 20177.99

DEPARTMENT OF COMMUNITY MEDICINE

College Office – 91-831-2471350, Dept.91-831-2444065 Email : jnmc@sancharnet.in, commed@jnmc.edu

Ref. No.: SPM/

Date: 31/05/2017.

From.

Post-graduate Student
Dept. of Community Medicine
KLE University
J.N.Medical College, Belagavi.

To,
The Principal,
Jyoti Pre-University College,
Camp.
BELAGAVI.

(Through Proper Channel)

Sub: Request for permission for data collection in college.

Respected Sir/Madam,

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P.R. Walvekar
(Dr.(Mrs.) P.R.Walvekar)
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College Office – 91-831-2471350, Dept.91-831-2444065 Email : jnmc@sancharnet.in, commmed@jnmc.edu

Ref. No.: SPM/

Date: 31/05/2017.

From.

Post-graduate Student
 Dept. of Community Medicine
 KLE University
 J.N.Medical College, Belagavi.

To,
 The Principal,
 GSSC Pre-University College,
 Tilakwadi,
 BELAGAVI.

(Through Proper Channel)

Sub: Request for permission for data collection in college.

Respected Sir/Madam,

I am a post-graduate student in the Department of Community Medicine, KLE University J.N.Medical College, Belagavi, my Dissertation topic is "Knowledge, Attitude and Practice regarding Road Traffic Regulation among College Students in Urban Area", under the guidance of _____ Professor of Community Medicine, JNMC, Belagavi.

I need to interview and collect information from students of your college for research purpose. Kindly permit me to do the same. The data will be kept confidential and used for research purpose only.

Thanking you,

Yours sincerely,

Permitted



P. R. Walvekar
 (Dr. (Mrs.) P.R. Walvekar)
 Professor & Head,
 Dept. of Community Medicine
 J. N. Medical College, Belagavi.

ANNEXURE – III – CONSENT FORM

INFORMED CONSENT

**KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING ROAD
TRAFFIC REGULATION AMONG COLLEGE STUDENTS IN URBAN
AREA**

INVESTIGATORS: Dr. _____ Dr. _____

Introduction:

Road safety is a major public health issue in India. Every day thousands of people are killed and injured on roads. The common reasons for the accident are very well known. But the general population is reluctant to follow certain safety measures that have to be followed during driving. Simple measures such as awareness and practice of road safety measures can effectively reduce the impact of road traffic accidents on the people lives. In younger age group, it is the college students who drive more number of two wheeler and four wheeler vehicles. Hence there is an urgent need to study about the knowledge, attitude and practice of road safety rules among college students.

Objective / Purpose of the study:

You are being invited to participate in the study, " Knowledge, Attitude and Practice of road traffic regulation among college students". The study will be carried out in pre university college of Belagavi city.

Procedure:

In this study you will have to answer a few questions about your socio- demography, Knowledge about road traffic regulation, your attitude towards it and what you practice in your day to day life. The entire procedure may take 20-30 minutes. If you agree to participate, I will collect the required information during my visit.

Benefits:

Basic information will be given about Road safety rule and regulation and health education will be given about first aid.

Incentives:

You will not be eligible for any kind of monetary benefits or free services by virtue of your participation in the study.

Cost of participation:

You will not have any costs attached to your participation.

Legal rights: By signing this assent or consent form you are not waiving any of your legal rights.

Privacy and Confidentiality:

The results of the study may be published for scientific purposes. However your identity will not be revealed. All information collected will be coded so that no one other than investigator will know your identity.

Withdrawal from the study:

Participation in this study is voluntary .If you don't wish to participate in this study you will not lose benefits to which you are entitled. You can withdraw from the study anytime if you wish to do so.

Authorization to publish the results:

The researcher may use the information gathered from this study for presentation in scientific journals. However your identity will not be revealed.

Questions:

If you have any questions about rights as a research participant you can contact Dr. Ganga S. Pilli, Chairman, JNMC Institutional Ethical Committee on Human Subjects Research on 0831-2471350.

ASSENT STATEMENT

“I have been explained all the contents of this assent form in my local language and have understood and clarified all my queries about the study to the best of my knowledge. Furthermore I recognize that I have the complete right to withdraw this assent at any point during the study. I understand that the information given by me will be confidential and will be used for research purpose only, further I am aware that the result of this research will be presented/published without disclosing any personal identification of the participant.

I hereby give my voluntary assent for participation in the study. I do sign the informed assent form in front of an eyewitness whom I recognise.”

Name and Signature of the participant:

Name and Signature of the witness:

Name and Signature of the interviewer:

Name and Signature of the parent:

Date:

CONSENT STATEMENT

“I have been explained all the contents of this consent form in my local language and have understood and clarified all my queries about the study to the best of my knowledge. Furthermore I recognize that I have the complete right to withdraw this consent at any point during the study. I understand that the information given by me will be confidential and will be used for research purpose only, further I am aware that the result of this research will be presented/published without disclosing any personal identification of the participant.

I hereby give my voluntary consent for participation in the study. I do sign the informed consent form in front of an eyewitness whom I recognize.”

Name and Signature of the participant:

Name and Signature of the witness:

Name and Signature of the interviewer:

Date:

ANNEXURE – IV – PROFORMA

**KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING ROAD
TRAFFIC REGULATION AMONG COLLEGE STUDENTS IN URBAN
AREA**

➤ **SOCIO DEMOGRAPHIC DATA**

Name : _____

Age : _____ years

Sex : _____

Address : _____

Studying in : _____

1. Religion : Hindu/Muslim/Christian/Jain/Sikh.

2. Mother's Education: Illiterate/ Primary school/ High school/ Post SSLC/
Graduate

3. Father's education : Illiterate/ Primary school/ High school/ Post SSLC/Graduate

4. Occupation of Mother:

5. Occupation of Father:

6. Type of Family: Joint family/ Nuclear family/ Broken family/ Problem family

➤ **KNOWLEDGE:**

1. Reason for road traffic accident

a. High speed : yes / no /don't know

b. Drivers lack of awareness of traffic regulation: yes / no / don't know




c. Drivers non-compliance with traffic rule and regulation: yes / no /
don't know

d. Drunken driving : yes / no / don't know

e. Using mobile phone while driving : yes / no / don't know

2. When you approach the roundabout/circle, what has to be done?
 - a) Wait for the vehicles which are already in the circle to pass? : yes / no / don't know
3. Overtaking of vehicles should be done from which side: right / left / don't know
4. Zebra crossing is meant for _____
5. Legal age for driving _____ years
6. Usage of helmet while driving a two wheeler? : Yes / no / don't know
7. Usage of helmet by the pillion rider? : Yes / no / don't know
8. Usage of seat belt while driving a car? : Yes / no / don't know
9. Wearing of seat belt by the co-passengers in the car? : Yes / no / don't know
10. In a car children should be seated where? Front / back / don't know
11. What is the permissible blood alcohol limit while driving? _____
12. Driving license is issued by _____
13. Why do people drive fast?

In a hurry/for excitement or fun/to be cool and impress friends
14. What is the order (top to bottom) of the traffic lights?
 - a) Red, amber, green
 - b) Green, amber, red
 - c) Amber, green, red
 - d) Red, green, amber
15. What is the speed limit in the city _____

Traffic sign	What is this sign?	Traffic sign	What is this sign?
 (Red)			
			
			
			
		 (Green)	
			
			
 (Amber/ yellow)			
			
			
			
			



➤ **ATTITUDE:**

Wearing seatbelt	Agree strongly	Agree	Undecided	Disagree	Disagree strongly
Seatbelt reduce the risk of injury					
I feel unsafe when not wearing a seatbelt					
Seatbelt can be dangerous					
I sometimes don't bother to wear a seatbelt					
Seatbelt are necessary even if you drive carefully					

Drinking alcohol	Agree strongly	Agree	Undecided	Disagree	Disagree strongly
You can consume a little amount of alcohol and drive					
Random breath testing can reduce the number of road accident.					
I would drive home if, I was just over the limit					

➤ If you come across Road traffic accident victim what will you do? Help / Not help

If you help , how _____

If not, why _____

SPEED	Agree Strongly	Agree	Undecided	Disagree	Disagree Strongly
The severity of injuries sustained by pedestrians in a car crash would be reduced if the speed was 30 km/hour or slower					
The use of speed camera reduce road death					
You are more likely to be involved in a crash if you speed					
It is difficult to always drive within the speed limit					
It is ok to speed if you drive safely					

➤ **PRACTICE:**

1. Do you drive/ride a vehicle: yes / no

If yes: cycle/two wheeler with gear/two wheeler without gear/Four wheeler

2. Do you have driving license : yes / no

If yes: learner license / permanent license

3. Have you been to driving school: Yes/No

If Yes, Did they teach you first aid in training School?

4. At what age did you start driving _____

5. Have you meet with road accident in the past 6 months Yes / No

If Yes, Injury to you _____

Injury to others _____

What you did_____

PRACTICE	Always	At Times	Rarely	Never	No Response
Usage of dim and dip signal at night					
Usage of seatbelt					
Usage of Helmet					
Slowing down the vehicle when yellow signal is on					
Usage of indicator light before turning					
Overtaking other vehicle on their right side					
Talking in mobile phone while driving					
Hearing music in mobile phone while driving					
Use the wrong side or any free space of the road to take a short cut					
Do you give way to cyclists/pedestrians/ambulance					

ANNEXURE – V – KEY TO MASTER CHART

- A. Serial Number
- B. Age in years
- C. Sex
 - 1. Male
 - 2. Female
- D. Place of residence
 - 1. Urban
 - 2. Rural
- E. Studying in
 - 1. PUC – I
 - 2. PUC – II
- F. Religion
 - 1. Hindu
 - 2. Muslim
 - 3. Christian
 - 4. Jain
 - 5. Sikh
- G. Mother's education
 - 1. Illiterate
 - 2. Primary school
 - 3. High school
 - 4. Post SSLC
 - 5. Graduate
- H. Father's education
 - 1. Illiterate
 - 2. Primary school
 - 3. High school
 - 4. Post SSLC
 - 5. Graduate
- I. Occupation of Mother
 - 1. Housewife
 - 2. Government employee
 - 3. Private employee
 - 4. Farmer
- J. Occupation of Father
 - 1. Business
 - 2. Government employee
 - 3. Private employee
 - 4. Farmer

- K. Type of family
1. Joint family
 2. Nuclear family
 3. Broken family
- L. High speed
1. Yes
 2. No
 3. Don't know
- M. Drivers lack of awareness of traffic regulation
1. Yes
 2. No
 3. Don't know
- N. Drivers non-compliance with traffic rule and regulation
1. Yes
 2. No
 3. Don't know
- O. Drunken driving
1. Yes
 2. No
 3. Don't know
- P. Using mobile phone while driving
1. Yes
 2. No
 3. Don't know
- Q. When you approach the roundabout / circle, what has to be done? Wait for the vehicles which are already in the circle to pass?
1. Yes
 2. No
 3. Don't know
- R. Overtaking of vehicles should be done from which side
1. Right
 2. Left
 3. Don't know
- S. Zebra crossing is meant for
1. Correct
 2. Incorrect
 3. Don't know
- T. Legal age for driving?
1. Correct
 2. Incorrect
 3. Don't know

- U. Usage of helmet while driving a two wheeler?
1. Yes
 2. No
 3. Don't know
- V. Usage of helmet by the pillion rider?
1. Yes
 2. No
 3. Don't know
- W. Usage of seat belt while driving a car?
1. Yes
 2. No
 3. Don't know
- X. Wearing of seat belt by the co-passengers in the car?
1. Yes
 2. No
 3. Don't know
- Y. In a car children should be seated where?
1. Back
 2. Front
 3. Don't know
- Z. What is the permissible blood alcohol limit while driving?
1. Correct
 2. Incorrect
 3. Don't know
- AA. Driving license issued by
4. Correct
 5. Incorrect
 6. Don't know
- AB. Why do people drive fast?
1. In a hurry
 2. For excitement or fun
 3. To be cool and impress friends
- AC. What is the order (top to bottom) of the traffic lights?
1. Correct
 2. Incorrect
 3. Don't know
- AD. What is the speed limit in the city?
1. Correct
 2. Incorrect
 3. Don't know

AE. Red traffic light

1. Correct
2. Incorrect
3. Don't know

AF. One way

1. Correct
2. Incorrect
3. Don't know

AG. School Ahead

1. Correct
2. Incorrect
3. Don't know

AH. Cycle prohibited

1. Correct
2. Incorrect
3. Don't know

AI. Right reverse bend

1. Correct
2. Incorrect
3. Don't know

AJ. Narrow road

1. Correct
2. Incorrect
3. Don't know

AK. No parking

1. Correct
2. Incorrect
3. Don't know

AL. Roundabout/circle

1. Correct
2. Incorrect
3. Don't know

AM. No left turn

1. Correct
2. Incorrect
3. Don't know

AN. Petrol pump

1. Correct
2. Incorrect
3. Don't know

AO. Hospital

1. Correct
2. Incorrect
3. Don't know

AP. Green

1. Correct
2. Incorrect
3. Don't know

AQ. Bus stop

1. Correct
2. Incorrect
3. Don't know

AR. Work in progress

1. Correct
2. Incorrect
3. Don't know

AS. Resting place

1. Correct
2. Incorrect
3. Don't know

AT. Eating place

1. Correct
2. Incorrect
3. Don't know

AU. No change in lane

1. Correct
2. Incorrect
3. Don't know

AV. Hump Ahead

1. Correct
2. Incorrect
3. Don't know

AW. No horn

1. Correct
2. Incorrect
3. Don't know

AX. Steep ascent

1. Correct
2. Incorrect
3. Don't know

AY. Y-intersection

1. Correct
2. Incorrect
3. Don't know

AZ. No overtaking

1. Correct
2. Incorrect
3. Don't know

BA. No entry

1. Correct
2. Incorrect
3. Don't know

AA. Railway crossing

1. Correct
2. Incorrect
3. Don't know

BC. Amber yellow

1. Correct
2. Incorrect
3. Don't know

BD. 45 – speed limit

1. Correct
2. Incorrect
3. Don't know

BE. Seat belt reduce the risk of injury

1. Agree strongly
2. Agree
3. Undecided
4. Disagree
5. Disagree strongly

BF. I feel unsafe when not wearing a seatbelt

1. Agree strongly
2. Agree
3. Undecided
4. Disagree
5. Disagree strongly

BG. Seatbelt can be dangerous

1. Agree strongly
2. Agree
3. Undecided
4. Disagree
5. Disagree strongly

BH. I sometimes don't bother to wear a seatbelt

1. Agree strongly
2. Agree
3. Undecided
4. Disagree
5. Disagree strongly

BI. Seatbelt are necessary even if you drive carefully

1. Agree strongly
2. Agree
3. Undecided
4. Disagree
5. Disagree strongly

BJ. You can consume a little amount of alcohol and drive

1. Agree strongly
2. Agree
3. Undecided
4. Disagree
5. Disagree strongly

BK. Random breath testing can reduce the number of road accident

1. Agree strongly
2. Agree
3. Undecided
4. Disagree
5. Disagree strongly

BL. I would drive home if, I was just over the limit

1. Agree strongly
2. Agree
3. Undecided
4. Disagree
5. Disagree strongly

BM. If you come across road traffic accident victim what will you do?

1. Help
2. Not help

BN. If you help, how

1. Take the victim to hospital
2. Call 108 ambulance
3. Call police

BO. If not, why

1. Police issue

BP. Severity of injuries sustained by pedestrians in a car crash would be reduced if the speed was 30 km/hour or slower

1. Agree strongly
2. Agree
3. Undecided
4. Disagree
5. Disagree strongly

BQ. Use of speed camera reduce road death

1. Agree strongly
2. Agree
3. Undecided
4. Disagree
5. Disagree strongly

BR. You are more likely to be involved in a crash if you speed

1. Agree strongly
2. Agree
3. Undecided
4. Disagree
5. Disagree strongly

BS. It is difficult to always drive within the speed limit

1. Agree strongly
2. Agree
3. Undecided
4. Disagree
5. Disagree strongly

BT. It is okay to speed if you drive safely

1. Agree strongly
2. Agree
3. Undecided
4. Disagree
5. Disagree strongly

BU. Do you drive/ride a vehicle?

1. Yes
2. No

BV. If yes:

1. Cycle
2. Two wheeler with gear
3. Two wheeler without gear
4. Four wheeler

BW. Do you have driving license?

1. Yes
2. No

BX. If yes:

1. Learner license
2. Permanent license

BY. Have you been to driving school?

1. Yes
2. No

BZ. If yes, did they teach you first aid in training school?

1. Yes
2. No

CA. At what age did you start driving?

1. < 18 years
2. 18 years

CB. How you meet with road accident in the past 6 months

1. Yes
2. No

If yes, Injury to you

CD. Injury to others?

CE. What you did?

CF. Usage of dim and dip signal at night

1. Always
2. At times
3. Rarely
4. Never
5. No response

CG. Usage of seatbelt

1. Always
2. At times
3. Rarely
4. Never
5. No response

CH. Usage of helmet

1. Always
2. At times
3. Rarely
4. Never
5. No response

CI. Slowing down the vehicle when yellow signal is on

1. Always
2. At times
3. Rarely
4. Never
5. No response

CJ. Usage of indicator light before turning

1. Always
2. At times
3. Rarely
4. Never
5. No response

CK. Overtaking other vehicle on their right side

1. Always
2. At times
3. Rarely
4. Never
5. No response

CL. Talking in mobile phone while driving

1. Always
2. At times
3. Rarely
4. Never
5. No response

CM. Hearing music in mobile phone while driving

1. Always
2. At times
3. Rarely
4. Never
5. No response

CN. Use the wrong side or any free space of the road to take a short cut

1. Always
2. At times
3. Rarely
4. Never
5. No response

CO. Do you give way to cyclists/pedestrians/ambulance?

1. Always
2. At times
3. Rarely
4. Never
5. No response

