Section A-Research paper
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A CROSS SECTIONAL STUDY ON KNOWLEDGE, ATTITUDE AND PRACTICE OF ROAD TRAFFIC RULES AMONG COLLEGE STUDENTS

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ABSTRACT

Road traffic accidents (RTAs) constitute leading cause of death among adolescents as well as young adults making it an important public health problem. Road traffic injuries are now the leading killer among people aged 5-29 years. Annually, roughly 400,000 youngsters under 28 years age succumb to death in a road traffic crash accounting to about 1050 youngsters every day. Knowing the rules and regulations regarding road safety forms an important aspect in preventing RTAs. **Objective**: This study aimed at assessing the knowledge, attitudes, and practices regarding road safety among college students. **Materials and Methods:** A cross-sectional study was conducted among 1000 college students from Jaipur, using a pre-designed questionnaire to assess the awareness and practices regarding road safety. **Results**: The prevalence of the accidents was 20%. The majority of the participants (78%) were driving vehicles during accidents. 44% of the participants were admitted in the hospital following accident. The factors associated with accidents were broken roads (54%), night time (34%), raining (40%), slow traffic (46%), and fault in vehicle (42%), high speed (48%), poor street light (32%), using mobile phone (24%) and not wearing helmet (60%). **Conclusions**: Bringing about behaviour change regarding road safety measures through information, education, and communication activities and improving legislative measures of traffic rules will contribute in making people responsible citizens of the country which will eventually bring reduction in the sufferings and death due to RTAs.

INTRODUCTION

Road traffic safety refers to methods and measures for reducing the risk of a person using the road network being killed or seriously injured**.** Road traffic injuries form alarming public health problem in India. Every day thousands of people are injured and killed on the roads, usually affecting the productive age groups of road users. Majority of the people killed in traffic injuries are young adults between the age group of 15 and 44 years.

Low and middle-income countries having 82% of the global population and 56% of global vehicles but account for 90% of accidents. Mortality in low and middle-income countries is 2.5 times higher than that in high-income countries.

Globally, road traffic injuries (RTIs) are responsible for a significant proportion of overall injury, morbidity and mortality. Globally 1.35 Million deaths occur on roads all over the world each year due to road traffic injuries. In children and young adults, road traffic injuries are the leading cause of death. More than 50% of road traffic deaths occur among Pedestrians, Cyclists and Motorcyclists. Road traffic injuries are the eighth leading cause of death in all age groups. Now Road traffic injuries are the leading cause of death among children and young adults of age 5-29

years. Death rates due to road traffic injuries are three times higher in low income countries. The majority of deaths from South East Asia are among two wheeler riders. Globally more than 3,400 people die daily on road. Every year 10 million peoples are injured or disabled due to road traffic injuries. Traffic injuries are the second leading cause of death among children of 5- 14 years of age.

SCENARIO IN INDIA

WHO published a Global Status Report on Road Safety 2018, based on the road traffic accidents data 2016. India is one of the leading countries for higher number of road traffic accidents. Road traffic injuries vary from state to state**.**

SCENARIO IN RAJASTHAN

Rajasthan state is one of the most attractive destinations in India and has a prominent place on the tourist map of the world. Rajasthan is the largest state in the country in terms of geographical area, which constitutes 10.41 per cent area of the country and 5.67 per cent of national population (census 2011). Healthy transport system is an indicator of economic health and development of a state. As on 31st March, 2012, the total length in the state is expected to be 190402 Kms. The road density in the state is expected to be 55.63 km per 100 sq. km. share of registered vehicles in state is 5.65% of total of the India.

RISK FACTORS FOR RTA

In India, RTA results from various risk factors including the condition of the road, the environmental factors, condition of the vehicle, the experience of the rider, etc.

Age: Road traffic injuries are the leading cause of deaths among productive age group which include children and young adults of 5- 29 years. Mortalities due to RTA are low among people above 60 years of age because of lesser mobility of the people.

Sex: Road traffic injuries are common among males. Literature shows that Road traffic deaths had occurred among young males (under 28 years) about three quarters (73%). Three out of four deaths due to RTA were among males.

Socio-economic status: The majority of road traffic deaths had occurred in low and middle-income countries. Even with high-income countries, road traffic injuries are more likely among those from lower socioeconomic backgrounds.

Climate: The extremes of weather influence the occurrence of RTAs. RTAs are higher during May-June (temperature is extremely high) and December- January (poor visibility on the road). Accidents are high during 9AM- 11PM and comparatively low during midnight and early hours of the day.

Human factors: Factors such as drunken driving, not using of helmets, not following traffic rules, over speeding, reckless driving, low driving standards, psychological factors (risk-taking), distraction while riding (mobile phones), defective judgment and poor perception are contributing factors for road traffic accidents.

Rider/ Pillion Rider: Most of the two wheeler riders are of younger age group. Usually in the pillion occupants are children, females, and elderly persons. RTAs occur due to lack of attention, slow reaction time, sudden heart attack, seizure disorder, visual impairments of riders.

Environmental factors: Factors such as defective roads, the defective layout of crossroads, poor lighting, poor construction, low-quality roads, ditches, and potholes are also contributing to road traffic accidents.

Vehicle factors: the condition of the vehicle, excessive speed, a large number of vehicles, and poorly maintained vehicles are contributing factors to road traffic accidents.

IMPACTS OF ROAD TRAFFIC ACCIDENTS

In the world, WHO estimated that about 1.3 million people die each year on the roads. About 20 to 50 million people are injured and disabled due to RTA. Due to rapid motorization, RTA burden in term of mortality and morbidity is very rapidly increasing in developing countries. In India, with a population of more than one billion is becoming the fastest economic growth in the world. This economic growth leads to a rapid increase in vehicle production and sold every year. India has reported one of the highest mortality rates in the world. For every death due to RTA, three persons survived with permanent disability. Mild to severe injuries have a significant social and economic impact on an individual level, family level, and community level. In India, studies have shown that from 2003- 2013 (ten years) fatalities from RTA had increased by 5 % per year while the population in our country has increased only at 1.4% per year.

India is growing economically. Road traffic accidents were also increasing year by year. RTA creates hurdles in the nation's Economic growth. Every year approximately 1.5 Million preventable deaths and disabilities happened in our country. RTA affects all the peoples in the society irrespective of the socioeconomic status, educational status and occupational status. The majority of them are involved in the productive age group of 20-40 years and they are the earners of their family. RTA is depleting the basic needs like health, nutrition, and education. RTA is not only causing physical disability as well as causing economic disability also. Peoples become poor after RTA. About Fifty percent of the families are selling their property or borrowing money from others for the treatment of involved persons. In spite of active treatment, one fourth to half of the RTA victims remain disabled either temporarily or permanently. Due to RTA, India loses 3% of the GDP annually. In India for the last ten years, road traffic accidents have doubled whereas in china RTA have decreased one third.

If the children involved in accidents, due to their softer heads leading to produce severe head injuries compare to adults. RTA can produce mental illness such as post traumatic stress disorder. Non fatal injuries like fracture head injuries also common among children.

INDIA ROAD SAFETY PROJECT

The goal of Bloomberg Philanthropies Global Road Safety Programme in India is to implement good road safety practices in India supported by the Government of India along with national road safety strategy. The main focus of the project is to promote helmet use and reduce drunken-drive. WHO conducted a review of existing laws and regulations in the Government of India's Motor Vehicle Act, to focus on drink-drive and wearing helmet. Two legislative amendments were proposed in parliament. The amendment to the motor vehicle act which proposes for a road traffic violation to increase fines, also address post-crash care and to set up an agency for road safety.

SOCIAL MARKETING

WHO produces mass media campaign after researching with the target audience. The printed advertisements, radio spot has been developed and aired as of this campaign.

WORKING WITH MEDIA

Media is one of the important media for raising awareness among the public and policymakers for policy changes.

MOTOR VEHICLES ACT, 1988

The Motor Vehicles Act, 1988 is an act passed from parliament of India. This act came into force from 1st July 1989. The Act regulates all the views of the vehicles in road transport. The Motor Vehicles Act is the national law having authority of the road safety. It covers issues like driving licence and behavior of users. It implements regulations coming under the central motor vehicles

rules of 1989. The act permits state government s authority to follow own rules to set into practice. The Indian Penal Code (IPC) criminalizes rash driving and dangerous driving according to the road safety laws. So rash driving that endangers the life or safety of others or causes injury can be prosecuted as homicide, murder, negligence if end in death. Under the road safety law, individuals punishable for over speed, and drunken driving with blood alcohol concentration above the permissible limits. The persons not following the rules can be imprisoned for six months for first time making offence and three years for second time making offence and fine. Under section 129 stats that while riding two-wheeler in public must wear helmet. The Motor vehicle act under Section 112 states that a person should drive vehicle with in the permitted speed limit. The person should not drive less than minimum speed and should not exceed maximum speed.

DECADE OF ACTION ON ROAD SAFETY 2011-2020

The decade of action for road safety 2011-2020, was developed in March 2010 by the United Nations general assembly. The main pillars of activities are to build up road safety management capacity, to enhance the road infrastructure safety and wider transport network, vehicles safety, improving road safety behaviours, and improving care of the victims. Decade of action provides a framework for Policy, Practice and advocacy, guided by global plan to achieve the sustainable development goals.

STATE ROAD SAFETY COUNCIL

State road safety council is a policy making body constituted under 215(2) of the motor vehicles act, 1988. This is functioning under the chairmanship of honourable transport minister and twenty members. Important function of this council is to review all the programmes and policies related to road safety and also recommended to the Government for implementation.

ROAD SAFETY WEEK

In India the central government as well as state governments have been implementing strategies to make safer roads. Road safety alone will not be sufficient to reduce road traffic accidents. The society contribution in a larger extent can be helpful to reduce RTA, So join hands together to make road safety a social movement. Road safety week has been observed in India every year on date January.

Road safety is defined as type of safety or any type of security from the accidents by which people should safely drive their vehicles on the road. Road safety is important to protect people who drive and walk on the road from road accidents. Road safety gives protection from unwanted accidents for everyone. The Ministry of Road transport and Highway (MORTH), Government of India, observe road safety week every year. In 2023, 34th road safety week was observed from 4th March. Theme for the year 2023 is Our Aim- Zero Harm".

Road safety programmes are organized in various cities to make awareness among people on road safety. This is observed for one week. During this one week various campaigns are conducted; various banners regarding education, safety posters, pamphlets, leaflets are distributed to the road travellers.

VISION ZERO (VZ):

Vision zero is a multinational road traffic safety project. . The main aim of this program is zero fatalities or serious injuries due to RTA. This policy was created in Sweden and in 1997 which was adopted by the Swedish parliament. VZ redefines road safety through Strategic principles.

The traffic system has to adapt to take better account of the needs, mistakes and vulnerabilities of road users. The level of violence that the human body can tolerate without being killed or seriously injured forms the basic parameter in the design of the road transport system. Vehicle speed is the

most important regulating factor for safe road traffic. It should be determined by the technical standard of both roads and vehicle so as not to exceed the level of violence that the human body can tolerate.

NEED FOR THE STUDY

The road safety rules and regulations are aimed at reducing the Road Traffic Accidents and deaths due to RTAs. The measures to decrease the road traffic accidents are through engineering methods, enforcement, education and emergency care. The most effective method was education regarding road safety rules and regulations.

AIMS AND OBJECTIVES

1. To assess knowledge, attitude, and practice of road traffic rules among college students in Jaipur district.
2. To study the prevalence of road traffic accidents and associated risk factors among college students in Jaipur district.

Research approach: Cross sectional study.

Research Design: Cross sectional study.

Setting of the study: All the colleges were selected from Jaipur District of Rajasthan.

Target Population: Target population of the study comprised of all the college students between 18 – 28 years studying in different colleges, Jaipur district of Rajasthan.

Sample: Sample of the study comprises of college students between 18 – 28 years who fulfilled the inclusion criteria.

Sample Size: Sample size is 250 college students.

Sampling Technique: Multistage random sampling technique is used in this study

Research Variables It includes knowledge and prevalence of risk factors.

Demographic Variables: It includes age, religion, marital status, age at marriage, parity, education, occupation, monthly family income and source of information

Inclusion Criteria: College going students of age group 18-28 years

Exclusion Criteria: those College going students not willing to participate in this study

SAMPLE SIZE

Sample size was calculated by using the formula n = where is taken as 1.96, p is taken as 30 % based on a study on Knowledge Attitude and Practice of road safety measures among college students in Jaipur city.

n = za2pq

d2

p=30%

q=100-p=100-30=70

d=20% of p =6

=233.33 35

Adding 5% to account for drop out if any and rounding off, hence the final sample size is 250.

ASSOCIATION BETWEEN KNOWLEDGE AND PREVALENCE OF ACCIDENT

Table No. 1: Knowledge Score Regarding Road Traffic Rules

Knowledge	**Accident**		**Total**
	Yes	**No**	
Inadequate	22	43	65
Moderately adequate	21	110	131

Adequate	7	47	54
Total	50	200	250

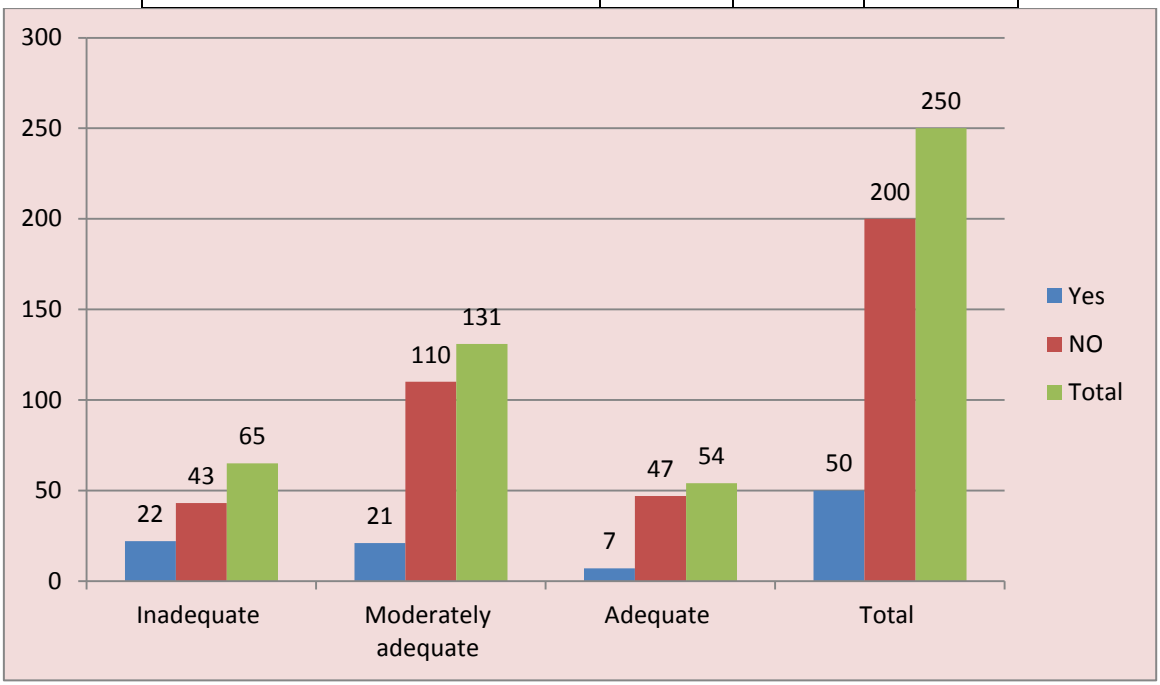

Figure No. 1: Knowledge Score Regarding Road Traffic Rules

The table no. 1 and figure no. 1 represent that, knowledge of the participants were divided into inadequate knowledge, moderately adequate knowledge, and adequate knowledge. Those scoring 0-50% labeled as inadequate knowledge, those scoring 51-70% labelled as moderately adequate knowledge, and those scoring 71-100% were labelled as adequate knowledge regarding road traffic rules.

Among the study participants 52.4% (131) had moderately adequate knowledge regarding road traffic rules. 21.6% (54) of participants had adequate knowledge and 26% (65) of students had inadequate knowledge regarding road traffic rules.

ASSOCIATION BETWEEN ATTITUDE AND PREVALENCE OF ACCIDENTS

Table No. 2: Attitude Score Regarding Road Traffic Rules

Attitude	**Accident**		**Total**
	Yes	**No**	
Unfavourable	16	31	47
Moderately favourable	10	46	56
Favourable	24	123	147
Total	50	200	250

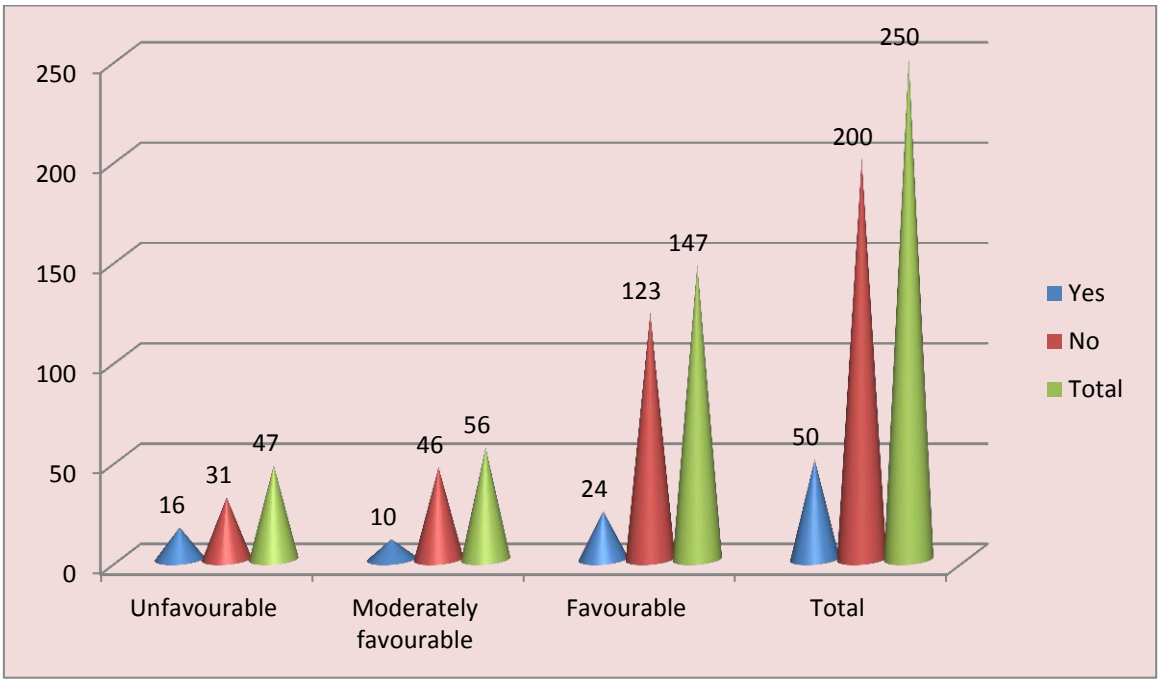

Figure No. 2: Attitude Score Regarding Road Traffic Rules

The Table no. 2 and figure no. 2 represent that among the study participants, 18.8% (47) of the students had unfavourable attitude towards road traffic rules. 22.4% (56) of the students had moderately favourable attitude towards road traffic rules. 58.8% (147) students had favourable attitude towards road traffic rules.

ASSOCIATION BETWEEN PRACTICE AND PREVALENCE OF ACCIDENT

Table No. 3: Practice Score Regarding Road Traffic Rules

Practice	**Accident**		**Total**
	Yes	**No**	
Poor practice	35	83	118
Good practice	9	78	87
Best practice	6	39	45
Total	50	200	250

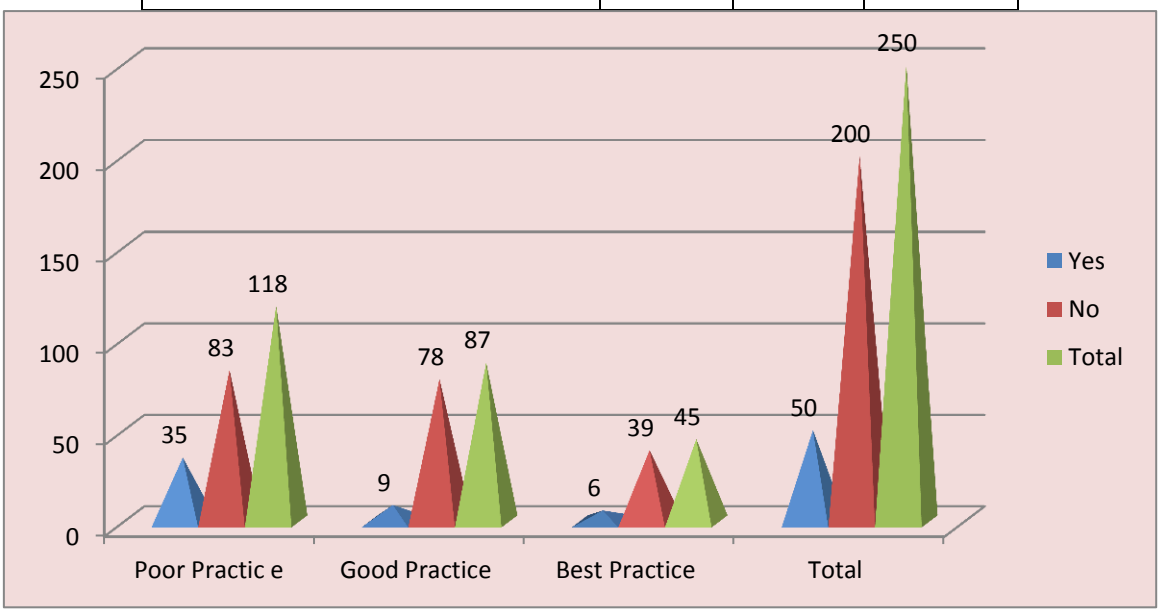

Figure No. 3: Practice Score Regarding Road Traffic Rules

The table no. 3 and figure no. 3 represent that among the study participants, 47.20% (118) of the participants had poor practice towards road traffic rules, 34.80% (87) participants had good practice towards road traffic rules, 18% (45) of the participants had best practice towards road traffic rules.

CORRELATION BETWEEN KNOWLEDGE, ATTITUDE AND PRACTICE

Table No. 4: Correlation Between Knowledge, Attitude and Practice

Variable	Pearson correlation	p-value
Knowledge Vs Attitude	0.173	**0.006***
Knowledge Vs Practice	0.381	**0.001***
Attitude Vs Practice	0.375	**0.001***

The table no. 4 represent that there was a positive correlation between knowledge attitude and practice ($p<0.05$).

CONCLUSION

The findings of the study led to conclusion that less than 25% of the study participants had adequate knowledge about road traffic rules. Majority of the participants had moderately adequate knowledge. Majority of the participants belonged to upper class and literate family. Knowledge was associated with prevalence of accidents. More than half of the participants had favourable attitude towards road traffic rules. Attitude of the participants showed significant association with prevalence of accidents.

Nearly 50% of the study participants had poor practice towards road traffic rules and regulations. Practice was significantly associated with prevalence of accidents. There was a positive correlation between knowledge, attitude, and practice.

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