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Knowledge on Road Traffic Accident among Students

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Abstract

Road traffic accidents are increasing at an alarming rate among adolescents whose driving is often linked with, curiosity, reckless behavior, speeding to show off, and using mobile phones while driving. The present study aimed to assess the knowledge regarding road traffic accidents among Students of Shree Jana Model Higher Secondary School, Birendranagar, 6 Surkhet. Drawing on a descriptive cross- sectional study, among118 adolescent students by adopting purposive sampling technique with census method. Semi structured self-administered questionnaire was developed which consisted of two parts. A questionnaire was distributed to the participants in their feasible time, 25 to 30-minute time was given to fill up the questionnaire and it was collected immediately after the completion. The data were analyzed through descriptive statistics (frequency, percentage) and inferential statistics (Chi-square).The result of the study showed that more than half of the respondents 67 (56.7%) had average knowledge, while 51 (43.3%) had good knowledge. There was no statistically significant association found between

sociodemographic factors and the degree of knowledge, despite the different socio-demographic backgrounds and suggests students in various groups had comparatively similar understanding of traffic incidents. The study concludes that although a considerable proportion of students had a good knowledge of road safety, the majority still exhibited only an average level of knowledge, highlighting space for improvement. Therefore, the study recommends implementing diverse educational activities, such as road safety awareness programs and interactive sessions, to enhance awareness of traffic rules and safe driving practices which helps to reduce risky driving behaviors among adolescents.

Keywords: *Adolescent students, level of knowledge, road traffic accident*

Introduction

Road traffic accidents refer to injuries either fatal or non-fatal that result from road traffic crashes. A crash is described as a collision or event that happens on a public road, involving at least one moving vehicle, and may or may not cause injury (Jayavel & Lisha, 2014; Redhwan & Karim, 2010). Road traffic accidents are the leading cause of death among young people and rank as the eighth leading cause of death worldwide, resulting in approximately 1.24 million fatalities each year. Around 85% of these deaths occur in developing countries. Males, particularly those aged between 15 and 44 are the most impacted (Mohammed et al., 2019). Road traffic accidents (RTA), an emerging public health problem causes millions of deaths per year. Road safety is a multi-sectoral and multidimensional issue that needs the integration of various factors such as development and management of road infrastructure, provision of safer vehicles, legislation and law enforcement, affordable health care services, and awareness about road safety measures among the users (Shetty, Pahwa, et al., 2018). As road traffic accidents are a major cause of morbidity and mortality, especially among young adults who constitute the most productive age groups of society. Improving the knowledge practice gap among the people in the community can lead to a drastic reduction in road traffic accidents.

In 2017, there were approximately 1.24 million deaths from road injuries globally (95% uncertainty interval 1.19–1.28 million) out of 54.2 million new cases (95% uncertainty interval, 47.4–61.6 million**)**. While the age-standardized incidence of road injuries rose from 1990 to 2017, the mortality rate declined overall. Regionally, mortality rates fell in all but two areas**,** South Asia and Southern Latin America**,** where no significant change occurred. Of the 21 GBD regions, 9 saw rising incidence rates**,** 10 saw declines, and 2 had no significant change (James et al., 2020).

In fiscal year 2072/73, Nepal recorded 10,013 road accidents, affecting 16,502 people, 4,182 seriously injured, 8,226 with minor injuries, and 2,006 deaths. While Kathmandu Valley had the highest number of accidents, it saw fewer serious injuries

(275) and deaths (166) compared to other regions. Itahari reported the most serious injuries, and 525 people died in road accidents nationwide, indicating that human casualties in Kathmandu were relatively lower (Dhakal, 2018).

A cross-sectional study conducted in Jaipur, Rajasthan, in 2017 with 150 secondary school students reported that most participants possessed only moderate awareness and showed partly adequate practices related to road safety rules (Singh & NU, 2018).

Another cross-sectional study concludes that a few students have good awareness level on road safety measures (Oinam, Rajkumari, et al., 2019).

Adolescence is like a bridge between childhood and adulthood, during which the individual is gaining further physical maturity, further education and training that will enable him (or) her to fulfill a useful role in adult society (Jayavel & Lisha, 2014). Enhancing road safety knowledge and awareness among adolescents is crucial for reducing the risk of road traffic accidents, as this age group is particularly vulnerable due to factors such as inexperience, risk-taking behaviours, and limited understanding of road safety measures. Given this context, the study aims to assess the level of knowledge regarding road traffic accidents among students. Understanding their current knowledge can plan targeted educational interventions aimed at preventing future accidents in this high-risk group.

Review of Literature

Understanding that multiple factors influence students' knowledge. Maslow's Hierarchy of Needs is employed to explore how different levels of students' needs influence their knowledge about road-traffic incidents. When students' basic physiological needs, such as proper rest and nutrition, are addressed, they are more attentive and able to learn road-safety material. An environment where they can successfully use this information is created by attending to their safety needs, such as making sure that school routes are safe, pedestrian crossings are appropriate, and traffic safety regulations are structured. Social requirements, including support from family, instructors, and peers, further encourage safe traffic habits through good role modeling. Students with high self-esteem are better able to make safe decisions, such donning helmets or crossing at specified locations. At the self-actualization level, students adopt proactive safety behaviors and internalize road safety as a personal duty.

A Road Traffic Accident (RTA) can be defined as,' An event that occurs on a way or street open to public traffic; resulting in one or more person's being injured or killed, where at least one moving vehicle is involved. Road traffic accidents are a human tragedy. They involve high human suffering and socioeconomic costs in terms of premature deaths, injuries, loss of productivity, and so on(Abraham et al., 2015). A cross sectional study was conducted by Maharaj Singh on Awareness and Practice of Road Safety Rules among Secondary school students on 2017 at Jaipur, Rajasthan among 150

secondary students concludes that majority of students hade average awareness and partially satisfactory practice regarding road safety rules (Singh, 2018).

A descriptive cross- sectional study design was conducted by Milina Gaire., et al on Awareness on traffic rules and safety measures among Bachelor level students in selected colleges in 2022 among 260 students concludes that more than half (59.6 %) of the students had adequate level of awareness regarding traffic rules and safety measures, and 40.4% of the students had inadequate level of awareness regarding traffic rules and safety measures(Shetty, Pahwa, Vibha, Kamath, & Nair, 2018). A descriptive cross-sectional research design was conducted by Saru koju., et al on knowledge regarding Road traffic accidents among Adolescent of a secondary school in 2012 at Bhaktapur among 193 students concludes that half of the respondent had low level of knowledge regarding road safety accident(Koju et al., 2022).

A descriptive cross- sectional study design was conducted by li pie., et al on-Nursing students' knowledge, willingness, and attitudes toward the first aid behavior as bystanders in traffic accident trauma on 2018Tianjin University of Traditional Chinese Medicine among 475 nursing students. Structured questionnaires were used to investigate the knowledge, willingness, and attitudes of nursing students toward behavior and related factors. Approximately 51.5% of the total knowledge score of the students was >9. Meanwhile, short and unsustainable first aid training may result in negative effects. Other methods should be adopted to ensure both training quality and cycle to ultimately promote first aid behavior (Zainafree et al., 2022).

A study was conducted among the students of Management and Science University, Malaysia. The questionnaire was distributed randomly to the students of the Faculty of Health and Life Sciences. The total number of 109 students with the mean age of 20.94±1.89 years participated in this study. Approximately 39 (35.7%) of the participant had been involved in one or more than one road traffic accident. About 93.6% of them were very strongly convinced of seat 14belts importance (Oinam, Rajkumari, Singh, & Ningombam, 2019). A descriptive cross- sectional study design was conducted among medical students was conducted by Zaidi SHN, et al. on Risk perception and practice towards road traffic safety among medical students were selected by convenient sampling technique. Majority of boys (82% and 98%) had a satisfactory understanding of traffic rules and safety (Zaidi et al., 2017).

Methodology

This study used a descriptive cross-sectional research design, which is non-experimental and appropriate for accurately describing the traits of people, groups, or circumstances in an unaltered natural setting. The study was carried out at Shree Jana Model Higher Secondary School in Birendranagar-6, Surkhet, which was founded in 1951 AD (2008 BS) and is affiliated to the National Examinations Board (NEB). Students from a variety of socioeconomic and cultural backgrounds are enrolled in the school from

different parts of Karnali Province. Students studying in class 12 were chosen as the study population. Non-probability purposive sampling technique with census method was used. The sample size for the study was 118 students studying in class 12(education stream).

A semi-structured, self-administered questionnaire was developed in English version. There were two components to the tool: Sociodemographic data, including age, sex, ethnicity, parents' educational attainment, family structure, and occupations, were included in Part I. Questions on road traffic accident definitions, traffic signals, traffic laws, and preventive measures were included in Part II. Prior to data collection, the respondents were informed of the study's purpose and are requested to answer the questions within 25 to 30 minutes. Data was collected by the researchers on 2082/04/12. The approval to perform research was taken from Administration of Shree Jana Model Higher Secondary School. All respondents gave their informed consent after being fully informed about the objectives and methods of the study. Participants were represented by code numbers, and personal identification were not collected in order to preserve anonymity. Participants' rights and dignity were respected without regard to their age, socioeconomic condition, or race. After data collection, data were entered and analyzed using the Statistical Package for Social Sciences (SPSS) version 20. The descriptive statistic (frequency, percentage, standard deviation) and inferential statistics (chi-square) was used to evaluate relationships between particular variables.

Results

Based on the objectives and research questions, the responses obtained from 118 participants were analyzed using statistical methods. The results have been presented in tabular form in order to facilitate their interpretation.

Table 1

Socio- Demographic Information of the Respondents

Variables	Frequency	Percent %
Age in years		
16	12	10.1
17	51	43.2
18	50	42.3
19	5	4.2
Gender		
Male	62	52.5
Female	56	47.5

Ethnicity		
Brahmin/ Chhetri	100	84.7
Janajati	10	8.5
Dalit	5	4.2
Madhesi	3	2.5
Family Monthly Income		
Around 10,000- 30,000	36	30.5
Around 31,000- 60,000	26	22.0
Around 61,000-90,000	17	14.4
Around 91,000- 1,20,000	14	11.8
Around 1,20,000 above	25	21.1

Table 1 reveals the socio- demographic characteristics of the respondents, almost half of the respondents 51(43.2 %) belong to age group 17 years whereas, 5 (4.2%) respondents belong to age group 19 years. Regarding gender 62(52.5%) were male and 56 (47.4%) were female. Based on ethnicity,100 (84.7%) of the respondent belongs to Brahmin/Chhetri group and only 3 (2.5%) belong to Madhesi group. Regarding income 36 (30.5%) of the respondent family monthly income was around 10,000- 30,000 and only 14 (11.8%) of the respondent's family income was around 91,000- 1,20,000.

Table 2

Parent's Education and Occupational Status of Respondents

Variables	Frequency	Percent %
Father's Education		
Basic level	25	21.2
Secondary level	39	33.0
Bachelor level	21	17.6
Higher Education level	33	27.9
Mother's Education		
Basic level	36	30.5
Secondary level	44	37.2
Bachelor level	25	21.1
Higher Education level	13	11.0

Father's Occupation		
Government service	31	26.27
Private service	19	16.10
Business	35	29.66
Farmer	12	10.16
Pension	2	1.69
Others	19	16.10
Mother's Occupation		
Government service	15	12.7
Private service	20	16.94
Business	32	27.11
Farmer	16	13.55
Home- maker	35	29.66
Type of Family		
Nuclear	88	74.5
Joint	30	25.5

Table 2 exhibits socio- demographic information of parents. Regarding education, 39(33.0%) of fathers had secondary level of education. Likewise, 44 (37.2%) of mothers had secondary level education. Similarly, 35 (29.6%) of fathers were involved in business whereas 15 (12.7%) of mothers had government service. Regarding types of family, 88(74.5%) of the respondents were from nuclear family.

Table 3

Level of Knowledge regarding Road Traffic Accident

Variables	N	Percent
Average Knowledge (25%-75%)	67	56.7
Good Knowledge (>75%)	51	43.3

Table 3 discloses the level of knowledge regarding road traffic accidents. Among 118 respondents, 51(43.3%) of the respondents had good level of knowledge while 67 (56.7%) of them had average level of knowledge.

Table 4

Association between knowledge level and Socio- Demographic Variable

Socio- Demographic Variables	Chi- square	P- value
Gender		
Female	1.7	0.2
Male		
Ethnicity		
Brahmin/ Chhetri	0.3	0.7
Janajati		
Dalit		
Madhesi		
Source of Information		
Newspaper/ Internet	1.8	0.18
Others		

Table 4 reveals the association between level of knowledge with gender, ethnicity, and source of information. Regarding the association between level of knowledge with gender, ethnicity and source of information, there is no statistically significant association.

Table 5

Association between level of Knowledge and Parent's Education and Occupational Status

Variable	Chi- square	P- value
Father's Education		
Basic level		
Secondary level	0.1	0.1
Bachelor level		
Higher education level		
Mother's Education		

Basic level		
Secondary Level	2.1	0.5
Bachelor level		
Higher education level		
Father's Occupation		
Government and Private service	0.004	0.95
Others		
Mother's Occupation		
Government service		
Private service		
Business	1.5	0.8
Farmer		
Other's		
Types of Family		
Nuclear Family	0.01	0.9
Joint/ Extended Family		
Family Income		
Approximately 10,000-30,000		
Around 31,000- 60,000		
Around 61,000- 90,000	1.6	0.9
Around 91,000- 1,20,000		
Around 1,20,000 above		
Newspaper/ Internet	1.8	0.18
Others		

Table 5 reveals the association between level of knowledge with father's education, mother's education, father's occupation, mother's occupation, types of family and family income. Regarding the association between level of knowledge with father's education, mother's education, father occupation, mother's occupation, types of family and family income, there is no statistically significant association.

Discussion

A descriptive cross-sectional study was conducted among 118 students at Shree Jana Model Higher Secondary School with the objective of assessing the Knowledge regarding Road Traffic Accident among Students.

Almost half of the respondents 51(43.2 %) belong to age group 17 years which is supported by the conducted in India which showed that Majority of the respondents were in the age group of 17 years (33%) and this finding is in contrast with the study conducted at Ahmedabad city in India which showed that all the participants were between 19-22 years of age Singh &NU, 2018). Regarding income 36 (30.5%) of the respondent's monthly family income was around 10,000- 30,000 which is supported by the same study, which showed that majority of the respondents (44%) had the family income between Rs.10,001- Rs 20,000. In relation to education, 39(33.0%) of fathers had secondary level of education which is similar with the study conducted in India, the result showed that majority (72%) of fathers were educated up to primary school (Devnarayan et al.).

Regarding gender 62(52.5%) were male which is similar with the same study which showed that 54% of the respondents were male (Chandra et al., 2018; Singh & NU, 2018). Based on ethnicity, 100 (84.7%) of the respondent belongs to Brahmin/ Chhetri group and only 3 (2.5%) belong to Madhesi group. Similarly, 35 (29.6%) of fathers were involved in business whereas 15 (12.7%) of mothers had government service the findings were in contrast with the study conducted in India, showed that maximum numbers of students fathers were serviceman (65.3%) and mothers were house wife (62%) (Singh & NU, 2018).

Likewise, in this study regarding traffic signs almost all the respondents were aware of indication of different traffic lights. The finding of the study is supported by Oinam J, et al. in Gujurat where almost of the students were aware of the red and green traffic signal (98.6% and 98.0%) which was almost comparable to a study (Oinam, Rajkumari, et al., 2019b).

Additionally, the present study showed among 118 respondents regarding knowledge on traffic signs almost all 118 (100%) responded to no parking and 116(98.3%) responded correctly to no horn indication. This study finding was supported by the study conducted by Mirza H, et al in Lahore which revealed that the knowledge on no horn 98% as well as other traffic signal indication 94% (Joshi, 2009).

In relation to level of knowledge, 51 (43.3%) of the respondents had good level of knowledge while 67 (56.7%) of them had average level of knowledge which is in contrast with the study conducted in Jaipur among secondary school students, showed that, 9(6%) had had poor awareness, 103(68.7%) had average awareness and 38(25.3%) had good awareness regarding road safety rules (Singh & . NU, 2018). Findings of the present study were also in contrast with the study conducted in Karnataka which showed

that, more than half (59.6 %) of the students had adequate level of awareness regarding traffic rules and safety measures (Shetty, Pahwa, et al., 2018b).

Furthermore, in this study regarding the association between level of knowledge with socio- demographic variables there was no statistically significant association. This finding was contradictory to the study done in India in which there was statistically significant association between knowledge level on road safety measures with demographic variable age, education of mother and education of father (Devnarayan et al.).

Conclusion and Implications

Descriptive cross-sectional study was conducted by using non-probability, purposive sampling technique to assess the knowledge regarding road traffic accidents among students at Shree Jana Model Higher Secondary School. The study showed that respondents had average level of knowledge regarding road traffic accidents. There was no statistically significant association between socio- demographic variables and level of knowledge. This indicates that knowledge regarding road traffic accidents was relatively consistent across different groups of students. The results showed the need for larger activities aimed at incresing students' knowledge of road safety. Conducting similar studies on a wider scale with a bigger and more diversified sample would promote stronger generalization of findings. Enhancing students' comprehension and possibly lowering traffic accidents can also be achieved by implementing the structured educational interventions, such as awareness campaigns, training sessions, and school-based programs focused on traffic rules and accident prevention.

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