

## Victims and Insights: Voices of Children on Road Traffic Accidents

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### Abstract

Road traffic accidents are a serious public health issue worldwide, particularly affecting children and young adults. This qualitative case study aimed to explore the human-related causes of road traffic accidents among students in Butwal Sub-Metropolitan City, Nepal, based on the lived experiences and perceptions of injured children and their parents. Participants were selected using criterion based purposive sampling, focusing on school going children who were recorded as road traffic accident victims in the area police office. Data were collected through in-depth interviews with students and semi-structured interviews with their parents, and field observations and data were analyzed by using the thematic analysis process. The study identified key behavioral factors contributing to road traffic accidents, including high-speed driving, pedestrian negligence, lack of parental awareness, and carelessness of vehicle riders. Results show that speeding in school zones, unsafe pedestrian practices, and inadequate parental guidance significantly increase students' vulnerability to road traffic accidents. Human behaviors are compounded by insufficient road safety education and weak enforcement of traffic rules. The results align with existing national and global studies, underscoring that most road traffic accidents are preventable and primarily linked to human error. It concludes that reducing road traffic accidents requires a multi-sectoral approach, including stronger traffic law enforcement, public awareness campaigns, improved urban planning and active parental involvement.

**Keywords:** Injured students, human factors, pedestrian, parental awareness,

### Introduction

Road traffic accidents (RTAs) are a major public health concern globally, claiming about 1.19 million lives and causing 20–50 million non-fatal injuries each year (WHO, 2023). Particularly, over 90 percent of these fatalities occur in low and middle-income countries where infrastructure, enforcement and education often fail to keep pace with rapid motorization (UNICEF, 2025). Nepal is no exception to this trend, with a growing number of RTAs in urban areas such as Butwal Sub-Metropolitan City, where increased vehicular density, inadequate road infrastructure, and limited traffic management complex the problem (Atreya et al. 2021). Human-related behaviors, particularly those involving drivers, are consistently identified as primary contributors to RTAs. These include negligence, over speeding, alcohol consumption, improper overtaking and disobedience with traffic rules and signals (Gaire et al., 2022; Poudel, et al., 2021). Among vulnerable groups, school-going children are frequently involved in RTAs, either as pedestrians or passengers, often due to their exposure to unsafe traffic environments and limited road safety knowledge (Mandal & Yadav, 2014; Huang et al., 2016).

Studies show that young male drivers, particularly motorcyclists, are excessively involved in RTAs due to higher mobility, risk-taking behavior and poor obedience to safety measures such as helmet use (Dhakal, 2018; Huang et al., 2016). A retrospective study in Kathmandu revealed a 1.5-fold increase in road accidents in fiscal year 2019/20 compared to 2018/19 with young males aged 16–35 years being the most affected group (Kuikel et al., 2022). The main causes of these accidents were road user negligence, over speeding, and unsafe overtaking practices. Notwithstanding legal initiatives like Nepal’s “Mapase” campaign to control drunk driving, behavioral factors continue to play a dominant role in accident causation (Atreya et al., 2021). Further complicating the issue is the limited understanding of how injured children perceive and experience these human-related causes, especially in the immediate result of injury. Fundamentally, studies across Nepal show that most RTAs happen because of human mistakes, especially careless driving, and these accidents are more common among people with low education (Mandal & Yadav, 2014; Poudel et al., 2021). Additionally, many young drivers lack basic vehicle knowledge or obtain licenses through non-transparent means, further increasing accident risk (Dhakal, 2018). Despite existing road safety policies, these persistent trends call for stronger enforcement and targeted awareness efforts to safeguard vulnerable road users such as pedestrians, motorcyclists, and cyclists.

In this context, it becomes imperative to explore the lived experiences and perceptions of school aged children who have been injured in RTAs, particularly regarding the human behaviors that contributed to these incidents. As individuals directly affected by road accidents, these children can provide valuable insights into the behaviors of drivers, pedestrians and even traffic police on the roads. Recognizing the lack of qualitative research capturing the voices of injured school children about the human causes of RTAs, this study aims to fill that gap.

### **Method and Materials**

This study adopted a qualitative case study design to explore the lived experiences and perceptions of school aged children regarding the human causes of RTAs. A case study approach was chosen because it enables a deep, contextualized understanding of participants’ real-life experiences and the social environment surrounding RTAs. The study was conducted in Butwal Sub-Metropolitan City, Rupandehi District, which was purposively selected due to its growing burden of road traffic injuries (RTIs) caused by increasing traffic congestion, poor road infrastructure and limited public health preparedness. The study population consisted of school aged children who had sustained RTIs and their parents. Using official records from the Area Police Office, Butwal, five injured children and their parents were purposively selected to ensure that participants had direct, recent experience of RTIs during the fiscal year 2078/2079. Data were collected through in-depth interviews with the injured children and semi-structured interviews with their parents, conducted in the participants’ native language to enhance clarity, cultural appropriateness and comfort. Interviews with children were conducted during their leisure hours at school or at home during school leave days, whereas parent interviews were conducted at their residences during morning or evening hours based on their

convenience. Each interview lasted approximately 30–60 minutes and was audio recorded with prior consent, supplemented by detailed field notes to capture non-verbal cues and contextual observations. Separate interview guides were developed for children and parents to explore experiences related to injury symptoms, decision-making in seeking care, transportation to health facilities and emotional responses during hospitalization. Confidentiality and privacy were maintained throughout the study by conducting interviews in private settings and anonymizing personal identifiers during transcription and reporting. Data were analyzed thematically using Flyvbjerg's (2011) seven-step framework, which included transcription, familiarization with the data, coding, theme identification, theme review, theme definition and interpretation. Coding was conducted manually by the principal researcher with peer debriefing by a qualitative research mentor to enhance credibility and reduce potential bias. To ensure trustworthiness, the study incorporated credibility through prolonged engagement with participants, dependability through systematic documentation of procedures, confirmability by maintaining an audit trail and transferability by providing thick descriptions of the study context.

### **Results**

Human factors are a key contributor to road accidents. According to the Nepal Traffic Police officer of province traffic office, Butwal, many accidents result from human error. These factors include drivers' compliance with traffic rules, their behavior and interactions with passengers, passengers' obedience to regulations and the presence and effectiveness of traffic police in managing road safety. Additionally, the behaviors, practices, and practical knowledge of all road users influence accident risks. Based on the perception and experiences of injured students and their parents, this study identified the prominent human-related causes of road accidents in Butwal Sub-Metropolitan City.

#### **High Speed**

As the participants expressed their accident experiences, high-speed driving was a major cause of road accidents around Butwal Sub-Metropolitan city. When vehicles are driven at high speed, the possibility of road accidents could increase. According to the WHO (2023), one percent increase in vehicle speed over the average speed increases the probability of fatal road accidents by four percent. According to the parent of a victim student of Case IV, the main reason for many road accidents in Butwal Sub-Metropolitan city was driving vehicles at high speed. The parent mentioned:

In order to reduce road accidents, the speed of vehicles might be determined by specifying main roads, internal roads, residential areas, school and hospital areas, and others. Similarly, for the information of motorists, signboards should be placed as necessary about speed control zones so as to be visible from the road.

In this regard, the student of Case I echoed the experiences of the parent of the Victim student case IV:

My road accident happened at Ramnagar Chowk in Butwal while I was going to school for the exam at around 1:55pm. On that day, all the vehicles were jammed due to the traffic police checking. While crossing the road I got a signal from the police. Just after I had crossed the road a bike came at high speed and hit me. My right leg was broken in this accident. The bike rider that hit me was out of control at such a high speed that it overturned after hitting me. The bike driver injured his multiple organs.

It is suggested that vehicle speeds be carefully monitored and regulated, as high-speed driving increases the likelihood of delayed reactions to hazards and loss of vehicle control. To enhance road safety, authorities should strengthen enforcement measures, including increased traffic police monitoring, implementation of fines for violations, and public awareness campaigns on the risks of speeding. Additionally, placing clear speed limit signs and warning signboards at critical locations can help drivers maintain safe speeds and reduce accident risks.

### **Pedestrian Negligence**

While going through the participants' interviews and traffic police reports, pedestrians' negligence is a major cause of road accidents. When pedestrians do not follow the traffic rules in their negligence, many road accidents happen. According to students of Case I:

To reduce road accidents in Butwal Sub-Metropolitan City, it is important to address pedestrian negligence, which has been identified as a contributing factor. Authorities should encourage pedestrians to follow traffic rules, such as using zebra crossings, overbridged and checking both directions before crossing roads. Public awareness campaigns and educational programs can reinforce these behaviors.

In this regard, the opinion of Case III's parents in their own words is as follows.

We only blame the driver for road accidents. A driver never drives a vehicle thinking that they will cause an accident. Accidents happen suddenly. I see more road accidents than motorists. In my opinion, many pedestrians don't understand the road signs and some of them seem to cross the road haphazardly. For example, the road department has constructed an overbridge at the main points on the roads of Butwal city. But people seem to cross the road without using the bridge. Similarly, the drivers drive the vehicles at their speed, but suddenly, when pedestrians come from the inner roads to the main roads, the drivers cannot avoid the accident even if they want to.

To reduce road accidents, pedestrians should be trained and alerted to road traffic rules and regulations. The road accident victims were found filled with a bit of arrogance against such careless pedestrians who violate the rules and cause accidents on the roads within Butwal Sub-Metropolitan city. When pedestrians do not follow the traffic rules, such as walking only using pedestrian paths, crossing the road at crosswalks or looking both ways before crossing, they might put themselves and others at regular road accidents.

To mitigate road accidents, it is essential to educate and sensitize pedestrians about traffic rules. Accident victims often express frustration towards negligent pedestrians who disregard these

rules, increasing the risk of accidents in Butwal Sub-Metropolitan City. When pedestrians fail to use designated paths, crosswalks, and look both ways before crossing, they endanger themselves and others. Enhanced awareness and compliance among pedestrians are crucial for reducing these accidents.

### **Lack of Parental Awareness**

Limited parental knowledge and awareness about road safety was identified as a major factor contributing to accidents involving children. To address this, parents should be educated on road safety measures and the risks associated with traffic, as they play a key role in teaching and modeling safe behaviors for their children. Implementing awareness programs, workshops, and community-based initiatives can help enhance parents' understanding and reduce the likelihood of child-related road accidents. In this regard, the opinion of the parents of Case I is as follows.

Parents should ensure that children are properly supervised when walking to school. Even when traveling by vehicle, children should be guided on safely getting in and out. Past incidents, such as a child's fatal accident at Chadwari Chowk caused by a bag strap getting caught in a vehicle, highlight the importance of parental care. Strengthening parental awareness and supervision regarding children's travel to and from school can help prevent such accidents.

Children apply what they learn at a young age throughout their lives. From the observation of interviews and traffic reports, young students require basic concepts about road traffic rules to be followed. For this, parents and children need to learn practical knowledge such as wearing helmets while traveling on a bike, using seat belts while traveling in a car, paying attention to road signs, and traffic lights while traveling on foot. It helps children to be aware of future road accidents. Therefore, parents play an important role in reducing the risk of road accidents among children. Students whose parents do not teach their children about road safety are assumed to be more likely to be injured in a road accident.

Reflecting on these insights, I see that parental awareness and education on road safety play a critical role in preventing accidents involving children. Parents need to educate their children about practical road safety measures, including the importance of wearing helmets and seat belts, and being vigilant about traffic signals.

### **Carelessness of Vehicle Rider**

The participants and their families argued that human causes like carelessness and hasty nature were taken as important causes in road accidents. Among the human causes, carelessness and hastiness of drivers were reported by the traffic office as a major cause of road accidents in Butwal Sub-Metropolitan city. This may include driving vehicles at high speed, not following the rules to be followed on the roads within the school and hospital area, not paying attention to the road signs, not following the rules of the traffic lights, not giving importance to the road passengers at the zebra crossing, and other aspects. The Case IV student narrated in her interview:

I was standing inside the school and tightening up my loose shoe laces a red scooter hit me while coming out of the school. The silencer of the scooter burned my legs. I was very sad. The scooter driver stopped the vehicle after reaching a further distance and came out of the school angrily, saying that he should not make eye contact with my friends. I was burned by the scooter's silencer, and it hurt so much that I could not bear it. I still have a large burn mark on my right leg. I couldn't even read properly for a few days. But it has not been discovered yet who the scooter driver was.

Reflecting on the participants' experiences, I observe that driver carelessness and haste play a significant role in causing road accidents, especially in areas around schools and hospitals. From my perspective, drivers must remain alert and strictly follow traffic rules to ensure the safety of vulnerable road users such as students and pedestrians. By doing so, we can diminish the chances of severe accidents occurring in these sensitive locations.

### **Discussion**

The present study explored the human related causes of RTAs among students in Butwal Sub-Metropolitan City, revealing that high speed driving, pedestrian negligence, parental unawareness and driver carelessness were the primary contributing factors. These results are consistent with previous literature, including WHO (2022) which reported that even a one percent increase in average vehicle speed can lead to a four percent increase in the risk of fatal crashes. Similarly, Atreya et al. (2021) identified speeding as a key contributor to RTAs in Nepal, especially among young male two-wheeler drivers. This study also highlighted the issue of pedestrian negligence, with many participants noting that people often fail to use zebra crossings and overhead bridges, leading to accidents. Mandal and Yadav (2014) similarly emphasized that low awareness of traffic rules among pedestrians contributes significantly to accidents. Another important theme was the lack of parental involvement in educating children about road safety, which aligns with the findings of Gaire et al. (2022), who argued that early road safety education is crucial and should begin at home. In line with this, WHO (2023) and UNICEF (2025) reported that children under 19 account for a significant portion of global traffic-related fatalities, underscoring the need for greater parental guidance. Participants in the current study also noted that careless and hasty driving, particularly in areas around schools was a major factor in RTAs, a finding supported by Dhakal (2018) and Huang et al. (2016), who identified inattentive and emotionally reactive driving as critical issues in urban Nepal.

Moreover, the demographics in this study, with a predominance of young male victims (60%) and a focus on two-wheelers, align with patterns reported by Poudel, Dhungana, and Dahal (2021). The results from Butwal highlight community specific insights into national road safety trends and point to the need for targeted interventions. In the short term, government authorities could strengthen law enforcement and improve traffic monitoring near school zones. Schools can play a key role by integrating road safety education into their curriculum and conducting awareness programs for students and parents. Parents should be actively engaged in teaching and modeling safe road behaviors at home. In the longer term, investments in road infrastructure, such as well-marked

pedestrian crossings, speed bumps, and safe drop-off zones near schools, would further enhance child safety. Overall, focusing on human behavior change, particularly in school zones through education and awareness campaigns can significantly reduce RTAs involving students and improve community road safety.

### **Limitations**

This study provides important insights into human related causes of RTAs among students in Butwal; however, several limitations must be noted. The qualitative design, based on interviews with a limited number of victims and parents, may not fully represent the experiences of all affected students. Special focus on human factors also limits the completeness of the analysis, as environmental, infrastructural and vehicular contributors were not examined in depth. Furthermore, dependence on self-reported data introduces the potential for recall bias and subjective interpretation. The geographic focus on Butwal Sub-Metropolitan City further limits the generalizability of findings to other regions. Future research could employ mixed-methods approaches, integrate traffic police records for data triangulation and conduct comparative studies across multiple cities to capture a more comprehensive picture of RTAs. Including environmental and infrastructural variables would further strengthen the analysis and inform more holistic interventions for student road safety.

### **Conclusion**

This study examined human related causes of RTAs among students in Butwal Sub-Metropolitan City, identifying high speed driving, pedestrian negligence, lack of parental awareness and driver carelessness as major contributors, largely linked to limited road safety education, weak enforcement of traffic laws and low public awareness. Participants' accounts highlighted over speeding near schools, unsafe pedestrian behaviors and inattentive drivers as key risks. Consistent with national and global findings (Gaire et al., 2022; Poudel et al., 2018; WHO, 2023), the study appeals for a coordinated, multi-sectoral response. Practical strategies include school based road safety education programs, parental workshops, stricter monitoring and enforcement in school zones, public awareness campaigns, installation of clear signboards and improvements in pedestrian infrastructure such as zebra crossings, speed bumps and designated drop off points. Collectively, these measures can reduce preventable RTAs and improve road safety for children and the wider community.

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