

A Study of Injuries and Violence Related Articles in Nepal

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ABSTRACT

Introduction: Nepal lacks sufficient data on injury and violence. Studies have been done in different regions but there is not a nationwide study on this topic. So, we have designed this systematic review to get a cumulative picture of injury and violence status in Nepal.

Methods: We searched Medline database, Google scholar database and also all the national medical journals for relevant studies on injuries and violence. Our eligibility criteria included studies done in Nepal, evaluating the incidence of different forms of injuries, and their causes and effects. We excluded case reports, editorials and reviews. All together, we had 23 studies. We made cumulative analysis wherever possible.

Results: All the studies were descriptive. In overall, the incidence of injuries was twice as common in male as in female with the ratio of 2.1:1. The economically active population between 20-50 years of age was mostly involved in injuries. Road traffic injuries were the most common form of injuries, most of which (42.5%) involved motorcycles. Pedestrians (48.6%) were the most vulnerable group of population. Falls (48.9%) were the most common cause of neuro traumatic accidents.

Conclusions: Our systematic review suggests that injuries and violence pose a big problem; road traffic accidents make the most part of it.

Key Words: *burn, falls, injury, ocular trauma, road traffic accident*

INTRODUCTION

Injury and violence are one of the major public health problems, which are equally prevalent in every corner of the world. More than five million deaths per year, which makes around 9% of the global mortality, are attributed to Injury and violence. Likewise, eight of the fifteen leading causes of deaths in the age group 15-25 are injury related. Traffic crashes are the number one cause of death for children and youth between ages 10 and

24 years. About 1.2 million people die every year as a result of road traffic crashes - up to 50 million more are injured or disabled. Similarly, every year over 300 000 people die from fire-related burns.¹

A very few researches has been published in Nepalese medical journal related to injury. Therefore, this study aims to review those literatures on injuries and violence in our scenario.

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METHODS

A systemic review of injury related article published in the Nepalese medical journal was conducted. We searched databases like PubMed, and Google Scholar for all the relevant publications using keywords such as Injury, Nepal, trauma, burn, and road traffic accidents (RTA), emergency. We also searched national journals for any relevant work that were not listed in PubMed. Besides, we also consulted experts studying epidemiology of injury and violence in Nepal. To ensure complete search, we also reviewed the reference lists of all the identified studies.

Altogether we found 120 articles, of which we went through the abstracts. Many of them included case reports, reviews, and editorials. We excluded them from our study and we were left with 48 studies. We went in details of the rest of the articles, and we included only those articles which focused on the evaluation of incidence of different forms of injuries, their causes, and effects and associated factors. There were 25 studies which evaluated the efficacy of some kind of interventions in the proper management and harm limitation of injuries. We also excluded them from our study. Thus, we had 23 articles selected for the review. Three of the studies were based on school and they interviewed healthy students and they looked into how many of them had got injured in the past one year. For the evaluation in our study, we used only the number of those students who had the history of injury and not the total number of students.

For proper quality assessment of the articles included in the study, we set seven evaluative characteristics (Table 1). Two investigators, blinded to the authors, assessed those quality characteristics individually. The scores were then compared and discussed to establish a final consensual score. Besides the scores, subjective judgment of the studies was also valued for the final quality assessment.

On the basis of the score, the quality of the individual study was evaluated as good quality (score more than 12), fair quality (score in between 8-12), poor quality (score less than eight).

Wherever the data presentation is similar, we tabulated them to make a good comparison and have an overall view. There were some variables like age groups of injured ones, causes of injuries, which were assessed and presented in different forms in different articles, we either reported them separately or left them if they were not a major finding. There were some articles which focused more on road traffic accidents, and likewise, there were some other articles which focused more on neurotrauma, or burn. So, we evaluated those articles in different groups – all articles on road traffic accidents in one group, all articles on burn in another group and so on.

RESULTS

All 23 studies were observational descriptive studies, many of them based on hospital settings. Twelve studies were about the incidence of different forms of injuries and RTA. Six were more focused on neuro trauma cases including craniofacial and spinal injuries, two on ocular injuries, two on burns, and one on occupational injuries.

From all the studies, it seemed that males are more prone to get injuries than the females, as the cumulative data showed a ratio of male to female as 2.1:1. Sixteen studies looked into the sex distribution of the injuries; the total number adds up to 15768 cases of injuries. Out of them, 10685 (67.8%) were male which is more than twice the number of females 5083 (32.2%). Though there were minor differences in the study settings, none of the studies show higher incidence of injuries among females.

We also found that most of the injured ones belonged to the economically active population (Table 3), which adds to the economic burden of the injuries being unable to go to work.

Table 1. Quality assessment variables

SN	Characteristics	Description and scores
1.	Study design	1. Retrospective, 2. Prospective
2.	Study setting	1. Hospital-based, 2. Community based
3.	Sampling	1. Convenient sampling, 2. Random sampling
4.	Sample size	1. Less than 500, 2. 500 to 1000, 3. more than 1000
5.	Potential for selection bias	1. Large, 2. Moderate, 3. Small
6.	Potential for information bias	1. Large, 2. Moderate, 3. Small
7.	Quality of reporting	Subjective assessment (1. Poor, 2. Fair, 3. Good)

Table 2. Studies and their description

Studies on Road traffic accidents						
SN	Author	Design	Setting	Sample	Outcome measures	Quality
1.	Joshi et al ²	Observational descriptive study	Hospital based study	505	Incidence of different forms of injuries, their economic burden	Good
2.	Meskin et al ³	Retrospective descriptive study	Hospital based	737 cases reported in ED (220 injury cases)	Services provided by emergency department (ED) and the different types of injuries recorded in ED	Good
3.	Banthia et al ⁴	Retrospective descriptive study	Hospital based	757	Incidence of RTAs, Vehicles involved, type of injuries	Good
4.	Jha et al ⁵	Observational descriptive study	Hospital based	870	Different types of RTA injuries, vehicles involved, nature of injuries	Good
5.	Sharma et al ⁶	National census survey	Community based survey	7010	Causes of deaths in community	Good
6.	Poudel Tandukar et al ⁷	Descriptive study	School based survey	1557	Activities during and mechanism of pedestrian injury	Good
7.	Agnihotri et al ⁸	Observational study	Hospital based	217	Incidence of RTAs, causes, types of injuries	Moderate
8.	Poudel Tandukar et al ⁹	Observational study	School based	1557	Risk perception, road behavior and pedestrian injuries	Good
9.	Poudel Tandukar et al ¹⁰	Secondary data analysis	Traffic police report	Traffic police data from 1981/82-2002/03	Trend in the number of RTA deaths	Moderate
10.	Poudel Tandukar et al ¹¹	Observational study	School based	1557	Different forms of injuries and their mechanism	Good
11.	Sharma G et al ¹²	Retrospective review	Post mortem reports	4383 postmortem cases (2850 traumatic deaths)	Different causes of traumatic deaths	Good
12.	Ghimire A et al ¹³	Cross sectional study	Community based survey	299	Different forms of injuries and their mechanism	Moderate
Studies on Neurotrauma						
13.	Agrawal et al ¹⁴	Retrospective descriptive study	Hospital based study	334	Cause and nature of the trauma	Good
14.	Bajracharya et al ¹⁵	Retrospective descriptive study	Hospital based analysis	896	Cause and nature of the trauma	Good
15.	Agnihotri et al ¹⁶	Retrospective descriptive study	Hospital based analysis	170	Cause and nature of injury	Moderate
16.	Shrestha et al ¹⁷	Prospective observational study	Hospital based	149	Etiology, methods, hospital management and recovery	Good
17.	McClennan et al ¹⁸	Retrospective descriptive study	Hospital based	283	Cause and nature of injury	Moderate
18.	Mukhida et al ¹⁹	Retrospective descriptive study	Hospital based	352	Cause and nature of injury	Moderate
Studies on Burn						
19.	Shrestha SR ²⁰	Prospective descriptive study	Hospital based	20	Types of burn, outcome of burn	Moderate
20.	Liu et al ²¹	Prospective descriptive study	Hospital based	237	Nature of burn, age and sex distribution, severity	Good

Study on occupational injury

21. Pokharel et al ²²	Prospective descriptive study	Hospital based	100	Types of occupational injuries, age distribution, risk factors, type of injuries	Moderate
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Studies on Eye injuries

22. Adhikari et al ²³	Retrospective descriptive study	Hospital based	3284 traumatic cases out of 5504 total lesions	Causes and types of eye injuries, treatments and outcomes	Good
23. Khatri et al ²⁴	Prospective study	Hospital based	525	Incidence and type of ocular injuries, treatments	Good

Table 3. Age distribution of the injury cases

SN	Study	Commonest age group involved in injury	Number (%)
1.	Jha et al ⁵	21-30	249 (28.6)
2.	Shrestha et al ¹⁷	41-50	35 (23)
3.	Agrawal et al ¹⁴	21-30	70 (20.4)
4.	Banthia et al ⁴	21-30	257 (33.9)
5.	Agnihotri et al ⁸	15-30	106 (48.8)
6.	Agnihotri et al ¹⁶	15-30	77 (45.3)
7.	Khatri et al ²⁴	21-30	130 (24.8)
8.	Adhikari et al ²³	15-50	41 (41)
9.	McClennan et al ¹⁸	21-45	155 (52.5)
10.	Liu et al ²¹	15-60	85 (35.9)
11.	Bajracharya et al ¹⁵	50-70	246 (27.5)
12.	Joshi et al ²	21-55	303 (60)

Twelve reports were found which described the incidence and causes of injuries, focusing more on road traffic accidents (Table 2). Three of them were school based, which interviewed the school children on their knowledge, opinion and experiences with injuries.^{7,9,11} One of the studies was a part of National census; it looked into the data from community and evaluated different causes of death in community.⁶ Likewise, one study looked into the data from the Traffic police and traced the trend in the rise of RTA deaths in nearly two decades.¹⁰ Another one was a four year retrospective study of post-mortem cases and looked into the different causes of traumatic deaths.¹² The other was a community based study, which interviewed people in the community about the history of injuries in their families.¹³ The rest were hospital based surveys (Table 2).

There were three studies which surveyed different modes of injuries. Joshi et al found RTIs as the most common mode of injury 214 (42%), followed by work injuries 93 (18.5%), and playing sports 76 (15.1%).² However, Poudel-Tandukar et al found fall from height as the most common mode of injury 1017 (65%), followed by Domestic injuries, cuts etc 974 (63%) and finally transport related injuries 563 (36%).¹¹ Likewise, Ghimire et al also reported falls as the most common mode of injury 104 (34.8%), followed by cuts and stabs 84 (28.1%), and finally RTIs 45 (15.1%).¹³ However, the major difference between the studies is Poudel-Tandukar's study is a school based study which interviewed the students about their experience of most severe injury in the last 12 months. Likewise, Ghimire's study is a community based study which interviewed the people about their experience of injuries in the last 12 months. Whereas Joshi's is a hospital based observational study which recorded all the injury cases which were reported to the emergency department of the hospital.

Likewise, there was one retrospective study which analyzed different modes of deaths in a post mortem centre. Sharma et al looked into 4383 post mortem reports, among them, 1403 (32%) were accidents, 1095 (25%) were suicides, 394 (9%) were homicides, 614 (14%) were natural medical diseases, and 920 (21%) were undetermined. Altogether, there were 2850 cases of traumatic deaths. Out of them, RTIs were the commonest cause 772 (27%), followed respectively by hanging 591 (20.7%), poisoning 223 (7.8%), burn 209 (7.3%), firearm injuries 185 (6.5%), falls 168 (5.9%), and others.¹²

Five studies evaluated the different forms of injury sustained due to trauma (Table 4).

In overall, open wounds including incised and lacerated ones constitute the most common form of injury, followed by abrasions, contusions and then fractures and dislocation of joints.

Five studies evaluated the involvement of different types of vehicles in the road traffic accidents (Table 5).

These all studies have unanimously found the high prevalence of motorcycle involvement in RTIs. The total probability of motorcycle being involved in a RTA comes to 42.5%, while no other vehicle crosses even 30% of probability.

Five studies looked into the most vulnerable group of population to get involved in a RTA (Table 6).

So, the pedestrians seem to be at the highest risk of getting involved in RTA with a probability of 48.6%. Jha et al and Joshi et al didn't categorize the pillion rider and passenger as separate entities.

Two of the studies looked into which organ is most commonly injured in a RTA. Banthia et al⁴ found the

highest involvement of limbs while Agnihotri et al found head to be injured the most.⁸

Likewise Banthia et al and Jha et al also looked into the seasonal variation in the incidence of RTAs, however, their findings differ from each other. Banthia has found most injuries occur in April – May while Jha et al reported July to be the month with most injuries. However, these all months fall in summer and rain, which shows the high incidence of injuries during the summer.

Many studies have not looked into the possible role of alcohol use in the RTA, while it's highly reasonable that driving under the influence of alcohol increases the risk of accidents. Jha et al found that among the 212 injured drivers, 36 (16.9%) had consumed alcohol, while Agnihotri et al also found that 10 (17.2%) out of

Table 4. Different forms of injuries sustained

SN	Study	Open wounds	Soft tissue injuries	Fractures and dislocation	Abrasion and contusions	Head injury	Internal organ injury
1.	Joshi et al ²	245 (40.2%)	56 (9.2%)	130 (21.3%)	102 (16.7%)	24 (3.9%)	11 (1.8%)
2.	Meskin et al ³	71 (32.2%)		69 (31.3%)	23 (10.5%)	11 (5%)	2 (1%)
3.	Banthia et al ⁴	209 (19.9%)	305 (29.1%)	177 (16.9%)	348 (33.1%)		10 (0.9%)
4.	Poudel-Tandukar et al ¹¹	251 (70.3%)	50 (14.0%)	8 (2.2%)	48 (13.4%)		
5.	Sharma et al ¹²	912 (32%)		713 (25%)	2195 (77%)		827 (29%)

Table 5. Different types of vehicles involved in accidents

SN	Study	Bicycles, rickshaw	Motorcycles	Light four wheelers like cars, tempo	Heavy four wheelers like trucks, buses	Others
1.	Banthia et al ⁴	73 (9.6%)	417 (55.1%)	129 (17.04%)	87 (11.5%)	51 (6.7%)
2.	Joshi et al ²	12 (6.8%)	115 (64.9%)	26 (14.7%)	20 (11.3%)	3 (2.3%)
3.	Jha et al ⁵	104 (11.2%)	237 (25.6%)	171 (18.5%)	404 (43.7%)	9 (1%)
4.	Agnihotri et al ⁸		81 (37.33%)	15 (6.9%)	49 (22.6%)	
5.	Poudel-Tandukar et al ¹¹	128 (35.9%)	153 (42.9%)	76 (21.2%)		
Total		317 (13.4%)	1003 (42.5%)	977 (41.4%)		63 (2.7%)

Table 6. Different groups of population involved in accidents

SN	Study	Pedestrian	Driver/Front rider	Pillion rider*	Passenger*
1.	Banthia et al ⁴	428 (56.5%)	191 (25.4%)	39 (5.2%)	48 (6.4%)
2.	Jha et al ⁵	257 (29.6%)	212 (24.4%)	400 (46%)	
3.	Joshi et al ²	180 (35.7%)	182 (36.3%)	120 (23.9%)	
4.	Agnihotri et al ⁸	72 (33.2%)	58 (26.7%)	23 (10.6%)	
5.	Sharma et al ¹²	486 (63%)	93 (12%)		139 (18%)
Total		1423 (48.6%)	736 (25.1%)	769 (26.3%)	

*Pillion riders and passengers are grouped into a single category as some authors didn't consider them as different entities.

58 motor cycles riders who got injured had consumed alcohol. So, alcohol consumption is also one of the major factors that could explain high incidence of road traffic injuries.

One study looked into the risk perception among the adolescents on road traffic injuries.⁹ Poudel-Tandukar et al reported that those who acknowledged that they don't always look both ways or don't wait for green signals were more likely to sustain a pedestrian injury. Those who perceived it to be safe to cross roads at any part were less likely to look both ways before crossing the roads. So, they concluded that people's perception and attitude towards roads safety could be a very important aspect in controlling road traffic accidents.

Only one study reported the status of emergency services in Kathmandu valley.³ This study was done back in 1990s, so, it not might reflect the present status correctly. But it reported that emergency departments are usually open wards with 10-15 trolleys, with often poor lightening, with only medical graduates to handle all the cases and general practitioners available only during the day as back up. Nurses, health assistants do the majority of emergency services including dressing, stitching wounds etc. Emergency driver have no medical training. However, emergency departments are equipped with supplementary oxygen, electronic monitors, defibrillators, airway management kits, electrocardiography machines. However, the emergency settings are still the same in most of the hospitals. So, this study seems appropriate and it describes the emergency services in our hospitals.

Six studies specially looked into different forms of neuro trauma (Table 2). In total, fall from height 1059 (48.9%) was found to be the most common cause of neuro trauma in Nepal, followed by road traffic accidents 604 (27.9%) (Table 7). There were numerous minor causes as well which have been accumulated under the term others, they include farm injuries, being hit by animals, sports injuries, being hit by a falling object and fire arm injuries. But these were minor and could not be included for the cumulative analysis.

The studies had varied measures for the assessment of nature and severity of injury. Two studies evaluated the severity in terms of American Spinal Injury Association (ASIA) impairment scale. Mukhida et al found that majority 102 (29%) of the neuro-traumatic cases in his study belonged to grade D, followed by grade A and E (both 85 (24%)). Whereas, Bajracharya et al found that majority of the cases fall in grade A 302 (34%), followed by grade E 239 (27%). However, it has to be considered that Mukhida et al did his study on paediatric population.

Mukhida et al and McClennan et al both used Glasgow Coma Scale (GCS) to assess the severity of injury. They both found that majority 281 (58%) of the cases were mild injuries (GCS score 13-15), followed by moderate (GCS 8-12) 136 (28%) and mild cases (GCS < 8) 67 (14%). Likewise, Shrestha et al used Frankel grading system for the assessment.

Three studies also looked into the number of hours elapsed before the injured one could get medical help. Two of them (Shrestha et al and Bajracharya et al) found the average injury hospital duration to be 43.8 and 41.6 hours respectively while McClennan et al found it to be 15.7 hours.

There were two studies which studied burns in different parts of Nepal (Table 2). Both of them are hospital based descriptive studies. Shrestha et al²⁰ conducted a yearlong prospective study among children at a tertiary health centre while Liu et al²¹ did a similar study among the adults for three years in another health centre.

Liu et al reported that more than 60% of the burn cases were below 15 years of age and about 40% were below four years of age. And 76% of the cases had less than 20% of body surface area involved with a mean extent of 16.3%. Likewise, house fire 93 (60.8%), burns from lamps 31 (20.3%), stoves 20 (13.1%) were the major causes of burns. Flame burn 152 (64.2%), scalds 67 (28.2%), electrical burns 9 (3.8%), flash burns 5 (2.1%) and chemical burns 3 (1.3%) were the major types of burns. Out of 234 reported cases, 55 died

Table 7. Causes of neurotrauma

SN	Study	Fall from height	RTA	Physical assault	Others
1.	Agnihotri et al ¹⁶	14 (8.2%)	118 (69.4%)	29 (17.1%)	9 (5.3%)
2.	McClennan et al ¹⁸	103 (36%)	100 (35.3%)	58 (20.5%)	22 (7.8%)
3.	Shrestha et al ¹⁷	90 (60%)	32 (22%)	5 (3%)	22 (14%)
4.	Mukhida et al ¹⁹	221 (63.5%)	93 (26.7%)	6 (1.7%)	28 (8.1%)
5.	Agrawal et al ¹⁴	103 (31.0%)	145 (43.6%)	64 (19.3%)	20 (6.0%)
6.	Bajracharya et al ¹⁵	528 (60.0%)	116 (12.9%)	-	242 (27.1%)
	Total	1059 (48.9%)	604 (27.9%)	162 (7.5%)	343 (15.7%)

with a mortality of 23.5%. More than 50% of the dead patients had more than 30% of their body surface area burnt.

There was one study which evaluated 100 cases of industrial accident cases which were brought to the two study hospitals (Table 2).²² Most of the injuries (66%) occurred in carpet and furniture industries. 82% of the injured workers didn't have any sort of training related to their work. Of the injured workers, 18% were working continuously for more than seven hours without rest.

There were two studies which evaluated different forms of eye injuries (Table 2). One of them is a retrospective descriptive hospital based study²³ while the other is a prospective hospital based observational study²⁴.

In total they evaluated 3809 cases. Khattry et al calculated the incidence of ocular trauma as 0.51 per 1000 people and the incidence peaked at 40-49 years of age for both sexes. The results are quite different when compared to Adhikari et al., who found that ocular trauma peaked at 15-50 years of age.

Both studies reported that majority of the cases came to health centre within seven days of injury. Adhikari et al. added that only 12% of the cases reported to the hospital within 24 hours.

The two studies vary mildly in the way they assessed the types of ocular injuries. Khattry et al. classified injuries as laceration 385 (73.3%), blunt injuries 98 (18.7%), penetrating injuries 26 (4.9%), and chemical burns 7 (1.3%). Meanwhile, Adhikari et al assessed eye injuries as simple abrasion 194 (6.3%), simple ulcer 1156 (37.7%), foreign body in eye 128 (4.2%), perforating injury 141 (4.6%), keratitis 710 (23.2%), and corneal opacity 738 (24%).

Khattry et al. also reported that majority of the injuries 168 (32%) occurred at home, 144 (27.4%) in agriculture fields, 72 (13.7%) in roads, 44 (8.4%) in factories and the rest in construction sites.

Likewise, Adhikari et al. reported that stick and grass are the most common traumatic agents accounting for 1270 (38.7%) and 952 (29%) of the cases respectively. Other agents include grains 637 (19.4%), foreign body 279 (8.5%), physical assault 233 (7.1%) and animal horns and tails 203 (6.2%).

DISCUSSION

This review suggests that males are more prone towards injuries, and especially the economically active population (20-50 years of age) constitute the majority of injured ones. This is very significant because in Nepal, it's usually the male who is the key person and the only source of income in the family. The whole family suffers if he can't go to work and earn. So, with majority of injuries among the male and economically

active ones, we can imagine how big and severe effect it will have. However, the age categories used were different in different studies, which made it hard to deduce an exact incidence of injury among different age groups. But, even with varying age categories used, all the studies had the same conclusions individually.

RTIs and falls were the most common form of injuries. Among the RTIs, 42.5% involved motor cycles and 48.6% of the injured ones were pedestrians. These figures should be taken with great caution because motorcycles are considered the most convenient mode of transport and the most fancied one among the youth. So, with the increasing use of this vehicle, the trend of injuries would also escalate. Thus, proper education, safety measures like use of helmets, speed limits should be strongly emphasized to the users. The other figure with the huge number of pedestrians being injured also demands that special attention be paid on road safety measures like proper foot paths, street lights, and over head bridges.

Fall from height was also found as a common mode of injury. In fact, our review found that it is the most common cause (48.9%) of neurotrauma. Majority of the neurotrauma cases were found to be mild cases, but there were some differences between the severity scoring systems used in different studies. ASIA grading system, Frankel grading system and GCS scores were used for the severity assessment. The lack of uniformity in grading systems made it difficult to get cumulative severity scores.

We reviewed twenty three previous studies on injury conducted in Nepal, out of which 15 were considered good studies and the rest moderate quality studies according to our pre-set quality scoring system. Majority of studies included being good quality studies ensures credibility to the results and conclusions of this review.

Among the neuro traumatic injury studies, two (Shrestha et al and Bajracharya et al), reported the average injury hospital duration to be 43.8 and 41.6 hours respectively while another one (McClennan et al), reported it to be 15.7 hours. This difference could be explained by the fact that McClennan study was based in a hospital in Kathmandu, where there is easy access to hospital and there is more availability of transport, where as the other two studies are based in hospital in the eastern region of Nepal which is comparatively less developed in terms of transport facilities and health care services as well. So, people from distant places also have to come to the same health centre which will obviously take a long time. Whereas the situation is different in Kathmandu, because there are many health centres and people who are distant to the study health centre do not have to come to the same centre, they can get help in any centre which is closer to them. So, the study hospital will not get patients from distant places.

Our review includes studies done in different parts of the country; some are more developed than the others. This variation in the settings of the studies could be a setback to this review as the settings make a difference in the outcome of the studies and thus it might not be suitable to merge all the data and make a comparison. Like, the nature of injuries in a rural area would definitely be different from that of the injuries in an urban area. But, we've tried not to put all the data together if the settings are different. This should even out the effect of different backgrounds of the studies included in the review.

CONCLUSION

Injury and violence, undoubtedly, are among the biggest challenges for mankind at present. It's an even bigger problem for the developing countries like Nepal. In such situation, we need a realistic picture of the situation and accordingly we have to devise appropriate control measures. Our review concludes that RTIs are very common; they mostly involve motorcycles and the pedestrians. So, the national policy makers should pay special attention to these while making road safety policies.

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