

“Incidence Pattern and Determints of Road Traffic Accidents in a Tertiary Care Hospital Based Study”

Shazada Gani^{1*}, Shahid Shakeel², Arshi Taj³, Shaiq H⁴, Saba Ahad⁵

¹Senior Resident, Department of Anesthesiology & Critical Care, Govt. Medical College, Srinagar, India

²Post Graduate scholar, Department of Anesthesiology & Critical Care, Govt. Medical

³Assistant Professor, Department of Anesthesiology & Critical Care, Govt. Medical College, Srinagar, India

⁴Senior Resident, Department of Health & Medical Education Department Jammu & Kashmir, India

⁵Lecturer, Department of Anesthesiology & Critical Care, Govt. Medical College, Srinagar, India

DOI: [10.36347/sjams.2019.v07i07.011](https://doi.org/10.36347/sjams.2019.v07i07.011)

| Received: 29.06.2019 | Accepted: 08.07.2019 | Published: 22.07.2019

*Corresponding author: Dr. Shazada Gani

Abstract

Original Research Article

Background: Injuries are increasingly recognized as a global public health epidemic. Around the world, almost 16,000 people die every day from all types of injuries. Injuries represent 12% of the global burden of disease, the third most important cause of overall mortality and the main cause of death among 1-40 year age groups. **Methods:** A prospective study was conducted at tertiary care SMHS hospital which is one of the associated hospital of Government Medical Collage Srinagar from 1st October 2017 to 30th June 2019. The study group-consisted of all the Road Traffic Accident victims reporting to Accident & Emergency Casualty of SMHS in the above one year period. **Results:** A total of 115 who reported to causality of SMHS hospital in whom 73 (63.47%) were males and 42 (36.52%) were females, and most 33.91 % of RTA victims of them belong to 21-30 year age group. Majority of the patients (93.92%) reported between 2-12 hours after the incident. Most of the victims (41.73 %) presented during summer season. Head injury (28.69%) was the commonest injury sustained by RTA victims in our study followed by the spinal injuries (22.60%). Two wheelers (33.91%) were most common vehicle involved. Only 6.08% of the victims presented to the hospital within 1 hour of the accident. **Conclusions:** Most of the factors responsible for RTA and its fatal consequences are preventable. A comprehensive multipronged approach can mitigate most of them. Reliable data on deaths of pedestrians, bicyclists, motorcyclists and vehicle occupants are essential in the design and implementation of road safety programmes.

Keywords: Road Traffic Accident, Road traffic injuries, Trauma, Victims, Epidemiological factors.

Copyright © 2019: This is an open-access article distributed under the terms of the Creative Commons Attribution license which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use (NonCommercial, or CC-BY-NC) provided the original author and source are credited.

INTRODUCTION

Expansion in road network, motorization, and urbanization throw out the world has been accompanied by a rise in road accidents leading to road traffic injuries (RTIs). Today RTIs are one of the leading causes of deaths, disabilities, and hospitalizations with severe socioeconomic costs across the world [1].

Injuries are increasingly recognized as a global public health epidemic. Around the world, almost 16,000 people die every day from all types of injuries. Injuries represent 12% of the global burden of disease, the third most important cause of overall mortality and the main cause of death among 1-40 year age groups [2]. The category of injuries worldwide is dominated by

those incurred in road crashes. According to WHO data, deaths from road traffic injuries account for around 25% of all deaths from injury [2].

There is an accident every minute and death every 8 min. significant variations also arise between different states of India [16]. Injuries related to RTAs contribute significantly to the number of trauma admissions, taking out a significant number of lives and resources.

Road traffic injuries are currently ranked ninth globally among the leading causes of disability adjusted life years lost and the ranking is projected to rise to third [3, 4]. In 1998, developing countries accounted for more than 85% of all deaths due to road traffic crashes

globally and for 96% of all children killed. Moreover about 90% of the disability adjusted life years lost worldwide due to road traffic injuries occur in developing countries [5, 6]. The problem is increasing at a fast rate in developing world [7]. Policy makers need to recognize this growing problem as a public health crisis and design appropriate policy responses [8]. The trend of increasing numbers of injuries is likely to continue as the number of motor vehicles rises, especially in countries with low numbers at present [9]. People in developing countries, which comprise 84% of the global population, currently own around 40% of the world's motor vehicles [10]. It is estimated that 1.26 million people worldwide died in 2000 from road traffic accidents, 90% of them in low and middle income countries.

METHODS

A prospective study was conducted at tertiary care SMHS hospital which is one of the associated hospital of Government Medical Collage Srinagar from 1st October 2017 to 30th June 2019. The study group-consisted of all the Road Traffic Accident victims reporting to Accident & Emergency Casualty of SMHS in the above one year period.

For the purpose of the study, a Road Traffic Accident (RTA) was defined as accident, which took place on the road between two or more objects, one of

which must be any kind of a moving vehicle. Any injury on the road without involvement of a vehicle (e.g. a person slipping and falling on the road and sustaining injury) or injury involving a stationary vehicle (e.g. persons getting injured while washing or loading a vehicle).

Data gathered included demographic details, the time of injury, nature of injury, type of the vehicle and the region of body injured. Also recorded were whether the injured person was the driver or the occupant of the vehicle or a pedestrian. The medico-legal records and case sheets were referred for collecting the data. Interviews of the victims/attendants and accompanying police personnel were also conducted to supplement the information collected.

Data was collected according to a predesigned and pretested proforma. All the data were analyzed using SPSS version 20 software and frequencies and tabulations were determined.

RESULTS

Observations and Results

A total of 115 road traffic accidents were reported in the Accident and Emergency Department of SMHS Hospital.

Table-1: Genderwise Distribution

Gender	Frequency	Percentage
MALE	73	63.47%
FEMALE	42	36.52%
TOTAL	115	100%

Majority of the victims were males accounting for about 63.47% of the victims as compared to females

accounting for about 36.52% of the victims among the study population.

Table-2: Age wise distribution

AGE GROUP	FREQUENCY	PERCENTAGE
1-10	9	7.82%
11-20	23	20.0%
21-30	39	33.91%
31-40	16	13.91%
41-50	13	11.30%
51-60	8	6.95%
>60	7	6.08%
TOTAL	115	100%

Most of the victims were young belonging to the age group of 21-30 years (33.91%) followed by age group of 11-20 years (20.0%) , 31-40 years (13.91%),

41-50 years (11.30%), 1-10 years (7.82%), 51-60 years (6.95%) and the least victims were >60 years of age among the study population.

Table-3: Geographical Distribution

VARIABLE	FREQUENCY	PERCENTAGE
URBAN	62	53.91%
RURAL	53	46.08%
TOTAL	115	100%

Majority of the victims were belonging to urban area (53.91%) and (46.08%) belonging to rural area among the study population.

Majority of the accidents (45.21%) took place between 12 pm -6 pm followed by 6pm-12am (27.82%) and least accidents 12-6am (10.43%) Fig 1.

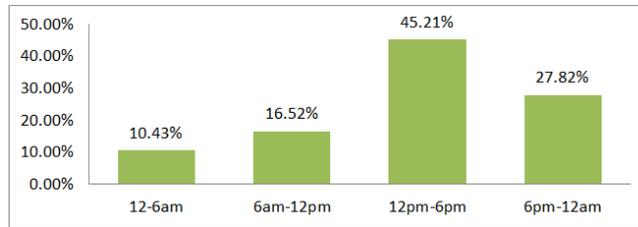


Fig-1

Most of the RTA victims reported to the hospital between 1-2 hours (32.17%) after the accident followed by 2-4 hours (20.00%) after the accident. Only

6.08% of the RTA victims reported within in half an hour of the accident. Fig 2

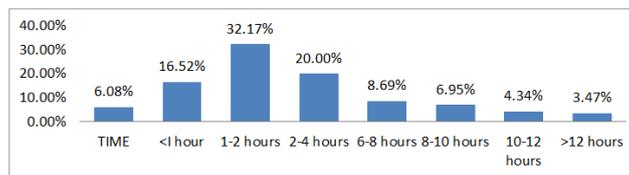


Fig-2

Majority of the RTA victims (41.73%) presented during summer season followed by (26.95%)

during autumn, (18.26%) during spring and (13.04%) during winter Fig 3.

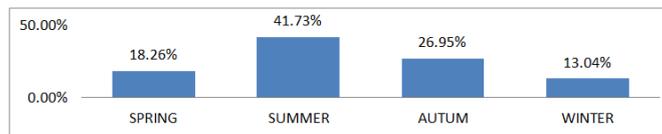


Fig-3

Head injury (28.69%) was the commonest type of injury sustained followed by spinal injury (22.60%), chest injury (16.52%), abdominal pelvic injury

(13.91%), lower extremity injury (10.43%) and (7.82%) upper extremity injury among the study population Fig 4.

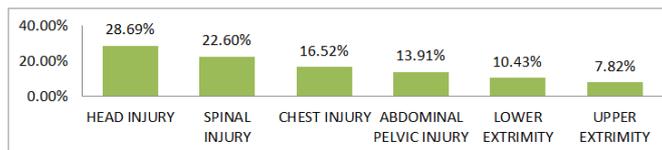


Fig-4

Two wheelers (33.91%) were most commonly involved followed by light motor vehicles (26.08%), three motor vehicles (20.86%) and (19.13%) heavy

motor vehicles among the RTA victims in the study population Fig-5.

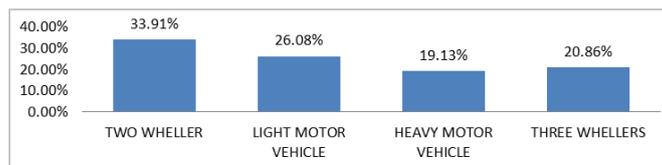


Fig-5

(33.91%) of TRA victims were unknown about the conditions of the road and only 34.78% were aware about the conditions of road. Fig 6

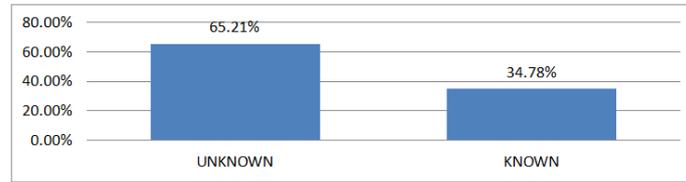


Fig-6

Majority (31.16%) of the road traffic accidents took place on highways followed by main roads (14.88%) and (7.44%) on other roads Fig 7.

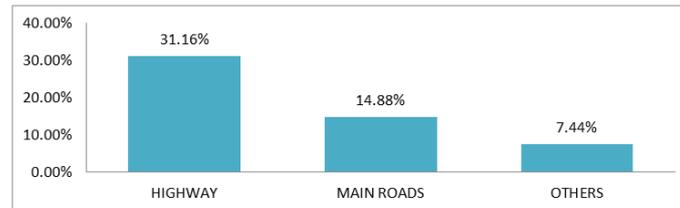


Fig-7

DISCUSSION

The present study was conducted at the tertiary care SMHS hospital which is one of the associated hospital of Government Medical Collage Srinagar (J & K). The study group-consisted of all the Road Traffic Accident victims reporting to Accident & Emergency Casualty of SMHS in the one year period in which injured person were 115 who reported to causality of SMHS hospital in whom 73 (63.47%) were males and 42 (36.52%) were females, and most 33.91 % of RTA victims of them belong to 21-30 year age group. The similar study conducted by Manish Kumar, Anjana Niranjana *et al.* in 2016 [34] at the tertiary level S.G.M.H hospital Rewa Madhya Pradesh, India. According to the findings of this study, that 325 RTA was occurred in the year 2015 in which injured person were 412 who visited to causality of S.G.M.H Rewa. in whom 298 (72.33%) were males and 114 (27.66%) were females, distribution of RTA between males and females was highly significant because $p < 0.0001$ it was less than 0.04 and most 42.09% of RTA victims of them belong to 21-40 year age group. The similar findings were also reported from Delhi and Nepal [35-37]. About 55% of the victims were between ages of 21-40 years. This shows that the people of the most active and productive age group are involved in RTAs, which adds a serious economic loss to the community. Lower proportion of RTAs in those aged 60 and above could be due to the generally less mobility of the people. A high occurrence of road traffic accidents among young adults has been thought to be due to wider range of activities engaged in by this class of people. They are more likely to have reasons to move from one place to another. The accident rates were higher in males (82.1%) than in females according to this study. Similar results were also observed in by other researchers [38-40]. Males are much more exposed to RTAs than females. This may be due to the fact that males are more active than females in various outdoor activities.

In the present study, the peak time for accidents was between 12 Pm- 6 Pm (45.21%). The findings are consistent with study of SP Mehta [36] conducted in Delhi. The hours are the busiest as commuters return from the schools, offices, factories and business place. These times coincide with the period when people are more active and mobile. In present study only 6.08% of the road traffic accident victims reported to hospital within less than one hour of the accident. Majority of the patients (93.92%) reported between 2-12 hours after the incident. The initial one hour is regarded as the "Golden Period" in the management of trauma victims. In majority of the cases the patients reached the tertiary care trauma centre i.e. SMHS after 2 hours of the accidents. Precious time is being lost in transporting the patient which has an adverse effect on the outcome. Hence, advanced trauma centres at should be established along the highway so that adequate and timely care reaches to the critical sick accident victims.

In the present study 41.73 % of the road traffic accident victims reported during the summer months. It can be explained by the fact that summer months are full of activities in Kashmir. It is the tourist season in the valley and thousands of vehicles are added to the roads in these months leading to increased incidences of road traffic accidents. Head injury (28.69%) was the commonest injury sustained by RTA victims in our study followed by the spinal injuries (22.60%). The similar study conducted by Mohammed Sarwar Mir, Tufail Ahmad *et al.* in 2016 [33] in this study 54.74% of the road traffic accident victims reported during the summer months. (35.44%) victims with Head injury and (17.16%) with spinal injuries due to RTA. our findings are also consistent with the studies of other researchers [41, 42].

Similarly a study was conducted by Singh R *et al.* was found that out of total 347 victims, 258

(74.35%) were males, while only 89 (25.65%) were female subjects [36]. Highest numbers of victims were in 20-30 years age group, accounting for 141 (40.63%) patients and various factors were attributed to the causation of these injuries as that maximum number of accidents took place during winter season (35.16%) and on national highway (69.50%). A total of 10 (3.88%) injured patients were intoxicated with alcohol at the time of accidents, all males.

The present study suggests that majority of the RTA victims had no protective measures like helmets for two wheeler vehicles and seat belts in light motor vehicles which have resulted in increased incidences of neurotrauma. Occupants (41.73%) constituted largest group of injured victims. The results are consistent with the findings of Morid M Hanna *et al.* [43]. The findings suggest that majority of the occupants of the vehicles do not take any personal protective measures while travelling. Two wheelers (33.91%) were the most common vehicles involved in road traffic accidents followed by light motor vehicles (26.08%) in this study. The findings are similar to the study of S.V Kuchewar *et al.* [44]. The findings can be explained by the fact that there has been an explosion in number of motorbikes, scooters and cars on the roads of Kashmir valley. Increase in number of young drivers often without valid driving licenses has created havoc on the roads.

REFERENCES

1. Alam K, Mahal A. The economic burden of road traffic injuries on households in South Asia. *PLoS one*. 2016 Oct 21;11(10):e0164362.
2. Peden M, McGee K, Sharma G. The injury chart book: a graphical overview of the global burden of injuries. Geneva: World Health Organization. 2002 Apr 3;5.
3. Delhi N. National Crime Records Bureau, Ministry of Home Affairs; 2011. Crime in India. Statistics: 79.
4. Murray CJ, Lopez AD. The Global Burden of Disease, Vol. 1 of Global Burden of Disease and Injury Series. Boston: Harvard University School of Public Health. 1996:52-110.
5. Krug EG, World Health Organization. Injury: a leading cause of the global burden of disease. Geneva: World Health Organization. 1999.
6. Jacobs G, Aeron-Thomas A, Astrop A. Estimating global road fatalities. 2000.
7. Singh R, Singh HK, Gupta SC. Pattern, Severity and Circumstances of Injuries Sustained in Road Traffic Accidents: A Tertiary Care Hospital-Based Study. *Indian Journal of Community Medicine*. 2014;39(1):30-4.
8. Nantulya VM, Reich MR. The neglected epidemic: road traffic injuries in developing countries. *Bmj*. 2002 May 11;324(7346):1139-41.
9. Prinja S, Jagnoor J, Chauhan AS, Aggarwal S, Ivers R. Estimation of the economic burden of injury in north India: a prospective cohort study. *The Lancet*. 2015; 385:S57.
10. UNDP: Human development Report. Oxford. Oxford University press, 1994. Global road safety partnership. Moving ahead: Emerging Lessons. Geneva: GRSP. 2001. www.grsproadsafety.org (Accessed 11 Sep 2016).
11. Kumar M, Niranjan A, Kumar S. A study to assess the pattern and determinants of road traffic injuries during a year, a tertiary care hospital-based study. *International journal of research in medical sciences*. 2016 Jul;4(7):2696-700.
12. Gathecha GK, Ngaruiya C, Mwai W, Kendagor A, Owondo S, Nyanjau L, Kibogong D, Odero W, Kibachio J. Prevalence and predictors of injuries in Kenya: findings from the national STEPs survey. *BMC public health*. 2018 Nov;18(3):1222.
13. Mehta SP. An epidemiological study of road traffic accident cases admitted in Safdarjang Hospital, New Delhi. In, *Journal of Medical Research*. 1968; 56(4):456-66.
14. Jha N. Road traffic accident cases at BPKIHS, Dharan, Nepal. One year in retrospect. *Journal of Nepal Medical Association*. 1997;35(122):241-4.
15. Sathiyasekaran BWC. Study of the injured and the injury pattern in road traffic accident. *Indian Journal of Forensic Sciences*. 1991; 5: 63-8.
16. Ghosh PK. Epidemiological study of the victims of vehicular accidents in Delhi. *Journal of Indian Medical Association*. 1992; 90(12): 309-12.
17. Jha N. Road traffic accident cases at BPKIHS, Dharan, Nepal. One year in retrospect. *Journal of Nepal Medical Association*. 1997;35(122):241-4.
18. Mehta SP. An epidemiological study of road traffic accident cases admitted in Safdarjang Hospital, New Delhi. In, *Journal of Medical Research*. 1968; 56(4):456-66.
19. Mohammed Sarwar Mir, Tufail Ahmad, Haroon Rashid, Shaista Ganai, Humera Irshad. Descriptive Study of Road Traffic Accidents in Kashmir. *IJETST*. 03(9): 4662-4667.
20. Montazeri A. Road-traffic-related mortality in Iran: a descriptive study. *Public health*. 2004 Mar 1;118(2):110-3.
21. Kumar Arvind, Lalwani Sanjeev, Aggarwal Deepak, Rautji Ravi, Dogra TD. Fatal road traffic accidents and their relation with head injuries: An epidemiological study of five years. *Indian Journal of Neurotrauma (IJNT)*. 2008, 5(2):63-67
22. Hanna MM, EL-SHEREEF EA. Descriptive Study of Road Traffic Accidents in Sirt, Libya. *The Medical Journal of Cairo University*. 2011;79(2).
23. Kuchewar SV, Meshram RD, Gadge SJ. Demographic study and medico-legal aspect of fatal road traffic accident in Aurangabad. *Journal of Life Sciences*. 2012 Jul 1;4(1):7-10.