



## PATTERN OF ROAD TRAFFIC ACCIDENTS IN PATIENTS ADMITTED TO RIMS, RANCHI

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### ABSTRACT

**Introduction:** Road Traffic Accidents (RTAs) are the growing but neglected public health problem especially in developing countries. This study was carried out with objectives (i) to determine the demographic characteristics of the RTA victims attending RIMS, Ranchi. (ii) to assess the key factors leading to RTAs, and the trends of last two consecutive year. **Methodology:** This institutional based cross sectional study was carried out among the victims of RTA, attending the various department of Rajendra Institute of Medical Sciences, Ranchi, for a period of three months. Consecutive sampling method was adopted and the selected patients were interviewed using semi-structured questionnaire. Collected data was entered in Ms Excel Sheet and was analyzed using SPSS software version 20. **Results:** A total of 174 victims were included in the study. More than a half (58%) of the victims were of age group 20-35 years and 81.6% study population was constituted by male. Motor bike involvement was reported by 82.6% cases and driving speed was around 30-60 km/hr in 82.8% cases. Moreover only 21.8% of the motor biker were wearing helmet during accidents. It was found that only 42% victims were taken to nearest hospital within an hour. **Conclusion:** Our results revealed that youth and productive group are mainly getting affected by RTAs. So it's our prime responsibility to work together for its prevention. In addition to awareness campaign and strict traffic rules, our health care delivery system needs to be strengthened.

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## INTRODUCTION

A well knit and coordinated system of transport plays an important role in the sustained economic growth of a country and road transport is vital to economic and social integration of a country. India has the second largest road network in the world, spanning a total of 5.89 million kilometers consisting national highways, state highways, major district road and the rural road that connect district and village (India Road industry report, 2021). Unfortunately, India has one of the highest road accident rates in the world (Accidental deaths and suicides in India, 2001). In Indian cities encroachment of road with pavement dwellers, unorganized parked vehicles & hawkers is common.

Again there is lack of footpaths & cycle tracks, so the pedestrian, cyclist and rickshaw users have to share common motorized traffic increasing the risk of accidents. In addition the human behavior like over speeding, drunken driving, distractions to driver, red light jumping, avoiding safety gears like seat belts and helmets, non-adherence to lane driving and overtaking in a wrong manner makes one vulnerable for RTA. Moreover, the use of personal two wheeler vehicle has also increased at a rate of 12% per annum, from the last two decades (Bandhopadhyay, 2010). In view of increasing incidence of road traffic injuries, the theme of World Health Day in the year 2004 was "Road Safety is No Accidents" to raise global awareness and to highlight the priority area of concern for road traffic injuries. At present, road traffic injuries are a major public health issue globally. Around 1 million people getting killed and between 20-50 million getting injured or becoming infirm in road accidents each year (Sulistio, 2012).

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RTAs affects predominantly male of productive age group, especially those between 15 and 44 years old. Traffic accidents expenditure of countries is 1 to 2% of their total national products (Elvik, 2012). The share of Jharkhand in total number of persons killed in road accidents in 2016 was 2%. The number of persons killed in road accidents in 2016 was 3027 against 2706 in 2013, hence the period seeing an increment of 0.9% (Singh, 2017). Ranchi, the capital of Jharkhand has witnessed sudden increase of motorized traffic after formation of separate state. RIMS, being the premier centre for trauma management in Jharkhand, receives huge patient load of RTAs every day, not only from the city of Ranchi & neighboring districts, but also from the adjacent states. This study aims in providing tangible evidences about various factor and influences involved in RTA for the policy maker which will help in lessening the number of RTAs. The objectives of this study are to assess the cases of RTAs coming to RIMS, Ranchi and to find out the factors leading to RTA and to show the trends of last two consecutive year.

## METHODOLOGY

This hospital based cross sectional study was carried out among the victims of RTA, attending various departments (central emergency, trauma centre, neurosurgery, orthopedics, and ENT department) of RIMS, Ranchi. The study duration was three months (from September 2019 to November 2019) and the RTAs patients were enrolled for this study by using consecutive sampling method. Eligibility criteria: All the patients who were conscious and oriented and willing for participation in the study were included whereas the unconscious, comatose and patients having severe injuries and OPD cases were excluded from the studied. Data collection tool: A pre tested semi-structured questionnaire was used to interview the patients. The questionnaire was designed to collect information pertaining to socio-demographic profile, environmental and human factors responsible for RTA. Information pertaining to transport time of patients to nearest health facility was also obtained. Data Analysis: Data collected was entered in MS Excel sheet and analysis was done using SPSS software.

## RESULTS

A total of 174 patients were interviewed for the year 2019 and record of total 105 patients were studied from the Medical Record Department (MRD) of duration September 2018 to November 2018. Characteristics of the study population: Data of the year 2019 showed that more than half(58%) belonged to the age group 20-35 years and the majority(81.6%) of study population were dominated by male. Daily wage workers (22%), farmers (20%), private job(20%) and the students(18.8%) constituted the majority of the study population. Detail of the socio-demographic profile is presented in Table.1. Environmental factors: Our study revealed that in year 2019, majority of the accidents took place at local road. Pot holes contributed to 11.5 % RTA cases. Among the vehicles, involvement of motorbike (82.6%) was found predominantly. The timing of majority of the cases was found between 5pm-9pm. Environmental factors contributing the RTA are presented in Table.2

**Human factors:** The present study showed that the vehicle speed ranging, 30-60km/hour were involved in 82.8% cases. Around 20% victims accepted that they were not using any protective gears like helmet and only 16.7% victims responded that they were under influence of alcohol. Table.3 showed the details of human factor related to RTA in our study.

**Health services delivery system:** Regarding transport time it was found that only 42% victims (year 2019) were fortunate to reach the nearest health facility within half an hour from the accident site. Figure 1 depicts the details of the transport time of the victims from accident site to treatment facility.

**Trends of RTAs in the last two year:** Our study showed no relevant changes in the trends as presented in table 1, 2 & 3.

## DISCUSSION

The present study intended to determine the demographic profile of the RTA victims attending RIMS, Ranchi and the environmental and human factors contributing to RTAs. Our study revealed that majority (58%) of the study population, involved were of productive age group (20-35years). The male population (81.6%) dominated in the study population. The reason behind is that in Indian society it is primarily male who comes out of home for livelihood and travel to certain distance either by foot or any transport mean mandatory part of their regular routine. In our study, the victimization of mainly the daily wage workers and farmer draws attention. Since these occupation is entirely dependent on physical strength and depending upon their injury they will have financial loss as for them no work means no pay. The reason behind constituting the majority population could be that the people of better economy prefer private hospitals for their better treatment and the poor and marginalized population had no option other than government institution.

If we focus on environmental factors, in our study majority of the incidents occurred in the local road in contrary to the study done by Singh et al. (2014). The possible reason could be the congestion, common sharing of road by pedestrian and cyclist with motorized transport. Sudden invasion of stray animals and sudden application of brake causing imbalance and fall is quite common. Pot holes were reported as contributing factors in 11.5% cases in the present study. In the last two decade, there is flooding of motor bikes. In our study also, motorbike was found to be involved in 82.6% cases. A study done by Johnson et al revealed that motor bikes are 24 times greater risk in involvement in RTA as compared to tri wheeler and four wheeler motors vehicles (Johnson, 2012). Moreover speedy and distracted driving augments the accidents. It's human psyche to move faster and excel and the same reveals in driving as well. In our study 16% of the study participants were found to be under influence of alcohol. Driving or walking on the road while under influence of alcohol increases the chances of accidents. As per *AMBROSIA*, the magazine for the alcobev industry about one third of the India's population consumes alcohol on a regular basis and 11% of the Indian are moderate or heavy drinkers ([www.ambrosiaindia.com](http://www.ambrosiaindia.com), Alcohol consumption pattern in India). Initial hour is crucial for survival of RTA victims. As per our study, only 42% victims got assistance to reach nearest treatment centre within half an hour.

**Table 1. Demographic characteristics of the study participants**

Characteristics	Description	2019	2018
Age (in years)	<19	20.1	15.3
	20-35	58	59
	36-55	17.8	21
	>55	4	4.8
Gender	Male	81.6	89.5
	Female	18.4	10.5
Occupation	Driver	2.5	2.8
	Farmer	20.1	19.1
	Private job	20	18
	Government job	5.7	7.6
	Student	18.8	20.3
	Unemployed	10.9	6.2
	Daily wage workers	22	26

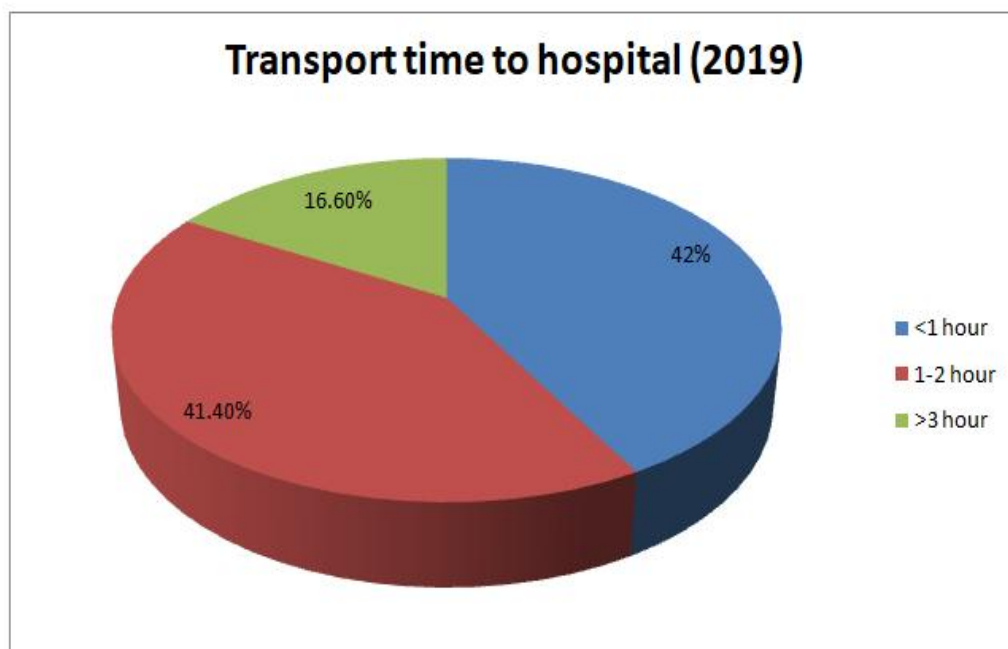
**Table 2. Environmental factors related to RTAs**

Environment factor	Description	2019	2018
Types of road	NH*	13.8	13.3
	SH**	40.8	52.3
	Local road	45.4	34.4
Road condition	Dry	77	81.9
	Oily	0	1
	Wet	9.2	3
	Muddy	2.3	7.5
	Pot hole	11.5	6.6
Types of vehicle	Bicycle	6.7	5.7
	Motorcycle	82.6	84.8
	Three-wheeler	7.3	8.5
	Car	3.4	1
Time	4 A.M – 9 A.M.	2.8	8.5
	9 A.M. – 5 P.M.	35.6	46.2
	5 P.M. – 9 P.M.	45.9	33.3
	9 P.M. – 4 A.M.	15.5	12

\*NH-National Highway \*\* SH-State Highway

**Table 3. Human Factors associated with RTAs**

Human factor	Description	2019	2018
Helmet/protective gear	Yes	78.2	76.2
	No	21.8	23.8
Speed (km/h)	<30	14.4	18
	30-60	82.8	79
	>60	2.8	3
Alcohol consumption	Yes	16.7	12.4
	No	83.3	87.6



Study done by Seid et al supports that delay in detecting crash and lack of appropriate pre-hospital care are the crucial determinants of death and survival (Seid, 2015).

## CONCLUSION

From the current study, it was revealed that most of the victims are of economically productive age group and the factors responsible for RTAs are preventable. So, it's our responsibility to work for prevention and reducing RTAs through the holistic approach. Education or awareness campaign can be started in the schools, colleges, shopping mall and during sport events. The campaign should focus on emphasizing the pattern of RTA and to prevent the loss of life and property and thereby generating demand for road safety. Enforcement of already existing road safety legislation is of paramount importance. Proper engineering of the motor vehicles as well as road design network and their regular maintenance will help in reducing the RTAs to a large extent. Above all one must have love and respect for human life, only then the responsibility of disciplined driving and protecting self and others will be carried out. So, it is the demand of the current situation to invest time in cultivating moral values at home, schools, colleges and professional institutions.

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## REFERENCES

- Accidental deaths and suicides in India. National crime records bureau. Ministry of home affairs, Government of India. 2001.
- Bandhopadhyay KR. 2010. Potential and changes of electricity driven vehicle in India. Energy security insights. Centre for Research on Energy Security. The Energy and Resources Institute: 7-12.
- Elvik, R. 2012. "Risk of road accident associated with the use of drugs: A systematic review and meta-analysis of evidence from epidemiological studies", *Accid. Anal. Prev.*, vol. 60, pp. 254-267.(<http://dx.doi.org/10.1016/j.aap.2012.06.017>) (PMID: 22785089)
- India Road industry report, January 2021. [www.ibef.org](http://www.ibef.org) (last accessed on date 30.03.2021)
- Johnson, O. E. 2012. "Prevalence and pattern of road traffic accidents among commercial motorcyclists in a city in southern Nigeria," *Educational Research*, vol. 3, no. 6, pp. 537–542, View at: Google Scholar
- Seid, M., Azazh, A., Enqueselassie, F., Yisma, E. 2015. Injury characteristics and outcome of road traffic accident among victims at adult emergency Department of Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia: a prospective hospital based study. *BMC Emerg Med*, 15 (10), 10.1186/s12873-015-0035-4
- Singh R., Singh HK, Gupta S C, Kumar Y. Pattern, 2014. Severity and circumstances of injuries sustained in road traffic accidents: A tertiary care hospital-based study. *Indian J Community Med.*, 39:30-4 .
- Singh SK. 2017. Road Traffic Accidents in India: Issues and Challenges. *Transportation Research Procedia* 25 4708–4719
- Sulistio, H. 2018. "Effect of traffic flow, Proportion of Motorcycle, Speed, Lane Width, and the availabilities of Median and Shoulder on Motorcycle Accidents at Urban Roads in Indonesia", *Open Transp. J.*, 12: 1. [www.ambrosiaindia.com](http://www.ambrosiaindia.com), Alcohol consumption pattern in India

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