Original Research Article

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Determinants of road traffic accidents cases in tertiary care hospital at Ranchi, Jharkhand

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ABSTRACT

Background: Worldwide, road traffic accident (RTA) poses a public health and development challenge and greatly affects the human capital development of every nation. This study aims in providing tangible evidences about determinants of road traffic accident cases at tertiary care center with a good area coverage giving insight into burden of RTA.

Methods: This study was cross sectional hospital based study done in Rajendra Institute of Medical Science Ranchi, Jharkhand. Patients coming to emergency department were recorded and followed in ENT, neurosurgery and orthopedics department of RIMS, Ranchi in the period of one month (15th January to 20th Febuary2019).

Results: Most of the patients were (59%) among the age group of 19-35 years of which 89.5% of the patients were male. 84.8% of the accident took place while motorcycle was driven. 53.3% of the patients were without license. Majority of the cases were driving between the speed of 30-60 km/hr at the time of accident. Majority of cases were not wearing helmet at time of accident (76%). Majority of accidents took place in state highway (53.3%) (roads connecting major cities of states). 59% of the accident took place at T-type junction. Major factor responsible was unusual behavior of man and animal (19%) and followed by overtaking (18.1%). Majority of the accidents were due to front collision (34.3%).

Conclusions: There is a need for encouraging and promoting safe driving behavior among community members by the awareness through road safety campaigns and enforcement of road traffic laws to bring down the burden of RTA.

Keywords: Road traffic accident, Road safety, Determinants

INTRODUCTION

Road traffic accidents (RTA) are leading cause of death by injury and is predicted to move up to 3rd position by 2020 among leading cause of global disease burden.¹ RTA are large and growing public health burden especially in low income and middle income countries where 90% of world death due to RTA is estimated to occur.² No age group is immune to RTA, but the highest burden of injuries and fatalities are borne by young people aged 15–29 years who are in their prime productive age incurring a huge loss to GDP of that

particular economy. Children, pedestrians, cyclists and older people are among the most vulnerable of road users constituting half of those dying on world road.³ Worldwide, RTA poses a public health and development challenges and greatly affects the human capital development of every nation. There was over 1.25 million road accidents in 2013 that has plateau from 2007 due to global population growth and motorization.⁴ In India, more than a million are injured annually and about one lakh people are killed in RTA.⁵ It causes the country to lose around 55,000 crores annually which is 3% of GDP.¹ The share of Jharkhand in total number of persons killed

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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 %. It is a matter of concern, that the number of road accident deaths have been increasing alarmingly over the years but present scenario of research works do not seem to be in pace with the increasing number of RTAs Lack of data collection and reporting are the major cause of hindrance in proper scientific analysis of such accidents. Hence India specific counter measures are necessary and will be possible only through continuous monitoring and research.

This study aims in providing tangible evidences about determinants of road traffic accident cases in RIMS, Ranchi which is a tertiary care center with a good area coverage giving insight into burden of road traffic accidents. The objective of the study was to assess the key determinants of RTA.

METHODS

This study was cross sectional hospital based study done in Rajendra Institute of Medical Science (RIMS) Ranchi, Jharkhand. Patients coming to emergency department were recorded and followed in ENT, neurosurgery and orthopedics department of RIMS, Ranchi in the period of

one month (15th January to 20th Febuary 2019). Directly referred patients to the above mention departments were also recorded. Patients who did not give their consent, comatose cases, OPD cases and fatalities were excluded from study. Data collection was done through a pretested semi structured questionnaire about date, place, time, police report, type of vehicle, type of road, speed, weather conditions etc. Data was entered in MS-Excel sheet and data analysis was done by using appropriate statistical methods and SPSS software.

RESULTS

Most of the patients were (59%) among the age group of 19-35 years of which 89.5% of the patients were male. 84.8% of the accident took place while motorcycle was driven. 53.3% of the patients were without license. Majority of the cases were driving between the speed of 30-60 km/hr at the time of accident. 76.2% cases were not wearing helmet. Majority of accidents took place in state highway (53.3%) (roads connecting major cities of states). 59% of the accident took place at T-type junction. Major factor responsible was unusual behavior of man and animal (19%) and followed by overtaking (18.1%) (Table 3). Majority of the accidents were due to front collision (34.3%).

Table 1: Vehicle details.

	Category	Frequency	Percentage (%)
Type of vehicle	Bicycle	6	5.7
	Motorcycle	89	84.8
	Autorikshaw/three wheeler	9	8.6
	Car	1	1.0
Own vehicle driven	Yes	71	67.6
	No	34	32.4
License with driver	Without license	56	53.3
	Learners license	16	15.2
	With license	33	31.4
Vehicle damaged in accident	Yes	70	66.7
	No	35	33.3

Table 2: External factors responsible for RTA.

	Category	Frequency	Percentage (%)
Weather condition	Sunny	55	52.4
	Cloudy	12	11.4
	Foggy	5	4.8
	Others	33	31.4
Road condition	Dry	86	81.9
	Oily	1	1
	Wet	4	3
	Muddy	8	7.6
	Pothole	6	5.7
Type of road	National highway	14	13.3
	State highway	56	53.3
	Local road	35	33.3
Any junction type	T-type (turning)	62	59.0

Continued.

	Category	Frequency	Percentage (%)
	Y-type	17	16.2
	Rail crossing	3	2.9
	Four arm junction	6	5.7
	No crossing	17	16.2
Factors responsible	Light condition	13	12.4
	Overtaking	19	18.1
	Cause not known	16	15.2
	Street light	11	10.5
	Dazzling	2	1.9
	Distraction (mobile/music)	14	13.3
	Old poorly maintained vehicle	4	3.8
	Unusual behaviour of man and animal	20	19.0
	Visibility problem	3	2.9
	Fault of pedestrian	3	2.9

Table 3: Behavioral factors responsible for accident.

	Category	Frequency	Percentage (%)
Speed (km/hr)	<30 km/hr	19	18.1
	30-60	83	79
	>60	3	2.9
Helmet used	Yes	25	23.8
	No	80	76.2
Drunk driving	Yes	13	12.4
	No	92	87.6
Traffic rules obeyed	Yes	82	78.1
	No	23	21.9
Vehicle overloading	Yes	21	20.0
	No	84	80.0
Driver condition	Asleep	2	1.9
	Fatigue	10	17.1
	Sick	1	1.0
	Normal	84	80.0

DISCUSSION

The present study was conducted at the tertiary level hospital at RIMS, Ranchi, Jharkhand, India. According to the findings of the study was that 104 RTA occurred in the period of 1 month; among the injured person 89.5% were males and 10.5% were females and most of people (59%) belong to the age group 19-35 years, while in another study conducted by Kumar et al found 72.33% were male and 49.02% people belonged to 21-40 years of age group.⁸ Percentage of males as compared to females was more because in our society males are the bread earners for the family and therefore involved usually in outdoor activities exposing themselves to accidents. The higher incidence of accidents in these age groups can be attributed to the risk taking behavior of youths. In our study 12.4% people were under the influence of alcohol, while in another study conducted by Kahn et al, 29.2% people were under the influence of alcohol. The role of alcohol in impairing driving ability is well documented. In our study, 76.2% people were not wearing helmet, the reason being their careless attitude towards the law, while in a study conducted by Bhardwaj et al, only 71.01% twowheeler users did not wore a helmet at the time of injury. 10 In the present study, vehicles speeding at 30-60 km/hr was responsible for 79% of accidents while in another study conducted by Mishra et al on epidemiological study of road traffic accident cases from western Nepal in 2010, vehicles speeding at 40-60 km/hr were responsible for 50% of accidents.¹¹ In our study 53.3% drivers were without driving license; while in a study conducted by Bhardwaj et al found 16.24% of drivers did not have a valid driving license and also Dandona et al found 11% drivers had not obtained a driving license and 21.4% had obtained a license without taking the mandatory driving test; easy accessibility of the vehicles and the casual attitude of drivers may be the reason for not obtaining the license. 11,12

CONCLUSION

There is a need for encouraging and promoting safe driving behaviour among community members by spreading awareness through road safety campaigns. Enforcement of stringent laws by implementing penalty and imprisonment if required for those violating traffic rules.

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