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Audit on Roadside Accident Cases and Severity Happening in Indore City, Presenting to MYH Casualty, Indore

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Authors' contributions

This work was carried out in collaboration among all authors. Author SS designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors RKM and AM managed the analyses of the study. Author PB managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Introduction: Road traffic accidents take away the right to life of 3,000 people every day worldwide. This is a global humanitarian disaster, it is man-made and preventable. Accidents are a drain on the national economy and may lead to disablement, death, damage to health and property, social suffering and general degradation of the environment. India had earned the dubious distinction of having more number of fatalities due to road accidents in the world. Road safety is emerging as a major social concern around the world, especially in India.
Materials and Methods: The prospective observational study was carried out on 1000 RTA cases presented in MYH trauma centre, INDORE from May 2018 to April 2019. All patients of roadside accidents presenting to trauma centre underwent a detailed history taking including general examination after their primary management.
Results: Out of 1000 cases 277 were fatal, 385 were considered under grievously injured & 338 cases had a simple injury. Among the fatalities, 32 cases were brought dead. The vehicle majorly

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found to be involved in the RTAs were 2-wheeler (76.90%), 3-wheeler (3.35%), 4-wheeler (6.2%) and others (13.6%). Out of total no of accident cases of 2 wheelers (769), only 27.1% person was using the helmet and 72.6% persons were not using the helmet. In the comparison of the severity of the injury and use of helmet, among the total no of fatality in 2 wheelers, 36% fatal injury occurred in person not wearing the helmet.

Conclusion: Road Traffic Accident problem is increasingly becoming a public health problem. The result not only in death but disability among survivors who can burden to the society. RTA victims predominantly belonged to the younger age group.

Keywords: MYH trauma centre; preventable; helmet; seatbelt; alcohol.

1. INTRODUCTION

Every year 1.2 million people are killed and approximately 20-50 million people are grievously injured in road accidents [1]. If current scenario continues road traffic accidents are predicted to be the third leading contributor to the global burden of disease and injury by 2020 (Torregrosa et al., 2012) [2-4,5,6]. India had earned the major distinction of having more number of fatalities due to road accidents in the world. Road safety is popping as a major social concern around the world especially in India (Shiv Kumar and Krishnaraj, 2012). This paper aims to describe the factors associated with RTAs in Indore city [7,8].

-At every turn, we inevitably come back to the three main factors involved in an accident on the roads: the driver, the vehicle and the roadway [9,10].

-Indore has emerged as the fourth most accident-prone city in the country after Mumbai, Delhi and Chennai with 444 people losing their lives in road accidents in 2015. [11-17]. Indore recorded 5,873 accidents in 2015 and was placed after Mumbai with 23,468 accidents, Delhi 8,085 accidents and Chennai 7,328 accidents, in the road accident profile of cities with over 10 lakh population released by the ministry of transport and highways [18,19].

2. METHODS

A prospective observational study was carried out on 1000 RTA cases presented in MYH hospital trauma centre between May 2018 to April 2019. All patients of roadside accidents presenting to trauma centre underwent a detailed history taking including general examination after their primary management. A Questionnaire was filled according to the history provided by the attendee or patient himself/herself. After the proper examination and relevant investigations, injuries were categorized under simple, grievous & fatal.

3. OBSERVATION AND RESULTS

The most affected age group was found to be 21-30 years (38.5%), 31-40 year (20.7%) & <20 years (16.7%).

Table 1. Age-wise distribution

Age group	Frequency	%
<=20	167	16.7
21-30	385	38.5
31-40	207	20.7
41-50	134	13.4
51-60	70	7.0
>=61	37	3.7
Total	1000	100.0

Table 2. Sex-wise distribution

Sex	Frequency	%
Female	150	15.0
Male	850	85.0
Total	1000	100.0

Gender-wise distribution of the RTAs shows that males (85%) are almost 6 times more affected than females (15%).

Table 3. Severity of wise distribution

Severity of injury	Frequency	Percent
Simple	338	33.8
Grievous	385	38.5
Fatal	277	27.7
Total	**1000**	**100**

Out of 1000 cases, 277 were fatal, 385 were considered under seriously injured & 338 cases had a simple injury. Among the fatalities, 32 cases were brought dead.

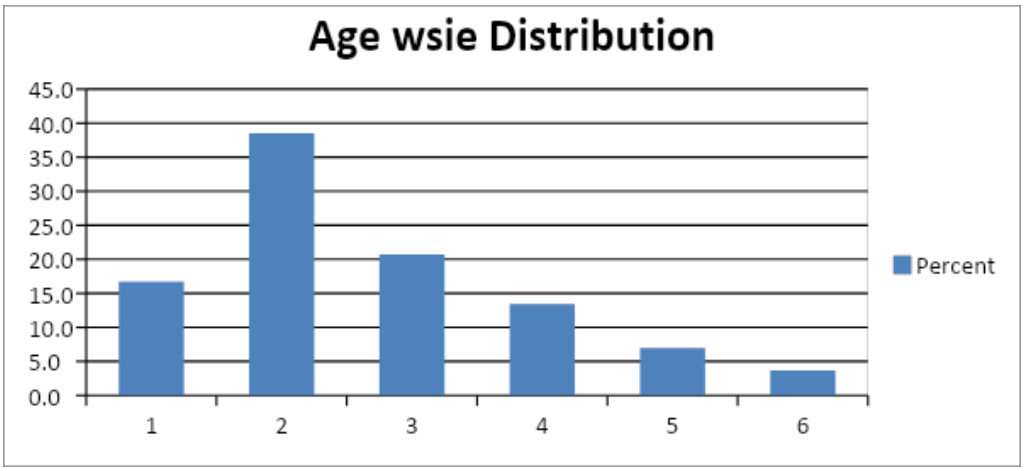

Fig. 1. Showing age-wise distribution in NO of RTA cases

Table 4. Category of vehicle wise distribution in NO of RTA cases

RTA	Frequency	%
2W	769	76.9
3W	33	3.3
4W	62	6.2
OTHER	136	13.6
Total	1000	100.0

The vehicle majorly found to be involved in the RTAs are 2-wheeler (76.90%), 3-wheeler (3.3%), 4-wheeler (6.2%) and Others (13.6%).

In fatal cases, the share of 2 wheeler is very much higher (74.7%), then3 wheeler (2.2%), 4 wheeler (10.1%), and others (13%). There is a statistically significant difference between the severity of the injury and type of vehicle involved.

Among the total no the persons wearing a helmet only 3.8% persons having a head injury, and 40.4% persons having a head injury in the persons who were not wearing the helmet.

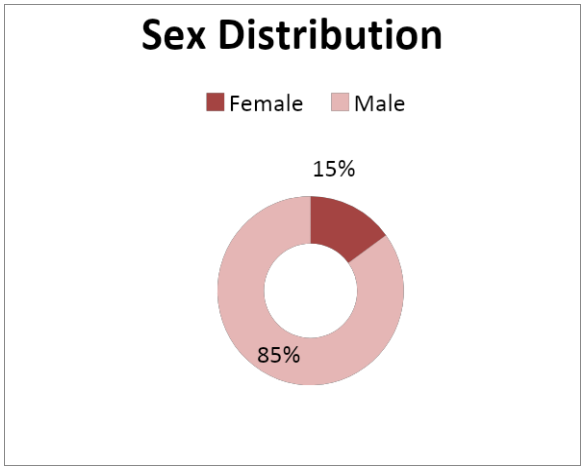

Fig. 2. Showing sex-wise distribution in NO of RTA cases

Table 5. Severity of injury-wise comparison of the category of vehicle accused in road traffic accidents

Severity of injury		Vehicle category				Total
		2W	3W	4W	Other	
Simple	Count	279	15	17	27	338
	%	82.5%	4.4%	5.0%	8.0%	100.0%
Grievous	Count	283	12	17	73	385
	%	73.5%	3.1%	4.4%	19.0%	100.0%
Fatal	Count	207	6	28	36	277
	%	74.7%	2.2%	10.1%	13.0%	100.0%
Total	Count	769	33	62	136	1000
	%	76.9%	3.3%	6.2%	13.6%	100.0%

Chi-Square Test = 30.177, df = 6, P-value = 0.000 Significant

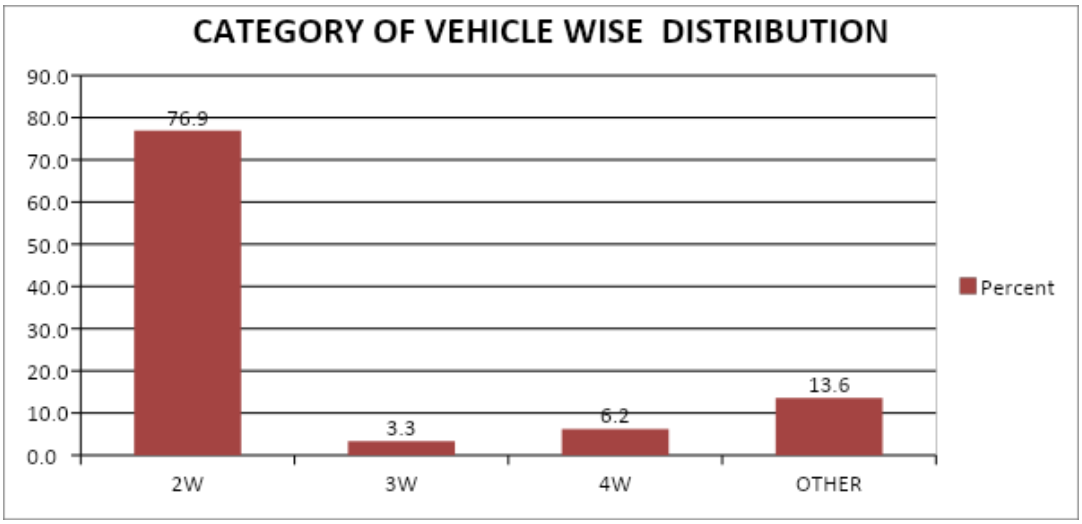

Fig. 3. Showing category of vehicle wise distribution in NO of RTA cases

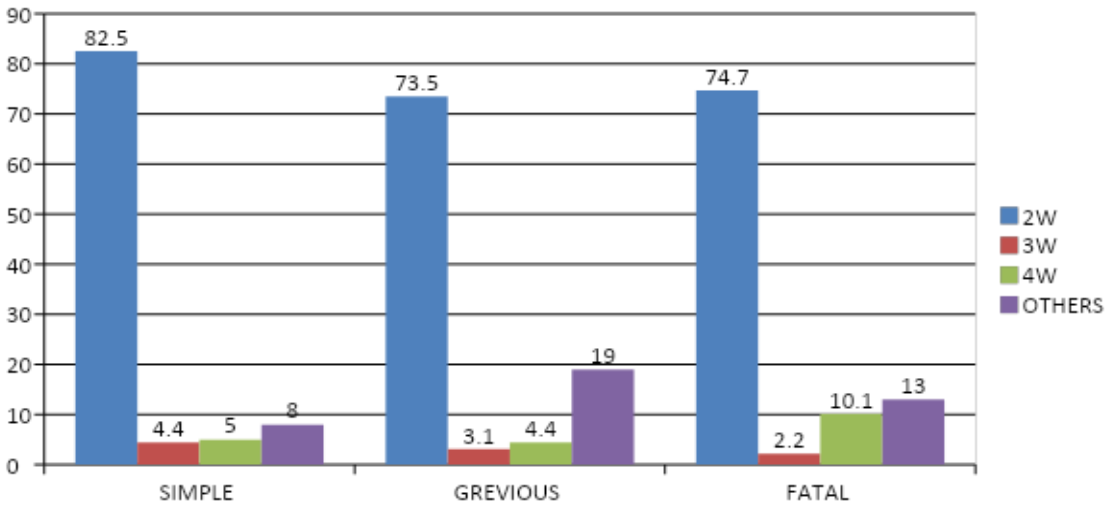

Fig. 4. Showing severity of injury-wise comparison of the category of vehicle

Table 6. Comparison between the use of helmet and head injury

Helmet		Head injury		Total
		Yes	No	
Yes	Count	8	200	208
	%	3.8%	96.1%	100.0%
No	Count	227	334	554
	%	40.4%	59.3%	100.0%

Table 7. Comparison between alcohol influence and head injury

Alcohol		Head injury		Total
		Yes	No	
Yes	Count	134	130	253
	%	53%	47%	100%
No	Count	163	584	747
	%	21.8%	78.2%	1000

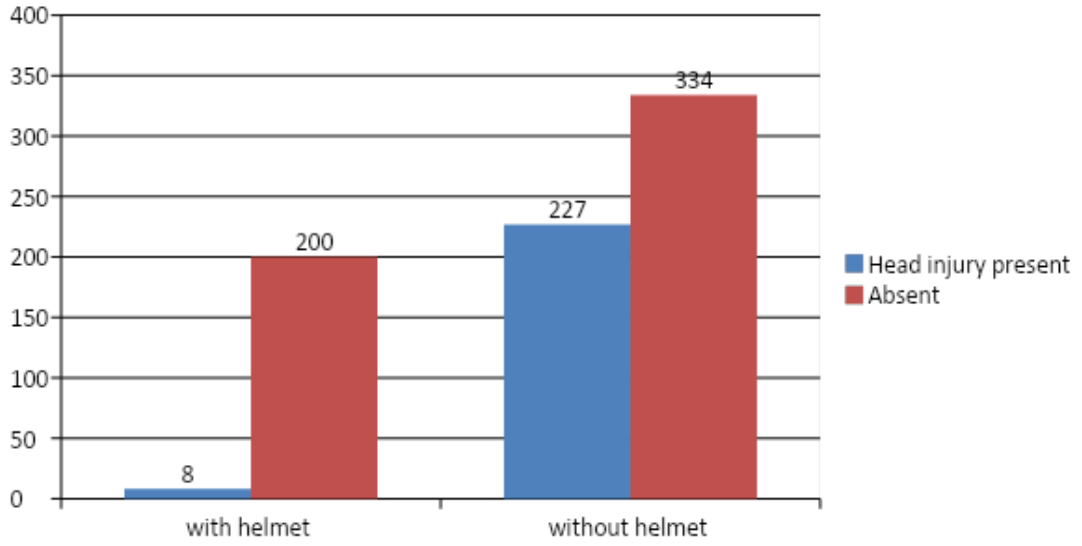

Fig. 5. Comparison between the use of Helmet and head injury

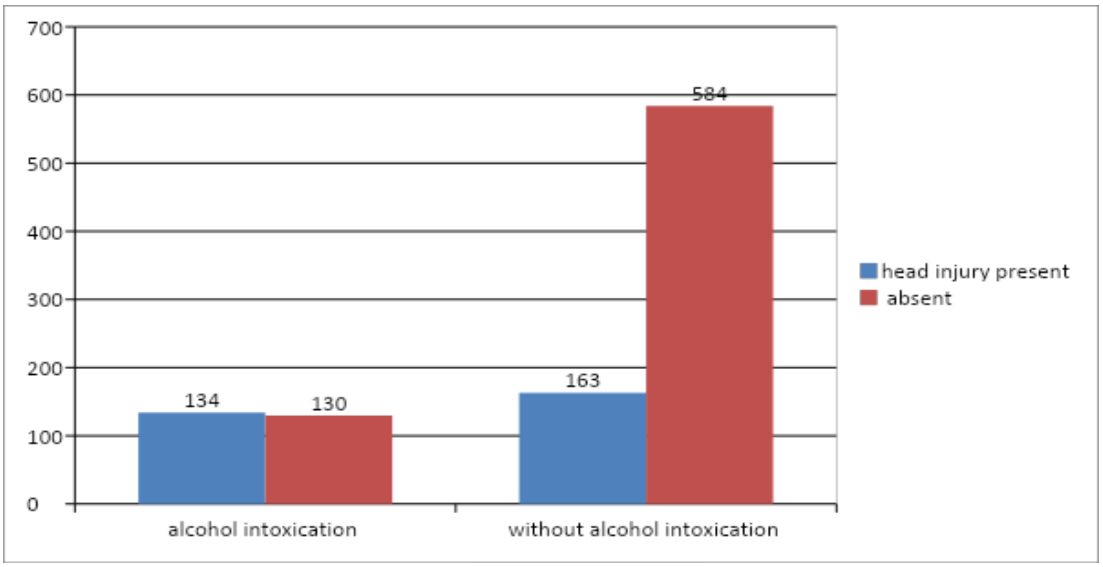

Fig. 6. Comparison of the use of alcohol and head injury

Among the total no the persons with alcohol influence 53% of persons having a head injury, and 21.8% persons having a head injury in the persons without alcohol influence.

4. DISCUSSION

The study shows that the mean age of RTA victims is 33.10 yrs. The most affected age group was found to be 21-30 years (37.5%), 31-40 year (19.9%) & <20 years (17.3%) (Table1 & Fig. 1).

Out of 1000 cases, 277 were fatal, 385 were grievously injured & 338 cases had a simple injury (Table 3). It is interesting to note that among all fatal accidents, 21-30 years age group reported higher fatal accidents (36.7%) than 31-40 years (20.2%) as compared to the overall accident scenario. Gender-wise distribution of the RTAs shows that males (85%) are almost 6 times more affected than females (15%) (Table 2 & Fig. 2).

Among the 1000 cases, 32 (3.2%) case records have clear evidence of spot death. Out of these 32 spot deaths (Table 3). The vehicle majorly found to be involved in the RTAs were 2-wheeler (76.90%), 3-wheeler (3.35%), 4-wheeler (6.2%)

and others (13.6%) (Table 4 & Fig. 3). In fatal cases, the share of 2 wheeler is much higher (74.7%), than 3 wheeler (2.2%), 4 wheeler (10.1%), and others (13%) (Table 5 & Fig. 4). While the highest proportion in serious & simple injury category was also in 2 wheelers (73.5%) & (82.5%). So, 2 wheeler is most commonly associated with accidents or mishaps.

Out of total no of accident cases of 2 wheelers (769), only 27.1% person was using the helmet and 72.6% persons were not using the helmet. Among the total no. of persons wearing a helmet, only 3.8% of persons had a head injury, and 40.4% head injury occurred in persons who were not wearing the helmet (Table 6 & Fig. 5).

Among the 1000 accident cases, 25.3% person was under the influence of alcohol and 51.6% fatal cases happened when the driver was under the influence of alcohol at the time of the accident (Table 7 & Fig. 6).

5. CONCLUSION

Road Traffic Accident problem is increasingly becoming a public health problem. The result not only in death but disability among survivors who can burden to the society.

From the above observations and results, we can infer that RTA victims predominantly belonged to the younger age group. The good number of drivers found to be under the influence of alcohol.

Aiming to save time and extra ride for a kilometre, motorists and car drivers often go too wrong direction to cross the road. this is leading to frequent accidents on the road.

The segregation of traffic especially pedestrian is very important from the standpoint of accident prevention.

To sum up, younger age group, alcohol intoxication, careless attitude by pedestrians, road conditions, light condition, violation of traffic rules, presence/absence of traffic signals at crowded area & speed breakers are responsible for considerable mortality & morbidity in Road Traffic Accidents.

CONSENT

As per international standard, patient's written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Textbook of Preventive and Social Medicine, Park k., 16th edition, ch.2. 2000; 12.
2. Trivedi CR. Epidemiology of fatal accidents. Indian Journal of Surgery. 1981; 43(2-3):171-174.
3. WHO. Regional Office for Europe, "Psychosocial factors related to accidents in childhood and adolescence, Report on a WHO technical group, (Euro reports & study no. 46), 1981;6.
4. Alma-Ata. Primary Health Care, Geneva, WHO, ("Health for all" series no. 1); 1978.
5. Wang L, Ning P, Yin P, Cheng P, Schwebel DC, Liu J, Zhou M. Road traffic mortality in China: analysis of national surveillance data from 2006 to 2016. The Lancet Public Health. 2019;4(5):e245-e255.
6. Singh D, Singh SP, Kumaran M, Goel S. Epidemiology of road traffic accident deaths in children in Chandigarh zone of North West India. Egyptian Journal of Forensic Sciences. 2016;6(3):255-260.
7. Grattan E, Keigan ME. Patterns and severity of injury in a hospital sample; a paper read at the Fifth International Conference of the International Association for Accident and Traffic Medicine, London; 1975.
8. United Nations Economic Commission for Europe, Statistics of Road Traffic Accidents in Europe; 1973, New York, United Nations; 1974.
9. Pathak SM, Jindal AK, Verma AK, Mahen A. An epidemiological study of road traffic accident cases admitted in a tertiary care hospital. Medical Journal Armed Forces India. 2014;70(1):32-35.
10. Muthukumar T, Singh Z, Prasad V, Samuel AK, Raja TK. An epidemiological study of road traffic accidents among patients admitted in a tertiary care hospital in Puducherry. International Journal of Community Medicine and Public Health. 2018;5(8):3362-3367.

11. Norman LG. Road Traffic Accidents – Epidemiology, Control and Prevention Public Health Paper–12, WHO. 1962;7.
12. Romer CJ, Manciaux M. Accidents in childhood & adolescence: A priority problem worldwide, In Accidents in Childhood & Adolescence, WHO. 1991;1.
13. WHO. Technical Report Series, No. 118, Accidents in childhood – Facts as a basis for prevention, report of an advisory group; 1957.
14. Waller JA. Accident prevention: The role of research, In "Accidents in Childhood & Adolescence", WHO. 199;191.
15. Baker SP, O'Neill B, Karpf RS. The Injury Fact Book. Lexington Books, D.C. Health and Company/Lexington, Massachusetts/ Toronto; 1984.
16. Berfenstam R, et al. Prevention of accidents in childhood – A symposium in the series of congresses and conferences celebrating the 500th anniversary of Uppsala University, held at the Department of Social Medicine, University Hospital,; 1977.
17. Hogarth J, Glossary of Health Care Terminology, WHO, Copenhagen; 1978.
18. Trivedi CR. Emotional factors in Accidents; The Clinical Reporter. 1978;II(8).
19. Clarke DD, Forsyth R, Wright R. Behavioural factors in accidents at road junctions: The use of a genetic algorithm to extract descriptive rules from police case files. Accid Anal Prev (ENGLAND). 1998; 30(2):223-34.
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