Original Research Article

Study of Sociodemographic Profile of victims in Road Traffic Accidents: An Autopsy-Based Study at a Tertiary Care Centre in Haryana

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Abstract

Road traffic accidents are considered one of the important general health concerns, as they result in numerous injuries and deaths worldwide. India is a developing nation which experiences very high rate of such accidents. This study was planned to study the sociodemographic profile of victims of fatal RTAs involving different types of vehicles, so as to widen the database for developing the preventive measures that could reduce morbidity and mortality in such cases. A retrospective study was conducted on one hundred cases of road traffic accidents brought for medicolegal autopsy to mortuary of Pt. B.D Sharma PGIMS Rohtak over a period of one year. Their age, gender, region and other socioeconomic factors were studied.

Keywords: Road Traffic Accidents, sociodemographic profile**.**

Introduction

Road traffic accidents (RTAs) are an inevitable collateral damage of modernization, it is a penalty paid by us for rapid transportation from place to place. RTAs are taking an epidemic form worldwide. According to National Crime Records Bureau in India, the number of road traffic accidents increased from 3,68,828 in the year 2020 to 4,22,659 in the year 2021. The total number of accidental deaths have increased by 18.8 percent (from 1,46,354 to 1,73,860) in the year 2021 over the year 2020.[1] These numbers translate into one road accident every one minute and one road accident death every four minutes, which is the highest in the world. However, this is an underestimate, as not all injuries are reported to the police.[2]

Accidents are killing more people in India than terrorism or natural disasters or diseases. The number of minor as well as serious injuries, human suffering and economic loss due to disabilities caused by accidents is inestimable. In general, the causation of road traffic accidents involving motorized and non-motorized vehicles remains multifactorial. Human vulnerability includes drunken driving, tiredness, disregard for traffic rules, not using safety equipment like helmets and safety belts, health conditions (Myocardial infarction, vision problems), mental factors (risk taking behaviour, impulsiveness), defective judgment, poor perceptions, family problems, and distractions like mobile phones. Environmental factors may be related to roads (defective and narrow roads, poor lighting, and lack of familiarity) and vehicles (over speeding, poor maintenance of vehicles, large number of vehicles.[3] In the present study, victims of road traffic accidents using motorized and non-motorized vehicles were included to study their sociodemographic profile.

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Materials and Methods

The study was conducted in the Department of Forensic Medicine, Pt. B. D. Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana over one hundred cases of road traffic accidents brought for medico-legal autopsy to the mortuary of the department of forensic medicine at a tertiary care centre in Haryana. Cases were identified and informed consent was taken from the next of kin of the deceased in known cases and from the accompanied police official in unknown cases. History of the accident and deceased was noted. Police inquest papers, medicolegal record if available and treatment record of the deceased if any, were perused. The data collected was noted on the pre- approved proforma and data was analysed by applying the appropriate statistical tools.

Clearance from institutional ethical committee was taken. The study group comprised of cases of road traffic accidents brought for medico-legal autopsy to the mortuary of the department of forensic medicine at a tertiary care centre in Haryana.

Inclusion criteria: All the medicolegal autopsy cases having history of road traffic injuries.

Exclusion criteria: The autopsy cases of road traffic accidents where a) road traffic injuries were absent b) advanced stage of decomposition.

Results and Analysis

Amongst, one hundred road traffic accident victims, maximum number of victims were in age group 31-40 (26%) and least were in age group more than 80 years (1%). This shows that young population is more prone to road traffic accidents due to increased exposure to roads for day to day work related purposes. This data is also shown in the table no. 1:

Table 1: Distribution of road traffic accident victims according to their age

AGE GROUP	NUMBER OF CASES	PERCENTAGE
1-10	0	0%
11-20	5	5%
21-30	24	24%
31-40	26	26%
41-50	16	16%
51-60	12	12%
61-70	13	13%
71-80	3	3%
MORE THAN 80	1	1%
TOTAL	100	100%

On studying the regional (area based) distribution of victims of road traffic accident, subjects residing in rural areas (64%) outnumbered the urban ones (36%). It can be seen that majority of cases were from rural areas, probably due to the lack of awareness and poor knowledge about traffic rules. The distribution of the data is depicted in the table no. 2:

Table 2 shows the area distribution of victims of RTA

REGION	FREQUENCY	PERCENTAGE
RURAL	64	64%
URBAN	36	36%
TOTAL	100	100%

On studying the gender wise distribution of cases, this study revealed that out of 100 RTA victims, 88(88%) were male and 12(12%) were female. The males outnumbered the females. This shows that males were predominantly involved in road traffic accident. It is depicted in the table no. 3:

Table 3: Distribution of RTA victims according to their gender

GENDER	FREQUENCY	PERCENTAGE
MALE	88	88%
FEMALE	12	12%
TOTAL	100	100%

On studying the occupation wise distribution of cases, it was found that most of the victims were labourer 23(23%), followed by farmers 21(21%), private businessmen 20(20%), private job employees17(17%), housewives12(12%), students5(5%) and least were govt. Job employees2(2%). This is depicted in table no. 4:

Table 4: Distribution of road traffic accident victims according to their occupation

OCCUPATION	FREQUENCY	PERCENTAGE
LABOURER	23	23%
FARMER	21	21%
PRIVATE BUSINESS MEN	20	20%
PRIVATE JOB EMPLOYEES	17	17%
HOUSEWIFE	12	12%
STUDENT	5	5%
GOVT JOB EMPLOYEES	2	2%
TOTAL	100	100%

On studying the distribution of cases according to the timings of day, this study revealed that out of 100 road traffic accident cases maximum accidents occurred in the evening [06:00 PM to 11:59 PM] (48%) followed by morning [06:00 AM to 11:59 AM] (23%), afternoon [12:00 Noon to 05:59 PM] (21%) and least in night [12:00 Midnight to 05:59 PM] (8%). This can be clearly seen by the table no.5:

Table 5: Distribution of road traffic accident cases according to the time of accident

TIME	NUMBER OF CASES	PERCENTAGE
MORNING [06:00 A.M. TO 11:59A.M.]	23	23%
AFTERNOON [12.00 NOON TO 05:59 P.M.]	21	21%
EVENING [06:00 P.M. TO 11:59 P.M.]	48	48%
NIGHT [12:00 MIDNIGHT TO 05:59 A.M.]	8	8%
TOTAL	100	100%

On studying the distribution of cases according to the seasons, the study revealed that out of 100 road traffic accident cases, maximum accidents occurred in summer season38(38%) followed by rainy season25(25%), autumn season20(20%) and least in winter season17(17%). This can be seen in table no. 6:

Table 6: Distribution of RTA victims according to seasons

SEASON	FREQUENCY	PERCENTAGE
SUMMER [March, April, May]	38	38%
RAINY [June, July, August, September]	25	25%
AUTUMN [October, November]	20	20%
WINTER [December, January, February]	17	17%
TOTAL	100	100%

[Classification of seasons in India as per Indian Meteorological Department[7]]

Discussion

Morbidity and mortality due to Road traffic accident is a serious public health issue in most parts of the world including the developing countries like India. According to the present study, it was found that maximum number of victims of road traffic accidents were of age group between 31-40 years (26%), followed by 21-30 years (24%). Similar observations were made in studies conducted by Chandramani et al.[4] and Mishra et al.[5] This can be attributed to the fact that this age group is most exposed to roads for day-to-day work-related purposes. Tendency of these younger aged subjects to show disregard to traffic rules & regulations and non-usage of safety devices like helmets, seatbelts, restraints etc. can be a possible explanation for the same. However, in study conducted by Jha et al.[6], Singh et al.[8]and Parvati et al.[9] the age group varied as 20-29, 20-30 and 21-30 respectively.

In this study it was observed that males constituted 88% of the victims of road traffic accidents and females 12%. Males outnumbered the females. Similar findings were observed in studies conducted by Aggarwal et al.[10], Manna et al.[11], Singh et al.[8], Kahn et al.[12] These higher number of males is readily explainable by the fact that males are more exposed to hazards of roads as they are the working and earning member in majority of the Indian families, while females usually stay at home and look after the house hold work.

This study revealed that majority of RTA victims were from rural areas (64%) whereas urban population constituted about one third of total cases as (36%). Similar findings were observed in study conducted by Agarwal et. Al.[10](2012), Manna et al.[11] (2013) and Kahn et al.[12] (2015) where rural victims outnumbered urban victims. The increased number of road traffic accidents in rural areas can be attributed to the fact that there is lack of awareness and poor knowledge about traffic rules amongst them. Stray animals on the road and inadequate enforcement of existing laws in rural areas adds to the problem. Findings contrary to the present study were observed in Singh et al.[8](2014) where urban victims 222 (64%) outnumbered rural victims 125(36%) which could be due to the area where the study was conducted.

In the present study, it was observed that the labourers constituted the largest group (23%) involved in RTAs, followed by, agriculturists (farmers) (21%). Similar findings were observed in studies conducted by Jha et al.[6] and Swarankar et al.[13] This could be due to the fact that labourers often travel by public transport or other modes without any protective gear due to limited financial resources. Thus, they are more prone to accidents.

In the present study, it was observed that the highest number of cases occurred during summer season (38%) followed by Rainy season (25%), Autumn season (20%) and least in Winter season (17%). Similar findings were revealed in a study conducted by Swarnkar et al.[13] This may be attributed to the fact that RTA cases increase in summer, due to increased outdoor activities and travelling. Contrary to the findings observed in the present study, Singh et al.[14] and Jha et al.[6] observed that majority of accidents took place in winter season. This can be attributed to the fact that in winter there is poor visibility due to the fog and smog that led to increased causation of road traffic accidents in winter season.

In the present study, it was observed that most of the road traffic accidents occurred during evening hours [06:00 PM to 11:59 PM] (48%), followed by morning hours [6 AM to 11.59 AM] (23%). Similar findings were observed in studies done by Neeluri et al.[15] and Chourasia et al.[16] in which maximum accidents occurred between 06:00 PM to 12 Midnight. This can be attributed to the fact that there is relatively lower visibility during this period as well as increase in traffic. These hours are the busiest as commuters go to and fro from the offices, factories and business place. This can be also be attributed to the fact that in the evening hours, people usually indulge in alcohol intake, that lead to a greater number of accidents during this time period of the day.

Summary and Conclusion

After analysing the observations and results of the present study on sociodemographic factors associated with road traffic accidents in autopsy cases of road traffic accidents in Haryana region, the following conclusions can be drawn:

The maximum number of victims were from the age group of 31-40 years (26%). The current study revealed that subjects residing in rural areas (64%) outnumbered the urban ones (36%). Further, the current study revealed that males (88%) outnumbered the females (12%) amongst RTA victims. The present study also revealed that the majority of the victims were labourers (23%). The current study revealed that the maximum number of accidents occurred in the evening hours (06:00 PM to 11:59 PM) and maximum number of accidents occurred in summer season (38%) followed by Rainy season (25%), autumn season (20%) and least in winter season (17%).

Thus, it can be concluded that there is an urgent need to address the epidemic carnage on the roads in the form of road traffic accident which is taking an epidemic proportion. Road traffic deaths are to a major extent preventable. Since the majority of road traffic accidents are preventable, adequate enforcement of road safety rules will help in reducing the occurrence of road traffic accidents.

Ethical Clearance: Ethical Clearance Obtained From Institutional Biomedical Research Ethics Committee, Uhs, Rohtak, Haryana.

Conflict Of Interest: None.

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