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Original Research Article

Sociodemographic profile of non-fatal road traffic accident cases admitted in tertiary care hospital in Central India

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ABSTRACT

Background: Road traffic injuries remain an important public health problem at world, regional and national levels. Data on magnitude of problems and risk factors involved are essential to developing a systemic approach to road safety. Only by systematic and data-led management of the leading road injury problems will significant reductions in exposure to crash risk and in the severity of crashes be achieved. Hence in the background of high epidemiologic proportions of road traffic accidents and the fact that very few exploratory studies were reported from central India, the present study was undertaken to study sociodemographic profile associated with road traffic accident. The main objective was to study socio-demographic profile of road traffic accident cases admitted in tertiary care hospital.
Methods: The present hospital based cross sectional study was carried out in tertiary care hospital of the city in central India. Road traffic accident cases admitted in tertiary care hospital in city during period of one year (20th May 2014-22nd May 2015) were included in the study with predefined inclusion and exclusion criteria. Socio-demographic characteristics of study subjects was recorded in the proforma.
Results: It was observed that majority of accident cases (29.67%) were in the age group of 21-30 years. Male: female ratio was found to be 5.38: 1. Majority of accident cases (86%) were from upper lower and lower class. Out of total accident cases majority were drivers (42.33%), followed by passengers (30%) and pedestrians (27.66%). 35.43% drivers were alcohol consumers. It was also observed that 16.33% were under the influence of alcohol at time of accident.
Conclusions: It was also observed that 16.33% were under the influence of alcohol at time of accident.

Keywords: Alcohol, Road traffic accident, Sociodemographic

INTRODUCTION

A WHO advisory group in 1956 defined accident as an "unpremeditated event resulting in recognizable damage." According to another definition, an accident is that "occurrence in sequence of events which usually produces unintended injury, death or property damage." Accident have their own natural history and follow same epidemiological pattern as any other disease – that is, the agent, the host, and the environment interacting together to produce injury or damage. Some people are more prone to accidents than others and susceptibility is increased by the effect of alcohol and other drugs as well as physiological state such as fatigue. Majority of accidents are preventable.[1]

Global status report on road safety 2013 by WHO shows that there has been no overall reduction in the number of

people killed on the world's roads. About 1.24 million deaths occur annually. However, this plateau should be considered in the context of a corresponding 15% global increase in the number of registered vehicles, suggesting that interventions to improve global road safety have mitigated the expected rise in the number of deaths. Road traffic injuries remain an important public health problem at world, regional and national levels. Data on magnitude of problems and risk factors involved are essential to developing a systemic approach to road safety. Only by systematic and data-led management of the leading road injury problems will significant reductions in exposure to crash risk and in the severity of crashes be achieved.[3]

Hence in the background of high epidemiologic proportions of road traffic accidents and the fact that very few exploratory studies were reported from central India, the present study was undertaken to study socio-demographic profile road traffic accident cases admitted in tertiary care hospital. Here the age, sex, socioeconomic status, category of road traffic accident cases etc. factors was seen.

METHODS

The present hospital based cross sectional study was carried out in tertiary care hospital of the city in central India. Duration of study was from September 2013 to November 2015. The period of data collection was one year i.e. from 20th May 2014 to 22th May 2015. Approval from institutional ethics committee was taken before initiation of study.

Study population

Road traffic accident cases admitted in tertiary care hospital in city during period of one year (20th may 2014 to 22nd may 2015) were included in the study. Road traffic accident cases who were conscious, co-operative and who had given written informed consent was included in study. Road traffic accident cases who were admitted in surgical intensive care unit (SICU) of hospital and who took discharge against medical advice (DAMA) was not included in the study. Also road traffic accident cases brought dead in casualty department and who were unable to participate in the study due to impaired health status was excluded from study.

Distribution of road traffic accident cases reported to casualty department of tertiary care hospital was recorded on each day to identify accident cases admitted in hospital on that day. During data collection of one year, distribution of road traffic accident cases reported in casualty was as follows.

There were total 481 road traffic accident cases admitted in hospital during period of one year. Distribution these 481 cases admitted in hospital was as follows. Out of these 481 road traffic accident cases 300 were interviewed and examined for the study.

Study methodology

A pre-tested proforma was used for collecting relevant information from study subjects by direct interview method. Socio-demographic characteristics of study subjects was recorded in the proforma. Every body part was examined and assessed for exact anatomical site and type of injury and this was correlated with medical case records for confirmation.

Table 1: Distribution of road traffic accident cases reported to casualty.

Distribution of road traffic accident cases reported at casualty	Number	Percentage
Managed on OPD basis	1877	70.86
Discharged against medical advice	196	7.40
Admitted in ward	481	18.16
Admitted in surgical intensive care unit	27	1.02
Brought dead	68	2.56
Total	2649	100

Table 2: Distribution of 481 road traffic accident cases admitted in hospital.

Distribution of admitted road traffic accident cases	Number	Percentage
Number of cases interviewed	300	62.37
Were not able to participate in study	131	27.13
Consent not given	50	10.50
Total	481	100

RESULTS

The present cross sectional study was carried out in a tertiary care hospital in central India. Three hundred road traffic accident cases were studied in detail with regard to their sociodemographic characteristics.

It is observed from Table 3 that out of 300 road traffic accident cases studied, there were 253 (84.33%) males and 47 (15.67%) females. A male: female ratio of 5.38:1 was observed with maximum accident cases i.e. 81 (31.02 %) males and 8 (17.02%) females in age group of 21-30 years. High sex ratio found is attributed to the fact that proportion of male as compared to female is more. In Indian setting males are bread earners for family and therefore involved usually in outdoor activities exposing themselves to accidents.

Table 4 shows that majority of accident cases were belong to upper lower class 130 (43.33%) followed by lower class (42.67%), lower middle class 28 (9.33%), upper middle class 11 (3.67%) and upper class 3 (1%).

Table 5 shows that maximum road traffic accident cases were drivers 127 (42.33%). This was followed by passengers 90(30%) and pedestrians 83 (27.66%).

Table 3: Distribution of study subjects according to sex and age.

Age group (years)	Male		Female		Total	
	No.	%	No.	%	No.	%
≤10	6	2.37	4	8.51	10	3.33
11-20	35	13.83	7	14.89	42	14
21-30	81	31.02	8	17.02	89	29.67
31-40	54	22.34	15	31.91	69	23
41-50	38	15.02	3	6.38	41	13.67
51-60	26	10.28	4	8.51	30	10
>60	13	5.14	6	12.78	19	6.33
Total	253	100	47	100	300	100

Table 6 shows that out of total 300 study subjects 85(28.33%) were consuming alcohol, 127 (42.33%) were smokeless tobacco consumers and 21(7%) were smokers. Out of total 127 drivers, 45 (35.43%) were consuming alcohol while 67 (52.76%) were smokeless tobacco users. Also there were 11 (8.66%) smokers among drivers.

Table 4: Distribution of study subjects according to socioeconomic status.

Socioeconomic Status	Number	Percentage
I Upper	3	1
II Upper middle	11	3.67
III Lower middle	28	9.33
IV Upper lower	130	43.33
V Lower	128	42.67
Total	300	100

Table 5: Distribution of study subjects according to category of road traffic accident cases

Sex	Category of study subjects							
	Drivers		Passengers		Pedestrians		Total	
	No.	%	No.	%	No.	%	No.	%
Male	121	95.72	70	77.78	62	74.70	253	84.33
Female	6	4.28	20	22.22	21	25.30	47	15.67
Total	127	100	90	100	83	100	300	100

Table 6: Distribution of study subjects according to personal habits.

Personal habits	Category of study subjects							
	Drivers (n=127)		Passengers (n=90)		Pedestrians (n=83)		Total	(N=300)
	No.	%	No.	%	No.	%	No.	%
Alcohol consumption	45	35.43	22	24.45	18	21.69	85	28.33
Smokeless tobacco consumption	67	52.76	38	42.22	22	26.51	127	42.33
Smoking	11	8.66	04	4.45	06	7.23	21	7.00

DISCUSSION

In the present study there were 84.33% males and 15.67% females. A male: female ratio of 5.38:1 was observed with maximum accident cases i.e. 31.02% males and 17.02% females in age group of 21-30 years. High sex ratio found may be attributed to the fact that proportion of male as compared to female is more. In Indian setting males are bread earners for family and therefore involved usually in outdoor activities exposing themselves to risk of accidents. These finding were similar to other studies. Ravikiran E et al found that there were 85.7% male and 14.3% female victims.[3] The highest number (25.5%) of victims were between 20-30 years. Jha N et al found that there were 83% male and 17% female victims.[4] The highest number of victims (31.3%) were between 20-29 years. Ganveer GB et al found that 85.8% were male while only 14.2% were female subjects.[5] Male: female ratio of 6:1 was observed. Majority of the victims were in the age group 18-37 years. Behera C et al found that commonest age group involved was 21-30 years (44.67%).[6] Patil SS et al found that there were 82.3% male and 17.7% female casualties with highest number (29.4%) of victims between 20 to 29 years of age.[7] Males were more commonly involved than females with the ratio of 4.6:1. WHO Global Report on Road Safety showed that road traffic injuries were the leading cause of death for young people aged 15–29.[8] Jha S et al observed that maximum number of fatalities occurred in 21-30 years age group with male to female ratio of 3.53:1.[9]

In the present study it was observed that majority of accident cases belonged to upper lower class (43.33%) followed by lower class (42.67%).More involvement of upper lower and lower socioeconomic class in the accidents may be attributed to the fact that, most of them were commuters and occupants of motor vehicles involved in accidents. These finding are similar to other studies. Nantulya VM et al observed that the highest burden of injuries and fatalities was borne disproportionately by poor people in developing countries.[10] WHO World Report on Road Traffic Injury Prevention showed that poorer people comprise the majority of casualties and face a greater likelihood of injury, since affordable transport poses higher risks in these places than private car use.[11] WHO Global Report on Road Safety showed steep socioeconomic gradient with those from more disadvantaged background at higher risk than their affluent counterpart.[8] Chauhan A observed that patients belonging to Socio-economic class 3 were 43.4 percent.[12] WHO Global status report on road safety showed that road traffic death rates in low- and middle-income countries were more than double those in high-income countries.[13]

As maximum number of involvement of motorized two wheeler riders was observed in present study, numbers of drivers involved in accidents were more than pedestrians and passengers. These finding are similar to some other studies. Thomas V found that among the 450 victims, 64.22% were drivers, 27.78% were occupants/passengers and 8.0% were pedestrians.[14] Urfi et al found that maximum 58.1% of patients were either driver or operator of vehicles, passengers formed the next largest road user category comprising 25.5%.[15] However some studies showed that passengers were involved in road traffic accidents with maximum numbers. Jha Net al found that 45% passengers, and 35% drivers and 22% pedestrians were the category of road users among the victims.[4] Mishra B et al found that out of the total 360 road traffic accident cases, 42.50% were passengers, 29.16% pedestrians, 19.17% drivers.[16] Some studies also found that pedestrians were more commonly involved in road traffic accidents. WHO World Report on Road Traffic Injury Prevention mentioned that review of 38 studies found that pedestrian fatalities were highest i.e. in 75% of the studies, accounted for between 41% and 75% of all fatalities.[11] Chalya PL et al found that pedestrians (55.4%) accounted for the majority of victims, followed by passengers (27.2%), drivers/riders (17.2%) and others (0.2%).[17]

In the present study it was found that 28.33% were consuming alcohol, 42.33% were smokeless tobacco consumers and 7% were smokers. Out of total 127 drivers, 35.43% were consuming alcohol while 52.76% were smokeless tobacco users. Also there were (8.66%) smokers among drivers. Aggarwal A found that 26% and 13% subjects had the history of alcohol and tobacco consumption respectively.[18]

CONCLUSION

It was observed that majority of accident cases (29.67%) were in the age group of 21-30 years, there after a decline in accidents with advancing age was observed. Male: female ratio was found to be 5.38: 1. Majority of accident cases (86%) were from upper lower and lower class, very few accident cases were from upper and middle socio economic class. Out of total accident cases majority were drivers (42.33%), followed by passengers (30%) and pedestrians (27.66%).

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