

Road Traffic Accident Mortality and its Trend: A five-year Retrospective Study in Dhaka Medical College

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Abstract

Background: Road traffic accidents (RTA) continue to be a growing menace, incurring heavy loss of valuable manpower and human resources, along with a corresponding drain of potential economic growth.

Objectives: The objectives of this study were to determine the frequency and trend of RTA mortality and to observe the identity of victims, the pattern of vehicles involved and the time of involvement in RTA.

Methods: This retrospective study was conducted from 1st January 2019 to 31st December 2023 in the Department of Forensic Medicine & Toxicology, Dhaka Medical College (DMC). Data was collected from challan, inquest reports and postmortem reports. Data was analyzed and organized in tables and charts.

Results: A total 6326 autopsies were conducted during the study time, out of which 1267 cases of road traffic accidents were observed and studied in detail. The study revealed a yearly increasing proportion (20.03% of total autopsies) of RTA cases in medicolegal autopsies performed at DMC. It was observed that the majority of the victims were pedestrians (46.9%), followed by occupants/pillion riders (27.62%) and were commonly involved in four-wheeler vehicle driving (47.5%). The occurrence of RTA was maximum within 6 am to 12 noon (33.85%) and the place of death of the RTA victims in the hospital was the highest (54.85%) in frequency.

Conclusion: Road traffic accidents kill a large number of people and it is as 'war on the roads'. Road users should be properly trained by authorized centers and driving licenses should be issued after strict testing of their driving skills.

Keywords: Road Traffic Accident, Medicolegal autopsy, Hospital death

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Introduction

Death due to traffic accidents is perhaps the most tragic and meaningless sacrifice of human life. Road traffic accident is defined as any vehicle accident occurring on a public road or highway, that takes place between two or more objects, one of which has to be any kind of moving vehicle¹. Hundreds of thousands of people die in road traffic

accidents annually all over the world. However, the loss is much greater in developing countries, largely due to inefficient traffic safety mechanism. The main causes of road accidents in Bangladesh are over speeding, overloading and overtaking in narrow road by motor vehicles. Unregulated movement of non-motorized vehicles along with motorized vehicles on the same route is also one of the

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major causes for road accidents. Lack of awareness and reckless driving habits also result in frequent accidents claiming lives and causing anguish and grief to the affected families². A statistic by the world life expectancy based on information from 183 countries puts Bangladesh on 106th position for having the most road accident-related mortality³. Every year the lives of approximately 1.19 million people are cut short as a result of a road traffic crash. The United Nations General Assembly has set an ambitious target of halving the global number of deaths and injuries from road traffic crashes by 2030 (Resolution A/RES/74/299). Road traffic crashes cost most countries' 3% of their gross domestic product (GDP). More than half of all road traffic mortalities are among vulnerable road users: pedestrians, cyclists, and motorcyclists. Ninety-three percent of the world's fatalities on the roads occur in low and middle-income countries, even though these countries have approximately 60% of the world's vehicles⁴. There is a need to identify the status of RTA in Bangladesh.

This study was conducted to determine the frequency and trend of RTA mortality and to observe the identity of victims, the pattern of vehicles involved and the time of involvement of RTA.

Methods

This retrospective cross-sectional study was conducted to study medico-legal autopsy records from 1st January 2019 to 31st December 2023. Data were collected from autopsy reports of all performed at Dhaka Medical College autopsy morgue during the period. Total 6326 records were analyzed and of those 1267 were RTA deaths. All deaths due to road traffic accidents, being police case were usually accompanied by a duly signed order from an investigating officer, requesting for an autopsy to be performed on the body. The records of all death resulting from road traffic accident were collected from challan, inquest reports and

postmortem reports and family members sometimes provided information of the deceased concerning the circumstances of death. All ethical considerations were taken into account before inclusion in the study. The data received were carefully recorded and later on analyzed by computer and organized in tables and charts.

Results

Out of total 6326 medico-legal autopsies during the period from 1st January 2019 to 31st December 2023, 1267 were RTA victims, constituting 20.03% of the total autopsies. Table I shows the year-wise distribution of RTA cases in medico-legal autopsies and shows the gradual increase in proportion from 19.04% to 21.40%, in each year from 2019 to 2023.

Table I
Year-wise distribution of RTA mortality according to autopsy reports of Dhaka Medical College (n=1267)

Year	Total autopsy	RTA Mortality Frequency (%)
2019	1192	227 (19.04)
2020	1256	243 (19.35)
2021	1278	256 (20.03)
2022	1296	262 (20.22)
2023	1304	279 (21.40)
Total	6326	1267 (20.03)

It was observed that the majority of the victims of RTA (Fig 1) were pedestrians (46.96%), followed by occupants/pillion riders (27.62%), drivers/riders (14.21%) and Bicyclists (10.97%). Four-wheeler vehicles (car, jeep, van, minibus etc.) were involved in nearly half of the total victims (47.59%), followed by more than Four-wheeler vehicles (35.99%), Two-wheeler vehicles (8.44%) and Three-wheeler vehicles (6.47%) as shown in Figure 2. RTAs were maximum during 6 am to 12 noon (33.85%) followed by 6 PM to 12 midnight (28.80%) and 12 Noon to 6 PM (28.01%) and are shown in table II. Out of total RTA deaths 28.73% death occurred at the spot (Fig 3).

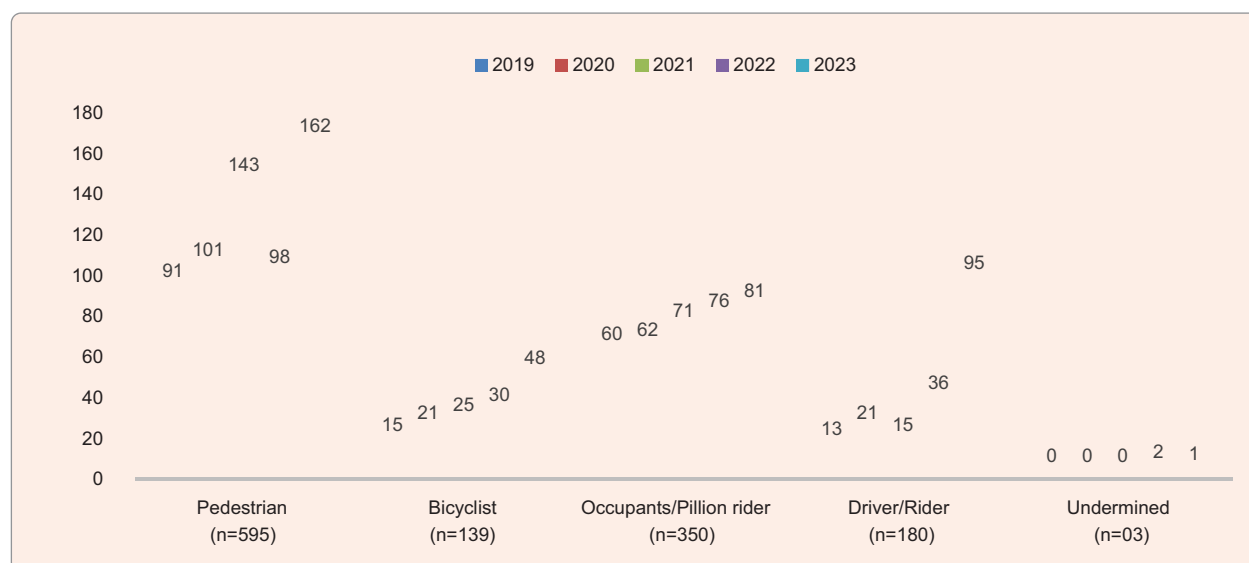


Figure 1: Distribution of RTA victims as per the identity of victims (n=1267)

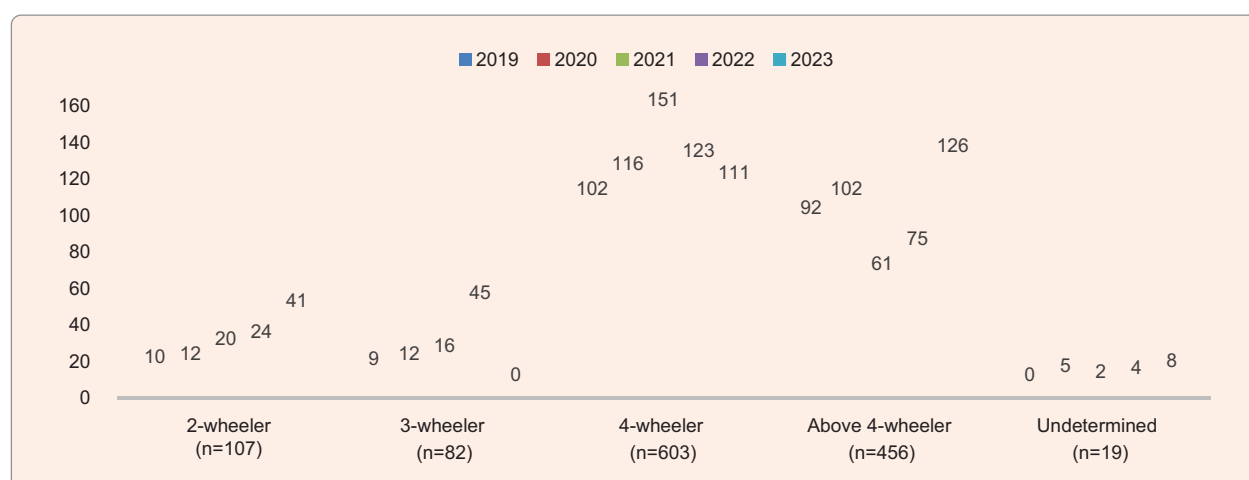


Figure-2: Distribution of vehicle involved in RTA (n=1267)

Table II
Distribution of time of occurrence of RTA (n=1267)

Time of occurrence	2019 f	2020 f	2021 f	2022 f	2023 f	Total Frequency (%)
Midnight (12 am to 06 am)	29	18	23	25	23	118 (09.31)
Morning (06 am to 12 pm)	78	85	89	85	92	429 (33.86)
Afternoon (12 pm to 06 pm)	59	66	79	77	74	355 (28.02)
Night (06 pm to 12 am)	61	74	65	75	90	365 (28.81)
Total	227	243	256	262	279	1267

Fig:3-Shows the place of death of the RTA victims, it is found that deaths in hospital are highest (54.85%) which is more than the half of the total victims.

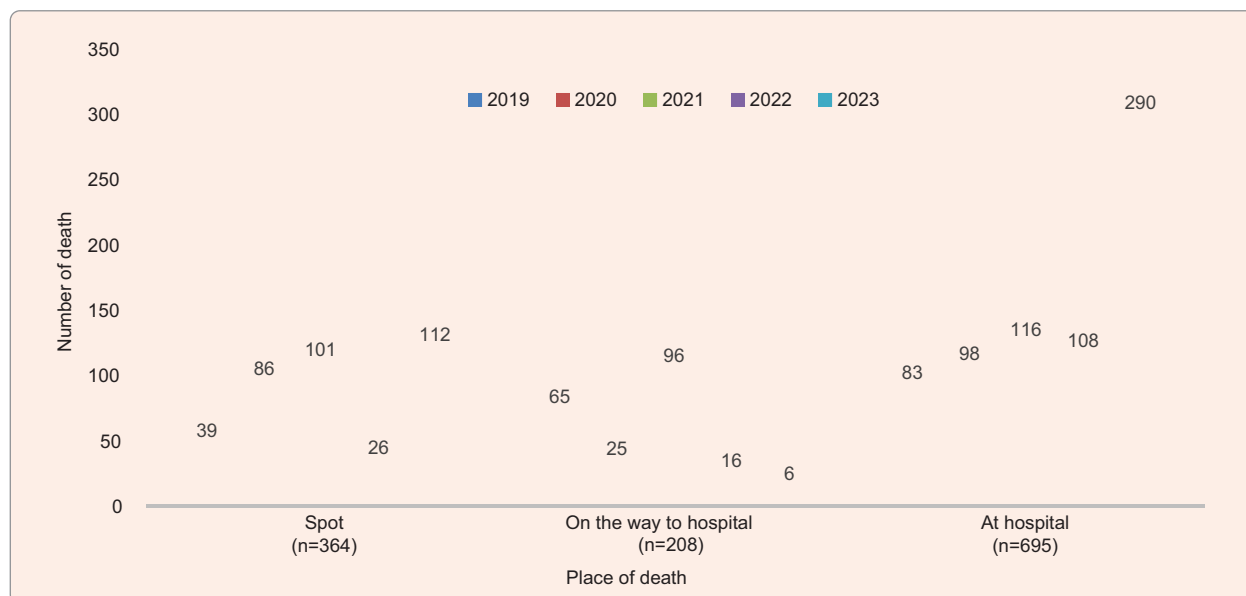


Figure 3: Distribution of subjects as per place of death (n=1267)

Discussion

Road traffic accidents occupy the leading position among the accidents that cause disability and death. About 1.35 million people globally die every year in road accidents and more than one-fourth of these fatalities are estimated to happen in South Asia⁵. This study shows a growing proportion (from 19.04% to 21.40% per year) of total autopsy of RTA cases in medico legal autopsies performed yearly and overall 20.03% for 5 years. Similar findings were observed in a study conducted at Guwahati of Assam (India) where proportion increased from 21.04% (in the year 1999) to 25.24% (in the year 2023) and overall proportion was 23.84%⁶. Regarding the type of road user, it was observed that majority of the victims were pedestrian (46.96%) followed by occupants/pillion riders (27.62%). This reflects the ignorance of traffic rules by the pedestrians and weak control over the speed of the vehicle. These consistent with the studies by Hossain M.A. et al, Sharma BR et al, Gupta S, Roychowdhury UB et al^{7,8,9}. Considering the types of vehicle involved in RTA, Four-wheeler is more (47.59%) than the other vehicles. It

reveals that more use of Four-wheeler vehicle by untrained persons, which was comparable with other studies¹⁰. Analyzing the time of RTA, it is found that, incidents were highest within 6 am -12 noon (33.85%), that is probably due to heavy and unequal distribution of traffic at these working hours of time. Which is in line with the study by Kahn et al¹¹. Considering the place of death of the RTA victims of the studied population, it is found that deaths in hospital was highest (54.85%) which is more than the half of the total victims. These are similar to study conducted by Chaturvedi et al¹². However, the authors of this paper strongly feel that effective measures relating to the human factor which need to be addressed in order to contribute to further improvement in the situation.

Recommendation

Measure that can be taken to improve situations are- Modernizing the licensing process to enhance skillfulness of the drivers. Medical aspects of fitness to drive should be properly formulated and strictly followed. The medical examination to ensure fitness to drive

is currently deficient and does not conform to international standards. Awareness campaigns for drivers of vehicle, occupants' & pedestrians. Strict implementation of traffic rules need to be implemented. If all the concerned persons work cordially and all the measures are followed strictly it is possible to decrease the incidence of death and fatalities to decrease the incidence of death and fatalities in RTA to a minimum level.

Conclusion

Amongst all traffic accidents, road traffic accidents claim the largest toll of human lives and tend to be the most serious problem worldwide. Nevertheless, implementation of road traffic accident prevention programs has been slow or nonexistent in many countries around the world.

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