Epidemiological Study Regarding RTA in a Certain Densely Populated Area of Bangladesh in Gazipur District

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Abstract:

Background: *Road traffic accident is one of the leading cause of death in Bangladesh. Bangladesh is a densely populated country. In Bangladesh Gazipur district is industrial area and with its dense population and expending urbanization contribute to increase vehicular movement pedestrian. Globally RTA causes 1.35 million deaths annually. The post effect of Road traffic accident not only effect the victims physical,psychological and financial hardship but also has some fatal impact on the functioning of the whole family.*

Objective: *The objective of these study was to evaluate the present situation of RTA in Gazipur city to find out the sociodemographics characteristics of the victims and awareness about traffic rules among people in Bangladesh.*

Method: *This retrospective study was conducted in the department of Forensic Medicine and Toxicology of Shaheed Tajuddin Ahmad Medical college,Gazipur during1st January 2021 to31st December 2021. The information regarding Age,sex,residence,occupation and educational status,type of roads and which vehicle involve all information was recorded from police inquest report,and postmortem reports from the the department of Forensic Medicine and Toxicology in Shaheed Tajuddin Ahmad Medical college..*

Result: *Total 685 autopsied were conducted during study time out of which 197 cases were RTA. The frequency of RTA was more in urban areas 97(49.23%) than rural area 35(17.76%). The gender distribution revealed a higher prevalence for male 131(66.49%) than females 66(33.50%) victims of RTA with a peak age of incidence seen in 21-30 years 96(48.73%). The majority of the victims were employed and business 85(43.14%). And fatal accident happened more on national High way 87(44.16%) and Bus and Truck were commonly involve in fatal accidents 119(60.40%).The greater number of the accidents occurred during July 38(19.28%) and May 33(16.75%).*

Conclusion: *Gazipur District is one of the most densely populated area. RTA is one of the major causes of death.By increasing public awareness through various types of education and awareness about the Traffic rules related programme especially in rural areas,and by strictly prohibiting the license giving to unskilled drivers or unfit vehicles, RTA can be minimized.*

Key word: *Road traffic accident (RTA),Gazipur,major public health concern,Traffic rules,awareness.*

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Introduction:

Road traffic accidents are one of the leading cause of death worldwide every day about 3400 people die due to road traffic accidents.and predicted to result in the death around 1.9 million people annually by 2020 [1].And is expected that it will be the 2nd most common cause of disability adjusted life years by 202o [2].Bangladesh is a south Asian developing country. It has a land size of 147570 km[2]and is one of the most densely populated countries in the world with a population density more than 1,119 people per km[2]in 2022. Among the 64 districts,Gazipur district is located in central Bangladesh.In Gazipur district total population is 34,03,912,area is 1806.36sq.km and the population density 1884/sqkm,so it is one of the most densely populated areas of Bangladesh.The district known for its industrial and commercial activities,experiences a high volume of vechilar movement,contributing to the complexity of its road traffic senario[3.]An accident can be defined as an unexpected unplanned or unintended occurrence while causes injury infirmity,disease or death[4].Three wheeler users, motorcycle users Truck-Bus users,pedestrians and pedal cyclists are vulnerable road users who are directly exposed to em acting vehicle or hard objects during collision and likely to get injured severely .Even though three three wheeler related RTA deaths are very familiar or Gazipur district road,they are seemed to have been overlooked.Hence this study is aimed at interpreting epidemiological factors,frequency and distribution leading to fatality in three wheeler accidental deaths.The global status report or road safety 2018,launched by WHO,Road traffic injuries are now the leading killer of people aged 5-29 years.The burden is disproportionately borne by pedestrians cyclists and motor cyclists,in particular those living in developing countries this problem draws a significant attention in densely populated area of Bangladesh such as Gazipur where road accidents are extremely high and still increasing[5].

Material and Method:

This retrospective study was conducted in the department of Forensic Medicine and Toxicology of Shaheed Tajuddin Ahmad Medical college,Gazipur during 1st January 2021 to 31st December 2021.During the one year period of study a total 685 medicolegal autopsies were conducted.Out of which 197 cases were of fatal Road traffic accidents,Which were analyzed according to area,sex,age,occupation,types of road and types of vehicles are involve.All information was recorded from police inquest report,chalan and postmortem report from the department of Forensic Medicine and Toxicology in Saheed Tajuddin Ahmad Medical college were then complied and tabulate manually according to key variable in master sheet.Then finally data were analyzed in computer using MS word and MS Xcel.

Result:

Table-I

Domicile distribution of cases among the RTA victims (n=197).

Domicile	Cases	Percentage
Rural	35	17.76%
Semi urban	61	30.96%
Urban	97	49.23%
Unknown	04	2.03%

Table -1: Shows the place of occurrence. It shows that frequency of RTA was more in Urban areas 97(49.23%) in the semi urban area 61(30.96%) then rural areas 35(17.76%).
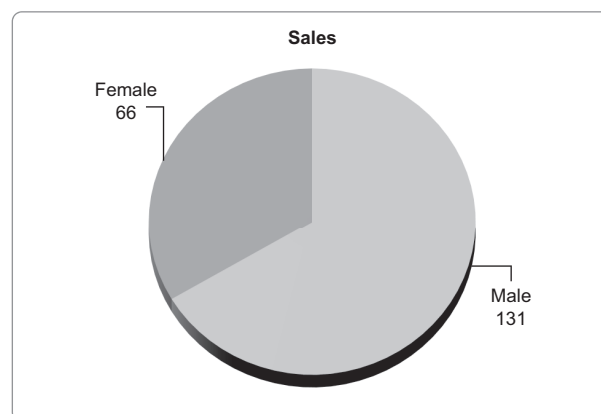
Figure 1: *Sex wise distribution of RTA (n=197)*

Table-II

Distribution by age group among the RTA victims (n=197).

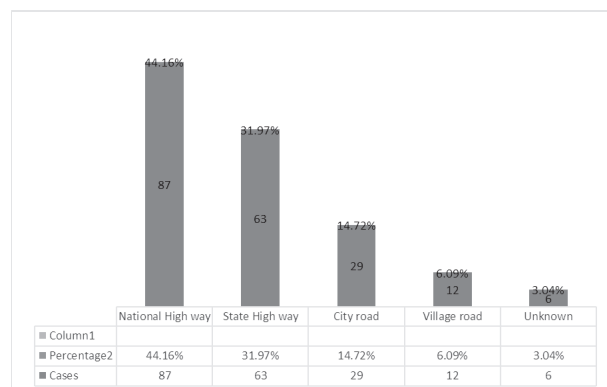| Age group	Cases	Percentage
0-10	03	1.52%
11-20	16	8.12%
21-30	96	48.73%
31-40	45	22.84%
41-50	21	10.65%
51-60	12	6.09%
>60	04	2.03%

Table-II: Shows that frequency of RTA more contain 21-30 years age group 96(48.73%).

Table-III

Distribution by occupation among the RTA victims(n=197).

Occupational status	Cases	Percentage
Unemployed	28	14.21%
Employed and business	85	43.14%
Students	27	13.70%
House wife	18	9.13%
Labour	36	18.27%
Unknown	03	1.52%

Table-III: Shows that the frequency of RTA was more in employed and business man victim 85(43.14%).

Figure 2: *Area of occurrence of RTA (n=197)*

Table-IV

Mode of transport in RTA (n=197)

Type of vehicle	Cases	Percentage
Bus and Truck	119	60.40%
Auto Rickshaw	39	19.79%
Scotter	06	3.04%
By cycle	28	14.21%
Pedal cycle	05	2.53%

Table-IV: Shows that the bus and truck accident were most common 119 (60.40%).

Table-V

Month wise reported cases RTA in 2021 (n=197)

Month	Frequency	Percentage
January	13	6.59%
February	16	8.12%
March	09	4.56%
April	13	6.59%
May	33	16.75%
June	21	10.65%
July	38	19.28%
August	20	10.15%
September	10	5.07%
October	07	3.55%
November	O5	2.53%
December	12	6.09%

Table-V: Shows that 38(19.28%) of RTA cases were reported in the month of July, 33(16.75%) cases in May.

Discussion:

Road traffic accident represent a major epidemic of non communicable disease in the present century WHO defines accident as "an unpremeditated event resulting in recognizable damage" or in other words "Occurrence in sequence of events which usually produces unintended injury, death or properties 'damage' .In Bangladesh, traffic accidents are major cause of Hospital admissions of primary and secondary facilities[6].

(Table-1) In this study the frequency of RTA was more in urban area 97(49.23%) than semi urban and rural areas.As in Bangladesh a developing country where poverty and unemployment pushes people towards urban cities.This rapid and unplanned urbanization

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associated with unplanned road high incompetent traffic system ,violation of traffic rules by drivers and pedestrians,overcrowding of people and vehicles,unlicensed rickshaw reckless driving etc are responsible for highest rate of RTA.On the other hand most of the peoples of rural area are illiterate and have knowledge and awareness of traffic rules.This is because in rural area,there is no such programme related to increasing knowledge and awareness in traffic rules well as RTA is held.However most of the victims in this study were from the rural area and literate people that is consistent with the hypothesis of Mishra et.al[7].(Fig-1) in this study among the victims most of them were male 131(66.49%) and female were 66(33.50%).The males are the common victim this is because they are more expose to outdoor activities and travel to the workplace to earn bread the house work.Males spends lots of this time in travelling and various outdoor activities.So they are prone to accidents and having unfavourable genderation[8].Baset et.al[9] conducted a study which was described the current magnitude and risk factors of road traffic injury for different age groups in rural Bangladesh.They found that the road accidents injury(RAI) mortality and morbidity rates significantly higher among males compared to females.(Table -3) in this study victims age was 10 to above 60 years.Majority of the victims 96(48.73%) were between age group 21 to 30 years and 45(22.84%) victims were 31 to 40 years of age.The study result regarding greater involveness in RTA of people aged 30 years and the male is most vulnerable to RTA .RTA is showing consistency with the findings of sango et.al [10].The young rider are at peak of their creativity and usually take unwanted risk causing more fatalities of young riders as compared to other type of victims of RTA.Similarly old aged pedestrians usually lack judgement and vision leading to more accidents while crossing or walking on the road[11,12].(Table-iii)Our study shows that frequency of four wheeler and three wheeler accidents are more in employed and businessman victims 85(43.14%).Employed and businessman have spends lots of their times

in travelling and various outdoor activities, so they are prone to accidents.Distribution of RTA is generally influenced by socioeconomic factors.RTA are twice as high in low and middle income countries compared to high income countries,with almost 90% of all RTA death [13].(Fig-2)In this study the incidence of RTA occures in National Highway 87(44.16%) followed by state Highway 63(31.97%).Ferdus et.a.l[14] .Showed that Natore Rajshahi Nawbgaz Highway[Nb] is the most hazardous road in Rajshahi city head on collision is the leading reason for accident in this road.the rate of death is also very high on city roads.The rate of death is also very high on city roads[14].(Table -iv) the commonest type of offending vehicle are 4 wheeler (Bus,Truck) and second offending vehicles are three wheeler vehicles (Auto rickshaw) 39(19.79%) .Heavy motor vehicle like truck and bus are the commonest vehicle because of the greater impact of truck and buses due to their weight and speed loading to fatal outcomes of the victim of accidents and three wheeler auto rickshaw were the 2nd common offending vehicle due to its high speedity and auto rickshaw drivers were mostly illiterate ,they did not know how to safely drive vehicle in road and they were not well known about traffic rules.Speeding remain a leading cause of RTA caused by tiredness ,if driver feels drowsy when driving they should stop and take a break and the vehicle should parking a safe place and then take a cup tea or coffee.Caffinated drink can help of alertness and mind that driving under influenceof either drugs are alcohol is illegal and should be avoided all times.During driving under intoxicated is a crime,because alcohol intoxication impairs driving ability of a person and level of impairments is directly related to blood alcohol concentration[15].And weather condition can present a range of challenges for road users.for example,in winter road safety is particularly important a driving condition tend to be worse with factors such as poor visibility and a slippery road surfaces presenting an increased risk.while diving a vehicle use of mobile is associated with a high chance of accidents and hence traffic laws.Prohibit the use of these gadget by the rider while

driving.Many countries have imposed restriction on the High speeding legal age for driving license,graduate driver incensing increase in fine and withdrawal of drivers license and sped control intervention's have led to significant reduction in traffic accident[16].(Table -v) In this study the number of road traffic deaths were highest in July 38(19.28%) followed by May 33(16.75%) .These high death rates occurred during the two Eid holidays.In Bangladesh 70% of traffic accidents occur pedestrians and 50% of these fatalities involve.

Conclusion:

The road traffic accidents Scenario in Gazipur District reflects a combination of urbanization and industrialization and infrastructure challenges.so there are various sources of knowledge about traffic rules were identified in Bangladesh.Among them TV,Internet ,mobile etc.are the effective source to increase knowledge and awareness about traffic rule.hopefully by broadcasting different knowledge and awareness related programme regarding traffic rules in TV and spreading through internate especially with the help of social media.

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