

A Comprehensive Study on Road Accident in Dhaka -Tangail (N4) Highway based on FIR data from Highway Police

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In partial fulfillment of the requirements for the award of the Degree of

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CERTIFICATION

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ABSTRACT

This research focus to analyze the causes of vehicle accidents on the Dhaka-Tangail route and prevent the accident. This paper describes year-wise accident data and month-wise accident data analysis, and the results are given. Also find out what the causes of major accidents are.

In this paper, we discuss yearly accident data, most accidents severities, weather-wise accidents, and finding the way to prevent accident. The data were collected from ARI (BUET) and police headquarter for the last 20 years, the maximum accidents occurred in 2012, 2019, and 2020. In 2019, maximum accidents occur where the number is 75. The year wise accident severities data were collected from 2010 to 2020. In 2014, maximum fatal accidents occur, moderate fatal accident occurs in 2015 and minimum fatal accident occurs in 2020. In the case of weather-wise accident there were six conditions. Where in dry condition both maximum and fatal accident occurs and minimum accident occurs from foggy and, others condition. Finally, the survey occurs by finding from questionaries' survey with drivers. In questionaries' education level of drivers, possession of legal licenses, and driving time were inquired.

We discussed how may the road accident be minimized. Some key points are proposed here to minimize the highway road accident. Key points are engineering measures, enforcement measures, public awareness and education campaign of regulation and enforcement practices.

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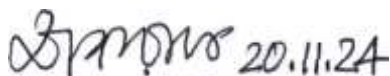
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Dedicated to

My Parents and Our Honorable Teacher
Professor Dr. Mohammad Hannan Mahmud Khan

TABLE OF CONTENTS

Cover Page	i
Abstract	ii
Acknowledgment	iii
Dedication	v

CHAPTER ONE: INTRODUCTION

1.1 Background	1
1.2 Objectives	2
1.3 Scope	3

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction	4
2.2 Traffic pattern of Dhaka-Tangail National Highway (N4)	5
2.3 Related Studies (Accident Type).....	6
2.3.1 Multiple Vehicle Collision	6
2.3.2 Rear-End Collision	6
2.3.3 Head on Collision	6
2.3.4 Distracted Driving	6
2.3. Different Causes of These Road Accident	7
2.5 Summary	8

CHAPTER THREE: METHODOLOGY

3.1 Methodology	9
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3.2	Study Area	9
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CHAPTER FOUR: DATA ANALYSIS AND RESULTS

4.1	Data Analysis	10
4.2	Impact of Accident	10
4.3	Road Accident Data Analysis	11
4.4	Year Wise Accident Severities	13
4.5	Accident Severities by Month	18
4.6	Accident severities by weather	20
4.7	Finding from Questioner survey with Driver	22
4.8	Finding from the Photogrammetric Survey	25
4.9	Measures for the reduction of accident rates	28
4.10	Public Awareness and Education Campaigns	29
4.11	Road Safety a Public Health issue	30
4.12	Minimize the Risk of Road Accident	31
4.13	Result	33

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

5.1	Conclusion	34
5.2	Limitation	35
	References	36
	Appendix	37

LIST OF FIGURES

Fig. 4.3.1: Road Accident data Analysis	11
Fig. 4.3.2: Year Accident by (%)	12
Fig. 4.3.3: Most 3 years Accident	13
Fig. 4.3.4: Year-wise Accident Severities	14
Fig. 4.3.5: Accident Severities (2014).....	15
Fig. 4.3.6: Count of Accident (Fatal)	16
Fig. 4.3.7: Count of Accident (Grievous).....	16
Fig. 4.3.8: Count of Accident Collision	17
Fig. 4.3.9: Month-wise Accident Severity	18
Fig. 4.3.10: Severity of Accident (February).....	19
Fig. 4.3.11: Severity of Accident (September)	19
Fig. 4.6.1: Weather-wise Severity Accident (2018)	20
Fig. 4.6.2: Weather-wise Severity Accident (Dry).....	21
Fig. 4.6.3: Weather-wise Severity Accident (Wet)	21
Fig. 4.7.1: Education Level of Drivers	22
Fig. 4.7.2: Legal Licenses (Driver)	23
Fig. 4.7.3: Driving Time	23
Fig. 4.7.4: Causes of Highway Road Accident	24
Fig. 4.8.1: Poor Road Surface	25
Fig. 4.8.2: Drainage Concrete over the Road	25
Fig. 4.8.3: Extra Median over The Road	26
Fig. 7.8.4: Manhole Cover Over the Top Surface of Road	26
Fig. 7.8.5: Car on Sidewalk	27
Fig. 7.8.6: Auto Rickshaw in Highway	27

CHAPTER ONE

INTRODUCTION

1.1Background

One of Bangladesh's busiest and most significant highways, the Dhaka-Tangail highway links the nation's capital city with its northern areas. Nevertheless, in spite of its importance, the highway is notorious for having a high number of traffic accidents. Because of the deaths, injuries, and property damage these accidents produce, they are becoming a major source of concern for the public and for the government. Dhaka Tangail highway still a dead trap. 229 deaths in 133 road accidents in a year. According to a study released by RSF (Reporters Without Borders), 186 individuals sustained injuries on the Dhaka-Tangail route in total last year. 78 more persons lost their lives in 47 motorcycle accidents. 48 bystanders or pedestrians and 54 additional auto rickshaw passengers perished in those incidents.

The high number of road accidents on the Dhaka-Tangail highway is primarily due to the frequent traffic congestion on this route. The route is heavily trafficked by trucks, buses, cars, and other vehicles, resulting in overcrowding and often dangerous driving. Furthermore, the highway is small in some areas, making safe overtaking difficult. This mix of heavy traffic and small roads produces a dangerous environment for drivers, increasing the chance of accidents. Another factor contributing to the high number of traffic accidents on the Dhaka-Tangail route is a lack of sufficient infrastructure and road safety measures. Many stretches of the route are poorly lit, with few signs or barriers warning vehicles of potential hazards. Furthermore, there is a dearth of enforcement of traffic laws and regulations, allowing drivers to flout speed limits and other safety requirements without consequences. These inadequacies in infrastructure and enforcement make accidents more likely to occur and harder for authorities to prevent.

Furthermore, accident records are required for screening and assessing the effectiveness of The government and traffic specialists have proposed road safety mediations. An effective data analysis system can utilize accessible accident data. Improved data organization allows for more in-depth analysis, leading to evidence-based road safety studies and better actions and monitoring. The framework will use the road accident database to better understand the causes of accidents and identify viable solutions to improve road safety.

This technique prioritizes discovering new hypotheses over validating old ones. This toolkit offers tools, approaches, and software to overcome road accident hurdles, both factual and data-driven. It has revealed previously unknown and unexpected realities, particularly in road safety

To prevent future accidents on the Dhaka-Tangail highway and other unsafe routes in Bangladesh, authorities must take steps to improve road safety. This includes policing speed limits, cracking down on drunk driving, and imposing harsher punishments for traffic offenses. There is also a need for stronger infrastructure, such as road signs, barriers, and pedestrian crossings, to help prevent accidents and protect road users. The government must take steps to improve roadway infrastructure and safety, as well as increase traffic enforcement. Additionally, drivers must be made aware of the dangers of irresponsible driving and the significance of adhering to safety norms. Implementing these steps can reduce vehicle accidents on the Dhaka-Tangail route, saving lives and avoiding unnecessary injuries and damage.

The government must improve roadway infrastructure and safety while increasing traffic enforcement. Furthermore, drivers must be made aware of the consequences of irresponsible driving and the importance of following safety rules. Implementing these measures can reduce automobile accidents on the Dhaka-Tangail highway, saving lives and preventing unnecessary injuries and damage.

1.2 Objectives

The objectives are below:

- a) To study the accident inflation in every year based on year -wise accident data.
- b) To determine the effect of monthly variation according to month -wise accident data.
- c) To determine the effect of weather variation according weather -wise accident
- d) To determine the major causes of accident on road

1.3 Scope

This study aims to use data analysis to determine the various indicators and accident severity. The study demonstrates how dangerous the accidents are. This article discusses many accident indicators and which ones lead to more serious accidents. This approach does not address in-depth analysis of data analysis findings, which is necessary for formulating countermeasures.

The major purpose is to determine how various indicators (such as road conditions, driver conduct, environmental factors, etc. link to accident severity. And also find causes of accident and also discuss all of this to prevent similar incidents in the future to fulfill any requirement. And discuss also minimize the road accident and improve safety of road users in this highway. By studying these associations, research hers can uncover patterns and obtain insights into what factors contribute to more significant incidents. Remember, road safety is a shared responsibilities.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The Dhaka-Tangail highway is one of Bangladesh's busiest and most important highways, linking the capital city of Dhaka. However, this roadway has become well-known for the large number of road accidents that occur on a regular basis, resulting in the loss of life and property. The purpose of this literature study is to investigate the numerous causes that contribute to vehicle accidents on the Dhaka-Tangail highway, the societal impact of these incidents, and proposed strategies to reduce them. Several variables have been recognized as contributing to the high incidence of traffic accidents along the Dhaka-Tangail highway. These include reckless driving, vehicle overloading, bad road conditions, a failure to enforce traffic regulations, and inadequate road safety measures. Studies have revealed that drivers frequently violate speed restrictions, resulting in crashes and car overturning. Furthermore, overloading vehicles with passengers and goods increases the likelihood of an accident on this highway.

Road accidents on the Dhaka-Tangail highway have far-reaching effects for society. These accidents not only kill and injure people, but they also have economic consequences such as car damage and lost production due to traffic congestion. Furthermore, the emotional toll on victims' relatives, as well as the psychological trauma suffered by survivors, should not be overlooked. These accidents also put a strain on the hospital system and its resources, which adds to the overall impact.

Several studies have been undertaken to identify prospective road safety measures that can be implemented along the Dhaka-Tangail highway to reduce the frequency of accidents. These include the installation of speed cameras, the enforcement of seat belt rules, driver training programs, and public awareness campaigns about road safety. Additionally, road engineering measures such as road widening, guardrail installation, and adequate road markings have been proposed as strategies to increase highway safety. There are a number of obstacles to putting various studies' recommendations for road safety measures into practice on the Dhaka-Tangail expressway. These include a lack of finance from the government, corruption in the transportation industry, and opposition from other parties like transport firms and drivers. Furthermore, the efficient execution of road safety measures is hampered by the absence of a coordinated approach among pertinent authorities and agencies.

A multifaceted approach is needed to address the problem of vehicle accidents on the Dhaka-Tangail route. This entails a mix of funding for road infrastructure, public education campaigns about road safety, and tougher enforcement of traffic laws. In order to adopt long-term remedies, the government must be proactive in addressing the underlying causes of traffic accidents and collaborating with pertinent parties. Moreover, the engagement of non-governmental organizations and civil society groups can aid in increasing consciousness and promoting enhanced traffic safety protocols.

2.2 Traffic pattern of Dhaka – Tangail National Highway (N4)

One of Bangladesh's busiest and most significant highways is the Dhaka-Tangail National Highway(N4). During peak hours, this highway's traffic pattern is marked by severe congestion, particularly in the cities of Dhaka and Tangail. Because the highway connects to large cities like Dhaka, Tangail, and beyond, it sees a lot of traffic. For commuters on this route, this causes delays and traffic bottlenecks. The absence of adequate infrastructure and road maintenance is one of the key causes of the traffic jams on the Dhaka-Tangail National Highway. Because the highway is frequently narrow and in poor condition, traffic moves more slowly and there are jams.

The gridlock on this major roadway is further made worse by improper traffic control and enforcement of the regulations. Bangladesh's population is growing, and as more people possess cars, the traffic pattern on the N4 is expected to get worse unless major changes are made to the road system and traffic control techniques.

In order to mitigate traffic congestion on the Dhaka-Tangail National Highway, the government must allocate resources towards enhancing the infrastructure and putting in place efficient traffic control systems. On this vital route, widening the highway, building bypass roads, and installing traffic signal systems can all help reduce congestion and enhance the flow of traffic. Moreover, encouraging carpooling and expanding public transit choices can aid in lowering the number of cars on the road, which will relieve traffic congestion on the N4.

The intricate and demanding traffic pattern on the Dhaka-Tangail National Highway necessitates a multifaceted strategy to handle the problems of delays and congestion. Through the implementation of efficient traffic management strategies, the promotion of sustainable transportation options, and investment in infrastructure improvements, the government can mitigate traffic congestion on this crucial highway and enhance the general commuter experience for Bangladeshi citizens and visitors.

Causes of Road Accident

There are four element of road accident:

- (i) The road users
- (ii) The vehicle
- (iii) The road and its condition, and
- (iv) Environmental factors-traffic, weather etc.

Pedestrians, passengers, or the driver of one or more of the involved vehicles may all be held accountable for the accident as road users. It's possible that the cars in the collision had flaws as well. An accident may occur as a result of the road's surface condition, other geometric elements that are still there, or any of the environmental factors. In conclusion, several factors rarely contribute to an accident; however, a combination of factors may be involved. Because of this, it is frequently impossible to identify a single, specific cause of an accident.

2.3 Related studies (Accident Type)

The introduction and details of traffic accidents on the Dhaka-Tangail Highway. This roadway, which connects the capital city of Dhaka with Tangail district, has seen countless accidents throughout the years, here are some important instances and general facts regarding traffic accidents.

2.3.1 Multiple Vehicle Collision

This involves three or more automobiles in a series of events stemming from a single occurrence. These pileups can range from minor to major, causing a lot of chaos, several injuries, and death. Whether you wind up in the mix is likely to be determined by your situational awareness and the distance you maintain from other drivers.

2.3.2 Rear-End Collision

A traffic collision where a car collides with the vehicle in front of it. These are typically caused by motorist inattention or distraction, tailgating, panic stops, and lower traction as a result of weather-related road conditions. According to the National Highway Traffic Safety Administration (NHTSA), rear-end collisions account for 19.6% of all car accidents in the Bangladesh.

2.3.3 Head on Collision

A head-on collision occurs when two vehicles collide in opposite directions at their front ends. Head-on collisions are common causes of deadly road traffic accidents. Being alert of traffic signs, roadway conditions, and keeping in your lane are crucial for avoiding these types of incidents.

2.3.4 Distracted Driving

This is one of the primary causes of traffic accidents. Texting, eating, or using a GPS might take your attention away from the road. This is developed by accident data report and survey report.

Although driving may appear to be a little activity, even a brief loss of focus can result in significant damage. Nowadays, technology is the primary distraction, such as changing the music station. Drivers are frequently checking their mobile phones, GPS, and other navigation systems for directions. Passengers in the car who are eating, drinking coffee, or any other beverage might also cause the driver to get distracted.

2.4 Different Causes of These Road Accidents

While each type of traffic collision has unique contributing aspects, there are numerous common underlying causes:

Speeding

Exceeding the speed limit can impair a driver's ability to properly steer around curves or objects on the road, increase the distance required to stop a vehicle, and increase the distance traveled. In contrast, the motorist responds to a risky scenario.

Drunk Driving

The use of alcohol or other intoxicants impairs brain function, impairing thinking, reasoning, and muscular coordination, all of which are required for safe driving.

Reckless driving

Reckless driving, such as changing lanes without signaling, tailgating, and other aggressive driving tactics, can lead to accidents.

Weather condition

Weather conditions, such as rain, fog, sleet, or ice, can also make roads slippery and vision unclear, leading to accidents. Running red lights or stop signs can also cause severe accidents, as they can hit a vehicle with the right of way.

Roadside Markets

These markets exacerbate the problems with traffic flow. Absence of Access Control: The whole advantages of road widening are impeded by the lack of grade separation at crossings.

Footpath and Bicycle Stand Occupation

The factory authorities along the highway have come under fire from the locals for allegedly occupying footpaths and fencing off the designated bicycle stand. This impediment hinders pedestrian traffic and may be a factor in accidents.

Animal Crossings

Wild animals, especially in rural regions, can abruptly cross the road, causing accidents.

Driver Fatigue

Drowsiness can limit reaction time, reduce awareness, impair judgment, and increase the likelihood of a crash.

Improper Loading

Commercial or personal-use pickup trucks that are overloaded or do not have their loads securely secured can cause accidents.

These issues highlight the necessity of safe driving behaviors, attention to traffic laws, vehicle maintenance, and knowledge of current driving conditions.

2.5 Summary

In many regions of the world, highway traffic accidents are frequent and result in a large number of fatalities and injuries annually. Numerous factors, including careless driving, speeding, distracted driving, and bad road conditions, can result in these collisions. In this instance, I'll give an overview of the reasons behind highway traffic accidents, their effects, and possible ways to avoid them. Reckless driving is one of the primary causes of highway traffic accidents. Many drivers disregard traffic laws and regulations, which puts them in risky circumstances when driving. Speeding raises the risk of an accident and impairs the driver's ability to respond to sudden events, making it a typical example of irresponsible driving. Furthermore, because distracted driving diverts the driver's attention from the road, actions like texting or chatting on the phone while driving can also result in accidents.

Highway traffic accidents can have disastrous results, including fatalities, severe injuries, and disability. The people involved in these incidents, as well as their families and communities, may also be significantly impacted. Road accidents can cause financial losses in addition to human costs because of lost wages, hospital costs, and auto repair.

Worldwide, highway traffic accidents are a severe issue that have an impact on people and communities. Governments and transportation authorities may also enhance road safety by putting policies in place that include improved road design, more stringent enforcement of traffic regulations, and public awareness programs. We may endeavor to lower the quantity of accidents and maintain our roadways safe for all users by comprehending the reasons behind these incidents, their effects, and how to prevent them.

CHAPTER THREE METHODOLOGY

3 Methodology

The road accident on the Dhaka-Tangail highway is a serious problem that has long plagued Bangladesh's transportation infrastructure. These mishaps have a complex process that necessitates a thorough comprehension of all the relevant variables. The absence of adequate infrastructure and maintenance is one of the key causes of the high frequency of accidents on this roadway. The roads are frequently ill-built, with uneven surfaces and potholes that make it challenging for drivers to keep control of their cars. The results indicate the existing condition of accidents, together with the habits and variables that influence them as well as the suggestions made by the respondents and also to identify the Dhaka-Tangail highway's weak point. The susceptible site determined by talking the newspaper investigation report.

This is a Method of Data Analysis (DA) So I take data Highway Police and ARI(BUET). Actually, this method helps to observe the accident rate, Frequency rate. The necessary data was gathered by conducting in-person interviews with drivers and collected data. The research area's geometric characteristics were observed. Some managerial and engineering techniques were recommended in light of such. In addition, there is a strong correlation between the amount of traffic congestion on the roadway and the frequency of accidents. For all users of the road, the sheer number of cars on the road, coupled with improper lane discipline and driving instruction, produces a chaotic and dangerous atmosphere. Enhancing traffic control plans and enforcing more stringent regulations may mitigate some problems and lower the quantity of collisions on the Dhaka - Tangail route.

The Dhaka - Tangail highway road accident technique is a complicated problem that has to be approached from all angles. This important roadway may have fewer accidents and less serious ones if infrastructure is improved, traffic regulations are enforced, and traffic congestion is managed more skillfully. To reduce these threats and improve road user safety throughout Bangladesh, government officials must act immediately.

3.1 Study Area

The national route between Dhaka and Tangail was the site of the research. The whole Dhaka-Tangail national highway(N4). The place is that Chandra to Elenga. And specific area is Kaliakour, Gorai, Mirzapur, Elenga is the hotspot area to falling accident because of there have lots of people live here and they work in garments and others companies.

CHAPTER FOUR DATA ANALYSIS

4.1 Data Analysis

This information is gathered from Bangladesh's Highway Police Headquarters. and the Accident Research Institute (ARI) gathers Accident Report Forms (ARF). According to data gathered from the Accident Research Institute's (ARI) MAAP5 (Microcomputer Accident Analysis Package) software database between 2010 and 2020, this (N4) is the riskiest in Bangladesh, according to BUET.

4.2 Impact of Accident

Highway traffic accidents are a widespread problem with profound effects on people, families, communities, and society at large. A highway traffic collision can have catastrophic aftereffects, including bodily harm, psychological distress, debt, and even fatalities. Highway traffic accidents have a multiplicity of effects that extend beyond the individuals involved in the collision to include the larger community. The bodily injuries that persons engaged in a highway vehicle collision suffer are among the most immediate effects. These wounds can vary in severity from small cuts and bruises to more serious conditions including spinal cord injuries, brain trauma, and fractured bones. These injuries may cause chronic pain and long-term disability in certain situations, which will have a major negative effect on the victims' quality of life.

Highway traffic accidents may seriously affect a person's mental health in addition to causing bodily harm. Because of the trauma they suffered, survivors of accidents may struggle with anxiety, sadness, PTSD, and other mental health conditions. These psychological scars may need ongoing treatment and assistance to heal, and they can be just as incapacitating as physical wounds. A highway traffic accident might also have a substantial financial impact. Medical bills, auto repair costs, missed income, and legal fees may mount up rapidly and put a pressure on people and families that might already be having financial difficulties. Highway traffic accidents can have a particularly severe financial impact on low-income individuals and families, further entrenching them in poverty and financial instability.

Furthermore, accidents on highways may have broader societal effects. They may put a burden on emergency response networks, taking personnel and resources away from more pressing need. Additionally, as insurance firms attempt to recover the expenses of accident claim settlements, highway traffic accidents may result in higher insurance prices for all drivers. In addition, fatalities from highway traffic accidents can have a cascading impact, creating a permanent gap in the lives of people left behind and generating pain and grief for families and communities.

Finally, it should be noted that highway traffic accidents have a significant and varied effect on people, families, communities, and society at large. Comprehensive steps to avoid and ameliorate the terrible impacts of highway traffic accidents are urgently needed, as demonstrated by the physical, emotional, financial, and societal ramifications of these events. Through the promotion of safe driving practices, enhancement of road infrastructure, and implementation of more stringent traffic regulations, our goal is to decrease the frequency of highway accidents and establish more secure roads for everybody.

4.3 Road Accident Data Analysis

The large number of Data collected by ARI (BUET) and also Police Head Quarter. So here finding many causes of falling accident. This provides a thorough analysis of many maps that show accident information from the Dhaka-Tangail Highway (N4) between 2001 and 2020.

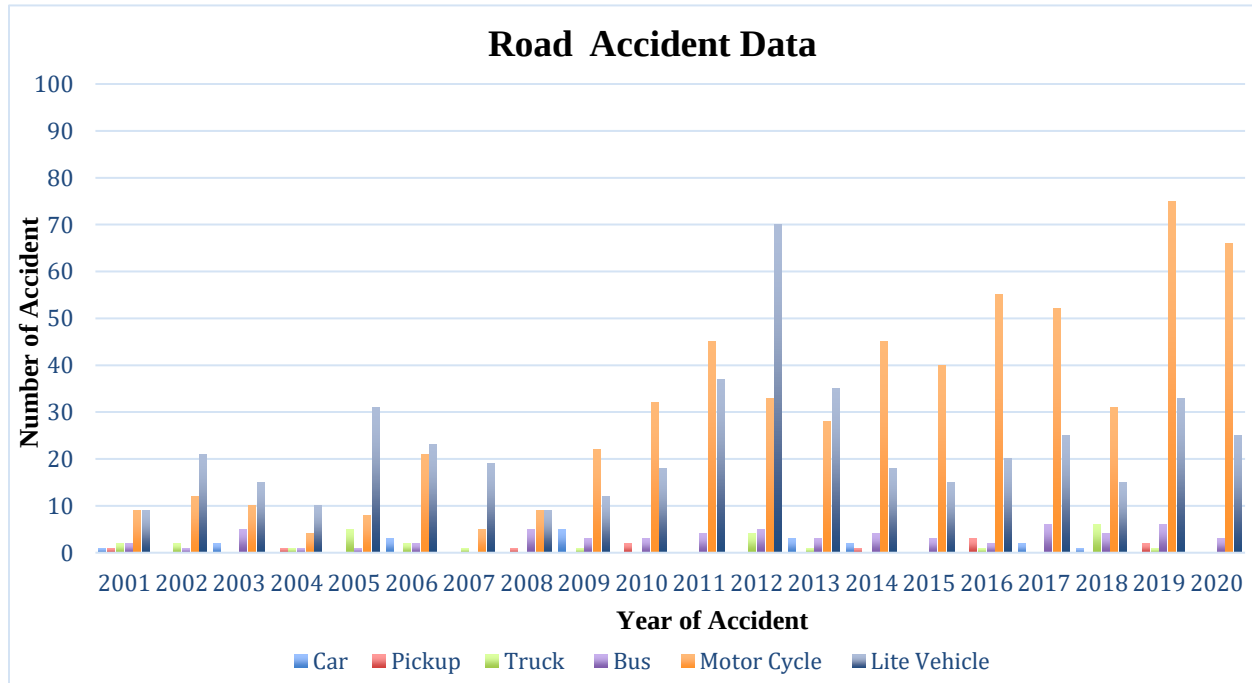


Figure – 4.3.1: Yearly Accident

From Figure 4.3.1 shows that the yearly accident, we will solely discuss the Dhaka-Tangail highway (N4) as it is the subject of our study. 22 accidents happened on the Dhaka-Tangail highway (N4) in 2002, according to statistics gathered about the route. We may observe that there was daily growth from 2002 to 2010 and that there has been an almost annual increase since then. It increased to 70 in 2012, which is not acceptable. Based on the available data, we can conclude that this is the year with the largest number of accidents. The figure shows that 75 accident in 2019. Thus, we may conclude that it is only a natural occurrence for which our highway authority is not responsible. This amounted to 55 in 2016. By 2017, it had dropped to 52. In 2012 has the second-highest number of accidents 70. And daily, it increases because of road condition.

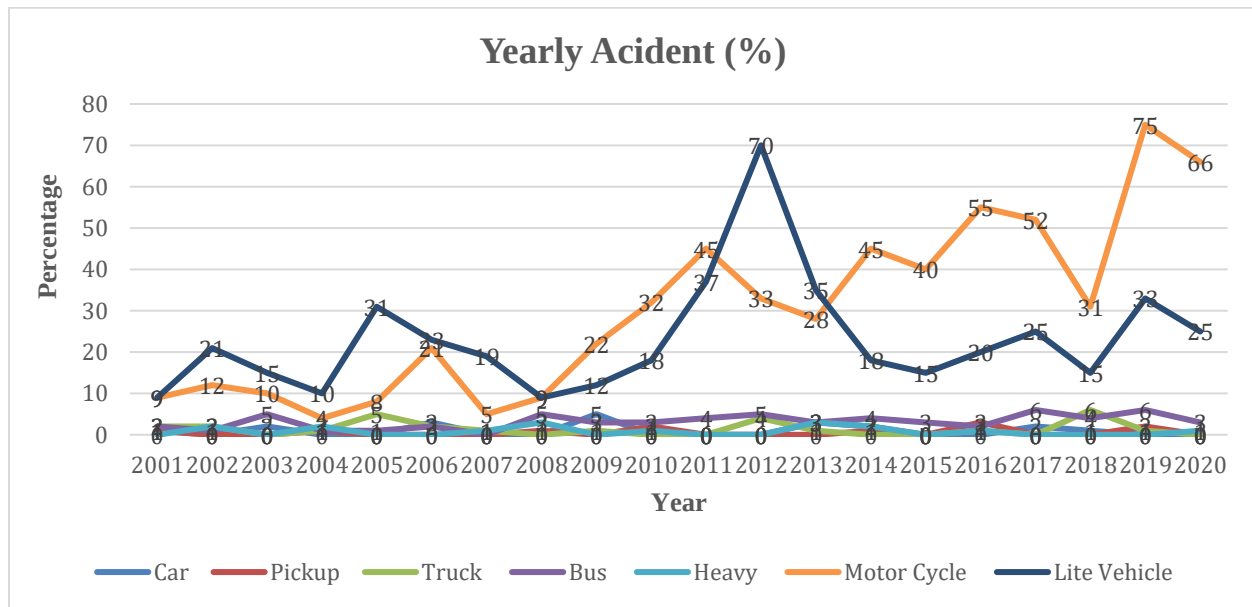


Figure 4.3.2: Yearly Accident by (%)

From Figure 4.3.2: Despite the fact that there are other accidents in our country, we will just talk about the Dhaka-Tangail highway (N4) because it is the focus of our investigation. A total of 1.89% of accidents on the Dhaka-Tangail highway (N4) occurred in 2001, according to data collected on the road. From 2002 until 2010, there was a daily increase in percentage, and since then, it has increased virtually annually. In 2012, it shows to highest percentage, which is unacceptable. We can determine that this year has had the highest number of accidents based on the data that is currently available. In 2019, the percentage decreased to 30.25%. In 2014, it fell to 15.02% once more. This is fully responsibility of our highway authority. This was 17.8% in 2016; by 2017, it had increase to 3.5%; but 2019 has the second-highest percentage of accidents; and the figure rises every year.

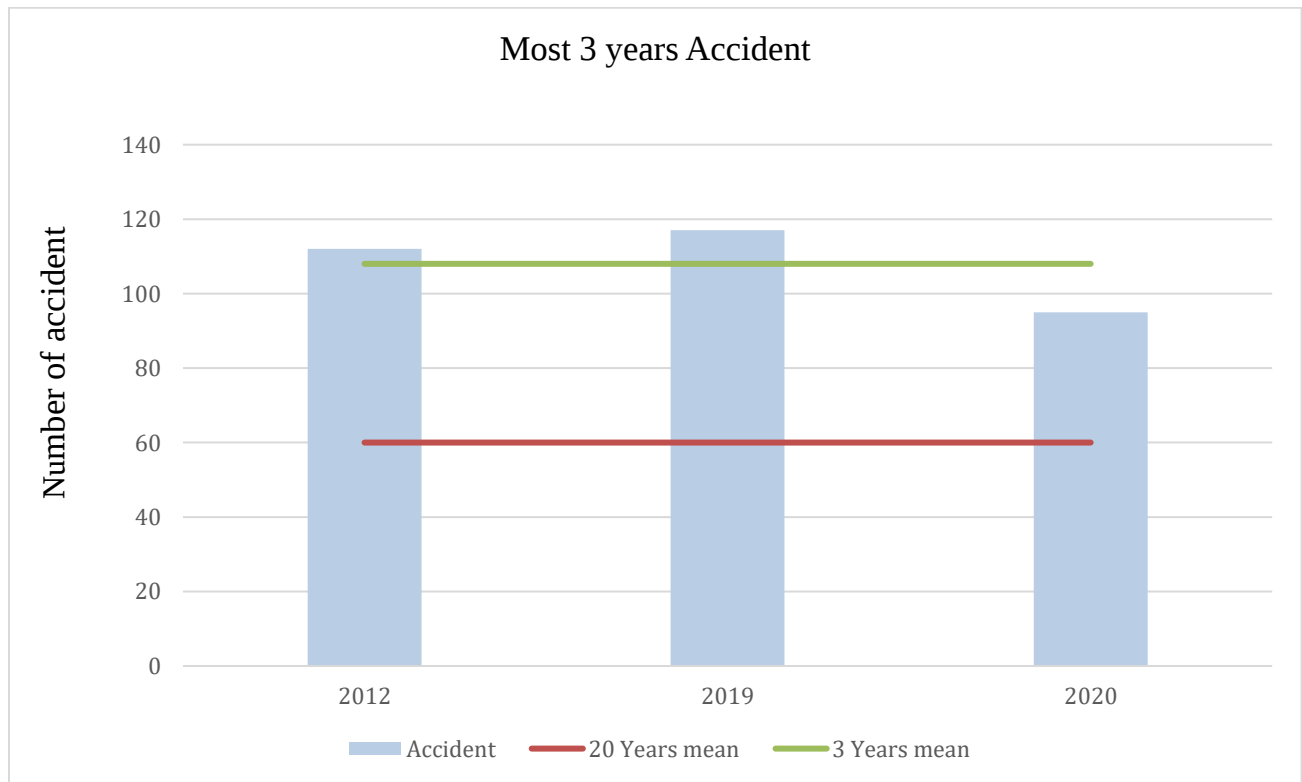


Figure 4.3.3: Most 3 years Accident (2012, 2019, 2020)

From Figure 4.3.3 shows that in 2019, there were 117 accidents, and you can also see here that 2012 was 112 and 2020 was a falling accident at 95 So analysis of this data says that in 2019 there was the first highest number of accidents, and the second highest number was in 2012 at 112 because of narrow road, speeding vehicle and it increases day by day.

In this case 20 years of mean is 60 and most 3 years mean is 108. So in this study, in 20 years, the mean data is 55.37% higher than in 3 years.

4.4 Year Wise Accident Severities

The year wise accident severities based on available data. Keep in mind that the following information is derived from analysis of data from the ARI(BUET). In table 4.3.1 is seen that the highest accident occurs in 2014 at number of 76 and lowest accident at 2020 that number is 33.

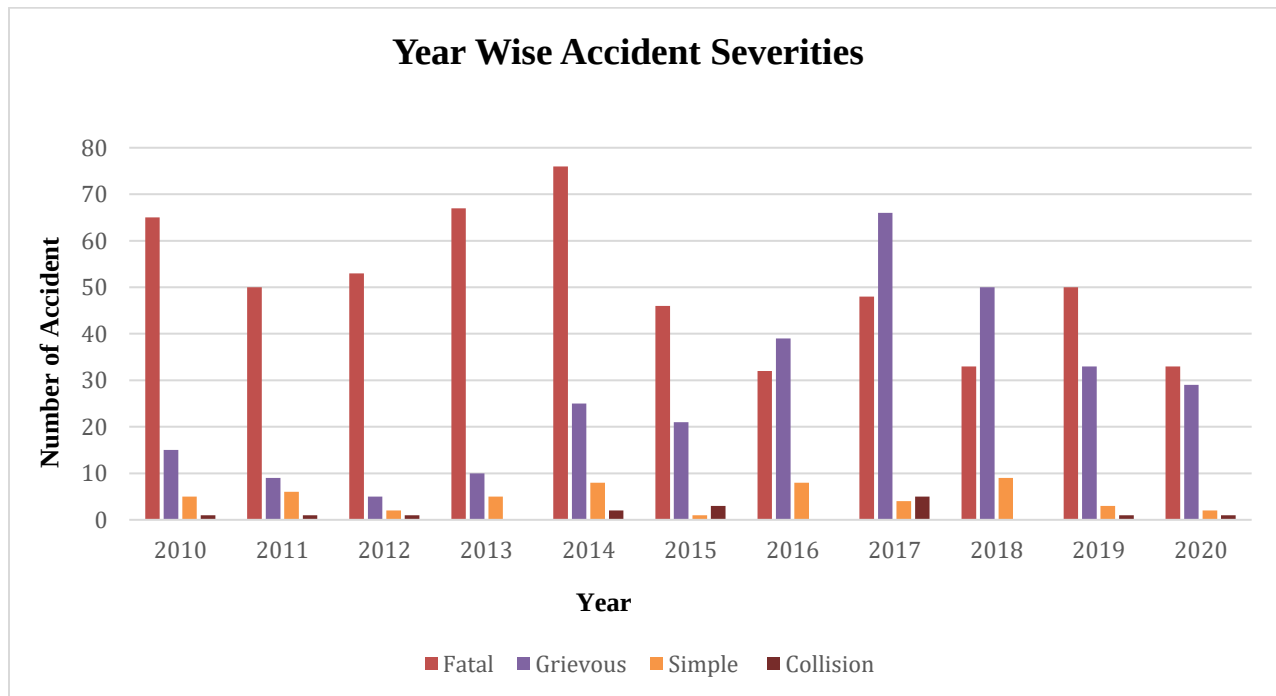


Figure 4.3.4: Year Wise Accident Severities

Figure 4.3.4 shows that year-by-year accident data from 2010 to 2020. According to the diagram, the number of accidents every year is fatal, grievous, simple, and collision. The highest number of accidents occurred in 2014, and the lowest number occurred in 2020. The highest number of fatalities was in 2014, and it decreased year by year because the public maintained traffic rules and regulations. This graph also shows that the second grievous accident was in 2017 and the lowest number was in 2012. The almost grievous rate increases year by year because of narrow roads, a lack of traffic rules, and simple and collision accidents. The accidents. The accident number is normal, but fatal and grievous accidents are high.

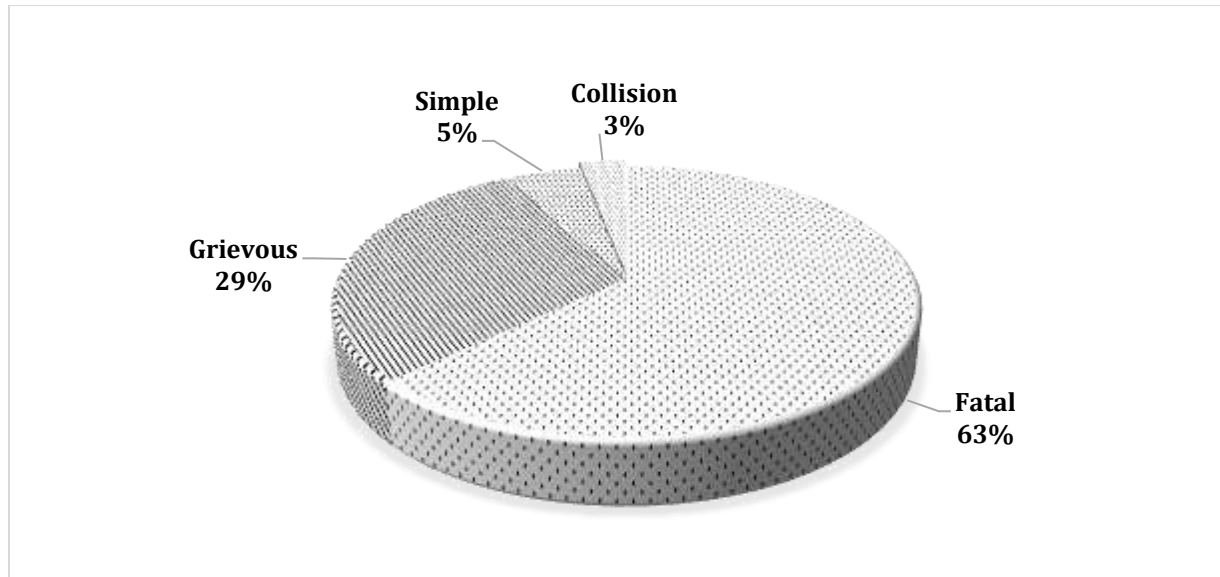


Figure 4.3.5 Accident Severities (2014)

The accident severity by year is displayed in the pie chart (2014). In line with the pie chart. View various percentages; it is organized into four sections. They are collision, fatal, grievous, and simple. Fatal, at 63%, is the greatest proportion seen on the charts, while collision, at 3%, is the lowest. And 29% of deaths are grievous, with 5% being simple. However, it is evident from this pie chart that the 2014 data severities are realistically shown.

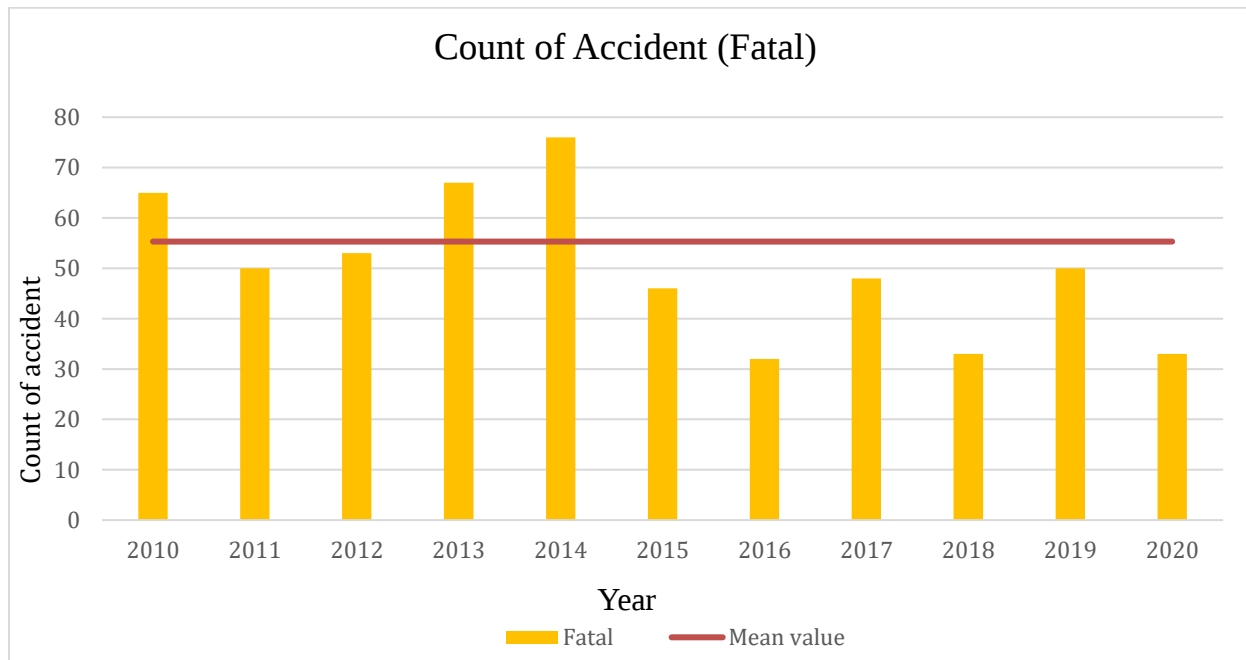


Figure 4.3.6: Count of Accident (Fatal)

Figure 4.3.6 shows that the highest number of accidents occurred in 2014, and the lowest number occurred in 2016. we also see that the 2016 accident rate is decrease year by year, resulting in a falling accident rate. in 2016 and 2018 is the lowest rate of fatalities. In year of 2015 to 2020 accident number of fatal is decreases year by year because of maintain traffic rules. In this figure, the count of accident fatalities is 55.3; the mean value is 55.3. In the year of 2015 to 2020 mean value is decreases because of everybody must try to follow traffic rules and regulation.

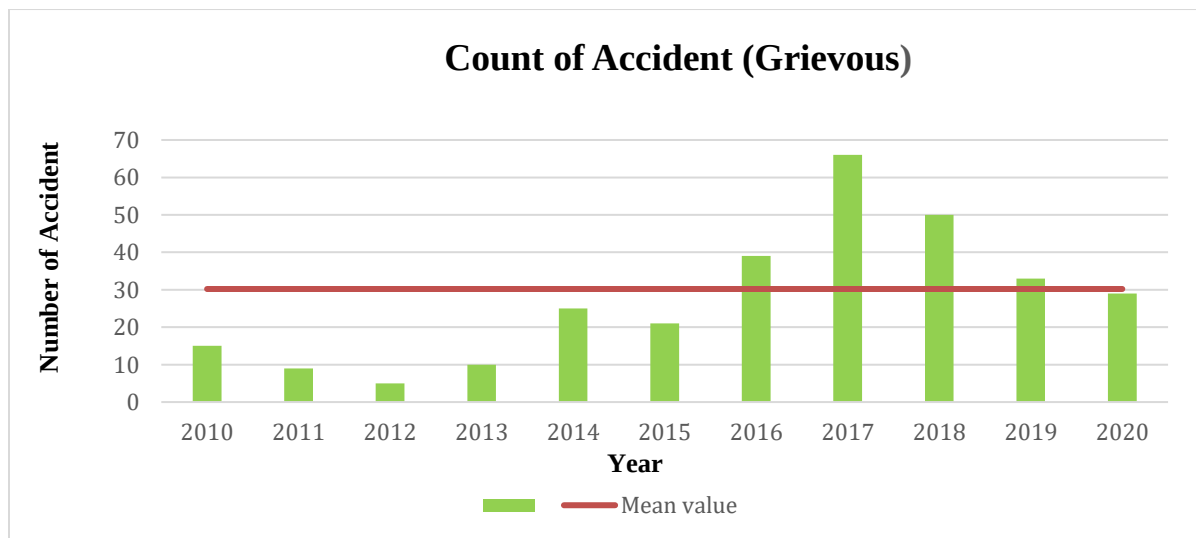


Figure 4.3.7: Count of Accident (Grievous)

Figure 4.3.7 shows that the most accidents occurred in 2017 and the fewest in 2012. In the year of 2010 to 2015 accident rate is low but in 2017 most of the accident occurs because of not following the rules of traffic accident and narrow road is the biggest problem, as we can see from the accident rate in 2018, which is decreasing year after year. In 2018, 2019, and 2020, Grievous had the lowest rate. In this figure, the count of accidents that are grievous is the mean value of 30.2. The mean value is 2010 to 2015 is lowest but increases 2016 to 2020 in years.

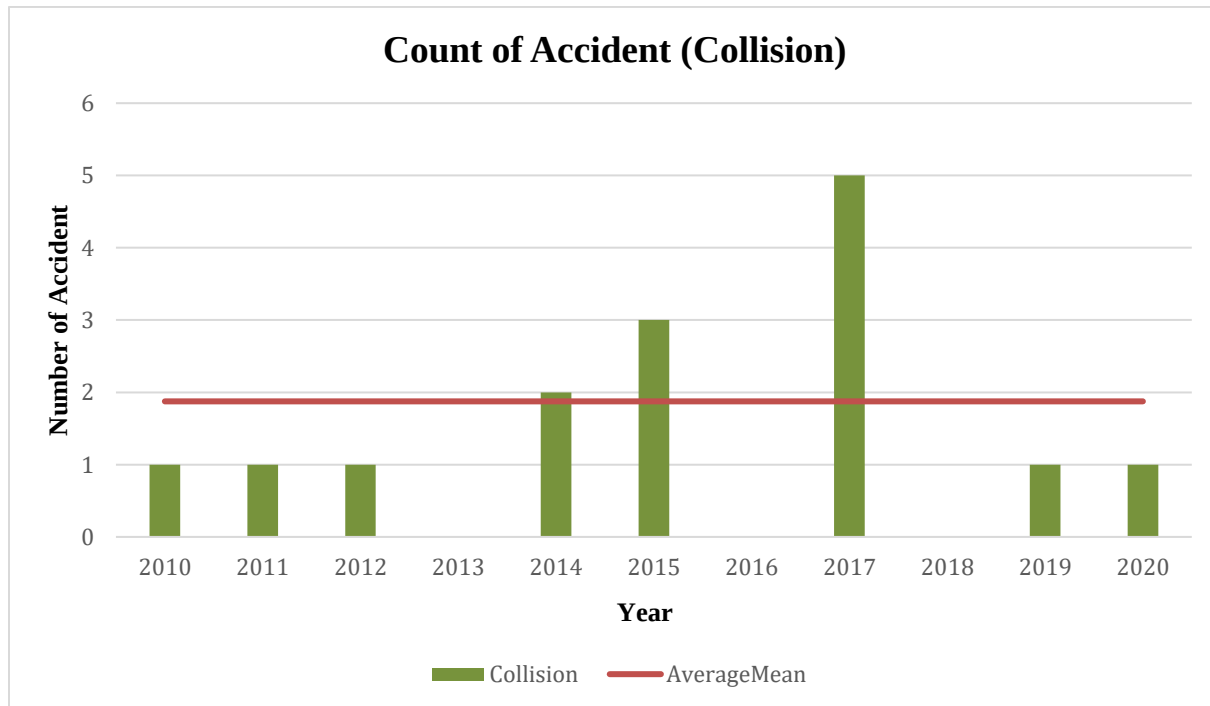


Figure. 4.3.8: Count of Accident collision

Figure 4.3.8 shows that the most accidents occurred in 2017, which is 5, and the lowest accidents occurred in 2013, 2016, and 2018, which is 0. And see also that the accident rate is the lowest for any other type of accident. This result is giving by the analysis of data. In this figure, the count of accidents and collisions is the mean value of 2. It almost decreases than others years of mean because of maintain traffic rules. In this highway collision rate is lowest but fatal and grievous rate is totally high based on police report.

4.5 Month-wise Accident Severity: 2019

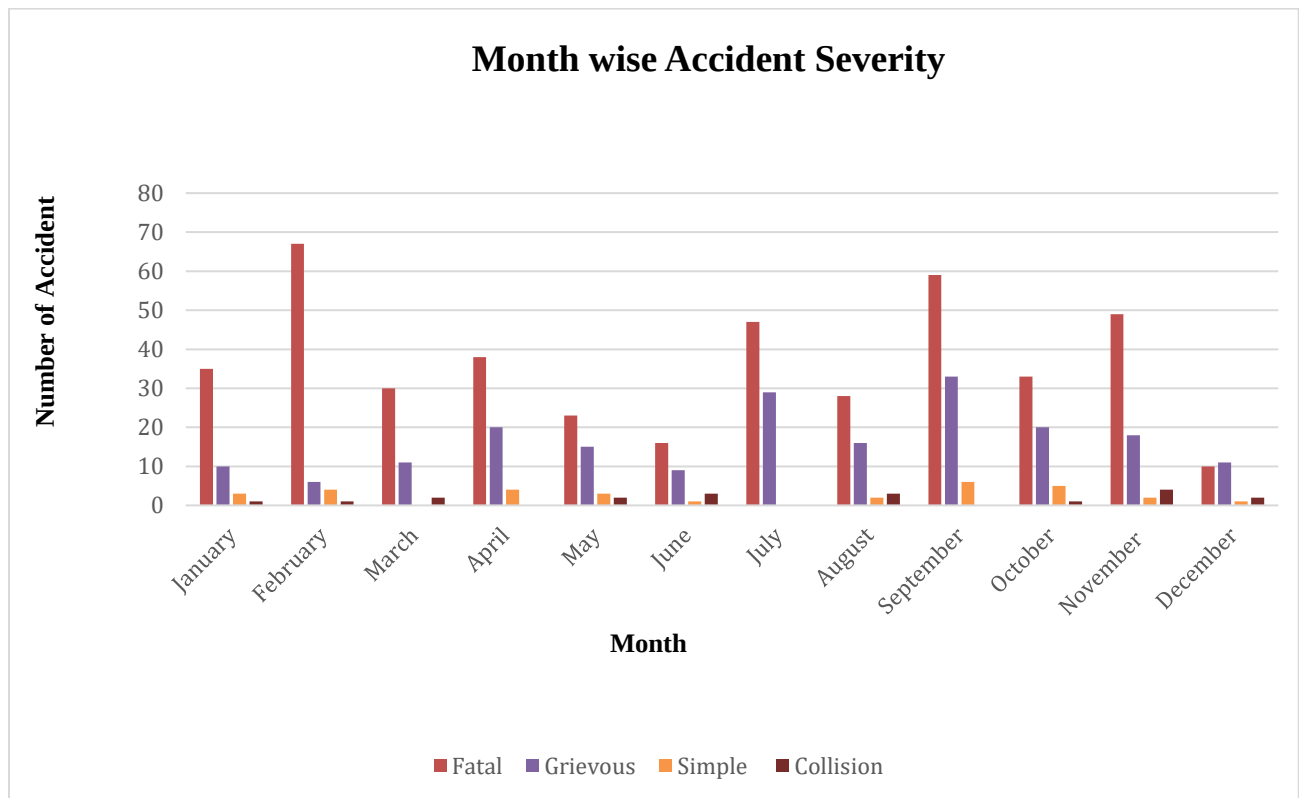


Figure 4.3.9: Month-wise Accident Severity (2019)

Figure 4.3.9 shows that the month-wise accident severity in this month's accident rate is too high. According to the table, there are different kinds of data in 12 months, so the highest data is in February because of foggy weather conditions, and the lowest data is in December. More over the tables shows other information that in July the second highest accident severity. In case this table's data increases year by year. Almost we can see that fatal and grievous accident number is higher than simple and collision. In this data report we found some reason of accident that is narrow road, poor road surface, unfollow traffic rules, and speeding vehicle.

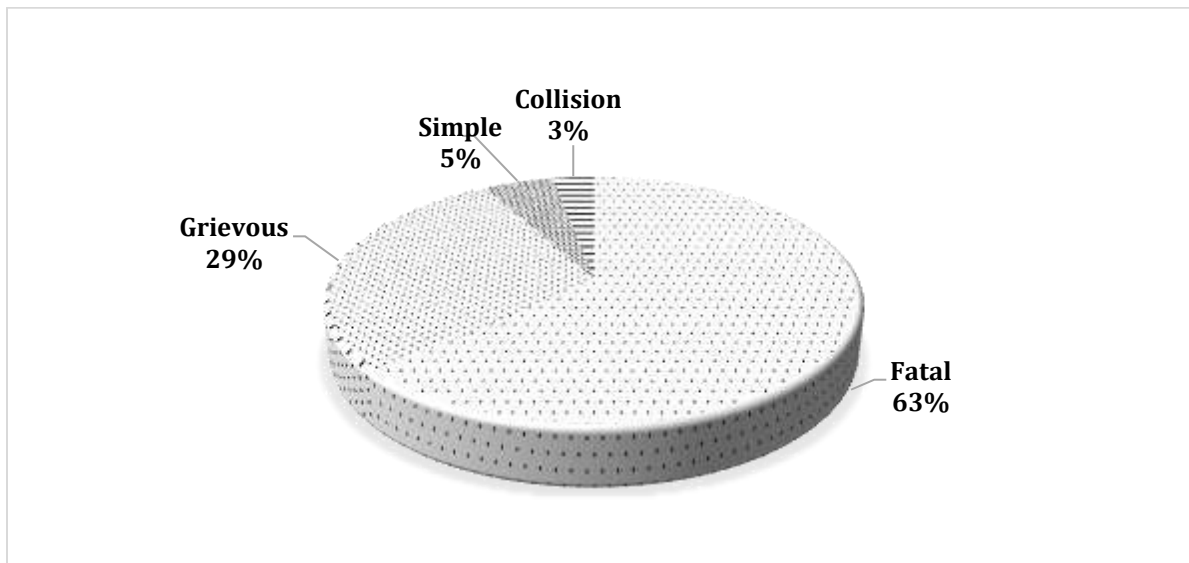


Figure 4.3.10: Severity of Accident (February)

Figure 4.3.10 shows that the pie chart depicts the severity of accidents by year. According to the pie chart, see the numerous types of percentages, which are separated into four components. They are fatal, grievous, simple, and collision the figures show that the greatest rate is 63% fatal, while the lowest number is 3% collision. The second highest is grievous 29%, followed by simple 5%. In this season weather is foggy and not seen underline mark in road this the reason of falling accident. Anyway, this pie chart clearly depicts a realistic view of severity of accident.

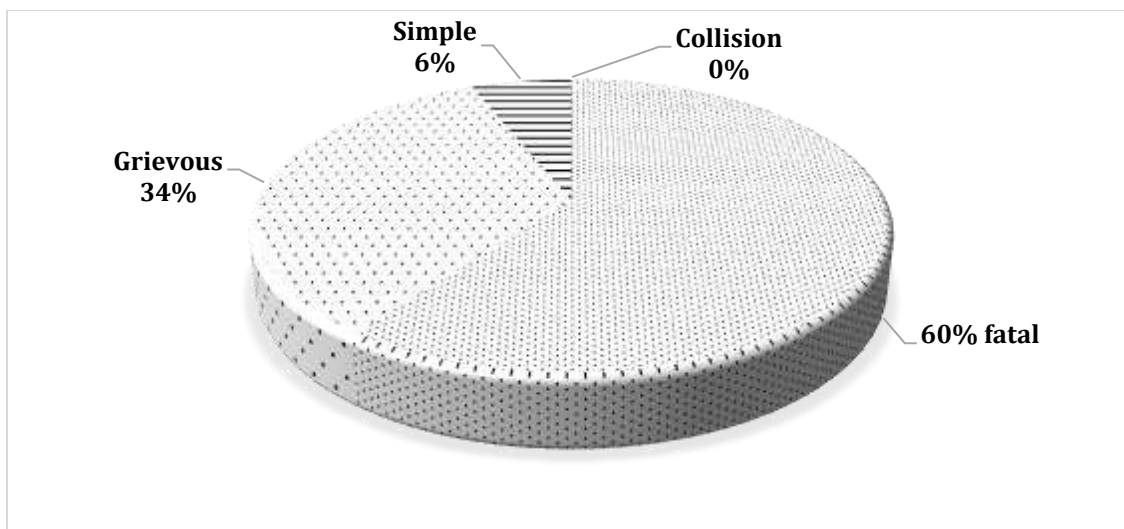


Figure 4.3.11 Severity of Accident (September)

Figure 4.3.11 shows the statistics indicates that this year has the largest number of fatal accidents 60%, which is concerning. Simply, the quantity reduced to 6%. Collision has the lowest 0%.

Grievous is this was also a significant year since we had the second highest percentage of accidents, at 34%. it increasing day by day because of drivers are not responsible, over speeding and narrow road is most of the cases.

4.6 Accidents Severity by Weather-wise

Accidents can happen for a variety of reasons, and one important component that can have a large impact on the severity of an accident is the weather conditions at the time. Weather has a significant influence on visibility, road conditions, and driving behavior, therefore it is important to consider how dangerous a scenario may become. Understanding how diverse weather patterns affect the severity of accidents is vital for establishing effective measures to avoid accidents and limit their impact on individuals and society. One of the most prevalent ways that weather may impact accident severity is by reducing visibility. Fog, rain, snow, and sleet may all reduce visibility on the road, making it more difficult for drivers to see other cars, pedestrians, and traffic signs. This limited vision can increase the probability of accidents happening because drivers may be unable to respond in time to avoid a collision.

Weather-wise Accident Severity: 2018

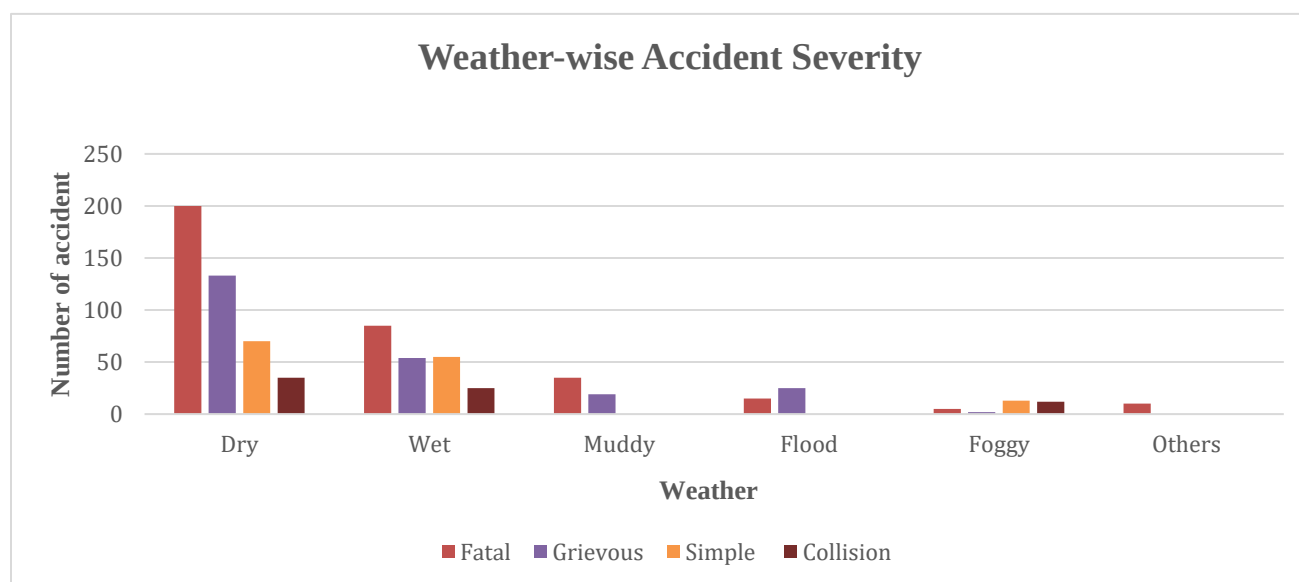


Figure 4.6.1: Weather-wise Accident Severity (2018)

Figure 4.6.1 is shows that the Dry conditions resulted in almost 200 accidents, and wet conditions resulted in 95 accidents. Indicating a dry condition, accident severity is totally high. Wet is particularly essential because it has the second largest. And other weather conditions, muddy flood accident severity is small, indicating relative accident rates based on the available data. To solve safety problems, it is critical to examine other aspects such as road infrastructure, driver behavior, and vehicle maintenance. In here muddy and flood occurs few of accident because of the various weather condition of Bangladesh.

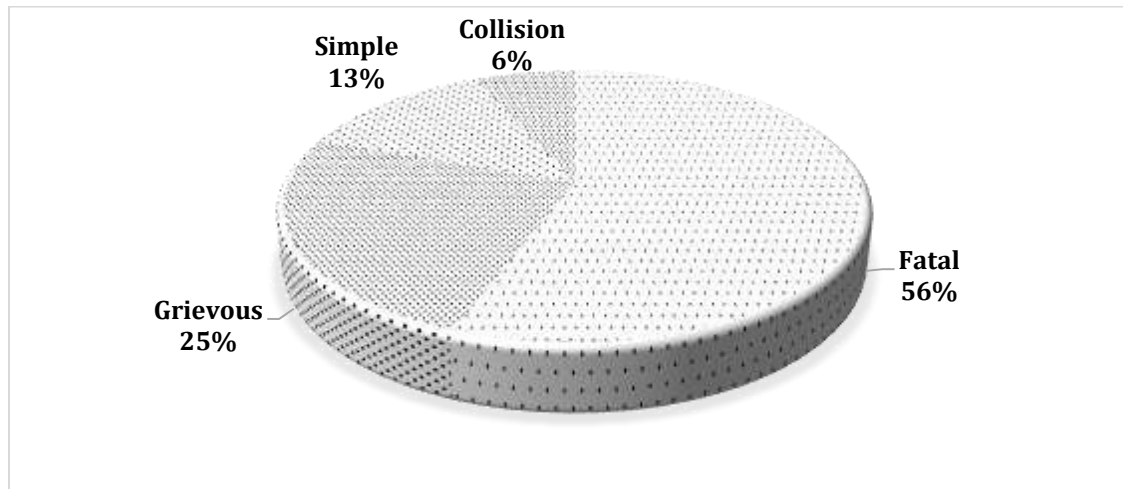


Figure 4.6.2: Weather wise Severity Accident (Dry)

Figure 4.6.2 shows that the fatality rate was 56%, indicating a high number of incidents this year. Simple, the quantity fell to 13% Collision has the lowest percentage 6%. Grievous is also significant since we have second highest percentage of accidents, which is 25%. In dry condition fatal rate is 56% because of narrow road and overtaking tendency of drivers, speeding up vehicle Rackless driving is the main reason to causes dry basis accident.

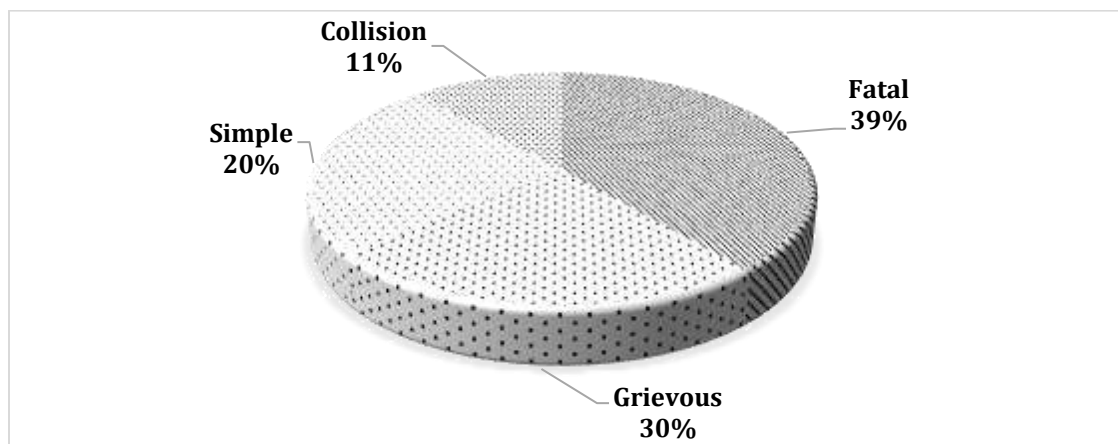


Figure 4.6.3: Weather-wise Severity Accident (Wet)

Figure 4.6.3 shows that the fatality rate was 39%, which is unacceptable. Based on the information provided, we may conclude that this year has the largest percentage of accidents. Also see that simple is 20% and the grievous to 30%. When it comes to percentages, collision has the lowest at 11% sad is especially significant since, at 30%, it has the second-highest percentage of accidents because of damage road surface not lane marking in road and some of road are always stuck and slippery in rainy season. this is the reason of accident of wet condition.

4.7 Finding from Questionnaire survey With Driver

One hundred drivers were chosen to participate in this questionnaire survey. Of them, 45% operate buses, 35% operate trucks, 15% operate motorbikes, and 5% operate cars. Only 10% of drivers have completed their education, and the majority are not well educated. After completing elementary school, 85% of students dropped out, while 5% started high school but never finished it. And 8% finished SSC level and 2% others. The higher percentage of accidents on this route may be attributed to the drivers' extreme lack of understanding about roads and road safety as a result of this inadequate education. The other main reason is driving while intoxicated.

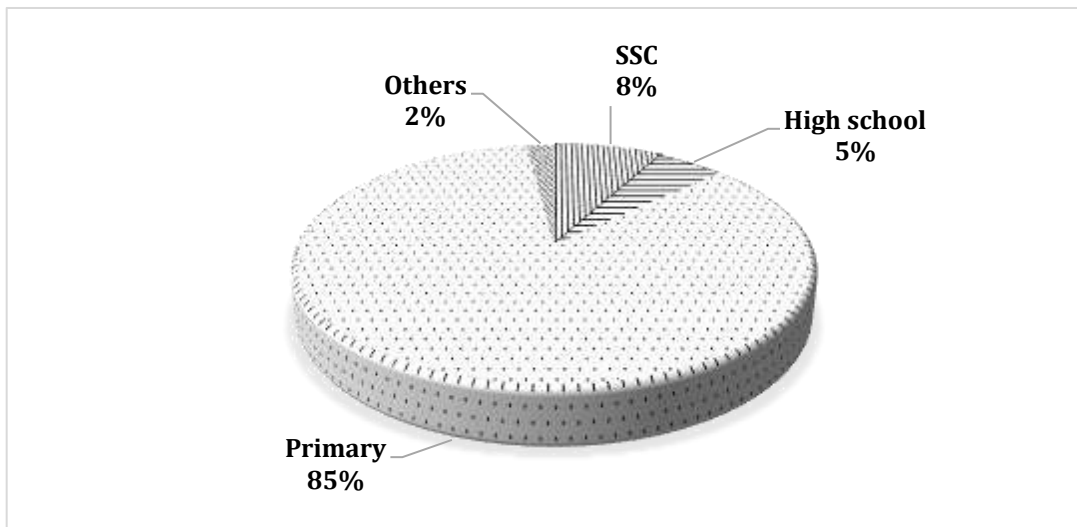


Figure 4.7.1: Education level of Drivers

Figure 4.7.1 Based on the education level of drivers, it can be mentioned that illiteracy played a significant role for road accidents.

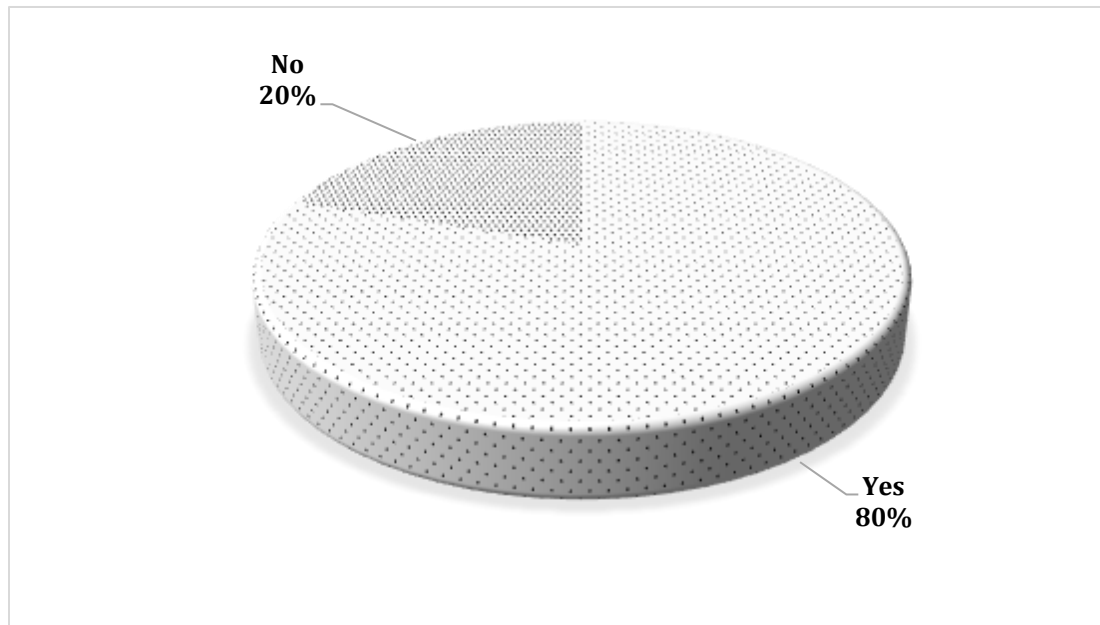


Figure 4.7.2: Legal Licenses (Drivers)

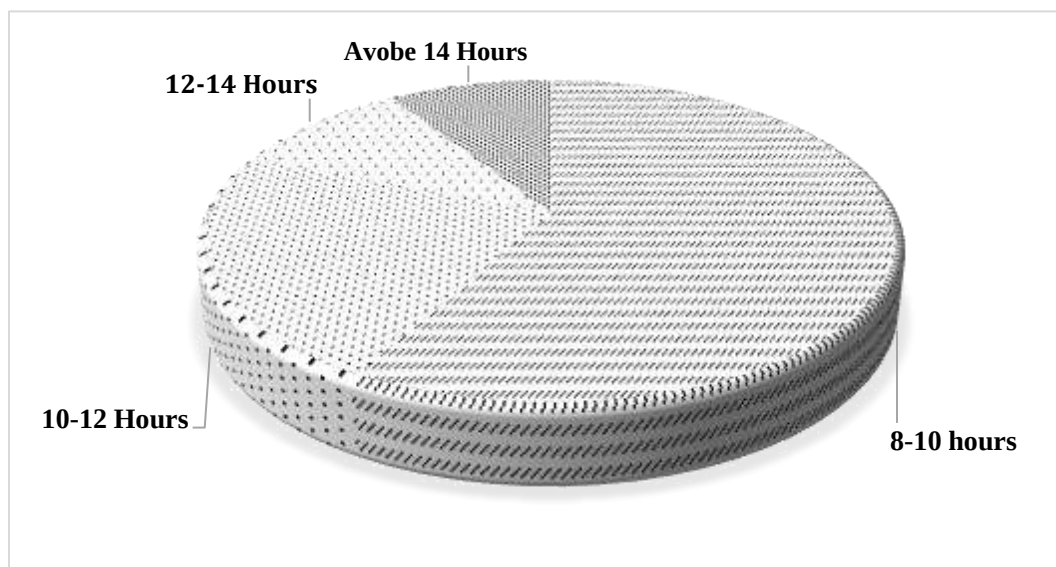


Figure-4.7.3: Driving Time

Figure 4.7.3 shows that a significant number of drivers drive 10 hours a day. However, the safe duration of driving mentioned (Current Motor Vehicle Act) is 5 hours. Which is by far lower than the practices in Bangladesh. Therefore, the phenomenon also contributed greatly to the accidents.

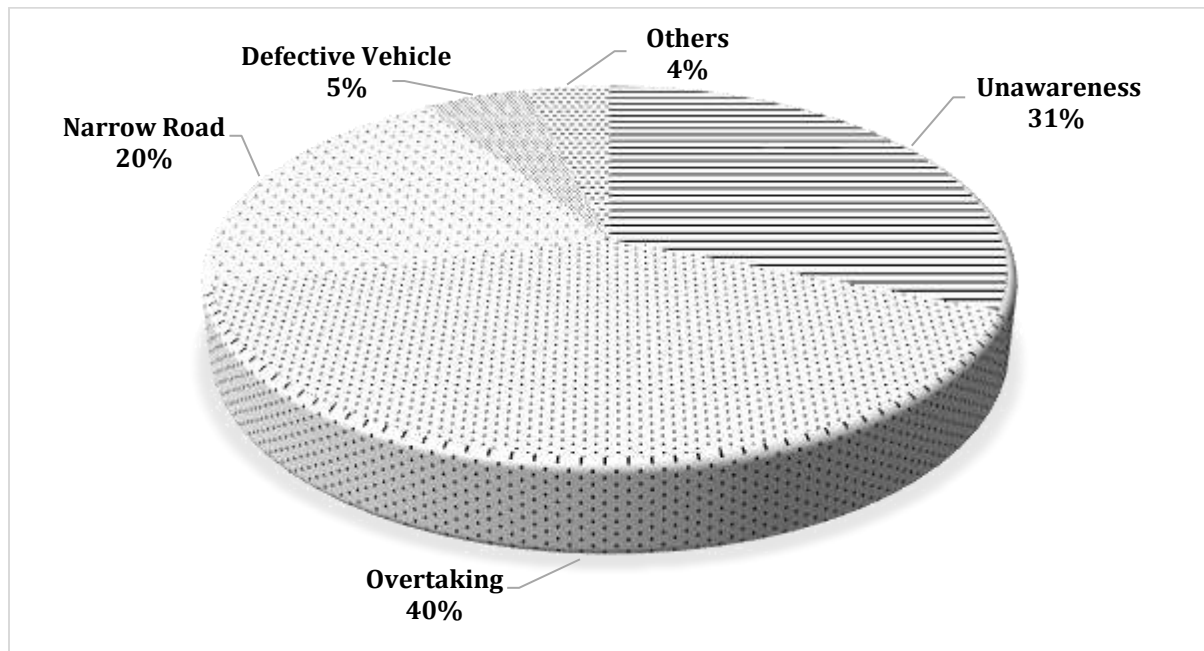


Figure 4.7.4: Causes of Highway Road Accident

Figure 4.7.4 is based on the survey report. We found that around 40% of accidents caused by overtaking. This suggests that a considerable majority of accidents happen when drivers try to overtake other vehicles, typically under dangerous conditions. Another key contributing factor is drivers Unawareness, which accounts for 31% of all accidents. This covers circumstances in which drivers are unaware of road conditions, traffic laws, or other cars, resulting in accidents. Narrow roads lead to 20% of all accidents. These roadways may be too narrow for safe vehicle movement, increasing the risk of collision.

4.8 Finding from the Photogrammetric Survey

During the field visit to the chosen roadway, several significant concerns pertaining to traffic accidents were discovered. There are several distractions on roads.



Figure 4.8.1: Poor Road Surface



Figure 4.8.2: Drainage Concrete Over the Road



Figure 4.8.3: Extra Median Over the Road



Figure 4.8.4: Manhole Cover Over the Top Surface of Road

Figure 4.7.1 to 4.7.4 shows that an even riding surface present in the a most of the roads. One of the main things that can cause a road accident is uneven riding surface conditions. It has been noted that this condition is common on many roads and may have an effect on the number of accidents, particularly when examined over a 12-month period.



Figure 4.8.5: Car on sidewalk



Figure 4.8.6: Auto Rickshaw in highway

Figure 4.8.6 shows that Auto Rickshaw adhere people due to convenience, cheap, and availability. However according to statistics and perceptiveness from the road users, this type of vehicle contributed highly to road accident.

The above pictures are taken from the Dhaka -Tangail National Highway (N4). There are many causes to fall in accident, some of the causes of accidents are mentioned above. There were sections of the roadway with really narrow road conditions. The narrow width of the road has made life more difficult for those who frequently utilize this roadway. The good news is that the government is expanding certain sections of the highways and repairing damaged pieces of the route.

4.9 Measures for the reduction of accident rates

The various measures to decrease the accident rates are divided into two groups

(i) Engineering Measures

(ii) Enforcement Measures

The details of these measures are the given below.

Engineering Measures

Road Design: The physical features of the road, including the pavement width, sight distances, and specifics of the horizontal and vertical alignment, are examined and adjusted as needed. In order to bring the characteristics of the pavement surface, especially the skid resistance values, up to the design criteria, appropriate maintenance measures are implemented. When required, bypasses may be built to divide local and through traffic. Designing and building grade-separated junctions or flyovers may be necessary to reduce delays and conflicts at the crossroads. Appropriate signage, distinct lane lines, and secure intersections lower the likelihood of accidents on well-designed roadways.

Preventative vehicle maintenance: Vehicles operating on public roads may have their braking, steering, and lighting systems inspected at appropriate intervals. Defective vehicles may face harsh penalties. For public transporters, these precautions are especially important.

Pedestrian Crossings: To safeguard vulnerable road users, build underpasses, footbridges, and pedestrian-friendly crossings. Installing speed bumps or humps can help slow down cars in residential areas and close to schools. Installing speed bumps or humps can help slow down cars in residential areas and close to schools.

Lane marking: lane marking is the process of applying line and symbol to concrete surface by painting or drawing. some place I found there is no marking lane. This is a cause of road accident it should be prohibited .So the government took decision to make emergency lane marking.

Black spot Identify: In this study I found some places where falling accident rate is too high this I should call black spot .in this survey talk to some pedestrian and police officer they called me some places that is Kaliakoir, Gorai and Elenga is the hotspot point to road accident.

Street light: A street light is that lamp post, lamp pole, and light standard is a raised source of light edge of road but some places there is no street light, in sometimes drivers are not seen clearly often they causes accident of highway road. Since low visibility occurs at night, having well-lit roads can reduce the number of accidents.

Enforcement Measures

The various measures of enforcement that may be useful to prevent accidents at spots prone to accidents are enumerated here. The motor vehicle rules are revised from time to time to make them more comprehensive.

Speed control: Tachometers can be installed to record speeds and help bus drivers establish proper speed habits. Legal action should be taken against those who break speed limits, and surprise spot inspections on the spot speed of all fast-moving vehicles should be conducted at specific locations and times.

Traffic control devices: Signals can be modified or added if needed. When necessary, appropriate traffic control devices such as signs, markings, channelizing islands, or simulating traffic can be installed.

Training and oversight: When granting licenses to drivers of taxis and public service vehicles, the transportation authorities must to apply stringent testing procedures. Even drivers who have completed the necessary testing must to receive defensive driving instruction and be kept under close observation. After a certain amount of time, a driver's license may be renewed. only after running a few tests to make sure the driver is healthy.

Medical examination: The drivers should undergo the recommended vision and response time testing at regular intervals, such as every three years.

Laws and regulations: This is one of the most important aspects of enforcement when it comes to preventing accidents. The most important measures in the research of transportation traffic are to deploy teams of qualified professionals, supported by law enforcement, to various locations to check on whether drivers are adhering to traffic laws and to enforce those regulations. The research group can offer helpful information for determining if particular regulations need to be revised.

4.10 Public Awareness and Education Campaigns

Road user education: It is crucial to inform drivers about the different safety precautions that should be taken and the features of the road. The proper way to cross the street, traffic laws, and other guidelines for pedestrians and passengers This might be achievable if the kids' schools began offering the required teaching. Posters showing the grave consequences of drivers' negligence could also be helpful. The Indian Roads Congress has produced an instruction manual on road safety, a handbook on road safety for schoolchildren, and the Highway Safety Code.

School Programs: Instruct kids on road safety from an early age, focusing on safe crossing procedures and pedestrian regulations.

Driver Education: Compulsory driver education courses can improve a driver's understanding of traffic laws and safe driving practices.

Traffic Rules Related Program: Sometimes Bangladesh Police organized many Program to know the traffic rules it important to know all of people .and also published many newspapers to know others.

Advertise: In safety issue of the all of people if possible to advertise Television, radio to see the rules and regulation of traffic law.

Traffic safety week: One popular way to educate the public these days is to impose a safety drive during which drivers are guided appropriately by law enforcement and transportation personnel. With the use of documentaries and movies, drivers should be made aware of what is appropriate and unacceptable behavior. Drivers may be required to complete training programs. The IRC has organized Highway Safety Workshops in several areas.

Regulation and Enforcement

Traffic Police Vigilance: When traffic laws are consistently enforced, infractions are discouraged. Red-light and speed cameras are examples of automated systems that help apprehend violators and discourage careless driving.

Tougher Penalties: To promote compliance, raise the punishment for moving infractions.

Vehicle Inspection: Routine inspections guarantee that a car is safe to drive.

4.11 Road safety a public health issue

Road safety is a public health emergency that requires immediate response, not just a transportation problem. Let us examine several important road safety facts:

Impact of Road Traffic Crashes comparison between Bangladesh and Worldwide

Among those aged 5 to 29, road traffic crashes are the world's biggest cause of death. Every year, these collisions result in an estimated 1.35 million fatalities and 50 million injuries. In Bangladesh traffic crashes in last year killed totally 10372 others injured 6261 road accident it published Bangladesh passenger welfare Association monitoring cell (BPWAMC).

Vulnerable Road Users

Cyclists, motorcyclists, and pedestrians are among the vulnerable road users who account for more than half of all traffic fatalities. The age group of 5 to 29 is disproportionately affected by injuries sustained in traffic. Remarkably, individuals of working age account for two thirds of road traffic deaths (18–59 years).

The 2030 Agenda for Sustainable Development

The 2030 Agenda for Sustainable Development has the lofty goal of a 50% reduction in traffic-related fatalities and injuries by 2030. There are tried-and-true ways to reduce risks and improve traffic safety, which highlights the necessity of coordinated action. In conclusion, road safety is a

vital issue that affects people's lives, economy, and public health in addition to transportation. Let's keep aiming for everyone to travel on safer roads.

It meets with The Sustainable Development Goals (SDGs). It has 17 goals. The 17 SDGs are interconnected; they acknowledge that decisions made in one area will have an impact on other areas and that development must strike a balance between environmental, social, and economic sustainability. They target global issues such as poverty, inequality, health issue, climate change, peace and justice etc. Few of Sustainable Development Goals are involved to this study.

4.11 Minimize the Risk of Road Accident

There is a need to reduce the likelihood of these terrible events because they are a major global source of fatalities and injuries from traffic accidents. Road accidents can be caused by a variety of circumstances, including defective vehicles, human mistake, and unfavorable weather. People must take proactive steps to protect their safety on the road and be aware of these elements in order to lower the probability of traffic accidents. Observing traffic laws and regulations is one of the most crucial strategies to reduce the likelihood of car accidents. This entails not driving while intoxicated or under the influence of narcotics, utilizing turn signals, and adhering to speed restrictions. Following these guidelines can help drivers greatly lower their risk of getting into an accident. Defensive driving tactics, such as remaining vigilant, keeping a safe distance from other cars, and anticipating possible hazards on the road, are also essential for drivers to practice.

Proper vehicle maintenance is another important aspect in lowering the likelihood of traffic accidents. Before they cause an accident, routine maintenance and inspections may help find any problems with a car, such worn-out tires or malfunctioning brakes. Drivers can reduce their chance of mechanical breakdowns that could cause an accident by maintaining their cars. It is important to guarantee that automobiles are outfitted with safety mechanisms, including airbags and seat belts, to safeguard passengers in the case of a collision.

In addition to following traffic rules and maintaining vehicles, it is essential for drivers to be mindful of environmental conditions that could affect road safety. Factors such as weather, road conditions, and visibility can all impact the likelihood of an accident. By adjusting their driving behavior to account for these conditions, drivers can reduce the risk of being involved in a crash. For example, during inclement weather, it is important to reduce speed, increase following distance, and use headlights to improve visibility.

In summary, reducing the likelihood of traffic accidents necessitates a mix of cautious driving techniques, upkeep of vehicles, and environmental awareness. Drivers may drastically lower their chances of getting into an accident by observing traffic laws, taking care of their cars, and being aware of any possible dangers. People must be proactive in order to increase traffic safety and reduce needless injuries and fatalities. We can make the roads safer for everyone by banding together to encourage safe driving practices and increase public understanding of the significance of road safety.

Reducing the risk of road accidents is crucial for everyone's safety. Here are some practical steps you can take to minimize the chances of accidents:

- ❖ Follow Traffic Rules and Signs
- ❖ Stay Focused and Alert
- ❖ Maintain Your Vehicle
- ❖ Drive Defensively
- ❖ Avoid Driving Under the Influence
- ❖ Use Seat Belts and Child Safety Seats
- ❖ Be Mindful of Weather Conditions
- ❖ Watch Out for Pedestrians and Cyclists
- ❖ Avoid Fatigue
- ❖ Be Prepared for Emergencies

4.13 Result

The Dhaka -Tangail highway road accident survey provides valuable data for the present situation and future work. Data was collected using various methods, one of which was the highway police headquarters and ARI(BUET). We tried to explore the causes of accidents, the risks associated with them, and their analyses based on the collected data.

Yearly accident rate is high that occurs 2019 number of accidents is 75 and lowest year is 2001 at 22 accidents. Most of the 3 year that is 2012 ,2019 and 2020 is totally high rate accident. Poor road surface and narrow road are the main causes of road according to analysis of data. In additional that reckless driving, without also place significant role in accident. From the accident data and questionnaire survey of police based on report.

To address the rising accident rates on this highway roads, it is essential to take immediate and comprehensive measures. This includes creating service roads for low-speed traffic, repairing roads, overpasses, and bridges, installing speed cameras, increasing surveillance, and implementing strategies to reduce accidents. Without these critical actions, the accident rate will continue to increase day by day.

The Sustainable Development Goal on road safety focuses on ensuring “access to safe, affordable, accessible, and sustainable transport systems for all, improving road safety.” This goal underscores that while improving infrastructure is essential, it is equally important to implement effective traffic law enforcement and conduct public awareness campaigns to achieve comprehensive road safety.

CHAPTER FIVE

CONCLUSION

5.1 Conclusion

To analyze road safety, we first examine the annual rise in accidents based on year-specific accident data. For instance, Figure 4.2.1 illustrates that while there were 70 accidents in 2012, this number increased to 75 by 2019. This trend indicates a gradual rise in accidents over the years, next we look at the detailed accident data across different years. For example, Figure 4.2.4 shows that in 2010, there were 65 recorded accidents, and in 2011, the number dropped to 50, the lowest in the period under review. However, 2014 saw the highest number of fatal accidents. This data highlights variations in accident frequencies and the severity of accidents over time. To further understand road safety, we analyze monthly variance in accident data. Figure 4.2.10 demonstrates that there were 67 accidents in February, while September had 59 accidents. This monthly variance helps identify patterns and trends in accident occurrences throughout the year. Finally, we explore weather-related accident data. Our findings reveal that 56% of accidents occur on dry roads, while 39% of these accidents are classified as severe. We also discovered a significant difference in fatality rates between dry and wet conditions, with wet conditions leading to a 25% to 30% increase in serious accidents. This data underscores the importance of driving cautiously in different weather conditions.

In light of these findings, I urge everyone to drive gently and cautiously, especially considering the increased risks associated with adverse weather conditions. Additionally, I conducted a survey to understand the educational background of students, revealing that 85% of pupils left school after elementary education, 5% enrolled in high school but did not complete it, 8% completed their Secondary School Certificate (SSC), and 2% pursued other paths. This survey provides insights into the educational achievements of young individuals and indirectly reflects on their potential road safety awareness.

A new photogrammetric survey identified a number of crucial concerns that are causing problems with road safety. Numerous incidences involving bad road conditions, irresponsible driving, an insufficient safety precautions for motorbike riders were found in the survey. These results draw attention to important safety issues and provide suggestions for improvement. In summary, bad road conditions, careless driving, and inadequate helmet use are only a few of the major concerns influencing road safety that have been brought to light by the photogrammetric survey. Safer and better public health depend on addressing these issues through infrastructure development, law enforcement, and public awareness campaigns.

5.2 Limitation

This study tried to discovered various constraints and problems in data collection. Collecting comprehensive and accurate data for roadway safety studies proved more difficult than expected. One of the most difficult tasks was gathering information from the highway police. Obtaining the requisite data was incredibly challenging due to bureaucratic procedures and limits. Despite many attempts, direct access to comprehensive data from the highway police remained restricted. After encountering problems with the highway police, I called the highway headquarters and received data according to the request. Despite these challenges, the efforts to overcome data collection barriers offered useful study insights. The experience made clear how crucial it is to use thorough data collection techniques and how reporting procedures need to be improved in order to ensure reliable approach on road safety.

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Appendix

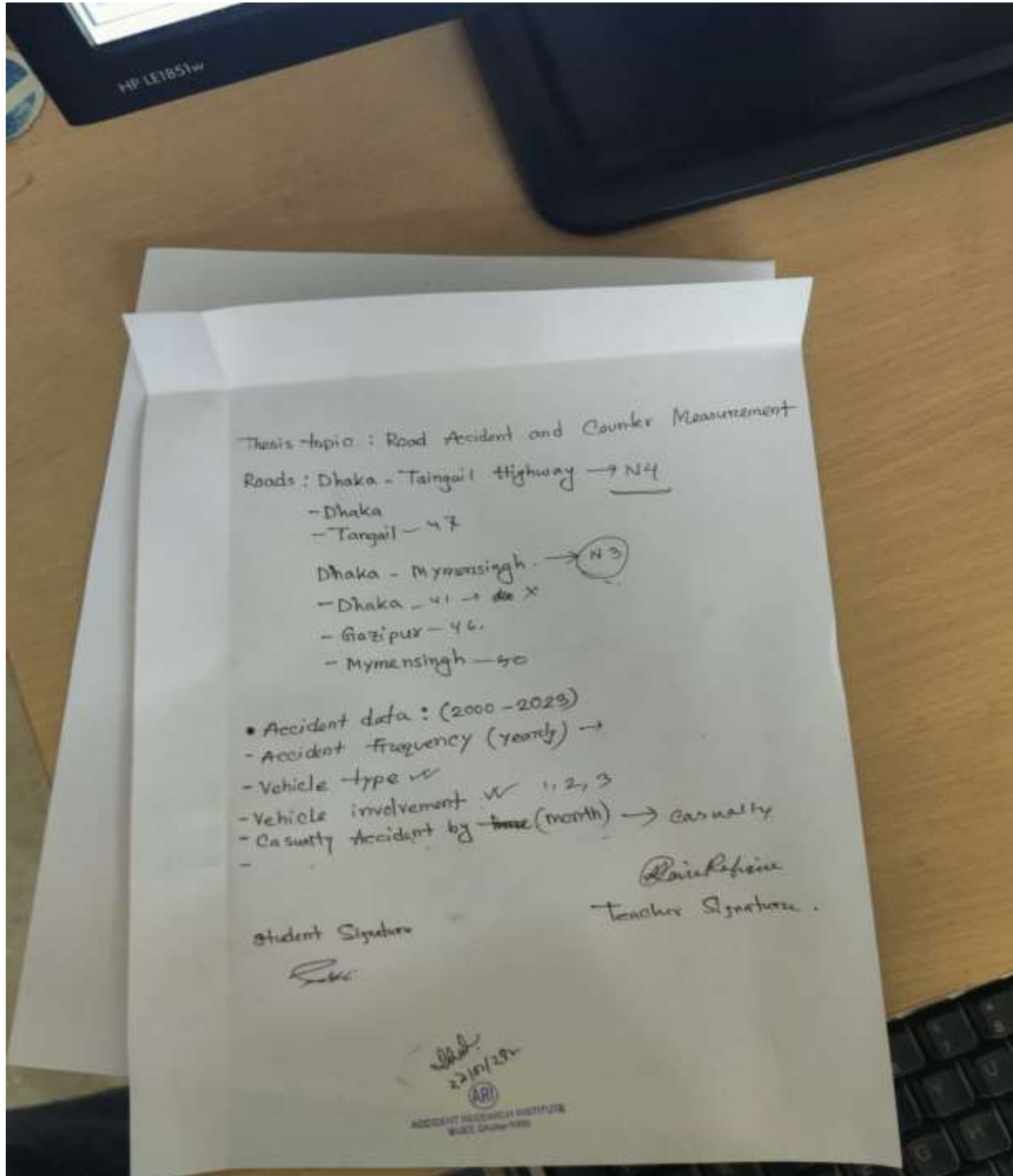
Data from FIR, Highway Head Quarter

হাইওয়ে পুলিশ এর ২০১১ হতে ২০২২ মাসের সড়ক দুর্ঘটনার পরিসংখ্যান :

সময়	সড়ক দুর্ঘটনার ধরনের সংখ্যা				সড়ক দুর্ঘটনার ফলাফলের সংখ্যা								সড়ক দুর্ঘটনার সর্বমোট মানবহানির বিবরণ										মোট সড়ক দুর্ঘটনার সংখ্যা	সড়ক দুর্ঘটনার ফলাফলের সংখ্যা
	পুরুষ	মহিলা	শিশু	মোট	মৃত্যুর কারণ				ক্ষত/ব্যঙ্গ				মৃত	ক্ষত	মৃত/ক্ষত	মৃত/ক্ষত	মৃত/ক্ষত	মৃত/ক্ষত	মৃত/ক্ষত	মৃত/ক্ষত	মৃত/ক্ষত	মৃত/ক্ষত		
					পুরুষ	মহিলা	শিশু	মোট	পুরুষ	মহিলা	শিশু	মোট												
২০১১	৮৬১	১৬১	৭৫	১০৯৭	৬১২	১১৪	৬২	৭৮৮	৫০২	৭২	৪২	৬১৬	৩৩১	২৫৬	৭০	৪৯	১০৬	৮০	৬১	২৬	১২৫	১১০৪	৬৫০	৪৫৫
২০১২	১০০৮	১৯০	৭৯	১২৭৭	৬৮৭	১৪২	৩৬	৮৬৫	৮০৫	১৪৮	৫৯	৯৯২	৪১০	৪৫৪	৬৪	৬৪	১৪৭	১৯৬	৯১	৩১	২৪১	১৭৪৭	৮১০	৬৯৬
২০১৩	১৩৬০	৩০৯	১০০	১৭৬৯	১২১৮	২৩০	৪৪	১৪৯২	১২৫৬	৩১২	৫১	১৬১৯	৬৭৫	৫৪২	৯৬	৮৩	১৮৩	৩১৭	২৬	৫৪	৩২৮	২৩০৪	১৮১০	১২৫৭
২০১৭	১২৪০	২৫০	১১১	১৬০০	৮১৫	২১২	৫০	১০৭৭	৮৮৯	২১৩	২৮	১১৩১	৫৩৯	৪৮২	১০৪	৬৮	১৮৪	২৯৭	১৫	৩২	২৩৭	১৯১৬	১৫৪৬	১৩২৭
২০১৮	১১৫১	২১৮	৭০	১৪৩৯	৭৯৩	১৪২	৩৯	৯৭৪	৬০৫	১৩৪	২০	৭৫৯	৪৪২	৩৬৬	৬৯	৬৪	১৬৭	২৭৬	৬	২৮	২৪৩	১৬৬১	১১৮৯	১০৬১
২০১৯	১১৬৭	১৯৭	৭৭	১৪৪১	৭৬৭	১৬১	৪০	৯৬৮	৭০৮	১২১	২১	৮৫০	৫১৮	৪৪৫	৭৫	৬৩	২৪৮	২৬১	৩	৩৩	৩০৪	১৬৫০	১৪৩০	১০৬৫
২০২০	১২৮৬	২৩৭	৫৫	১৫৭৮	১০২৮	১৬৮	২৫	১২২১	৬৬৬	১১৪	৬	৭৮৬	৪৩৬	৫৬১	১১৯	১১২	৪৫৮	৩৫৪	১৯	৬৮	৬২১	২৭৪৮	১৭৯১	৭০০
২০২১	১৭৯০	২৯১	৭৫	২১৫৬	১২৫১	১৯৫	২৩	১৪৬৯	৯৫৬	১১৩	৫	১০৭৪	৪৪৫	৭৫২	১৫৩	১৭০	৭১৫	৫৩২	৭৭	১৫৩	৭১৪	৩৭১১	২৪৯৬	১১৯৭
২০২২	১৫৪২	২৫৮	৫৩	১৮৫৩	১২৩৩	১৫৩	১৭	১৪০৩	৭৯৭	৯১	২	৮৯০	৬২০	৬০২	১০০	১৫৬	৫৫৫	৪০৭	৫৩	১২৪	৬২০	৩২৩৭	২১৩০	১১৫৪

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Data from ARI, BUET



Vehicles Tables

	Cy: 1c	Trick	Push	R-Cap	Back	Temp	W-L	W-L	Bus	Car	Jeep	P
2000	1	0	0	0	1	1	1	3	2	1	0	
2001	1	0	0	1	0	2	1	1	4	0	0	
2002	0	0	0	0	0	0	1	0	21	0	0	
2003	1	1	0	2	0	0	4	4	10	0	0	
2004	0	3	0	0	0	0	3	0	20	0	2	
2005	0	0	0	0	0	0	0	0	0	0	0	
2006	3	3	0	1	0	1	3	7	41	3	0	
2007	0	2	0	0	0	1	4	7	7	0	0	
2008	1	1	0	3	0	0	1	1	11	0	0	
2009	0	0	0	4	1	1	2	2	17	3	0	
2010	0	0	0	1	1	0	0	0	11	0	0	
2011	1	0	0	0	1	1	1	7	20	3	2	
2012	0	0	0	1	0	0	1	0	3	0	1	
2013	0	0	0	0	0	0	0	0	0	0	0	
2014	0	2	0	0	0	0	0	0	0	0	0	
2015	0	0	0	0	0	0	0	0	0	0	0	
Total	0	12	0	17	4	10	29	32	167	14	3	

[Next](#) [Previous](#) [Options](#) [Exit](#)

Vehicles Tables

	1	2	3	4	5	6	7	8	9	10	11
2000	10	40	0	0	0	0	0	0	0	0	0
2001	30	10	0	0	0	0	0	0	0	0	0
2002	22	30	0	0	0	0	0	0	0	0	0
2003	34	54	0	0	0	0	0	0	0	0	0
2004	29	24	0	0	0	0	0	0	0	0	0
2005	16	16	0	0	0	0	0	0	0	0	0
2006	5	16	0	0	0	0	0	0	0	0	0
2007	47	30	0	0	0	0	0	0	0	0	0
2008	36	42	0	0	0	0	0	0	0	0	0
2009	0	24	0	0	0	0	0	0	0	0	0
2010	5	6	3	0	0	0	0	0	0	0	0
2011	2	4	0	0	0	0	0	0	0	0	0
2012	5	4	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0
Total	257	342	3	0	0	0	0	0	0	0	0

[Next](#) [Previous](#) [Options](#) [Exit](#)

Vehicle Tables

	Cyber	Rich	Pos	Re-Cyber	Robot	Tempo	Rich	Rich	Rich	Car	Jump	P
2000	1	3	0	3	0	2	2	0	19	4	1	
2001	1	3	0	0	0	1	2	0	22	2	1	
2002	2	1	0	2	1	4	3	0	29	1	0	
2003	1	5	0	5	0	4	2	2	38	4	1	
2004	0	1	0	4	0	3	2	5	22	1	0	
2005	0	1	0	2	1	2	0	2	15	1	0	
2006	0	0	0	3	0	1	0	1	11	0	1	
2007	0	4	0	0	0	5	2	1	37	3	0	
2008	0	2	1	2	0	0	2	0	30	2	0	
2009	0	0	0	6	0	0	2	0	0	0	0	
2010	0	0	0	0	1	0	0	0	7	1	0	
2011	0	0	0	0	0	0	0	0	2	0	0	
2012	0	0	0	1	0	0	0	0	4	0	0	
2013	0	0	0	0	0	0	0	0	0	0	0	
2014	0	0	0	0	0	0	0	0	0	0	0	
2015	0	0	0	0	0	0	0	0	0	0	0	
Total	5	22	1	29	3	24	22	27	230	22	4	

< Next > < Previous > < Options > < Exit >

Vehicle Tables

2000	10	10	0	0	0	0	0	0	0	0	0	0
2001	3	10	0	0	0	0	0	0	0	0	0	0
2002	20	10	0	0	0	0	0	0	0	0	0	0
2003	24	0	0	0	0	0	0	0	0	0	0	0
2004	35	0	3	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0
2006	55	24	0	0	0	0	0	0	0	0	0	0
2007	23	20	3	0	0	0	0	0	0	0	0	0
2008	9	10	0	0	0	0	0	0	0	0	0	0
2009	32	10	0	0	0	0	0	0	0	0	0	0
2010	18	10	0	0	0	0	0	0	0	0	0	0
2011	33	20	0	0	0	0	0	0	0	0	0	0
2012	9	4	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0
2014	1	4	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0	0
Total	200	100	6	0	0	0	0	0	0	0	0	0

< Next > < Previous > < Options > < Exit >

Vehicles Tables

	Cycle	Rick	PushC	MrCyc	BabyT	Tengo	MicrB	MiniB	Bus	Car	Jeep	P
2000	3	3	0	5	0	3	4	0	20	2	1	
2001	2	3	0	4	0	2	1	0	20	0	1	
2002	2	5	0	0	0	18	0	11	44	4	0	
2003	4	4	0	0	0	6	3	7	50	2	5	
2004	0	2	0	0	0	0	3	0	15	1	1	
2005	0	2	0	4	0	2	1	1	20	1	1	
2006	1	1	0	4	0	3	2	0	20	1	2	
2007	2	0	1	4	0	2	0	3	25	0	2	
2008	2	3	0	1	0	1	2	2	13	4	1	
2009	0	1	0	3	0	2	2	1	18	1	1	
2010	3	0	0	5	0	2	0	0	12	2	0	
2011	1	0	0	0	0	0	1	2	13	0	0	
2012	1	1	0	0	0	0	0	0	0	0	0	
2013	0	0	0	0	0	1	1	0	5	0	1	
2014	0	0	0	1	0	1	0	1	0	1		
2015	0	0	0	5	0							
Total	21	25	1	55	0	37	30	63	352	36	10	

< Next >
< Previous >
< Options >
< Exit >

Vehicles Tables

	Cycle	Rick	PushC	MrCyc	BabyT	Tengo	MicrB	MiniB	Bus	Car	Jeep	P
2000	1	0	0	0	0	0	0	0	0	1	0	
2001	0	0	0	0	0	0	0	0	0	0	0	
2002	0	0	0	0	0	0	0	0	0	0	0	
2003	0	0	0	0	0	0	0	0	0	1	1	
2004	0	0	0	0	0	0	0	0	0	1	0	
2005	0	1	0	1	0	0	1	1	2	0	0	
2006	0	0	0	0	0	0	0	0	0	0	0	
2007	0	1	0	0	0	0	1	0	1	1	0	
2008	0	0	0	0	0	0	0	0	0	1	0	
2009	1	0	0	0	0	0	0	0	0	0	0	
2010	0	0	0	0	0	0	0	0	0	0	0	
2011	0	0	0	0	0	0	0	0	0	0	0	
2012	0	0	0	0	0	0	0	0	0	0	0	
2013	0	0	0	0	0	0	0	0	0	0	0	
2014	0	0	0	0	1	0	0	0	0	1		
2015	0	0	0									
Total	2	2	0	2	0	0	1	2	2	21	2	

< Next >
< Previous >
< Options >
< Exit >

Vehicles Tables

	Car	Jeep	Pickup	Truck	Heavy	Artic	Drift	Tractor	Trailer	Other	Total
0	2	1	2	7	28	1	1	0	0	3	36
0	0	2	4	1	23	0	0	0	0	3	28
4	4	0	0	1	21	1	1	0	0	1	28
0	7	5	4	0	35	1	0	0	0	0	47
5	2	1	0	0	14	0	0	0	0	0	17
6	1	0	3	1	10	0	0	0	1	0	15
8	1	1	2	3	21	0	1	0	0	1	27
3	1	2	2	3	10	0	2	0	0	0	18
5	6	2	0	2	23	0	0	0	0	0	33
3	4	0	0	2	14	0	0	0	0	0	20
6	1	0	0	4	11	0	1	1	0	0	19
2	3	1	0	0	6	0	0	0	0	0	10
3	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	2	5	0	0	0	0	0	7
5	0	1	0	2	10	1	0	0	0	0	13
6	1	0	0	0	0	0	0	0	0	0	1
2	36	16	36	25	252	4	7	2	0	42	382

< Next > < Previous > < Options > < Exit >

Accident Tables

	Total	Grav	Singl	Colln	Total
2000	12	2	0	1	15
2001	6	1	0	1	8
2002	30	6	0	1	37
2003	25	3	0	0	28
2004	31	5	3	1	40
2005	0	0	0	0	0
2006	50	0	0	1	51
2007	25	7	0	2	34
2008	13	3	1	1	18
2009	36	5	0	0	41
2010	23	0	0	0	23
2011	41	4	1	1	47
2012	11	0	0	0	11
2013	0	0	0	0	0
2014	3	0	0	0	3
2015	0	0	0	0	0
Total	314	44	5	9	372

Next > < Previous > < Options > < Exit >

Accident Tables

	Fatal	Griev	Simpl	Colln	Total
2000	20	6	3	1	30
2001	36	11	0	1	48
2002	31	9	1	0	41
2003	46	15	0	0	61
2004	32	9	0	0	41
2005	15	6	3	0	24
2006	0	4	1	0	5
2007	55	7	4	0	66
2008	46	10	1	0	57
2009	18	1	0	1	20
2010	0	1	0	0	1
2011	4	0	0	0	4
2012	7	0	0	0	7
2013	0	0	0	0	0
2014	0	0	0	0	0
2015	0	0	0	0	0
Total	334	79	13	3	429

< Next > < Previous > < Options > < Exit >

Accident Tables

	Fatal	Griev	Simpl	Colln	Total
2000	39	12	0	3	54
2001	45	12	2	0	59
2002	57	24	3	0	84
2003	60	27	4	2	93
2004	29	1	1	1	32
2005	29	7	0	1	37
2006	46	12	0	0	58
2007	39	5	2	4	50
2008	49	6	5	1	61
2009	42	7	1	1	51
2010	25	5	1	0	31
2011	24	3	1	1	29
2012	21	0	1	0	22
2013	0	0	0	0	0
2014	11	0	1	0	12
2015	19	2	1	0	22
Total	535	123	23	14	695

< Next > < Previous > < Options > < Exit >

Casualty Tables

2000	7	0	0	0	7
2001	0	0	0	0	0
2002	0	0	0	0	0
2003	0	0	0	0	0
2004	4	0	0	0	4
2005	0	2	0	0	2
2006	0	0	0	0	0
2007	12	6	0	0	18
2008	3	2	0	0	5
2009	4	0	0	0	4
2010	0	0	0	0	0
2011	0	0	0	0	0
2012	0	0	0	0	0
2013	0	0	0	0	0
2014	0	0	0	0	0
2015	4	0	0	0	4
Total	42	10	0	0	52

[Options](#) [Exit](#)

[Next](#) [Previous](#)

Casualty Tables

	Fatal	Gravely Inj	Minor Inj	Total
2000	91	18	0	109
2001	101	17	2	120
2002	146	52	5	203
2003	167	70	7	244
2004	100	1	1	102
2005	93	21	0	114
2006	87	10	0	97
2007	67	6	4	77
2008	84	13	9	106
2009	124	24	2	150
2010	64	26	5	95
2011	53	4	1	58
2012	40	0	1	41
2013	0	0	0	0
2014	16	0	1	17
2015	40	4	2	46
Total	1295	303	40	1638

[Options](#) [Exit](#)

[Next](#) [Previous](#)

Casualty Tables

	Total	Dr Low	Simple	Refin	Total
2000	14	5	0	0	19
2001	11	1	0	0	12
2002	36	16	0	0	54
2003	31	3	0	0	34
2004	34	10	19	0	63
2005	0	0	0	0	0
2006	64	11	0	0	75
2007	26	14	0	0	40
2008	19	0	1	0	20
2009	45	10	0	0	55
2010	30	0	0	0	30
2011	64	6	1	0	71
2012	13	0	0	0	13
2013	0	0	0	0	0
2014	3	0	0	0	3
2015	0	0	0	0	0
Total	392	84	21	0	497

< Previous >
Options >
< Exit >

Vehicles Tables

	Cycle	Rick	Push	Dr-Cap	Motor	Temp	Rick B	Rick B	Bus	Car	Jeep	P
2000	1	0	0	0	1	1	1	1	2	1	0	0
2001	1	0	0	1	0	1	1	1	4	0	0	0
2002	0	0	0	1	0	0	1	1	21	0	0	0
2003	1	1	0	2	0	1	4	4	10	0	0	0
2004	0	3	0	0	0	0	3	0	20	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0
2006	3	3	0	1	0	1	3	7	41	3	0	0
2007	0	2	0	0	0	0	4	1	11	0	0	0
2008	1	1	0	3	0	0	1	1	17	3	0	0
2009	0	0	0	4	1	1	2	2	17	0	0	0
2010	0	0	0	1	1	0	1	1	11	0	0	0
2011	1	0	0	1	1	1	7	1	20	3	2	1
2012	0	0	0	1	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	2	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	12	0	17	4	10	29	32	167	14	3	1

< Next >
< Previous >
Options >
< Exit >

Vehicles Tables

	Cycle	Truck	Public	Police	Robot	Tempo	Micro	Mini	Bus	Car	Jeep	TP
2000	1	3	0	1	0	2	2	0	19	4	1	
2001	1	3	0	0	0	1	2	0	22	2	1	
2002	2	1	0	2	1	4	3	0	29	1	0	
2003	1	5	0	5	0	4	2	2	32	4	1	
2004	0	1	0	4	0	3	2	0	22	1	0	
2005	0	1	0	2	1	2	0	2	15	1	0	
2006	0	0	0	3	0	1	0	1	11	0	1	
2007	0	4	0	0	0	1	2	1	37	3	0	
2008	0	2	1	2	0	5	2	1	30	2	0	
2009	0	0	0	0	0	0	2	0	0	1	0	
2010	0	0	0	0	1	1	0	0	7	0	0	
2011	0	0	0	0	0	0	0	0	2	0	0	
2012	0	0	0	1	0	0	0	0	4	0	0	
2013	0	0	0	0	0	0	0	0	0	0	0	
2014	0	0	0	0	0	0	0	0	0	0	0	
2015	0	0	0	0	0	0	0	0	0	0	0	
Total	5	22	1	29	3	24	22	27	230	22	4	

< Next > < Previous > < Options > < Exit >

Vehicles Tables

	Jeep	Pickup	Truck	Motor	ATV	Boat	Tractor	Paint	Other	Total
1	0	1	0	4	0	0	0	0	0	17
0	0	1	0	7	0	0	0	0	0	13
2	0	1	0	11	0	0	0	0	1	46
0	0	0	0	5	0	0	0	0	0	32
0	0	4	0	10	0	0	0	0	3	43
2	0	0	0	10	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	77
0	0	1	0	14	0	0	0	0	4	46
0	0	2	1	17	0	1	0	0	0	27
0	0	0	0	5	0	0	1	0	0	50
0	0	3	2	10	2	0	0	0	0	20
0	0	2	0	6	0	0	0	0	0	61
0	0	2	0	10	2	0	0	0	1	13
0	1	0	1	4	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	5
0	0	0	1	2	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
4	3	21	9	181	4	2	1	0	24	450

< Next > < Previous > < Options > < Exit >

Vehicles Tables

	Cycle	Truck	Posh	R-Cyc	Robot	Tonpa	Micro	MiniB	Bus	Car	Jeep	P
2000	1	3	0	1	0	2	2	6	19	4	1	
2001	1	3	0	0	0	1	2	0	22	2	1	
2002	2	1	0	2	1	4	3	0	29	1	0	
2003	1	5	0	5	0	4	2	2	32	4	1	
2004	0	1	0	4	0	3	2	5	22	1	0	
2005	0	1	0	2	1	2	0	2	15	1	0	
2006	0	0	0	3	0	1	0	1	11	0	1	
2007	0	0	0	0	0	1	2	1	17	2	0	
2008	0	2	1	2	0	5	2	1	30	2	0	
2009	0	0	0	0	0	0	2	0	0	1	0	
2010	0	0	0	0	1	1	0	0	7	0	0	
2011	0	0	0	1	0	0	0	0	2	0	0	
2012	0	0	0	0	0	0	0	0	4	0	0	
2013	0	0	0	0	0	0	0	0	0	0	0	
2014	0	0	0	0	0	0	0	0	0	0	0	
2015	0	0	0	0	0	0	0	0	0	0	0	
Total	5	22	1	29	3	24	22	27	230	22	4	

< Next >
< Previous >
< Options >
< Exit >

Vehicles Tables

	1	2	3	4	5	6	7	8	9	10	11	12
2000	22	60	3	0	0	0	0	0	0	0	0	0
2001	30	42	0	0	0	0	0	0	0	0	0	0
2002	54	60	0	0	0	0	0	0	0	0	0	0
2003	52	62	0	0	0	0	0	0	0	0	0	0
2004	20	24	0	0	0	0	0	0	0	0	0	0
2005	21	32	0	0	0	0	0	0	0	0	0	0
2006	33	50	0	0	0	0	0	0	0	0	0	0
2007	20	42	0	4	0	0	0	0	0	0	0	0
2008	32	58	0	0	0	0	0	0	0	0	0	0
2009	10	62	5	0	0	0	0	0	0	0	0	0
2010	13	34	3	0	0	0	0	0	0	0	0	0
2011	12	32	3	0	0	0	0	0	0	0	0	0
2012	13	10	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0
2014	4	16	0	0	0	0	0	0	0	0	0	0
2015	11	22	0	0	0	0	0	0	0	0	0	0
Total	371	636	15	4	0	0	0	0	0	0	0	0

< Next >
< Previous >
< Options >
< Exit >

Questionnaire Survey

1. Name:
2. Education Level:
3. Possession of Legal License: Yes/No
4. Duration of driving:

4 December 2023
Place: Chondra ,

Name	Education Level	Legal Licence	Driving time
Rakib	5	Yes	8-10 hour
Md. kalam	7	Yes	10-12 "
Tusar	3	NO	8-10 "
Jamil	6	NO	8-10 "
kawsar	2	Yes	10-12 "
Robin	5	"	14 above "
Salim	2	"	10-12 "
Naim	NO	NO	8-10 "
Sojib	NO 3	"	10-12 "
Dewan	7	Yes	
Rahman	3	Yes	8-10 "
Shifat	5	Yes	10-12 "
Sumir	4	"	8-10 "
Rayhan	10	Yes	10-12 "
Tarnim	3	NO	8-10 "
Seyam	4	Yes	8-10 "
Mokhles	9	Yes	14 above
Jubair	2	Yes	8-10
Sumon	1	Yes	10-12
Abbas	2	Yes	8-10
Ramim	4		8-10

Seyam	2	Yes	8-10
Payel	5	Yes	9-10
Momin	3	Yes	8-10
Ruhul	5	"	7-9
Suborno	2	"	6-10
Taslim	3	"	8-10
Khan	4	"	9-10
Rabanni	2	"	Above -14
Anowar	10	"	Above -14
Boskur	5	NO	8-10
Rashid	8	Yes	8-10
Mannan	4	"	5-8
Tamim	7	"	6-10
Hasan	2	"	7-9
Amin	6	"	8-10
Rabbani	2	NO	8-10
Apon	1	Yes	7-9
Badhon	5	"	8-10
Rizve	8	NO	10-12
Fahim	NO	Yes	10-14
Faysal	4	"	8-10
Azraful	2	NO	8-10
Omi	9	Yes	8-10
Jubair	6	"	8-10
Mondol	2	"	8-10
Seyam	3	"	12-14
Robin	8	"	8-10
Sajib	3	"	8-10
Tonu	10	"	8-10
Rifat	6	NO	10-12
Alamgir	7	Yes	6-7
MD Tosar	2	"	9-11
Safi	10	"	8-10
Imran	4	"	10-12
Amit	6	NO	7-8
Rabby	4	NO	8-10
Selim	2	Yes	9-10
Rahman	1	NO	10-12
Awlad	0	NO	8-10
Romim	4	Yes	7-9
Based	10	"	6-7
Hasi b	9	"	Above -14
Muhit	4	"	8-10

Jobbar	5	yes	8-10
Tiftu	3	"	8-10
Hemel	6	"	10-12
Abirz	1	NO	5-8
Motaleb	3	yes	7-10
Muhamnad	9	"	10-12
Sabbirz	7	yes	8-10
Nasir	4	NO	10-12
Rasel	3	yes	8-10
Sadman	6	yes	10-12
Sami	2	NO	8-10
Raja.	10	yes	6-8

Azim	1	Yes	8-10
Ashiq	5	"	10-12
Zabbar	3	"	8-10
Latif	4	"	14 above
Mahabub	2	"	8-10
Soruf	8	"	6-7
Taleb	2	"	10-12
Kiron	10	"	8-10
Nekhel	2	"	9-10
Dev	3	"	8-10
Avisit	4	"	8-10
Ahnaf	10	"	8-10
Murahid	3	NO	6-7
Habib	2	"	12-14
Jahmid	7	"	8-10
Afzal	10	"	5-6
Ahmed	2	NO	8-10
Tazwar	6	yes	8-10
Latif	1	yes	8-10
Azmir	4	yes	8-10
Ruhul	4	NO	Above -14
Rahim	8	yes	9-12
Mobarrak	2	yes	6-7
Sumit	6	yes	8-10
Sarkar	3	yes	8-10
	4	yes	8-10