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**STAMFORD UNIVERSITY BANGLADESH  
DEPARTMENT OF CIVIL ENGINEERING**

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**A CASE STUDY ON THE INVESTIGATION OF  
RECENTLY OCCURRED RAILWAY ACCIDENTS  
AT CUMILLA AND CHITTAGONG**

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**September 2023**

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**A project thesis by**

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Assistant Professor  
Department of Civil Engineering**

In partial fulfillment of the requirements for the degree of  
Bachelor of Science (B.Sc.) in Civil Engineering

**September 2023**



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## STAMFORD UNIVERSITY BANGLADESH DEPARTMENT OF CIVIL ENGINEERING

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The project and thesis title 'A case study on the investigation of recently occurred railway accident at Cumilla and Chittagong' submitted by Tarikul Islam Tarek-ID No. CEN-070 10499-Batch No. 070 A, and Rakibul Hasan Suvo- ID No. CEN-070 10473- Batch No. 070 A, Anjumanara Akter- ID No. CEN-070 10559- Batch No. 070 A and Abu Naser Nayem- ID No. CEN-070 10564 - Batch No. 070 A of the Department of Civil Engineering has been satisfactorily accepted in partial fulfillment of the requirements for the degree of Bachelor of Science (B.Sc.) in Civil Engineering on September 20, 2023.

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**(Anika Nowshin Mowrin)**

Supervisor, Project and Thesis, And

Assistant professor

Department of Civil Engineering

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## **DECLARATION**

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We, Tarikul Islam Tarek, Rakibul Hasa Suvo, Anjumanara Akter, Abu Naser Nayem are student of B.Sc. in Civil Engineering hereby solemnly declare that, the works presented in this thesis & project has been carried out by us and has not previously been submitted to any other University / College/ Organization for any academic qualification / certificate / diploma / degree.

We warrant that the present work does not breach any copyright.

We further undertake to indemnify the University against any loss or damage arising from breach of the foregoing obligations

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**(Tarikul Islam Tarek)**

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**(Rakibul Hasan Suvo)**

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**(Anjumanara Akter)**

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**(Abu Naser Nayem)**

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## **DECLARATION**

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We dedicate this thesis to our parents; we also like to dedicate our work to our supervisor Anika Nowshin Mowrin.

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## **ACKNOWLEDGEMENT**

The research ‘A Study on the investigation of different railway accident’ has been conducted in partial fulfillment of the requirements for the degree of Bachelor of Science (B.Sc.) in Civil Engineering. This critical work came to life due to the unconditional help and co-operation in different ways by many people. We express our gratefulness and thank them for their assistance in preparation of this project and thesis.

First of all, we like to show our highest gratitude to the Almighty. Blessings and guidance while we are preparing our thesis.

It is the broadness of the government to pass the Privet University Act 1993 for making a scope of education for all. It wouldn't have been possible on my behalf to have earn the bachelor degree in Civil Engineering if a private university like Stamford University Bangladesh would not have taken the challenge to create Civil Engineers. We are grateful to Prof. Dr. M. A. Hannan Feroz, the honorable President and Vice Chancellor of the Stamford University Bangladesh for this praise worthy step.

We are indebted to the supervisor of our project and thesis, Anika Nowshin Mowrin, Assistant Professor of the Department of Civil Engineering, Stamford University Bangladesh for making us believe that logic is power, and with the right principles and dedication a man can achieve anything, thank you for your assistance and your patience, you are our role model.

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**(Tarikul Islam Tarek)**

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**(Rakibul Hasan Suvo)**

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**(Anjumanara Akter)**

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**(Abu Naser Nayem)**

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## **ABSTRACT**

Recently, some railway accidents occurred in our country. So, two railway accidents selected for investigate and analysis the reason of accident, at Comilla and Chittagong. The selected topic is “A CASE STUDY ON THE INVESTIGATION OF RECENTLY OCCURRED RAILWAY ACCIDENTS AT CUMILLA AND CHITTAGONG”. From (Barotakia, Chittagong) and (Nangalkot, Cumilla) the data are collected, by physically attend on the spot. Data collection and analysis were two types. 1) Photographic Survey 2) Questionnaire survey. In photographic Survey there some photos collected by our own camera, and some photos collected from newspaper. In questionnaire Survey data collected from some specific type of people like drivers, pedestrian, hawkers and road users by interview. Analyzed this collected data by pie chat. By these pie chart got the reason of accidents. Next, this analyzed data compared with the newspapers data. At the accident of Chittagong, occurred at railway and roadway crossing, eleven people died in this accident. On the other hand, at the accident of Cumilla no passenger and pedestrian were killed and approximately fifty people injured. The accident was rear end collision. These accidents occurred for the absence of gateman and signaling timing mistake. So, the main reason in this accident signaling fault. To get rid of this type of problem, government have to provide automatic signaling device.

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## **CHAPTER ONE**

### **INTRODUCTION**

# CHAPTER ONE

## INTRODUCTION

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### **1.1 General:**

Railway transportation plays a crucial role in modern society, serving as a backbone for the movement of people and goods across vast distances. While railways are generally considered a safe mode of transportation, the occurrence of railway accidents can have devastating consequences, including loss of life, property damage, and significant disruptions to transportation networks. It is imperative to investigate and understand the factors contributing to railway accidents to enhance safety measures and reduce the occurrence of such incidents. This study aims to delve into the investigation of different railway accidents to gain valuable insights into the causes, consequences, and preventative measures associated with these incidents. By comprehensively analyzing a range of railway accidents, from derailments to collisions and other mishaps, this research seeks to provide a holistic view of the challenges and opportunities for improving railway safety.

### **1.2 Background of the study:**

The railway industry has made substantial advancements in technology and safety measures over the years. However, the potential for accidents still exists due to various factors, including human error, equipment malfunctions, track conditions, and adverse weather conditions. Railway accidents can result in a wide range of consequences, such as injuries, fatalities, environmental damage, and economic losses. Understanding the underlying causes of railway accidents is vital for both the railway industry and regulatory bodies. It allows for the development of targeted safety measures, improved training protocols, and the implementation of advanced technology to prevent or mitigate accidents.

### **1.3 Objective of the Study:**

- To investigate these accident
- To find out the reason of accident
- To collect and analysis accident data

- To give proper solution for these accident

## 1.4 Scopes of the Study

**Safety Improvement:** Investigating accidents helps identify the root causes and contributing factors, enabling the railway industry to implement safety measures and preventive actions. This can lead to a reduction in accidents and an overall improvement in safety standards.

**Public Trust:** A thorough and transparent investigation process can enhance public trust in the railway industry. When the public sees that accidents are being investigated and addressed seriously, they may have greater confidence in using rail services.

**Continuous Improvement:** The lessons learned from accident investigations can lead to continuous improvement in railway operations and safety culture. Railway companies can use this knowledge to update their procedures and technology.

**Time-Consuming:** Thorough railway accident investigations can be time-consuming. Gathering evidence, analyzing data, and conducting interviews with relevant personnel can take a significant amount of time, which can delay the release of findings and recommendations.

**Costly:** Conducting comprehensive railway accident investigations can be expensive. This includes the costs associated with assembling investigation teams, conducting forensic analysis, and producing detailed reports. These costs can be a burden on the organizations responsible for the railway system.

## 1.5 Limitations of the study:

- The accident spots are very far from our location so can not go several times to investigate
- Some peoples are not interested of this survey for their time limitation
- As it was a long journey, so our two members were sick after the journey
- As they were speaking in their regional language, so it was very difficult to understand their language
- It was very difficult to find the accidental spot as the place was not known to us
- There were not enough people for investigate this survey
- As the accident spot was in a rural area, so there was no hygienic food



## **CHAPTER TWO**

# **LITERATURE REVIEW**

## **CHAPTER TWO LITERATURE REVIEW**

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### **2.1 General:**

While consulting pertaining literatures it travels that a fundamental problem in dealing with the accident in developing country like Bangladesh is that, not much is known about the accident problem characteristics and the impact of road safety measures due to inadequate data. The important steps involved in railway accident studies are identification of the factors contributing to accidents, reporting and collection procedure of accident data, nature of accident problems leading to prescription of effective counter measures and then finally monitoring and evaluation of the safety schemes to assess they are performance. In this chapter and attempt has been made to perceive the accident problem and contemporary issue. Various elements of road traffic system, accident investigation and subsequent development of counter measures, evaluation and costing of accident, review of related research and definitions of different terms related to accident are also discussed.

### **2.2 Standard Terminology:**

At the very outside of the study few important terms used in the text are described in order to aid in comprehension. Some widely used terms related to accident and accident locations are given below.

#### **Accident**

Term 'accident' is used to mean an event that produced, always the potential to produce and injury or fatality. An accident which occurred or originated on a road or rail open to public traffic resulting in either injury or loss of life or damaged property, in which at least one moving vehicle was involved.

**Fatal Accident**

In which one or more persons are killed outright on the spot is called fatal accident.

**Grievous Injury Accident**

An accident who has received injuries such as fractures, concussion, internal lesions, crushing, severe cuts and lacerations, severe general shock requiring medical treatment and detention in hospital.

**Simple Injury Accident**

An accident in which a person sustained injuries but need not to be admitted to the hospital. It can also include an accident, victim who sustained injuries and was treated in hospital but not detained overnight.

**High Speed Temptation**

Generally, a driver has tendency to drive a vehicle with speed which may go beyond design value and create dangerous situation. There may be many reasons for over speeding such as –

- To make up the lost time
- Craze for speed

**Pedestrian**

Pedestrians lack of knowledge regarding road use, traffic rules and regulations, violation of regulation and carelessness in using the road or rail crossing are the main reason of the high incident of casualties. In adequate pedestrian facilities can also lead to pedestrian accident.

### **Branch Line**

A branch line is a secondary railway line which branches off a more important through route, usually a main line.

### **Main Line**

The main line of railway is a track that is used for through trains or is the principal artery of the system from which branch lines are connected.

### **Yard line**

Yard line is the US term for a complex series of railroad tracks for storing, sorting, or loading/unloading railroad cars or locomotives. Railroad yards have many tracks in parallel for keeping rolling stock stored off the main line, so that they do not obstruct the flow of traffic.

## **2.3 Classification of Accident:**

Classification of railway accidents, both in terms of cause and effect, is a valuable aid in studying rail accidents to help to prevent similar ones occurring in the future. Systemic investigation for over 150 years has led to the railway's excellent safety record (compared, for example with road transport) Ludwig Von Stockert (1913) proposed a classification of accident by their effects (consequences); e.g., head-on collisions, Rear-end collisions, derailments. Schneider and Mase mechanical faults. Similar categorizations had been made by implication in previous books e.g., Rolt (1956), but Stickers and Schneider/ Mase's are more systematic and complete. With minor changes, they represent best knowledge.

## **2.4 Classification of Railway Accident by Effects:**

### **Collisions:**

- Head-on collision
- Rear collision
- Collisions with buffer stops
- Obstructions on the line (Road vehicles, landslides, avalanches)

### **Derailments:**

- Plain track
- Curves
- Junctions

**Other:**

- Fires and explosions (including sabotage/terrorism)
- Falls from trains, collisions with people on tracks

## **2.5 Classification of Accidents by Causes:**

**Drivers Error:**

- Passing signals at danger
- Excessive speed
- Mishandling engine (e.g., boiler explosions)

**Signalmen's error:**

- Allowing two trains into same occupied block section
- Incorrect operation of signals, points or token equipment

**Mechanical failure of rolling stock:**

- Poor design
- Poor maintenance

**Civil engineering failure:**

- Track (permanent way) faults
- Bridge and tunnel collapses

**Acts of other people:**

- Other railway personnel (shunters, porters, etc.)
- Non-railway personnel
- Accidental

- Deliberate (vandalism, terrorism, suicide)
- Trespassing

**Contributory factors:**

- Strength of rolling stock
- Fires resulting from accidents
- Effectiveness of brakes
- Poor track or junction layout
- Inadequate rules
- Level crossing misuse

## 2.6 Elements of Railway Accident:

Railway accidents refer to incidents that occur on railway systems, involving trains, tracks, and associated infrastructure. These accidents can result in various degrees of damage, injuries, or fatalities. Railway accidents can occur for a variety of reasons, including human error, technical failures, weather conditions, and external factors. Here are some key aspects and types of railway accidents.

**1. Derailments:** A derailment occurs when a train leaves its tracks. This can happen due to a variety of factors, such as damaged tracks, excessive speed, or mechanical failures. Derailments can result in damage to the train, tracks, and potential injuries or fatalities.

**2. Collisions:** Train collisions can happen when two or more trains collide with each other. This can occur due to signal failures, miscommunications, or improper scheduling. Collisions can result in significant damage and casualties.

**3. Level Crossing Accidents:** Level crossings are intersections where roads or paths cross railway tracks. Accidents at level crossings often involve vehicles or pedestrians being struck by trains due to failure to obey warning signals or barriers.

**4. Signal Failures:** Signal failures can lead to accidents by miscommunicating information to train operators. Trains might not receive proper warnings or instructions, potentially causing collisions or derailments.

**5. Human Error:** Human factors, such as mistakes made by train operators or maintenance personnel, can contribute to accidents. Fatigue, distraction, and lapses in judgment can all play a role.

**6. Technical Failures:** Mechanical failures in the train's components or track infrastructure can lead to accidents. These might include brake failures, engine malfunctions, or track defects.

**7. Weather-Related Accidents:** Adverse weather conditions, such as heavy rain, snow, or fog, can reduce visibility and make tracks slippery, increasing the risk of accidents.

**8. Trespassing and Sabotage:** Unauthorized individuals on railway tracks or intentional acts of sabotage can also lead to accidents. Trespassers can be struck by trains, and acts of sabotage can damage tracks or trains.

**9. Overcrowding and Overloading:** In some cases, overcrowding of trains or overloading of cargo can lead to accidents by affecting the train's stability or performance.

**10. Improper Maintenance:** Poor maintenance of railway tracks, rolling stock, or signaling systems can contribute to accidents over time.

Railway authorities and operators prioritize safety through rigorous training, regular maintenance, and the implementation of safety protocols. They also use advanced technologies like automatic train control systems and safety measures like grade separations (overpasses or underpasses) to reduce the risk of accidents.

In many countries, government agencies and regulatory bodies oversee railway safety and investigate accidents to determine their causes and recommend preventive measures. The goal is to minimize the occurrence of railway accidents and protect the safety of passengers, crew, and the general public.



## **CHAPTER THREE**

## **METHODOLOGY**

## CHAPTER 3

### METHODOLOGY

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#### **3.1 General:**

A Survey has been conducted in the months July 2023 to August in Cumilla and Chittagong city of Bangladesh, to find out some accidents, number of injured, and the number of fatalities in Cumilla and Chittagong city. Our consideration in the study is the gateman, Hawker, Shopkeeper, Driver, Loco master and local Pedestrians.

#### **3.2 Methodology:**

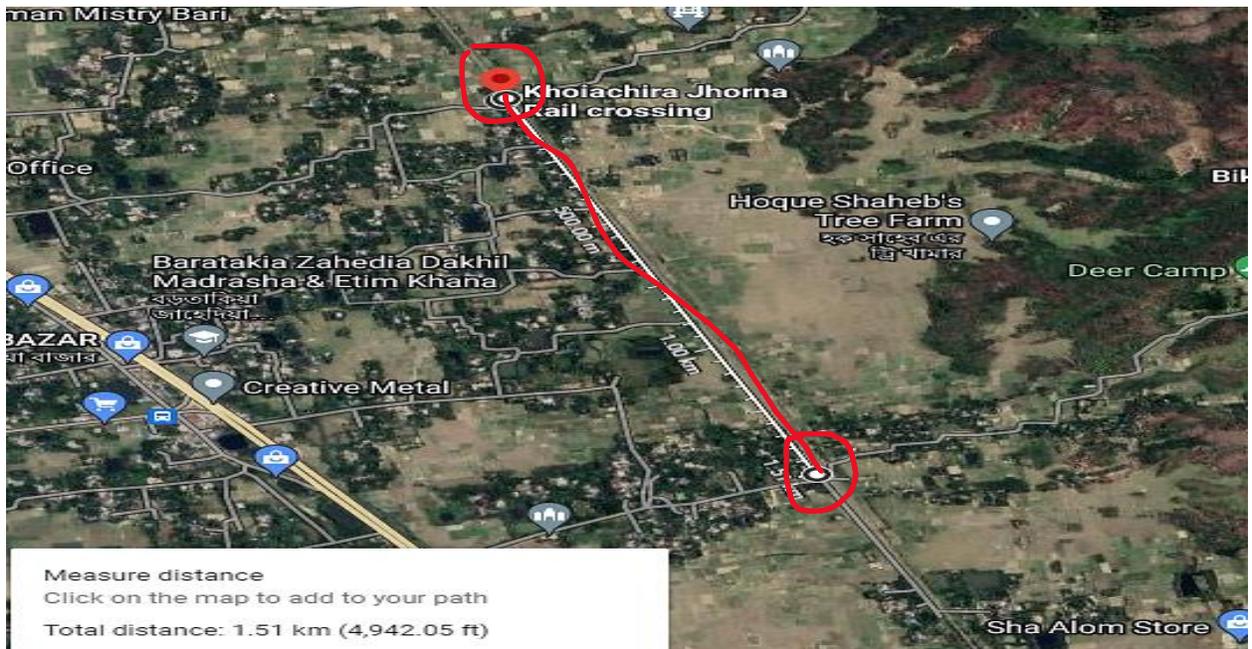
Survey has been performed in Cumilla and Chittagong city. This study used various methods of data gathering. These included field visits, observation, and interactions with people, as well as discussion with Station Master. In Cumilla and Chittagong city there have lots of slum on both sides of rail track, these people's interview is also included in this study. In this study there have a result of Cumilla city fifty peoples and Chittagong city fifty people's opinion from quandaries which are accident related.

The study has been collected from newspaper and analysis those data by year with trend.

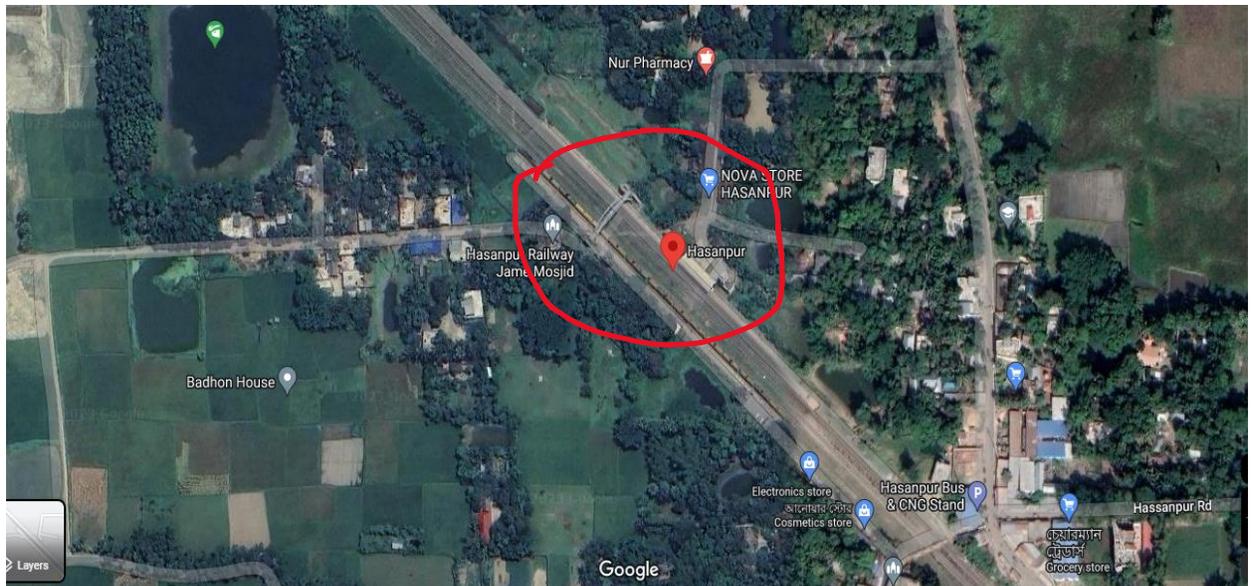
The trip distance from Barotakia Railway Station to accidental spot 1.51km. Another accident made in Hasanpur railway Station.

#### **3.3 The Study Area**

In Cumilla and Chittagong city, the survey has been conducted in some location area of Cumilla and Chittagong city also have been considered in study. These locations are from Barotakia station to Khoiachira Jhorana railcrossing and Hasanpur Railway Station. In this to crossing are considered for survey. Survey area, which are long ways from station or crossing are considered with the nearby station. The map of rail way and survey area shown in **(Fig:3. and 3.21)**

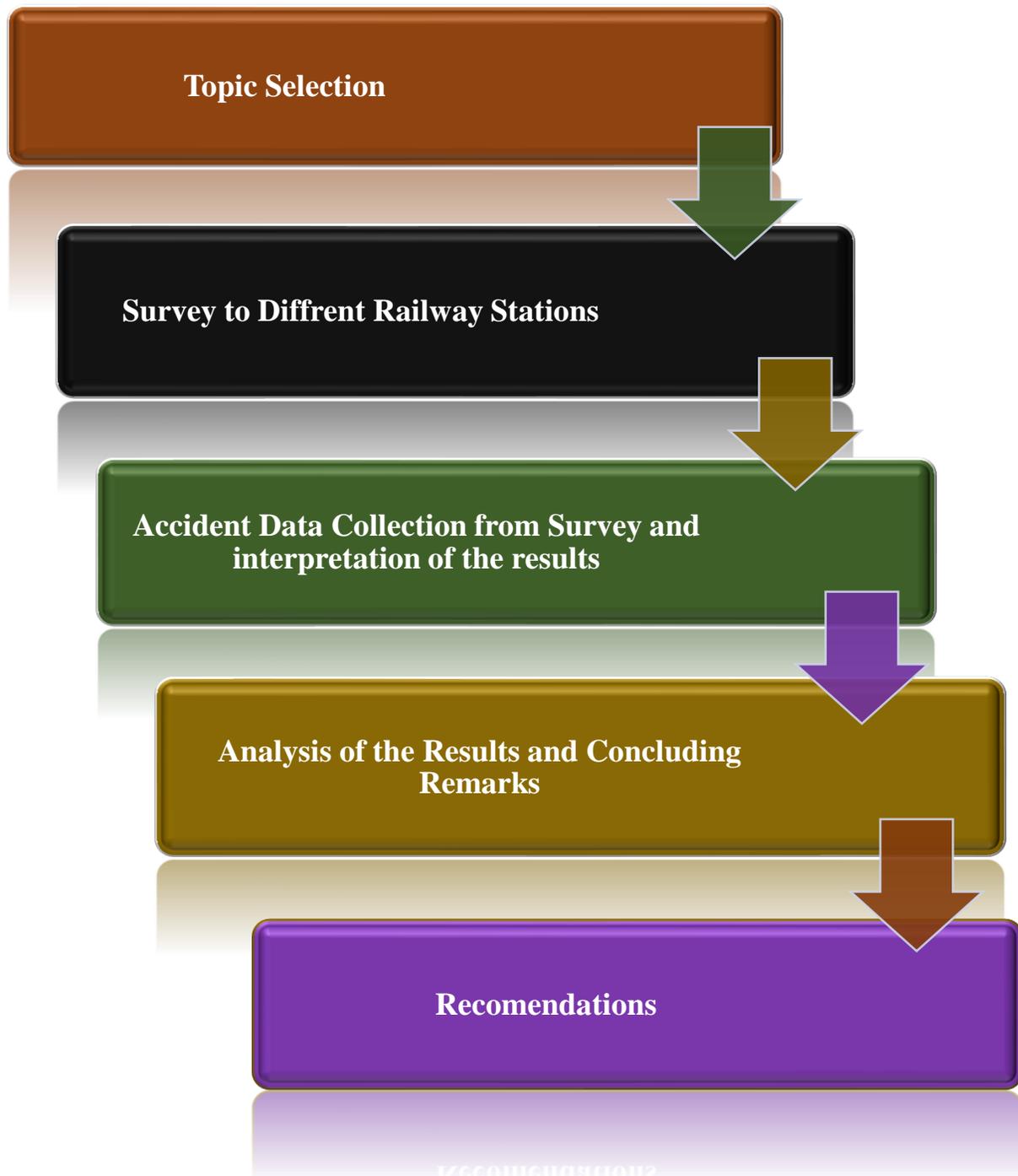


**Photo: 3.1** Barotakia Railway Station to accidental spot (Khoiachira Jhorana Rail Crossing)



**Photo: 3.2** Hasanpur Railway Station Accidental spot

### 3.4 Flow chart:



### **3.4.1 Topic Selection and Literature Review:**

Recently, some railway accidents occurred in our country. So, two railway accidents selected for investigate and analysis the reason of accident, at Comilla and Chittagong. The selected topic is “A CASE STUDY ON THE INVESTIGATION OF RECENTLY OCCURRED RAILWAY ACCIDENTS AT CUMILLA AND CHITTAGONG”

### **3.4.2 Survey to Different railway Station:**

1. Barotakia Railway Station (Chittagong)
2. Hasanpur Railway Station (Cumilla)

### **3.4.3 Accident Data Collection from Survey and interpretation of the results:**

Accident data are collected as

Collided Train with the accident, the weather condition on the day when the accident occurred, Type of Accident, Number of people injured in the accident, Number of people killed in the accident, Number of men injured in the accident, Number of men injured in the accident, Number of women injured in the accident, Number men and women killed in the accident, Number children injured in the accident, Number children were killed in the accident, The train carrying, The damaged in the accident, The approximate speed of the train, Pedestrian injured or killed in this accident apart from the train passengers, Accident happened time, Opinion about cause of the train accident.

### **3.4.4 Analysis of the Results and Concluding Remarks:**

#### **Chittagong**

Accidental Train was Mahanagar Probhati Express. accidental train was Mahanagar Probhati Express. 11 people died and seven others have been critically injured as a train hit a microbus at a rail crossing in Mirsharai of Chattogram. Seven men have been critically injured as a train hit a microbus at a rail crossing. There are men injured no women involve in this accident.

The accident occurred for absence of gateman. This was a signaling problem.

#### **Cumilla**

Accidental two train was Freight mail train and sonar Bangla express. accidental two train was Freight mail train and Sonar Bangla express. A passenger train, Sonar Bangla Express, hit the freight train from behind, entering into its line wrongly, resulting in the derailment of five carriages of the former. Nangalkot Upazila Nirbahi officer Rayhan Maheub told Prothom Alo that "I rushed to the railway station upon hearing the news. At least 50 passengers of Sonar Bangla train were wounded in this accident. Of them, 20 received treatment at a pharmacy in Dhalua while others were sent to different hospitals in Cumilla and Laksam.

**This accident also occurred for timing mistake of signaling and this also a signaling problem.**

### **3.4.5 Recommendation:**

To get rid of this problem automatic signaling device have to provide.

### **3.5 Concluding Remarks:**

The Study has been carried out to find out the main problem in these two accidents, injury, killed and also engineering solution of these two Accidents, peoples opinion, find out the best solution to reduce the number of Accidents.



## **CHAPTER FOUR**

# **DATA COLLECTION AND DATA ANALYSIS**

## CHAPTER FOUR

### DATA COLLECTION AND DATA ANALYSIS

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#### 4.1 General:

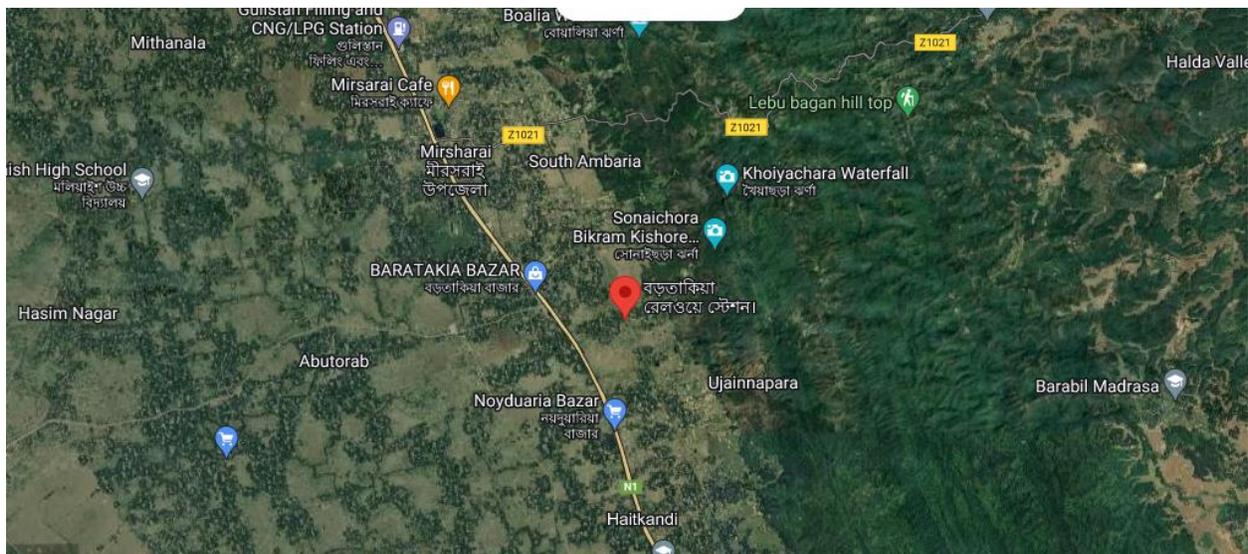
This study collected accidents data from Khoiachira Jhorna Rail crossing and Hasanpur Railway Station. This data carried all the causes of accident. This accident data also contains the nature of accident such as, Head- on collision, Averted collision, Train parting, Accident at level crossing gate, Signal disregarded, Derailment, Miscellaneous.

#### 4.2 Barotakia Railway Station (Chittagong):

Barotakia Railway Station is a railway station located in Mirsarai Upazila of Chittagong District, Chittagong Division, Bangladesh.

##### History:

The Assam Bengal Railway Company formed in England in 1892 took responsibility for the construction of railways in the country. On 1 July 1895, the 150 km meter gauge line from Chittagong to Comilla and the 69 km railway line from Laksam to Chandpur were opened to the public. Barotakia railway station was built as a station on the Chittagong-Comilla line.



**Photo 4.1:** Barotakia Railway Station (Google map)



**Photo 4.2:** Barotakia Railway Station



**Photo 4.3:** Barotakia Railway Station (Station Board)



**Photo 4.4:** Barotakia Railway Station (Station Building)



**Photo 4.5:** Barotakia Railway Station (Rail Line)



**Photo 4.6:** Passengers are leaving Barotakia



**Photo 4.7:** Some store in Barotakia and crossing



**Photo 4.8:** Train and microbus accident in Barotakia, Khoiyachara Rail and Road Crossing. 11 people dead and 7 people injured in this accident. Dead everyone was student (The Daily star)

### 4.2.1 Accidental history of Barotakia Railway Station:

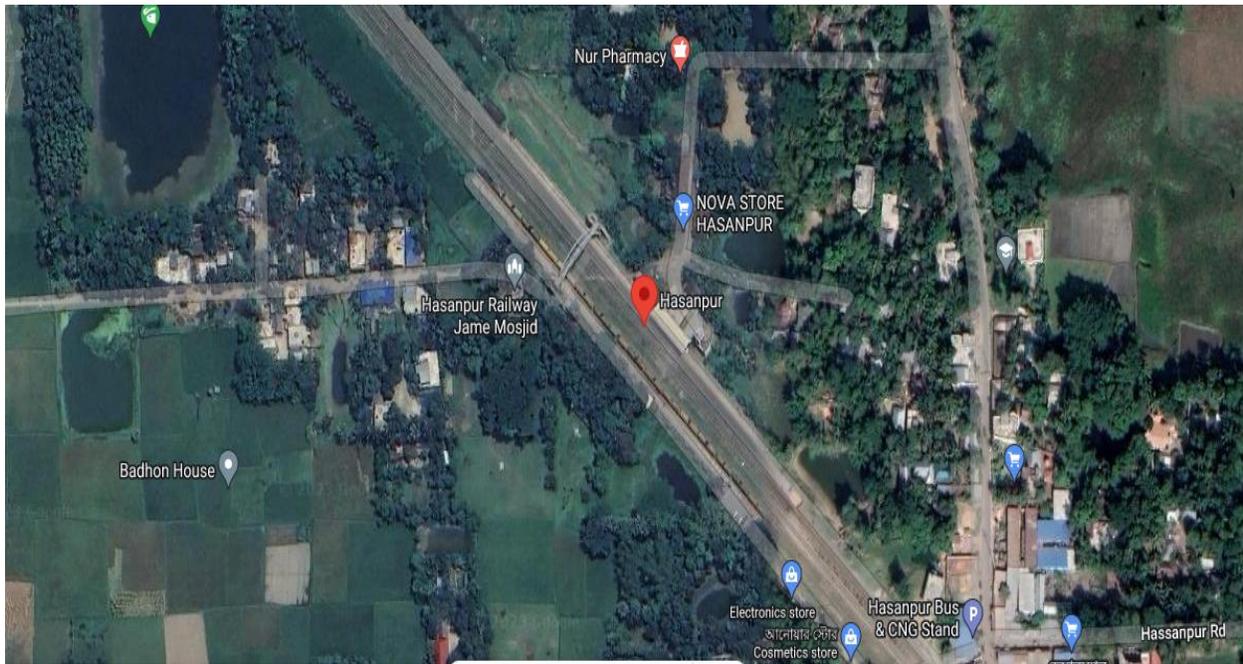
There is no other accidental history in Barotakia railway station.

### 4.3 Hasanpur Railway Station (Cumilla):

Hasanpur Railway Station is a railway station located in Nangalkot Upazila of Comilla District of Chittagong Division, Bangladesh.

#### **History:**

The Assam Bengal Railway Company formed in England in 1892 took responsibility for the construction of railways in the country. On 1 July 1895, the 150 km meter gauge line from Chittagong to Comilla and the 69 km railway line from Laksam to Chandpur were opened to the public. Hasanpur railway station was built as a station on the Chittagong-Comilla line.



**Photo 4.9:** Hasanpur Railway Station (Google Map)



**Photo 4.10:** Hasanpur Railway Station



**Photo 4.11:** Hasanpur Railway Station (Foot over bridge)



**Photo 4.12:** Top view from bridge



**Photo 4.13:** Some tea stall in Hasanpur Rail Station



**Photo 4.14:** Hasanpur Railway Station (Board)



**Photo 4.15:** Night view of the station



**Photo 4.16:** Two trains (Sonar Bangla express slams into Fright Train) collide in Hasanpur Station. The accident left more than 50 passengers injured. Most of the passengers who suffered injured were given first aid at local hospitals and there are 2 or 4 children, 35 passengers are man and 15 passengers are women.

### **4.3.1 Accidental history of Hasanpur Railway Station:**

There is no other accidental history in Hasanpur Railway Station

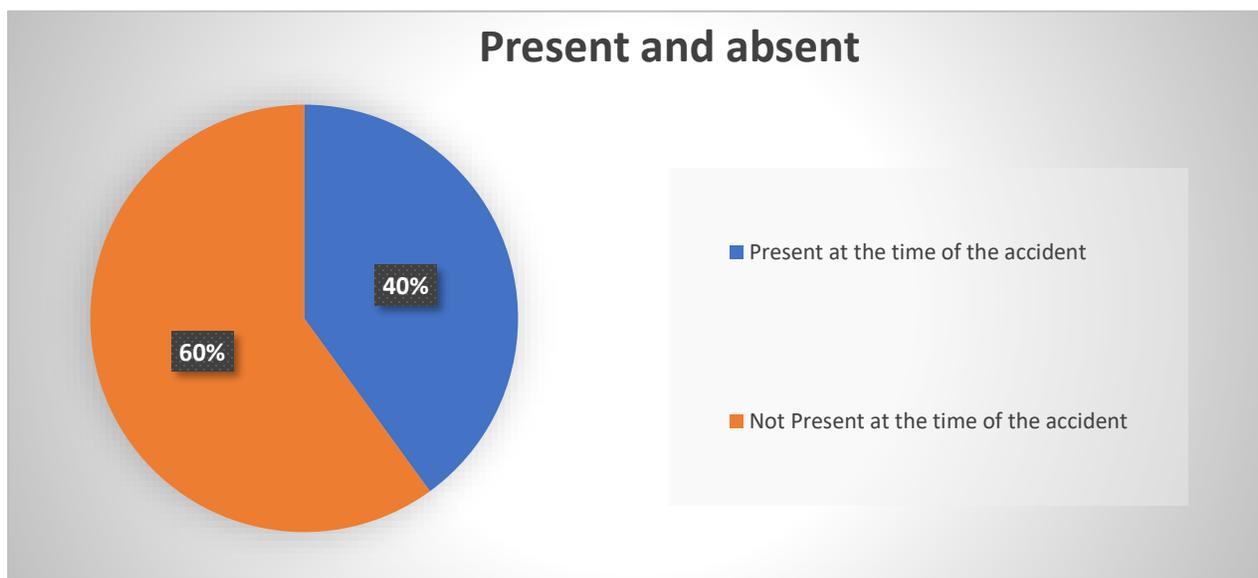
## 4.4 Details of Accidents Data:

The accident data has been carried out two accidents that occurred railway and roadway crossing (Chattogram) and Rear end collision (Cumilla).

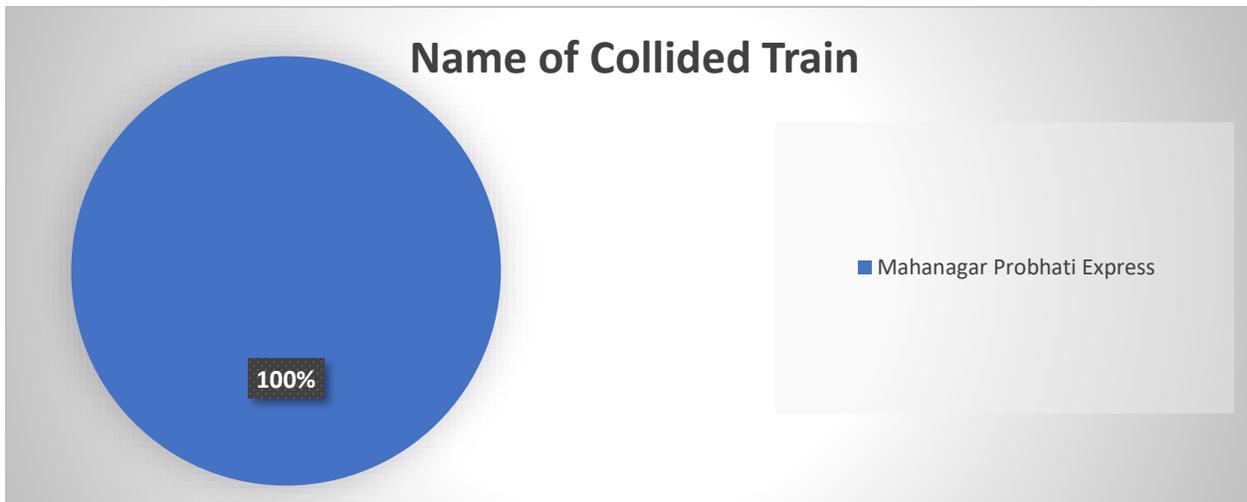
From the help of this data the study can find out the nature of accident causes of accident.

## 4.5 Details of Accident data (Chittagong):

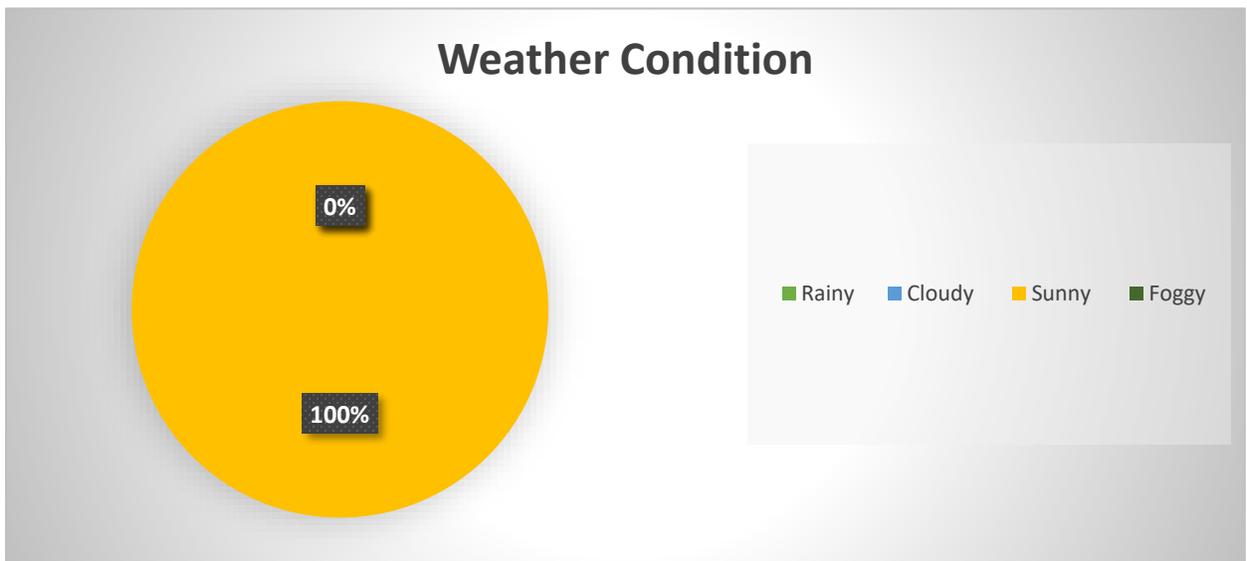
### 4.5.1 Pie chart



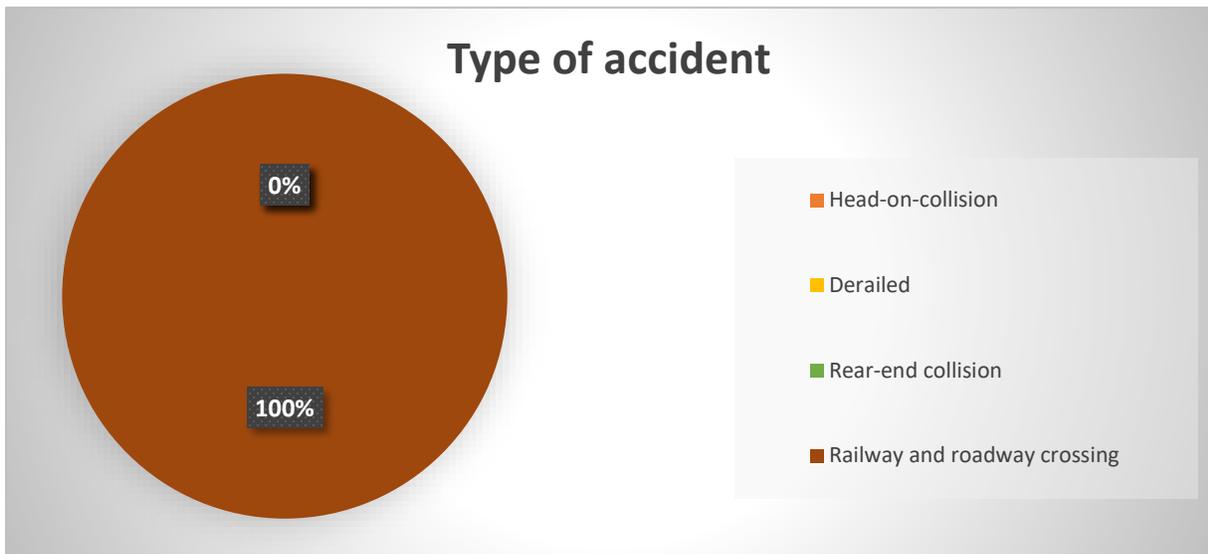
**Fig: 4.1** Percentage of present people at the time of the accident (Chittagong)



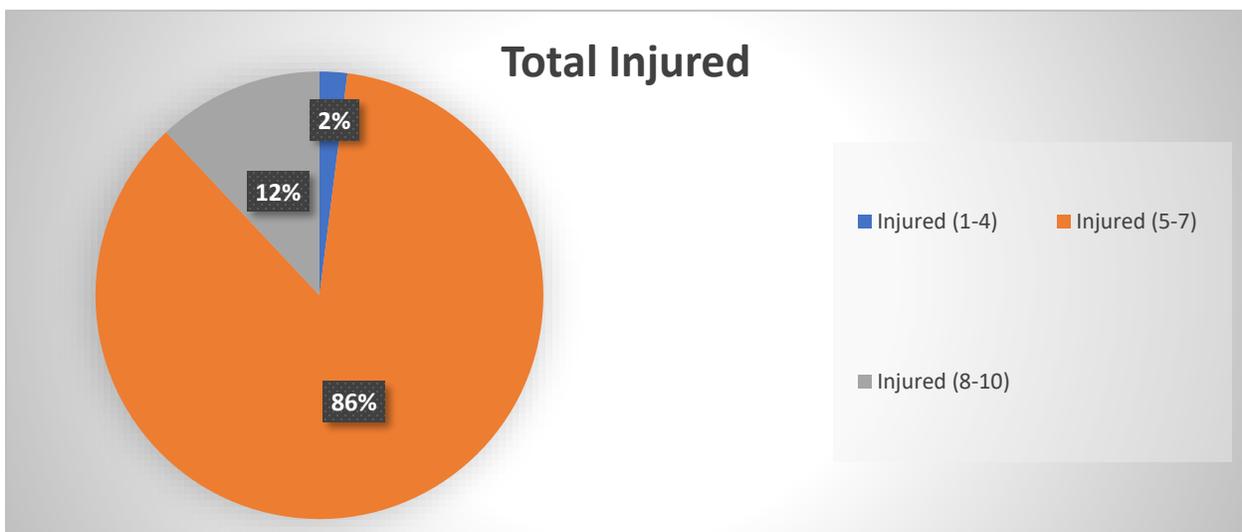
**Fig: 4.2** Collided Train with the accident (Chittagong)



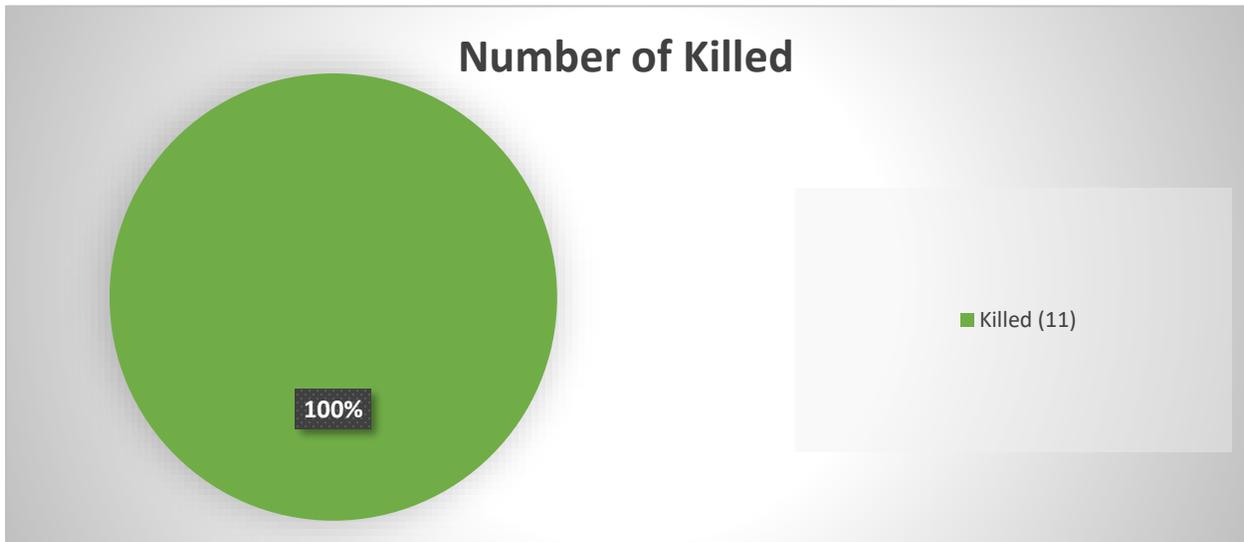
**Fig: 4.3** The weather condition on the day when the accident occurred (Chittagong)



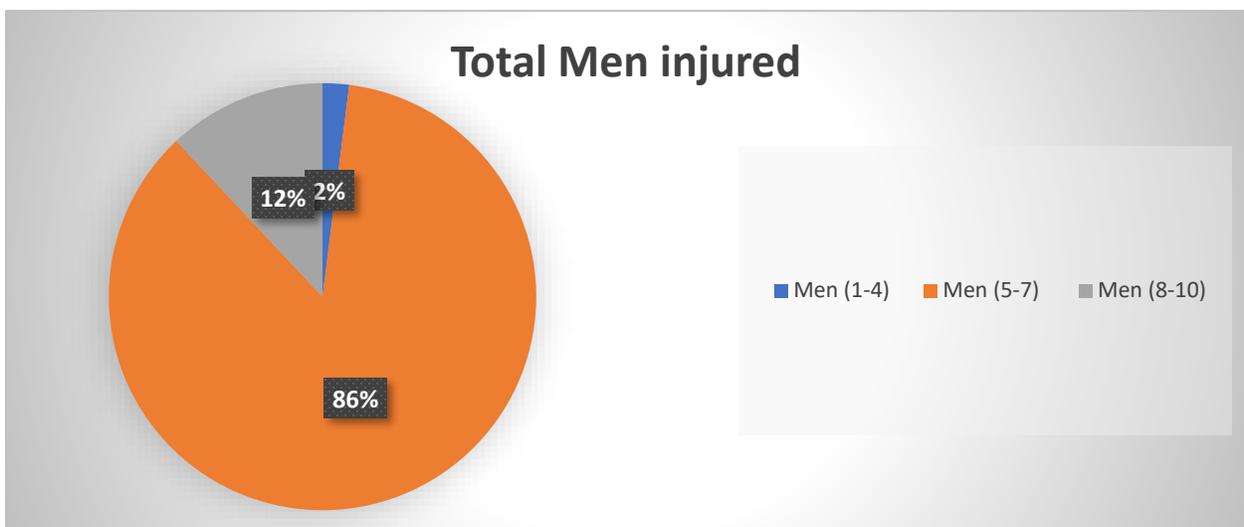
**Fig: 4.4** Type of Accident (Chittagong)



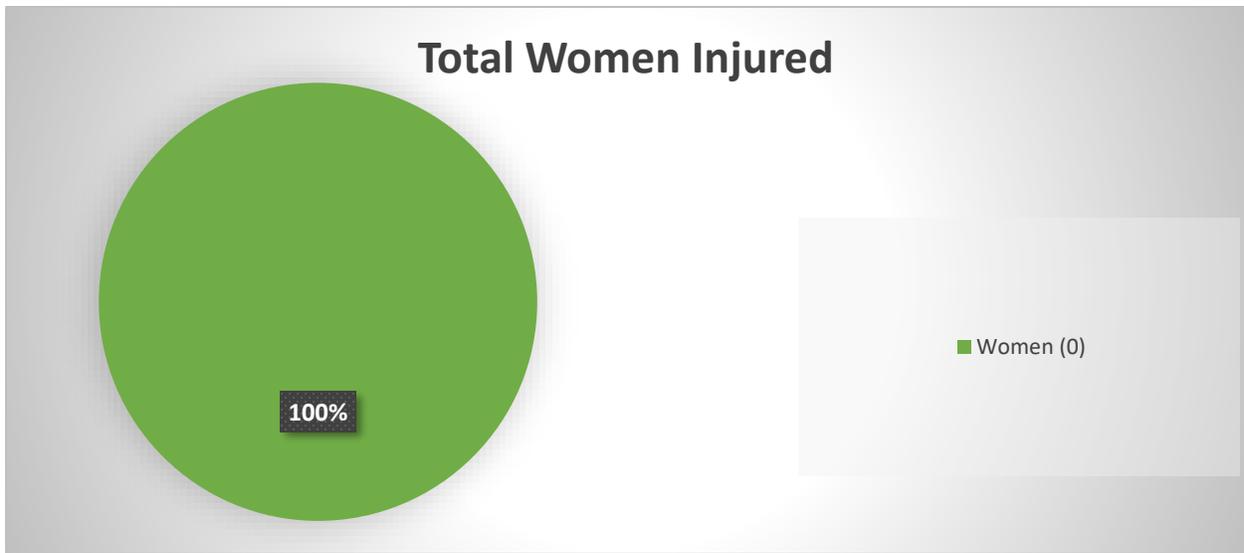
**Fig: 4.5** Number of people injured in the accident (Chittagong)



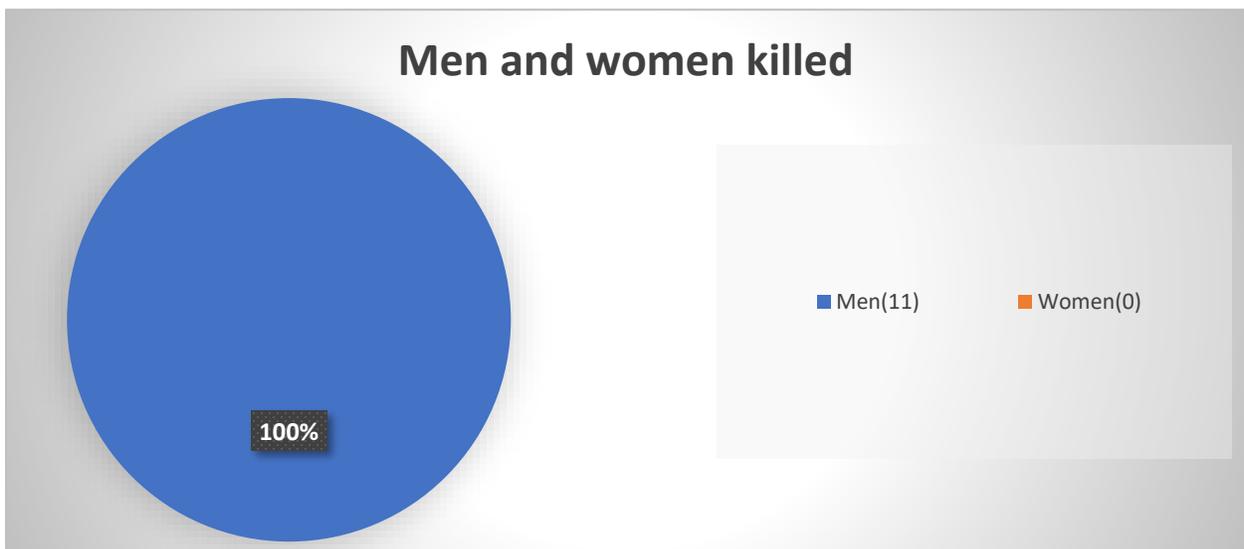
**Fig: 4.6** Number of people killed in the accident (Chittagong)



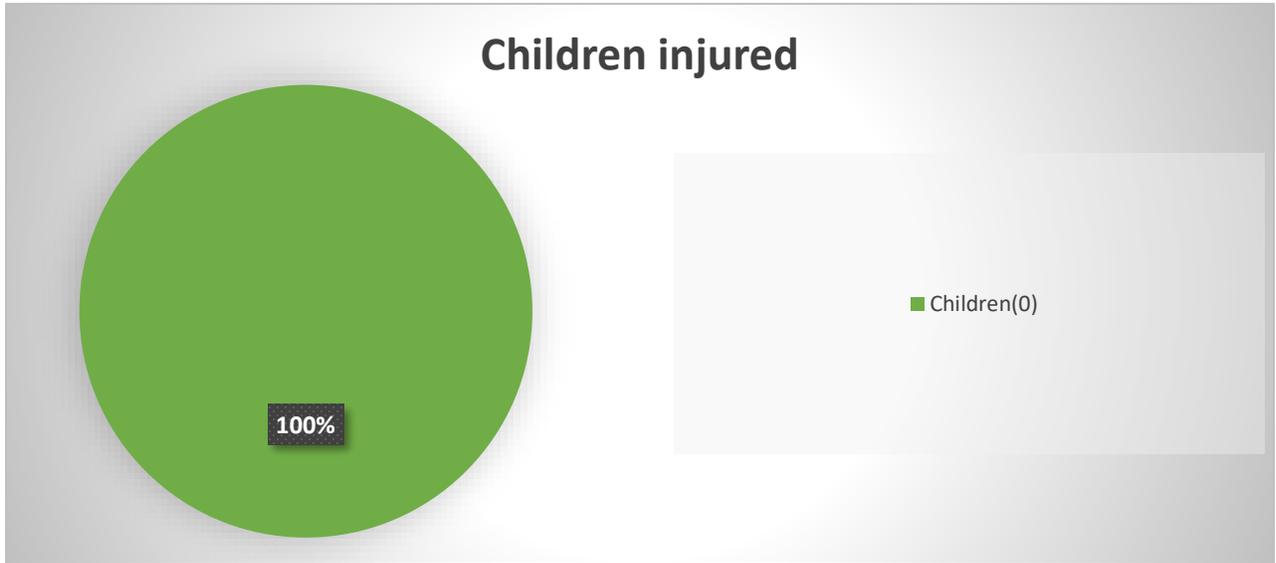
**Fig: 4.7** Number of men injured in the accident (Chittagong)



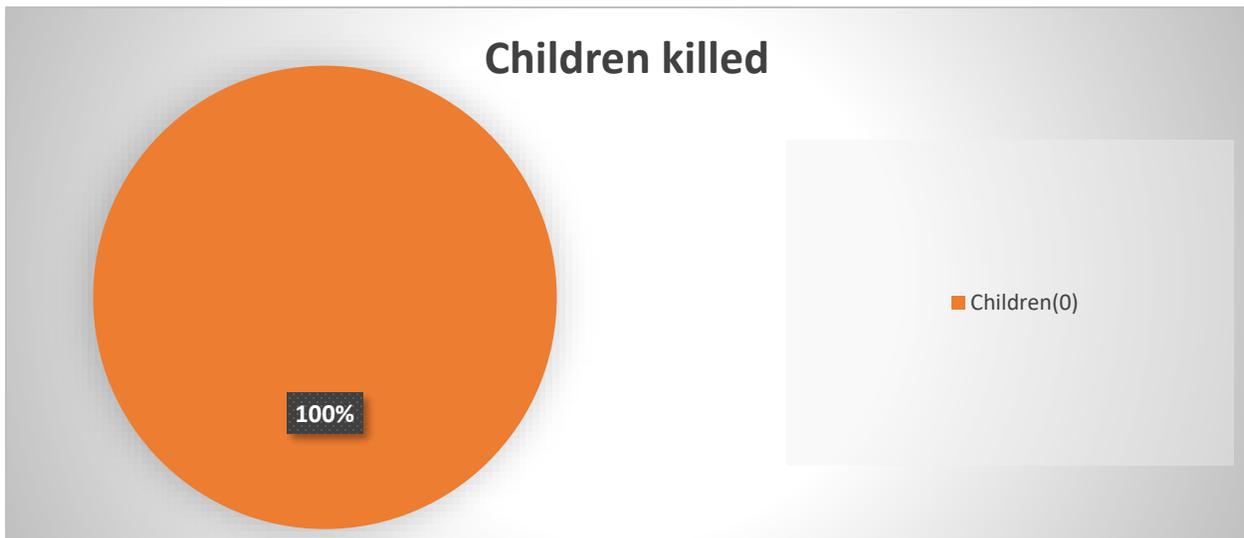
**Fig: 4.8** Number of women injured in the accident (Chittagong)



**Fig: 4.9** Number men and women killed in the accident (Chittagong)



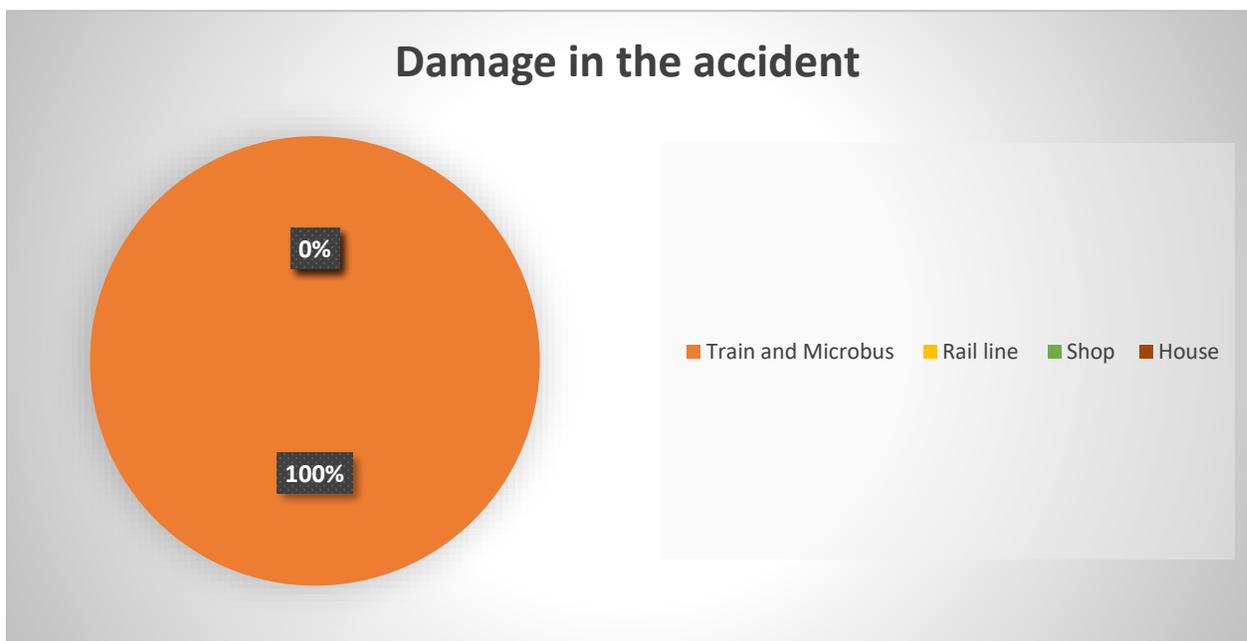
**Fig: 4.10** Number children injured in the accident (Chittagong)



**Fig: 4.11** Number children were killed in the accident (Chittagong)



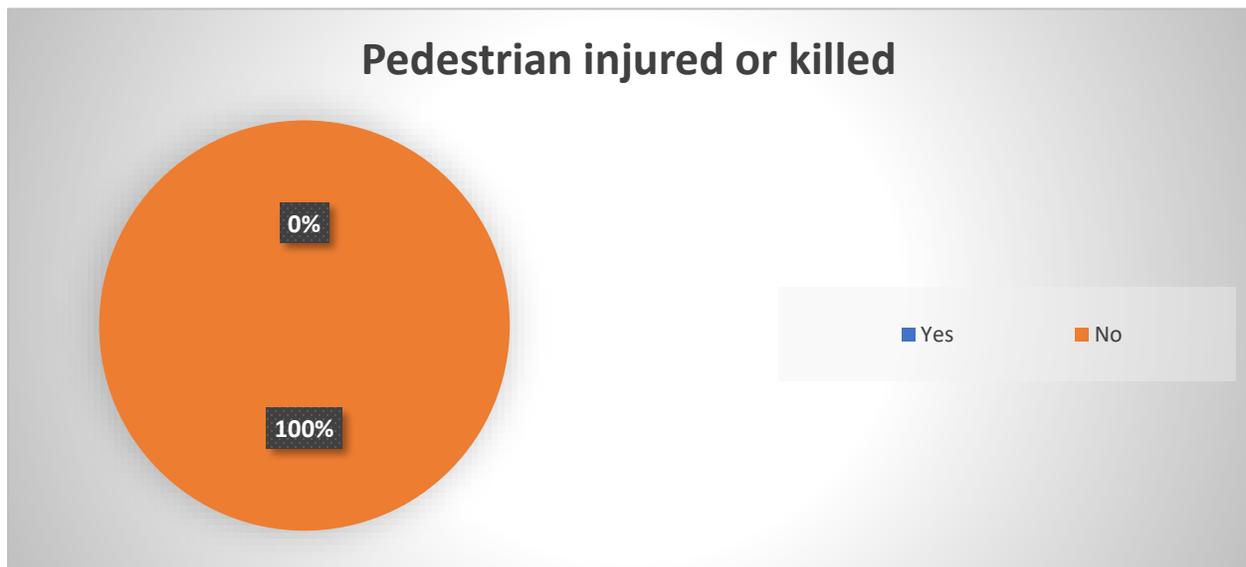
**Fig: 4.12** The train carrying (Chittagong)



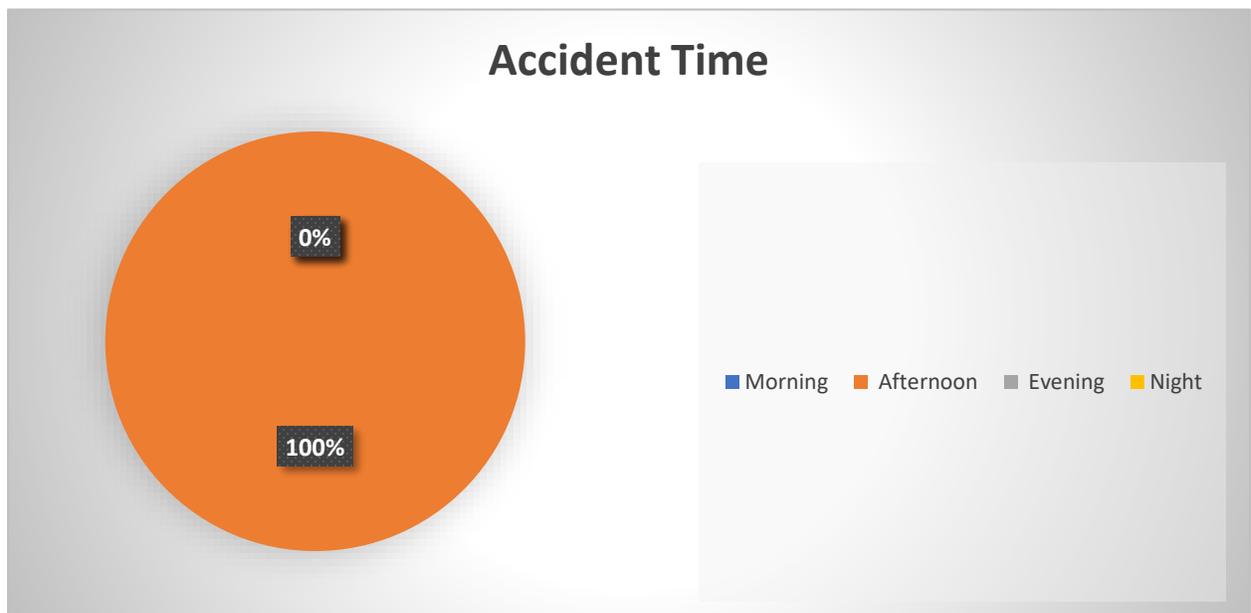
**Fig: 4.13** The damaged in the accident (Chittagong)



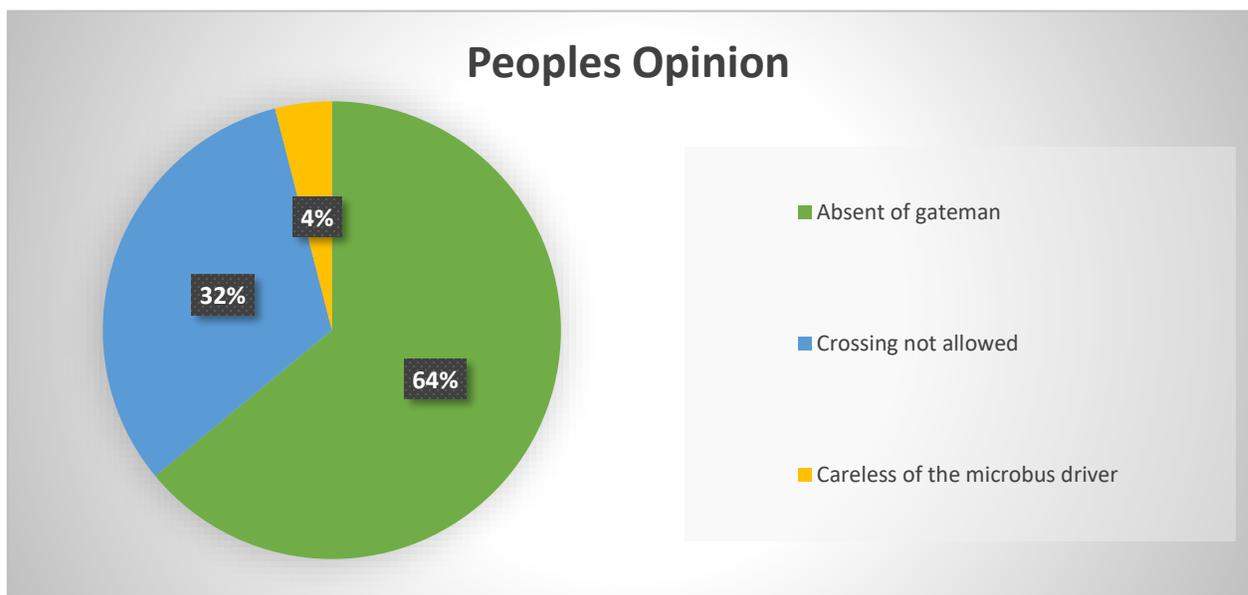
**Fig: 4.14** The approximate speed of the train (Chittagong)



**Fig: 4.15** Pedestrian injured or killed in this accident apart from the train passengers (Chittagong)



**Fig: 4.16** Accident happened time (Chittagong)



**Fig: 4.17** Opinion about cause of the train accident (Chittagong)

## 4.5.2 Comparison (Chittagong):

**Table: 4.1** Comparison to data from spot and newspaper (Chittagong)

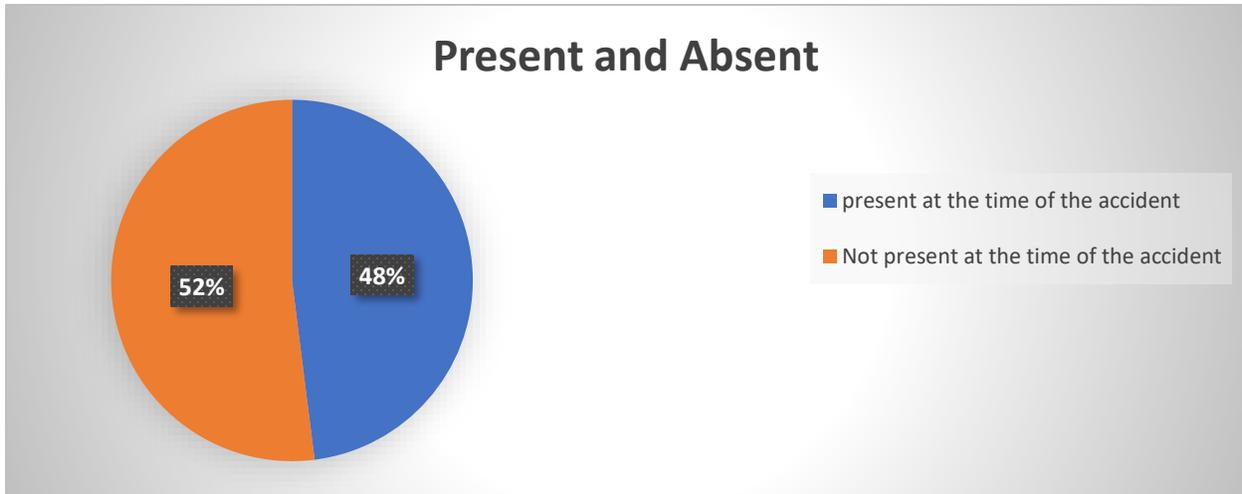
Question	Data from spot	Data from newspaper
1) Which train collided with the accident	100% Pedestrian say accidental train was Mahanagar Probhati Express.	From newspaper accidental train name was Mahanagar Probhati Express. <b>(Reported by The Daily Star)</b>
2) What was the weather condition on the day when the accident occurred?	100% Pedestrian say when accident was made its was Sunny day.	The incident occurred around 1:45pm in Barotakia area of Mirsharai. <b>(Reported by The Daily Star)</b>
3) How did the accident occur?	100% Pedestrian say accident occur railway and roadway crossing	The microbus tried to cross the rail crossing forcefully, ignoring the gateman's request, when the train hit the vehicle. <b>(Reported by the new nation)</b>
4) How many people were injured in the accident?	86% Pedestrian say (5 to 7) people were injured in the accident.	Seven people critically injured as a train hit a microbus at a rail crossing in Mirsharai of (Chittagong). <b>(Reported by The Daily Star)</b>
5) How many people were Killed in the accident?	100% Pedestrian say 11 people were killed in this accident.	On information, Mirsharai fire service personnel went to the spot and recovered 11 dead bodies. <b>(Reported by The Daily Star)</b>

<p><b>6)</b> How many men were injured in the accident?</p>	<p>86% Pedestrian say (5 to 7) Men were injured in the accident.</p>	<p>Seven men have been critically injured as a train hit a microbus at a rail crossing.</p> <p><b>(Reported by The Daily Star)</b></p>
<p><b>7)</b> How many women were injured in the accident?</p>	<p>100% Pedestrian say there were no women injured in this accident.</p>	<p>There are men injured no women involve in this accident.</p> <p><b>(Reported by The Daily Star)</b></p>
<p><b>8)</b> How many men and women were killed in the accident?</p>	<p>100% Pedestrian say just 11 men killed in this accident no women killed in this accident.</p>	<p><b>11 people died this accident everyone is a man.</b></p> <p><b>(Reported by The Daily Star)</b></p>
<p><b>9)</b> How many children were injured in the accident?</p>	<p>There are no children injured in this accident.</p>	<p>People were injured in the accident everyone is a man.</p> <p><b>(Reported by The Daily Star)</b></p>
<p><b>10)</b> How many children were killed in the accident?</p>	<p>100% Pedestrian say there was no children killed in the accident.</p>	<p>11 people died as a train hit a microbus at a rail crossing everyone was men.</p> <p><b>(Reported by The Daily Star)</b></p>
<p><b>11)</b> What were the train carrying?</p>	<p>100% Pedestrian say the accidental train was passenger train.</p>	<p>The train name was Mahanagar Probhati Express. It was a passenger train.</p> <p><b>(Reported by The Business Standard)</b></p>

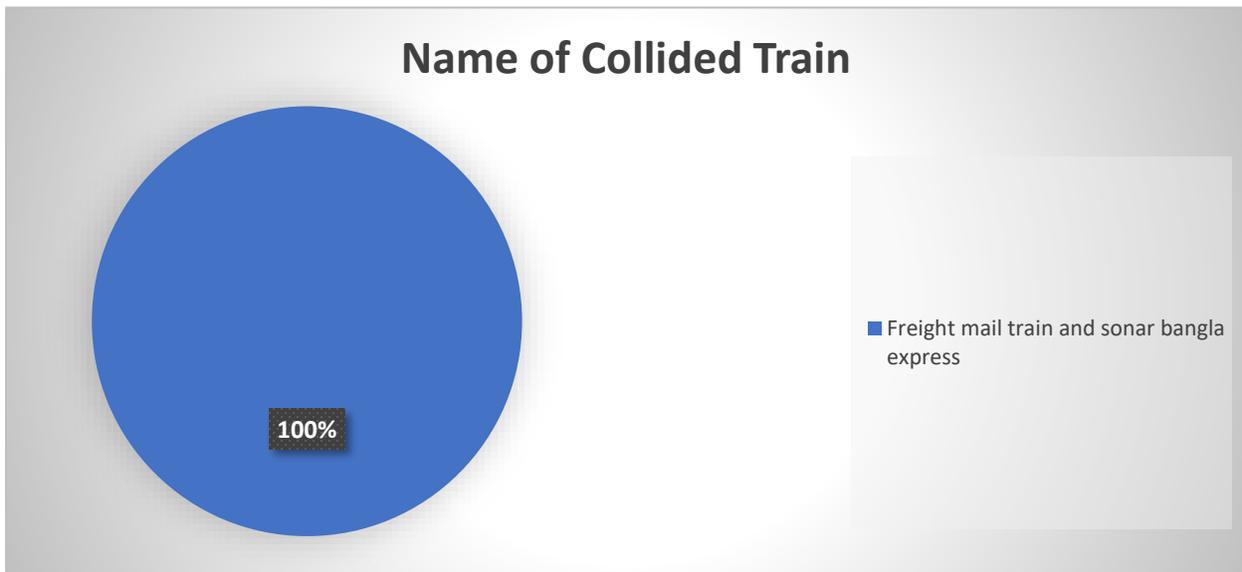
<p><b>12)</b> What was the damage in the accident?</p>	<p>100% Pedestrian say the damage in the accident was train and microbus.</p>	<p>The train and microbus are damage in this accident. <b>(Reported by The Daily Star)</b></p>
<p><b>13)</b> What was the approximate speed of the train?</p>	<p>52% Pedestrian say when train hit the car this time train approximate speed 50-60 kmph.</p>	<p>When tarin hit ta microbus this time train speed was 60 kmph said locomotive master. <b>(Reported by The Business Standard)</b></p>
<p><b>14)</b> Was any pedestrian injured or killed in this accident apart from the train passengers?</p>	<p>100% Pedestrian say there is no pedestrian injured or killed in this accident apart from the train passengers.</p>	<p>In this accident there was no pedestrian injured or killed apart from the train passengers. <b>(Reported by The Daily Star)</b></p>
<p><b>15)</b> What time of the day did the accident happen?</p>	<p>This accident happened in afternoon.</p>	<p>This accident happened in 1:30 p.m. on Friday. <b>(Reported by News 18)</b></p>
<p><b>16)</b> What is your opinion as the cause of the train accident?</p>	<p>64% Pedestrian say when accident happened there were no gate man in this crossing.</p>	<p>Eyewitnesses said there was no gateman at the railway crossing when the accident occurred and the bamboo barrier at the crossing was not allowed. <b>(Reported by The Business Standard)</b></p>

## 4.6 Details of Accident data (Cumilla):

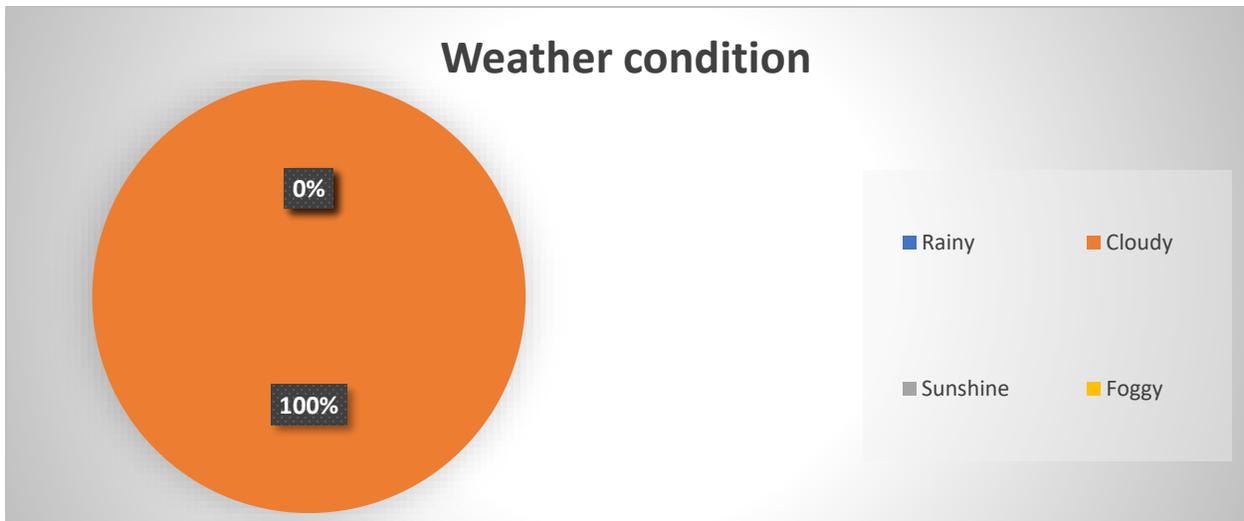
### 4.6.1 Pie Chart:



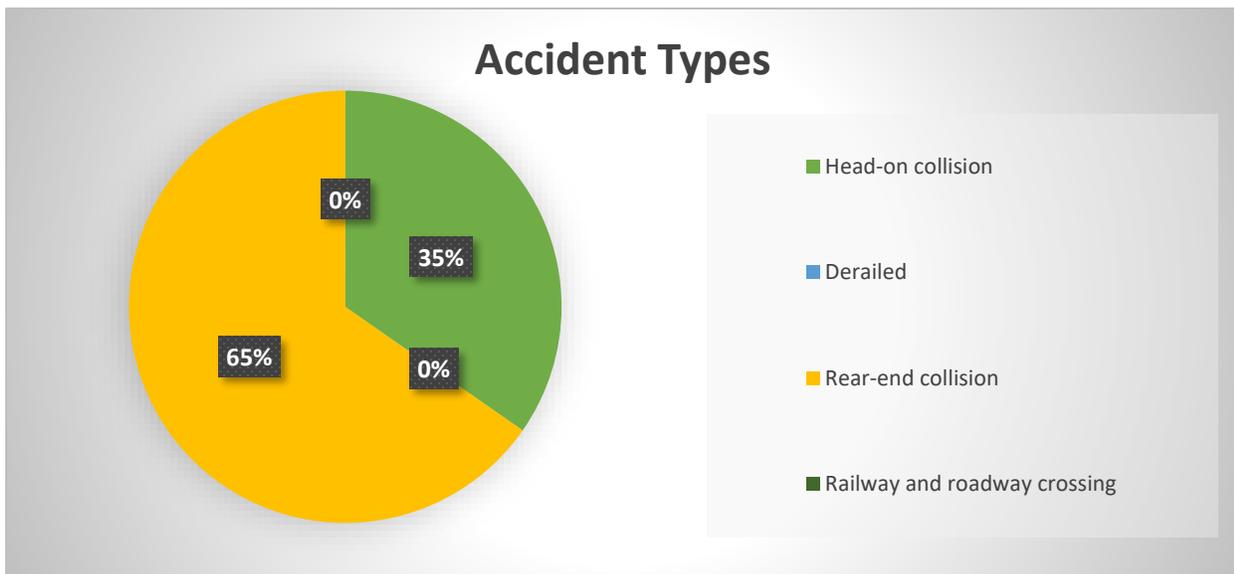
**Fig: 4.18** Percentage of present people at the time of the accident (Cumilla)



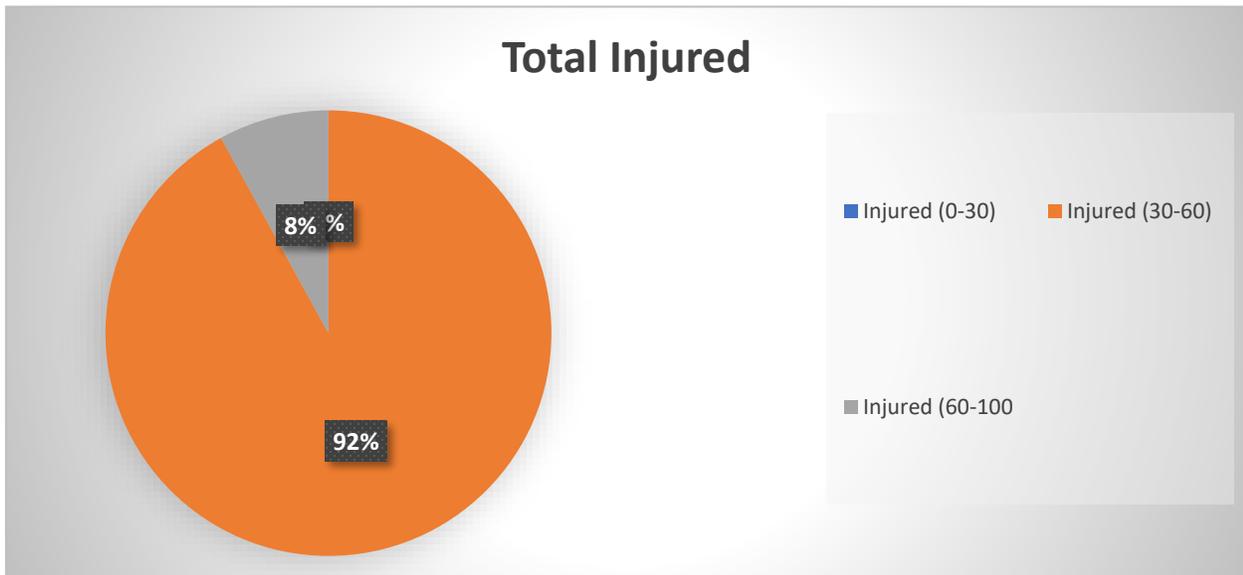
**Fig: 4.19** Collided Train with the accident (Cumilla)



**Fig: 4.20** The weather condition on the day when the accident occurred (Cumilla)



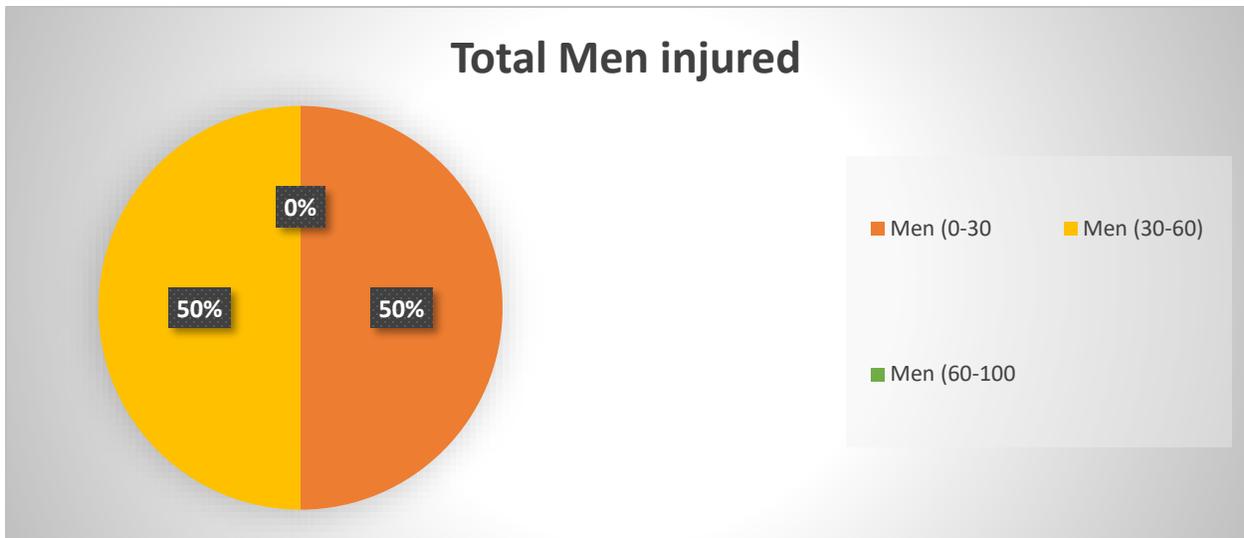
**Fig: 4.21** Type of Accident (Cumilla)



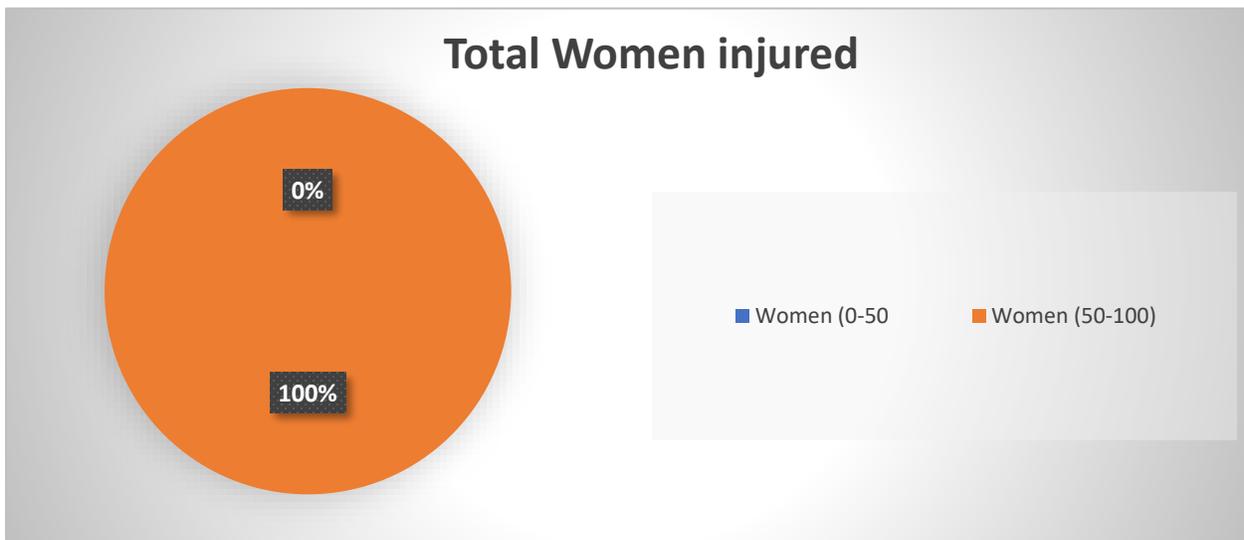
**Fig: 4.22** Number of people injured in the accident (Cumilla)



**Fig: 4.23** Number of people killed in the accident (Cumilla)



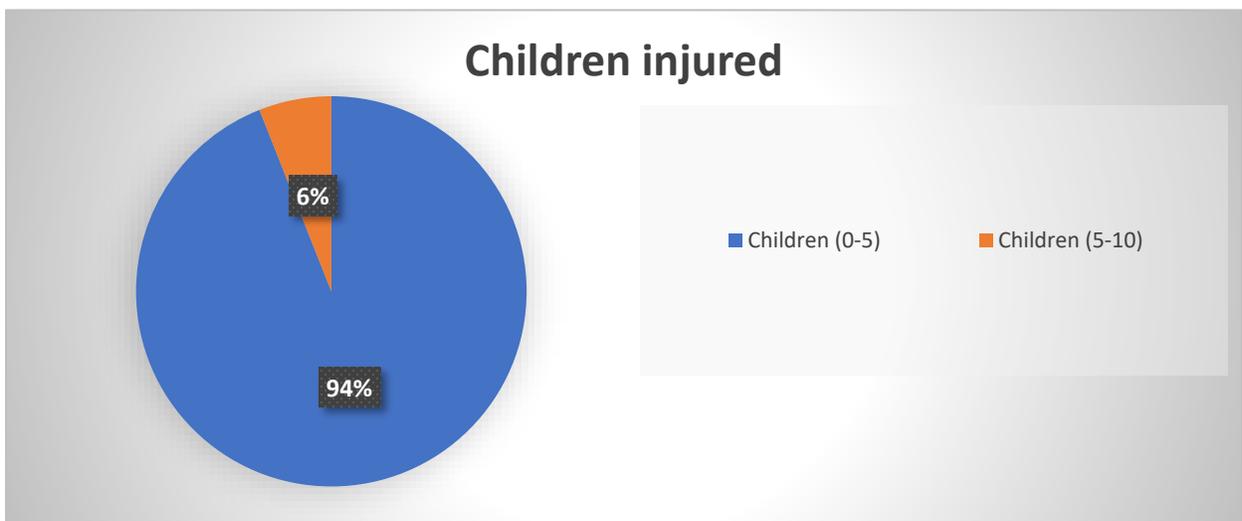
**Fig:4.24** Number of men injured in the accident (Cumilla)



**Fig 4.25** Number of women injured in the accident (Cumilla)



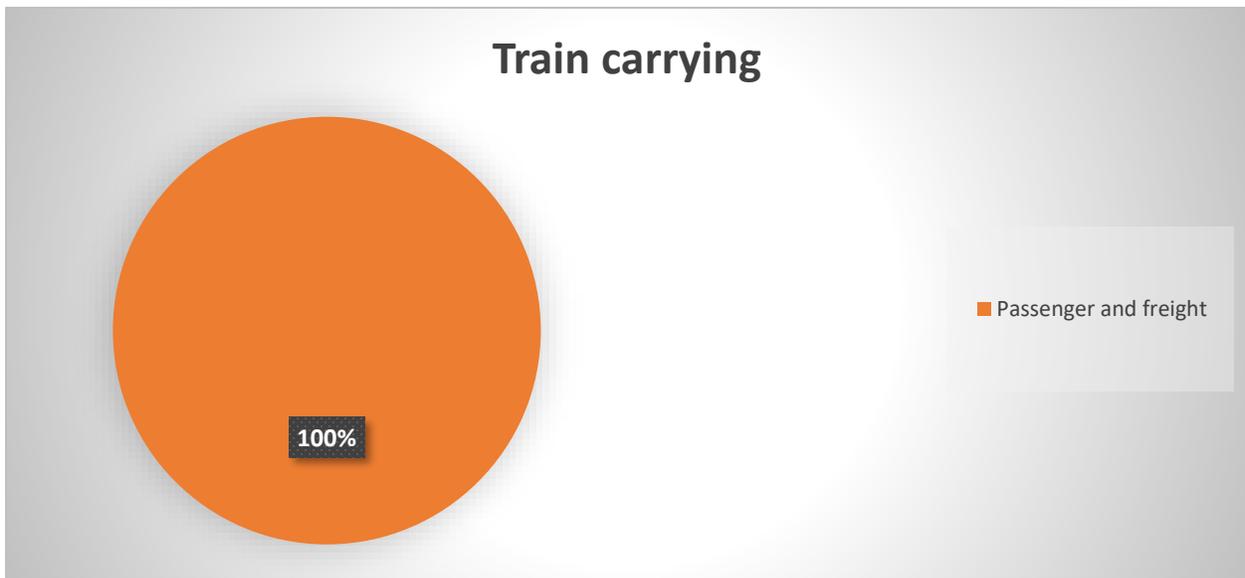
**Fig: 4.26** Number Men and Women killed in the accident (Cumilla)



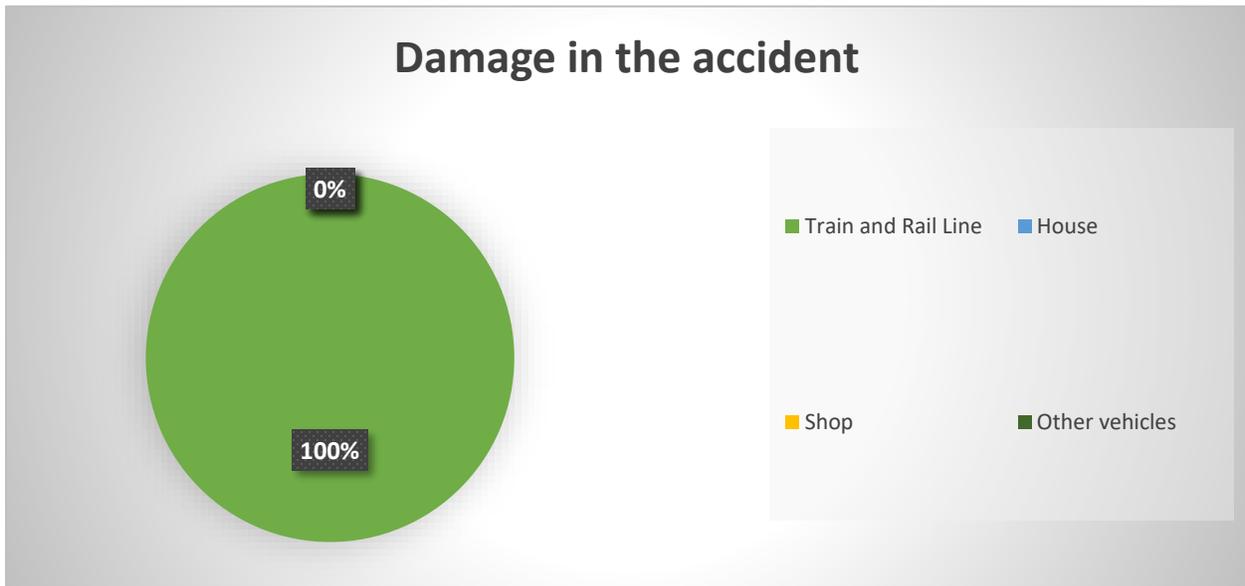
**Fig: 4.27** Number children injured in the accident (Cumilla)



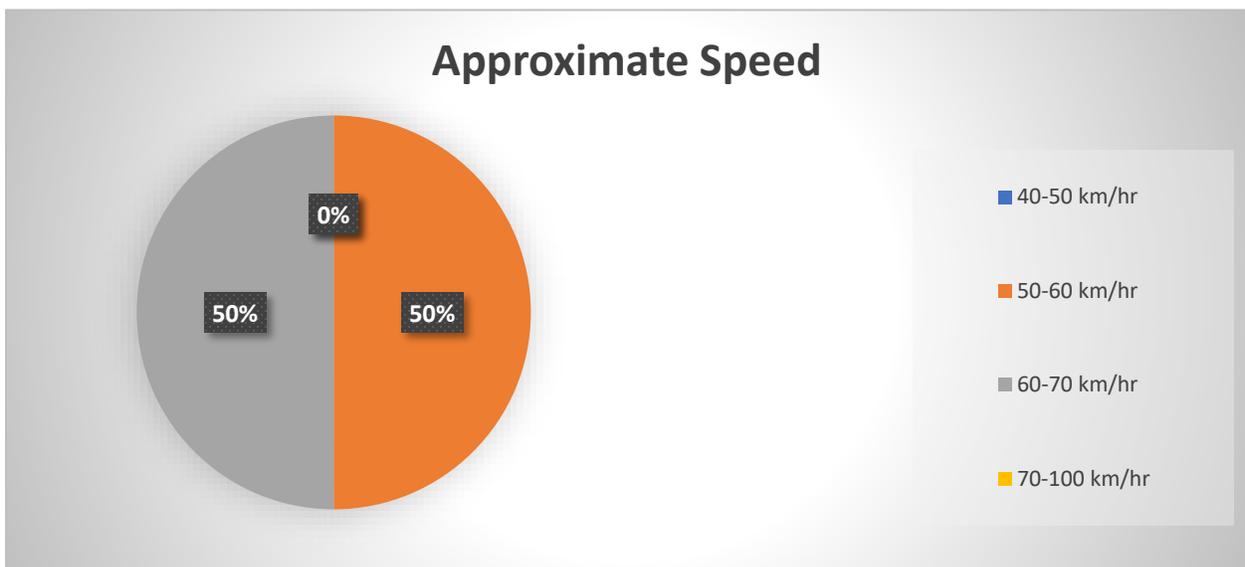
**Fig: 4.28** Number children were killed in the accident (Cumilla)



**Fig: 4.29** The trains carrying\_(Cumilla)



**Fig: 4.30** The damage in the accident (Cumilla)



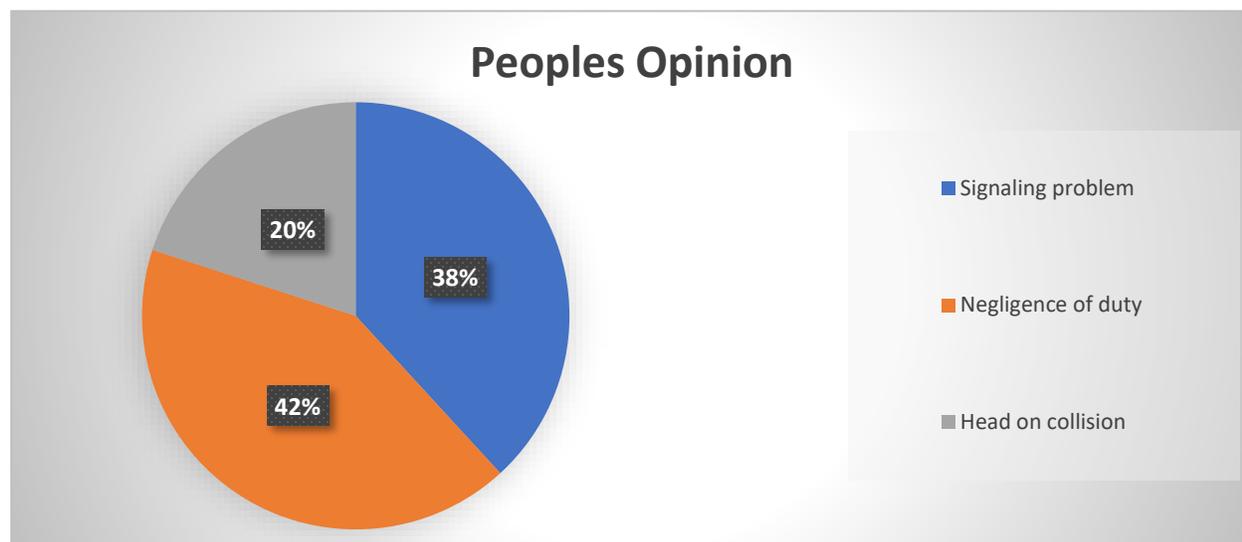
**Fig: 4.31** The approximate speed of the train (Cumilla)



**Fig: 4.32** Pedestrian injured or killed in this accident apart from the train passengers (Cumilla)



**Fig: 4.33** Accident happened time (Cumilla)



**Fig: 4.34** Opinion about cause of the train accident (Cumilla)

## 4.6.2 Comparison

**Table: 5.2** Comparison to data from spot and newspaper (Cumilla)

Question	Data from spot	Data from newspaper
1. Which train collided with the accident?	100%_Pedestrian say accidental two train name was Freight mail train and sonar Bangla express.	From newspaper accidental two train was Freight mail train and sonar bangla express.  <b>(Reported by The Daily Star)</b>

<p>2. What was the weather condition on the day when the accident occurred?</p>	<p>100% Pedestrian say when accident was made its was night and the weather was cloudy.</p>	<p>Sonar Bangla Express train hit a freight train at Nangalkot of Cumilla around 6:45pm on Sunday causing seven carriages and the locomotive to derail.  (Reported by Daily observer)</p>
<p>3. How did the accident occur?</p>	<p>64% Pedestrian say accident occur Head-on-collision.</p>	<p>A passenger train, Sonar Bangla Express, hit the freight train from behind, entering into its line wrongly, resulting in the derailment of five carriages of the former.  <b>(Reported by the Prothom alo)</b></p>
<p>4. How many people were injured in the accident?</p>	<p>92% Pedestrian say (30 to 60) people were injured in the accident.</p>	<p>Nangalkot upazila Nirbahi officer Rayhan Maheub told Prothom Alo that "I rushed to the railway station upon hearing the news. At least 50 passengers of Sonar Bangla train were wounded in this accident. Of them, 20 received treatment at a pharmacy in Dhalua while others were sent to different hospitals in Cumilla and Laksam. <b>(Reported by the Prothom alo)</b></p>

<p><b>5.</b> How many people were Killed in the accident?</p>	<p>100% Pedestrian say no people were killed in this accident.</p>	<p>Railway traffic officer Tareque Mohammad Imran said that the accident left more than 50 passengers injured no one killed. <b>(Reported by News next bd.com)</b></p>
<p><b>6.</b> How many men were injured in the accident?</p>	<p>50% Pedestrian say (0 to 30) Men were injured in the accident. And other 50% say (30 to 60) men injured in this accident.</p>	<p>Nangalkot upazila Nirbahi officer Rayhan Mahebus told 50 passengers injured 35 passengers are man.  <b>(Reported by the Prothom alo)</b></p>
<p><b>7.</b> How many women were injured in the accident?</p>	<p>100% people say 0 to 50 women injured in this accident.</p>	<p>Nangalkot upazila Nirbahi officer Rayhan Mahebus told 50 passengers injured 15 passengers are woman.  <b>(Reported by the Prothom alo)</b></p>

<p><b>8.</b> How many men and women were killed in the accident?</p>	<p>100% Pedestrian say no men were killed in this accident.</p>	<p>Railway traffic officer Tareque Mohammad Imran said that the accident left more than 50 passengers injured no one killed. (Reported by <b>News next bd.com</b>)</p>
<p><b>9.</b> How many children were injured in the accident?</p>	<p>There are (0 to 5) children injured in this accident 100% Pedestrian told us that.</p>	<p>Nangalkot upazila Nirbahi officer Rayhan Maheub told there was 2 or 4 children injured. (Reported by the Prothom alo)</p>
<p><b>10.</b> How many children were killed in the accident</p>	<p>100% Pedestrian say there was no children killed in the accident.</p>	<p>50 passengers injured no children killed. <b>(Reported by The Daily Star)</b></p>
<p><b>11.</b> What were the train carrying?</p>	<p>100% Pedestrian say the two-train carrying Passenger and freight.</p>	<p>A passenger train, Sonar Bangla Express, hit the freight train from behind, entering into its line wrongly. <b>(Reported by the Prothom alo)</b></p>
<p><b>12.</b> What was the damage in the accident?</p>	<p>100% Pedestrian say the damage in the accident was Train and Rail line.</p>	<p>Nangalkot upazila Nirbahi officer Rayhan Maheub told the damage in the accident was Train and Rail line. <b>(Reported by the Prothom alo)</b></p>

<p><b>13.</b> What was the approximate speed of the train?</p>	<p>50% Pedestrian say when train hit the car this time train approximate speed 50-60 kmph and other 50% say 60-70 kmph.</p>	<p>When train hit a microbus this time train speed was 70 kmph said locomotive master. <b>(Reported by The Business Standard)</b></p>
<p><b>14.</b> Was any pedestrian injured or killed in this accident apart from the train passengers?</p>	<p>100% Pedestrian say there is no pedestrian injured or killed in this accident apart from the train passengers.</p>	<p>In this accident there was no pedestrian injured or killed apart from the train passengers. <b>(Reported by The Daily Star)</b></p>
<p><b>15)</b> What time of the day did the accident happen?</p>	<p>This accident happened in night.</p>	<p>Sonar Bangla Express train hit a freight train at Nangalkot of Cumilla around 6:45pm on Sunday causing seven carriages and the locomotive to derail.<b>(Reported by Daily observer)</b></p>
<p><b>16)</b> What is your opinion as the cause of the train accident?</p>	<p>64% Pedestrian say when accident happened there were Negligence of duty.</p>	<p>Bangladesh Railway has temporarily suspended four persons including three of its staffers Sonar Bangla Express train collision. <b>(Reported by Daily observer)</b></p>



## **CHAPTER FIVE**

# **RESULT AND DISCUSSION**

## CHAPTER FIVE

### RESULT AND DISCUSSION

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#### **5.1 General:**

A railway signal is a visual display device that conveys instructions or provides warning of instructions regarding the driver's authority to proceed. The driver interprets the signal's indication and acts accordingly. Typically, a signal might inform the driver of the speed at which the train may safely proceed or it may instruct the driver to stop.

#### **5.2 Application and Position of Signals:**

Originally, signals displayed simple stop or proceed indications. As traffic density increased, this proved to be too limiting and refinements were added. One such refinement was the addition of distant signals on the approach to stop signals. The distant signal gave the driver warning that they were approaching a signal which might require a stop. This allowed for an overall increase in speed, since train drivers no longer had to drive at a speed within sighting distance of the stop signal.

Under timetable and train order operation, the signals did not directly convey orders to the train crew. Instead, they directed the crew to pick up orders, possibly stopping to do so if the order warranted it.

Signals are used to indicate one or more of the following:

That the line ahead is clear (free of any obstruction) or blocked

- That the driver has permission to proceed
- That points (also called switch or turnout in the US) are set correctly
- Which way points are set
- The speed the train may travel
- The state of the next signal
- That the train orders are to be picked up by the crew

## 5.3 Signals Can be Placed:

- At the start of a section of track
- On the approach to a movable item of infrastructure, such as points or switches  
In advance of other signals
- On the approach to a level crossing
- At a switch or turnout
- Ahead of platforms or other places that trains are likely to be stopped
- At train order stations
- 'Running lines' are usually continuously signalled. Each line of a double track railway is normally signalled in one direction only, with all signals facing the same direction on either line. Where bidirectional signalling is installed, signals face in both directions on both tracks (sometimes known as 'reversible working' where lines are not normally used for bidirectional working). Signals are generally not provided for controlling movements within sidings or yard areas.

## 5.4 Signals forms:

### 5.4.1 Mechanical signals:

The oldest forms of signal display their different indications by a part of the signal being physically moved. The earliest types comprised a board that was either turned face-on and fully visible to the driver, or rotated away so as to be practically invisible. These signals had two or at most three positions.



**Photo 5.1:** Mechanical semaphore signals at Kościerzyna in Poland

### 5.4.2 Color light signals:

The introduction of electric light bulbs made it possible to produce color light signals which were bright enough to be seen during daylight, starting in 1904. The signal head is the portion of a color light signal which displays the aspects. To display a larger number of indications, a single signal might have multiple signal heads. Some systems used a single head coupled with auxiliary lights to modify the basic aspect. Color light signals come in two forms. The most prevalent form is the multi-unit type, with separate lights and lenses for each color, in the manner of a traffic light. Hoods and shields are generally provided to shade the lights from sunlight which could cause false indications.



**Photo: 5.2** Network Rail (UK) two-aspect color light railway signal set at 'danger'

### 5.4.3 Searchlight Signals

Searchlight signals were the most often used signal type in the U.S. until recently. In these, a single incandescent light bulb is used in each head, and either an A.C. or D.C. relay mechanism is used to move a colored spectacle (or "roundel") in front of the lamp. In this manner, gravity (fail safe) returns the red roundel into the lamp's optical path. In effect, this mechanism is very similar to the color light signal that is included in an electrically operated semaphore signal, except that the omission of the semaphore arm allows the roundels to be miniaturized and enclosed in a weatherproof housing. Widely used in the U.S from World War II onward, searchlight signals have the disadvantage of having moving parts which may be deliberately tampered with. This had led to them becoming less common during the last fifteen to twenty years when vandalism began to render them vulnerable to false indications.

Operating rules generally dictate that a dark signal be interpreted as giving the most restrictive indication it can display (generally "stop" or "stop and proceed"). Many color light systems have circuitry to detect such failures in lamps or mechanism.



**Photo: 5.3** Railway signal in Ploiesti West railway station, Romania. This type of signal is based on the German Ks signals.

## 5.5 Summary Table (Chittagong)

**Table 5.1:** Investigated summary data from spot (Chittagong)

Question	Pedestrian Answer	Percentage	Summary
1. Were you present at the time of the accident?	A. Yes.	40%	40% of the people present at the time of the accident were engaged in their own work around the accident site and 60% people came to the accident site after the accident. And people from the vicinity came from the accident site and rescued the injured people.
	B. No	60%	
2. Which train collided with the accident?	A. Mahanagar Probhati Express.	100%	According to all. Every people say, the accident took place when a train named “Mahanagar Probhati Express” collided with a car.
3. What was the weather condition on the day when the accident occurred?	A. Rainy.	0%	All Pedestrian told the weather was sunny that day.
	B. Cloudy.	0%	
	C. Sunshine.	100%	
	D. Foggy.	0%	

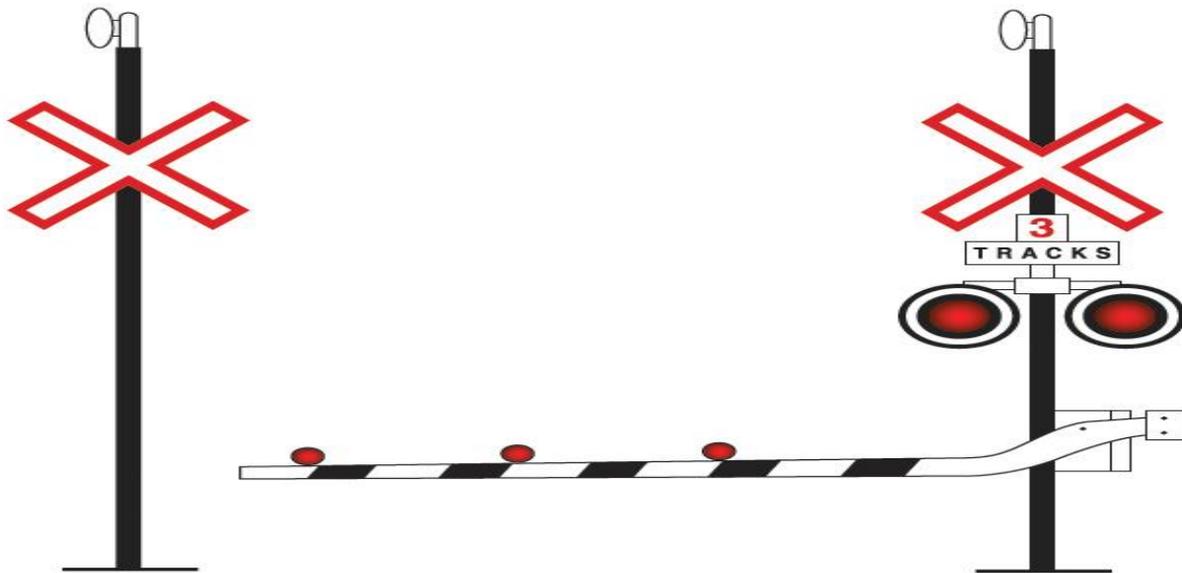
<b>4. How did the accident occur?</b>	A. Head-on-collision.	0%	When the car went to cross the rail line from the road, due to the car not following the signal and having no safety guide, the train came and Head-on-collided with the car.
	B. Derailed.	0%	
	C. Rear-end collision.	0%	
	D. Railway and roadway crossing.	100%	
<b>5. How many people were injured in the accident?</b>	A. Injured (1-4)	2%	2% Pedestrian say 1-4 people injured, 12% people say 8-10 people injured and 86% people told us 5-7 injured in this accident.
	B. Injured (5-7)	86%	
	C. Injured (8-10)	12%	
<b>6. How many people were Killed in the accident?</b>	A. Killed (11)	100%	All Pedestrian told us there are 11 people dead in this accident.
<b>7. How many men were injured in the accident?</b>	A. Men (1-4)	2%	86% people say that 5 to 7 men injured some Pedestrian (1 to 4) 2% and (8 to 10) men injured.
	B. Men (5-7)	86%	
	C. Men (8-10)	12%	

8. How many women were injured in the accident?	A. Women (0)	100%	In this accident there are no women in the car so every Pedestrian say no women injured in this accident.
9. How many men and women were killed in the accident?	A. Men- 11	100%	100% Pedestrian say only 11 men killed in this accident and no women were killed.
	B. Women- 0		
10. How many children were injured in the accident?	A. Children (0)	100%	There are no children involve in this accident so no children injured in this accident.
11. How many children were killed in the accident?	A. Children killed (0)	100%	There are no children involve in this accident so no children killed in this accident.
12. What were the train carrying?	A. Passenger	100%	The train carrying only passenger when train Collided with the car.100% pedestrian told as that.
	B. Freight	0%	
	C. Passenger and freight	0%	
13. What was the damage in the accident?	A. Train and Microbus	100%	In this accident the train head-on-collided with the microbus. The train were small damage but microbus-were full damage in this accident.
	B. Rail line	0%	
	C. Shop	0%	
	D. House	0%	

<b>14.</b> What was the approximate speed of the train?	A. 40-50 kmph	0%	52% Pedestrian say that the trains approximate speed was (50-60) kmph and 48% Pedestrian say train speed was (60-70) kmph.
	B. 50-60 kmph	52%	
	C. 60-70 kmph	48%	
<b>15.</b> Was any pedestrian injured or killed in this accident apart from the train passengers?	A. Yes	0%	100% People say that there was no pedestrian injured or killed in this accident.
	B. No	100%	
<b>16.</b> What time of the day did the accident happen?	A. Morning	0%	This accident happened in afternoon every say that.
	B. Afternoon	100%	
	C. Evening	0%	
	D. Night	0%	
<b>17.</b> What is your opinion as the cause of the train accident?	A. Absent of gateman	64%	64% people say 'Absent of gateman' 32% people say crossing not allowed in that side. 4% say microbus driver was careless.
	B. Crossing not allowed	32%	
	C. Careless of the microbus driver	4%	

## 5.6 Suggestion (Chittagong)

The accident occurred in Barotakia, Chittagong. The accident occurred in railway and roadway crossing. We can see that the accident occurred for the absence of gateman. To remove this type of accident the gateman has to do his duty very sincerely. And the roadway vehicles drivers and pedestrians should have to alert by the whistle. Automatic protected crossing signals (flashing light) have to provide in railway and road way crossing. Never drive around gates-If the gates are down, don't cross the tracks until the gates are raised. It's against the law to go around crossing gates. At crossings without gates, may cross the tracks, after stopping, while the red lights are flashing if it's safe to do so. However, if a train is closely approaching, or if a signal person signals to stop, everyone must stop and wait until it's safe to proceed. Some railway crossings may have an advance flashing amber (yellow) light and sign warning of a train ahead at a concealed crossing.



**Photo: 5.4:** Flashing amber (yellow) light and sign warning

## 5.7 Summary Table (Cumilla)

**Table 5.2:** Investigated summary data from spot (Cumilla)

Question	Pedestrian Answer	Percentage	Summary
1. Were you present at the time of the accident?	A. Yes	48%	<i>48% of the people present at the time of the accident were engaged in their own work around the accident site and 52% people came to the accident site after the accident. And people from the vicinity came from the accident site and rescued the injured people.</i>
	B. No	52%	
2. Which train collided with the accident?	A. Freight mail train and sonar Bangla express	100%	There are two train involved in this accident. Everyone say the two-train name was 'Freight mail train and sonar Bangla express'.
3. What was the weather condition on the day when the accident occurred?	A. Rainy.	0%	100% People say, when train occurred the weather condition was 'Cloudy'.
	B. Cloudy.	100%	
	C. Sunshine.	0%	
	D. Foggy.	0%	
4. How did the accident occur?	A. Head-on-collision.	64%	64% People say accident occur 'Head on collision. 34% People say 'Rear and collision and 2% people say railway and roadway crossing.
	B. Derailed.	0%	
	C. Rear-end collision.	34%	
	D. Railway and roadway crossing.	2%	

	E. Other	0%	
<b>5.</b> How many people were injured in the accident?	A. Injured (0-30)	0%	92% People say there was 30 to 60 people injured and 8% people say 60 to 100 injured in this accident.
	B. Injured (30-60)	92%	
	C. Injured (60-100)	8%	
<b>6.</b> How many people were Killed in the accident?	A. Killed (0)	100%	There are no people killed in this accident.
<b>7.</b> How many men were injured in the accident?	A. Men (0-30)	50%	50% People say 0 to 30 men injured and the other 50% people say 30 to 60 men injured in this accident.
	B. Men (30-60)	50%	
	C. Men (60-100)	0%	
<b>8.</b> How many women were injured in the accident?	A. Women (0-50)	100%	100% people say 0 to 50 women injured in this accident.
	B. Women (50-100)	0%	
<b>9.</b> How many men and women were killed in the accident?	A. Men- 0	100%	There are no men and women Killed in this accident.
	B. Women- 0		
<b>10.</b> How many children were injured in the accident?	A. Children (0-5)	94%	94% people say 0 to 5 children and 6% say 5 to 10 children injured in this accident.
	B. Children (5-10)	6%	
<b>11.</b> How many children were killed in the accident?	A. Children killed (0)	100%	There are no children killed in this accident.
<b>12)</b> What were the trains carrying?	A. Passenger and freight	100%	Everyone say there are two train crashed. One is the passenger train and other carry freight.
<b>13.</b> What was the damage in the accident?	A. Train and Rail line	100%	The damage in this accident only Train and rail line. No other thing damage in this accident.
	B. House	0%	
	C. Shop	0%	

	D. Other vehicles	0%	
<b>14.</b> What was the approximate speed of the express train?	A. 40-50 kmph	0%	50% people told us the approximate speed of the express train 50-60 kmph. Other 50% people say 60-70. Everyone heard from gateman.
	B. 50-60 kmph	50%	
	C. 60-70 kmph	50%	
	D. Others	0%	
<b>15.</b> Was any pedestrian injured or killed in this accident apart from the train passengers?	A. Yes	0%	There-are no pedestrian injured or killed in this accident.
	B. No	100%	
<b>16.</b> What time of the day did the accident happened?	A. Morning	0%	This accident happened in night. 100% people say that.
	B. Afternoon	0%	
	C. Evening	0%	
	D. Night	100%	
<b>17.</b> What is your opinion as the cause of the train accident?	A. Signaling problem.	42%	42% people opinion was “Signaling problem”.46% people opinion was “Negligence of duty”. Just 22% people opinion was “Head on collision”.
	B. Negligence of duty.	46%	
	C. Head on collision.	22%	

## 5.8 Suggestion (Cumilla)

The accident occurred in Hasanpur station, Nangalkot, Cumilla. The accident occurred in railway line. The accident occurred for signal timing mistake. To remove this type of accident the government have to provide automatic traffic control device, which gives automatic signal on time. Automatic protected crossing signals (flashing light) have to provide.



**Photo 5.5:** Flashing Light



## **CHAPTER SIX**

### **CONCLUSION AND RECOMMENDATION**

## **CHAPTER SIX CONCLUSION AND RECOMMENDATION**

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### **6.1 Introduction:**

The conclusion is the last chapter of a thesis. A summary of the arguments covered in the thesis book is given along with a restatement of the thesis statement. This chapter offers recommendations for enhancements and additional research in the area along with a summary of the main findings from the comparative analysis.

### **6.2 Conclusion:**

The information got after the survey- Hasanpur railway accident at Cumilla happened due to signal timing mistake. There no people killed and approximately 50 people injured. This accident was a rear end collision. There no people killed and approximately 50 people injured. The accident occurred at night. Baratakia railway accident at Chittagong, the accident took place between the railway and roadway crossing. The accident happened due to the gateman's absence. 11 passengers in the micro bus died in the accident. The accident occurred at noon and the weather condition was sunny. The accident was occurred for signaling problem. To remove this type of accident the government have to provide automatic traffic control device, which gives automatic signal on time. Automatic protected crossing signals (flashing light) have to provide.

### **6.3 Recommendation for further study:**

- This study can be performed in other areas all over the country to analysis and compare all train service.
- For further study a large sample size may give the analysis and more accurate result.
- Similar study can be performed for other transit services.
- Any other route can be selected for further study.
- Some modern tools and software like VISSIM, VISSUM etc. can be used for such analysis.

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## Appendix -A

**The following question we asked to 50 peoples in ‘Barotakia Railway Station’ area and 50 peoples ‘Hasanpur Railway Station’ Area.**

- 1) Did you present at the time of the accident?
- 2) Which train collided with the accident?
- 3) What was the weather condition on the day when the accident occurred?
- 4) How did the accident occur?
- 5) How many people were injured and how many people were killed in the accident?
- 6) How many men and women were injured in the accident?
- 7) How many men and women were killed in the accident?
- 8) How many children were injured in the accident?
- 9) How many children were killed in the accident?
- 10) What were the trains carrying?
- 11) What was the damage in the accident?
- 12) What was the approximate speed of the train?
- 13) Was any pedestrian injured or killed in this accident apart from the train passengers?
- 14) What time of the day did the accident happen?
- 15) What is your opinion as the cause of the train accident?



## APPENDIX B-2

(Cumilla)

### Pedestrian Details

Name: Sabuj Islam  
 Occupation: Vegetable seller  
 Age: 43  
 Local/ Non-Local: Local

### Investigation Data

- 1) Were you present at the time of the accident?  
 A. Yes  B. No
- 2) Which train collided with the accident?  
 A. Freight mail train and sonar Bangla Express
- 3) What was the weather condition on the day when the accident occurred?  
 A. Rainy  B. Cloudy  C. Sunshine  D. Foggy
- 4) How did the accident occur?  
 A. Head-on collision  B. Derailed  C. Rear-end collision  
 D. Railway and roadway crossing  E. Others
- 5) How many people were injured and how many people were killed in the accident?  
 A. Injured.. 30  B. Killed.... 0
- 6) How many men and women were injured in the accident?  
 A. Men .. 15  B. Women .. 15
- 7) How many men and women were killed in the accident?  
 A. Man.. 0  B. Women .. 0
- 8) How many children were injured in the accident?  
 A... 6
- 9) How many children were killed in the accident?  
 A.. 0
- 10) What were the trains carrying?  
 A. Passenger  B. Freight  C. Passenger and freight
- 11) What was the damage in the accident?  
 A. Train  B. House  C. Shop  D. Other vehicles
- 12) What was the approximate speed of the train?  
 A. 40-50  B. 50-60  C. 60-70  D. Others
- 13) Was any pedestrian injured or killed in this accident apart from the train passengers?  
 A. Yes  B. No
- 14) What time of the day did the accident happen?  
 A. Morning  B. Afternoon  C. Evening  D. Night
- 15) What is your opinion as the cause of the train accident?  
 A.... Signal problem