

# **ANALYSIS OF PUBLIC BUS SERVICE QUALITY IN DHAKA CITY FROM FARMGATE TO MIRPUR-10**

**BY**

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A thesis submitted to the Department of Civil Engineering in partial fulfillment for the degree  
of Bachelor of Science in Civil Engineering



Department of Civil Engineering

Sonargaon University

147/I, Green Road, Dhaka-1215, Bangladesh

Section: 14B

Fall - 2021

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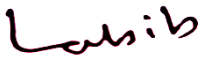

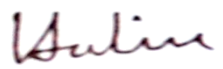
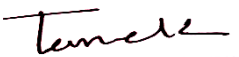

## **BOARD OF EXAMINERS**

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## DECLARATION

We, the undergraduate students of SU, hereby declare that this thesis, titled: “Analysis of Public Bus Service Quality in Dhaka City from Farmgate to Mirpur-10 has only been prepared for the fulfillment of the requirement for the degree of Bachelor of Science in Civil Engineering. It is based on our “Undergraduate Research” course under the supervision of our faculty advisor Mohammad Kabir Hossain, and it has not been prepared for any other purpose, reward or presentation.

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## **DEDICATIONS**

We dedicate this thesis to our honorable supervisor Mohammad Kabir Hossain, Lecture and Assistant Coordinator, CE, SU.

## ACKNOWLEDGEMENTS

The thesis titled: “Analysis of Public Bus Service Quality in Dhaka City from Farmgate to Mirpur-10 has been prepared and submitted as a partial requirement of the Bachelor of Science in Civil Engineering degree at Sonargaon University (SU). The successful accomplishment of this research required lots of supervision, guidance and support from many people. We would like to express our most sincere and absolute gratitude to the following individuals for helping us to accomplish this research study successfully and being a helping hand all through the way. First of all, we would like to give our heartiest thanks to Almighty Allah, the most merciful and the most beneficent. We would like to express our great appreciation and heartfelt gratitude towards our research supervisor Mohammad Kabir Hossain, (Lecturer & Assistant Coordinator, CE, SU). He guided and supported us throughout the research work. His invaluable and constructive ideas, guidance and suggestions throughout this research were crucial for this work. His critical and thorough checking and review of the draft manuscript and numerous inputs have been instrumental in the successful completion of the thesis. Without his active help this work would have not been possible. We are also very thankful to all the members of the survey team for their tremendous efforts in the data collection process of the thesis.

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## **ABSTRACT**

Every developed country has a proper public bus service quality to run the transport system properly. However, the bus service quality is not maintained properly in Bangladesh. The primary objective of this research was to analyze the bus service quality in Dhaka city, the capital of Bangladesh. In this research work, questionnaires for both passengers and drivers were developed. Interviews of total 300 passengers are conducted using a paper based questionnaire survey. The results revealed the problems the passengers as well as the drivers face daily while making bus travel in Dhaka City. Most of them passengers respondents evaluated the bus service quality attributes like physical condition of bus, speed of bus, fitness of bus, security of bus, staff behavior, driver skills, lighting facility, cleanliness of bus, bus information availability, fare pricing, weekend travel time, service frequency, crowdedness, seating arrangements, seat condition, convenience, frequency is not satisfied. Suggestions for improving the bus transport system are also taken from the passengers and drivers. The special services provided by the bus companies are also identified in the survey. Basically, the researchers tried to know the opinion of people about the bus service quality and also tried to find out important suggestions from the drivers and passengers to have a more advanced and effective bus service quality. The study results conclude that the public bus service quality should be significantly changed and also a proper training system should be arranged for the drivers to follow the traffic rules. The outcomes of this study should be very useful for the road transport agencies of Bangladesh, which are working to improve the bus service quality for the sake of better traffic safety and service in Dhaka as well as across the country.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Background

The Private sector plays an increasing role in such development but it is generally agreed that a well-articulated transport policy is needed for the development of transport sector. Depend on the pattern of development the level of transport needs in a growing economy (Economic activities, sectorial composition, and importance of international trade need spatial combination of those). Considering only the mechanical transport of the city, it can be seen that the buses carry the maximum number of passengers per day. But even then, due to various difficulties in public transport, the upper class people are turning away from this service. The transport sector in Bangladesh is characterized by weak public and private institutions, and low level of investment.

One of the most used and most frequently available vehicles is bus for going from small distance trip to very long trip. There are two types of buses available in the market the private or public. One cannot help but notice people running after buses in Dhaka. Bargaining with auto-rickshaw drivers over the fare is a common thing. In the morning reckless bus drivers making their way through heavy traffic, driving the bus on the wrong side is also a common scenario in Dhaka city. Buses and auto-rickshaws are mainly used for longer routes and just rickshaws are widely used for short distances. Due mainly to the affordable fares and accessibility traveling by the bus is convenient among young students and commuters. For university and college going students, some of these buses even offer special discounts. But the numerous stoppages and the extensive routes have always been a problem when travelling by the bus. Recently some new air-conditioned buses run by private operators have been launched. In the portion of the route from Farmgate to Mirpur-10, most of the passengers face lots of difficulties and most of the buses carry way more passengers than they are able to. Problems of overloading will always increase if the number of buses is not increased. The general perception is that the bus service quality should more digitalized and more user friendly.

The most common choices for vehicles are CNG auto-rickshaws and city buses for ordinary people. But because of economic reasons and suitability for reaching long distance destinations, buses are the most preferred vehicle. But if one does not know the appropriate

route, buses could sweat a person up badly and the most of the buses will confuse with wrong or incomplete information inscribed on their bodies.

## **1.2 Objectives**

### **1.2.1 General Objective**

The main objective of this study is analysis of public bus service quality in Dhaka city from Farmgate to Mirpur-10.

### **1.2.2 Specific Objectives**

- To collect all available data from literature review and previous studies.
- To conduct field observation and questionnaire surveys to collect information about people's perception and suggestions, as well as field-level information about the bus service quality of a selected bus route of Dhaka city.
- To analyze the collected primary and secondary information, summarize the findings and recommend solutions for problems related to the bus service quality in the bus route selected for this research.

### **1.2.3 Scope of the Research**

In this research study, bus service quality in Dhaka city is evaluated, and the researchers of this study basically wanted the people to have the proper knowledge about the bus service quality and how it can be more beneficial to them. One route was chosen for this evaluation purpose. A questionnaire-based survey was conducted. The study was not only focused on the analysis of bus management system but the researchers of this study gave a priority to the comment of people and drivers to know their demand. Finally the goal was to know their suggestion for having a better bus service quality.

### **1.3 Existing Condition**

In Bangladesh, most research studies have focused on the future of transportation system in Dhaka city. Unfortunately not many studies have been done to analyze the current bus service quality in Dhaka, and not all studies have been on the same area of Dhaka. It should be noted that there has not been any serious analytical research conducted that is related to the current condition of bus service quality in Bangladesh.

According to the BRTA, up to March, 2008 there were 6,488 numbers of authorized buses in Dhaka City and many of these buses are operated by individual owners. Drivers and crews in most cases rent the buses on a daily or monthly basis. Then they need many passengers for their own cost and profit. As a result, the bus industry of Dhaka city has not developed healthy till now. Due to the poor management condition of the bus industry, there is a lack of coordinated management of buses. Also, there is no route commitment, which leads to delay, aggressive competition on roads and wastage of resources. Rough behavior of bus crews, unsafe driving practice, dangerous boarding and alighting by passengers in the middle of roads, nosing of buses etc. can be attributed to the fragmentation in bus ownership. Furthermore, there is a complex mixture of motorized and non-motorized traffic in the same lane along the roads in Dhaka city except few roads where non-motorized traffic is restricted. The roads are largely occupied by inefficient modes of transport like private cars, rickshaws etc. As slow and fast moving vehicles are plying in same lane, the speed of fast moving mass transit buses are decreasing significantly. In Dhaka City, travelling in buses is often not safe. Most of the times, the buses remain overloaded. It is a common scene in Dhaka City that people are hanging by holding the handles of the buses - resulting in increase in risk of accident. Also, hijacking and pick pocketing is a common scenario of public busses. Police-population ratio in Dhaka City is so misappropriate as to leave a void in controlling buses for various purposes. Moreover, the law enforcing agencies are not concerned about their duties in most cases. As a result, traffic rules are frequently violated by bus drivers engaging themselves in wasteful and dangerous practices like stopping at or near to junctions, overloading and allowing passengers at the bus exterior etc. A significant portion of the roads are occupied by passengers near the bus stoppages.

The violations of route permission of buses authorized by BRTA are also occurring due to lack of enforcement. Considering these situations it can be said that proper development is needed in this area. Existing condition should be reviewed and proper steps have to take for the development of the current conditions.

#### 1.4 Legitimate Institutional Framework for Transport

Every single motorized vehicle should be enrolled with BRTA for handling in the street as indicated by Motor Vehicle Ordinance (MVO 1983). Moreover, any vehicle to be utilized as open transport needs course allows which are issued for fixed course having cause and goal and furthermore for fixed zone. These are ordinarily issued for a long time on specific conditions. In this way, all the engine vehicles employing on that passageway are to be enlisted with BRTA and ought to acquire a course grant from BRTA. The Cycle Rickshaw doesn't require any enrollment however ought to have permit or some kind of authorization from the concerned City Corporation or Pourashavas for handling in specific areas or territories. In Dhaka City, Dhaka North and South city Corporation is in charge of enrollment of Rickshaw. Be that as it may, Motorized rickshaw isn't approved in Dhaka city.

The six fundamental associations to control and deal with the open vehicle framework in Dhaka Metropolitan Area are featured in the table underneath. Three of them (DTCA, BRTA and BRTC) are under the umbrella of the Ministry of Road Transport and Bridges. In addition, DMRTC assumes an essential job for manage the course of open vehicle in Dhaka.

Table 1.1: Organizations to Regulate and Manage the Public Transport System

Organization	Jurisdiction	Main Purpose
Dhaka Transport Coordination Authority (DTCA)	Greater Dhaka	Coordinate transport policy, infrastructure and strategic planning: <ul style="list-style-type: none"> <li>- Preparation of Strategic Planning</li> <li>- Approval of transport infrastructure in Dhaka City</li> <li>- Coordinate transport agencies</li> </ul>



Bangladesh Road Transport Authority (BRTA)	National	Administration of road transport system: -Route permits for Land Transport -Collection of road fees and taxes
Bangladesh Road Transport Corporation (BRTC)	National	- Public Transport Operator
Dhaka North City Corporation (DNCC) Dhaka South City Corporation (DSCC)	Dhaka City	- Owner of Transport Infrastructure - Maintenance and Development public transit infrastructure in Dhaka City.
Dhaka Metropolitan Police (DMP)	Dhaka Metropolitan Area	Application of traffic polices in Dhaka Metropolitan Area - Traffic Enforcement
Dhaka BRT company Ltd	Dhaka	System manager of Dhaka BRT

Source: Md. Anisur Rahman. "Business Model for Bus Operation in Dhaka City under Proposed BRT System Scenario". April, 2017.

## **1.5 Benefits of the Research**

At present, road accident is one of the primary causes of deaths in Bangladesh. Busses of different routes are competing with each other to go first and as a result accidents take place and more importantly people are suffering. Taking that into consideration, the current research will be helpful for the Bangladesh Road Transport Authority (BRTA) as it will provide with valuable information and evaluation of those information about bus service quality and how people wanted it to be improved. The study will also help BRTA to gain a sound knowledge about the people's comment or suggestion to minimize all the problems that currently it has. It will help the concerned authority to take proper steps and measures to increase the facilities of bus service quality.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Introduction

The common transportation mode in the Dhaka city is bus and the service provided by buses is not enough in terms of capacity, safety and comfort. The transit structure of Dhaka city is mainly road-based and NMT has a fair share too. According to Bangladesh Road Transport Authority (BRTA, 2017) daily about 30 million trips are made in Dhaka city. Among these, about 30% trips have been made by bus. As population of Dhaka city is increased day by day, the demand for bus is soaring higher and higher. On the other hand, a large number of motor cars are also plying on the city roads, which result in inefficient use of roads and create more congestion. As a result of this increasing population, the travel demand is also increasing very fast in the city causing huge burden on the existing transport system; and the unavoidable outcome is that by any standard Dhaka does not have a reliable transport system now. Just like other cities in developed as well as in developing countries had experienced, such scale of urban growth is involving painful adjustments on the residents of the city. It is generally agreed that undisciplined and unregulated use of private cars should not be permitted to continue in a large city like Dhaka. It is also understood that Dhaka and its neighboring areas will continue to be the main link of Bangladesh to the global economy. The country's global competitiveness will therefore rely on the efficiency of the urban transport system of Dhaka.

#### 2.2 Previous Studies of the Problem

The common transportation mode in Dhaka city is bus and the service provided by buses is not enough in terms of capacity, safety and comfort. Daily about 30 million trip in Dhaka city, among 30% trips have been made by bus. The bus fare rate 1.70 taka per km and minimum fare 7 taka (BRTA, 2017).

Settlements in rural areas around cities continue to expand across the developed world. Commuters living in these areas predominantly use private cars to travel to the cities, adding to congestion, parking and environmental problems and putting the city centre's transport network under continuous strain. Firstly, it is important to note that cost cannot be seen as an isolated entity, it is rather the relationship between quality and price that affects users the most (EEA, 2016).

Integration of local and regional public transport networks is described above as an important factor for the availability of the system. In the design of the system, this needs to be balanced with other modes of access and egress to regional public transport stations. For instance, They suggested that the number of bus stops should be limited within the walking catchment area of a station, for the benefit of walking access. They define the walking catchment area as an 800-m radius around the station (Akbari et. Al, 2018).

The coordination of public transport systems, not only through integrated fares but also through integrated ticketing and coordinated transport planning, marketing, and customer information, is a foundation for providing an attractive alternative to the car. They suggested that such coordination, in the form of so-called Verkehrsverbund, is a part of the explanation of why the modal share of private cars has fallen since 1990 in many German, Austrian, and Swiss metropolitan areas. In all six of their case studies, they argue that the integrated public transport associations have increased the quality and quantity of services, attracted more passengers, and reduced the proportion of costs covered by subsidies (Buehler et. Al, 2018)

Bazley et al (2014) described the concept of “Rural Bus Rapid Transit” as an alternative to rail in rural settings. Such a concept was inaugurated in 2013 between Aspen and Glenwood Springs, USA, covering a distance of approximately 70 km with 13 bus stations. The concept comprises high standards of operations as well as vehicles and station facilities. A few months after introduction, ridership had increased by 22% and, according to a customer satisfaction survey, this is mainly due to station locations, frequency, bus comfort and safety.

Rahman et al. (2015) worked on analyzing customer satisfaction of bus service in Dhaka city. They found that present condition of bus service is unsatisfactory and they found that the main reason behind that unsafe driving practices, poor boarding and alighting facilities and lack of law enforcing agencies surveillance.

Islam et al. (2018) studied on assessing bus service quality based on public perception in Chittagong city. They found that the overall bus service quality is poor. They consider several factors for their study but they didn't mention the exact reason behind this.

## 2.3 Fare System

### Bus Fare Rate

The present bus fare rate is 2.15 taka per km and Minimum fare is 8taka and for Minibus fare is 1.70 taka with minimum fare 7 taka (BRTA 2015). For most of the company-based buses, the passengers are to purchase bus ticket of the concerned company from the ticket booth placed at the bus stops (before boarding the bus). But in other buses, passengers have to pay the fare inside the bus to the contractor, although they don't receive a ticket for that.

**Table 2.1: Bus Fares in Dhaka (Urban and Suburban routes)**

Year	Bus Fare (Tk./Km)
1992	0.31
2007	0.87
2009	1.20
2011	1.55
2012	1.60
2015	1.70
2021	2.15

Source: BRTA 2021

## CHAPTER 3

### STUDY DESIGN AND METHODOLOGY

#### 3.1 Introduction

The methodology to achieve the goals of the project is simple. After review of the research literature, the overall research design was organized. This chapter includes the technique of data collection and the description of the procedures through which the research was executed. In this chapter the overall research methodologies that were followed to achieve the objectives, times of data collection, data collection procedures, analysis and the outlines of the study are described.

#### 3.2 Conceptual Framework

Conceptual framework is an analytical tool with several variations and contexts. It is applied in this work since an overall picture is needed here. Conceptual framework is used since it helps to make conceptual distinctions and organize ideas and it is an easy way to remember and apply. Overall steps of conceptual framework are given as follows:

- Selection of the topic.
- Available articles, books and other sources on the topic or related to the topic were studied.
- Selection of research objectives.
- Study area and study population were identified.
- Then sampling technique was identified.
- Data collection process was divided into two categories.
- Primary source of information through data collection was field surveying process where secondary source of data collection was available information obtained from available literature.
- The findings and outcomes were obtained from primary source and later compared with the secondary source.
- Based on the findings, final conclusion and recommendations were drawn.

3.3 The entire process is shown as a flow chart in Figure 3.1

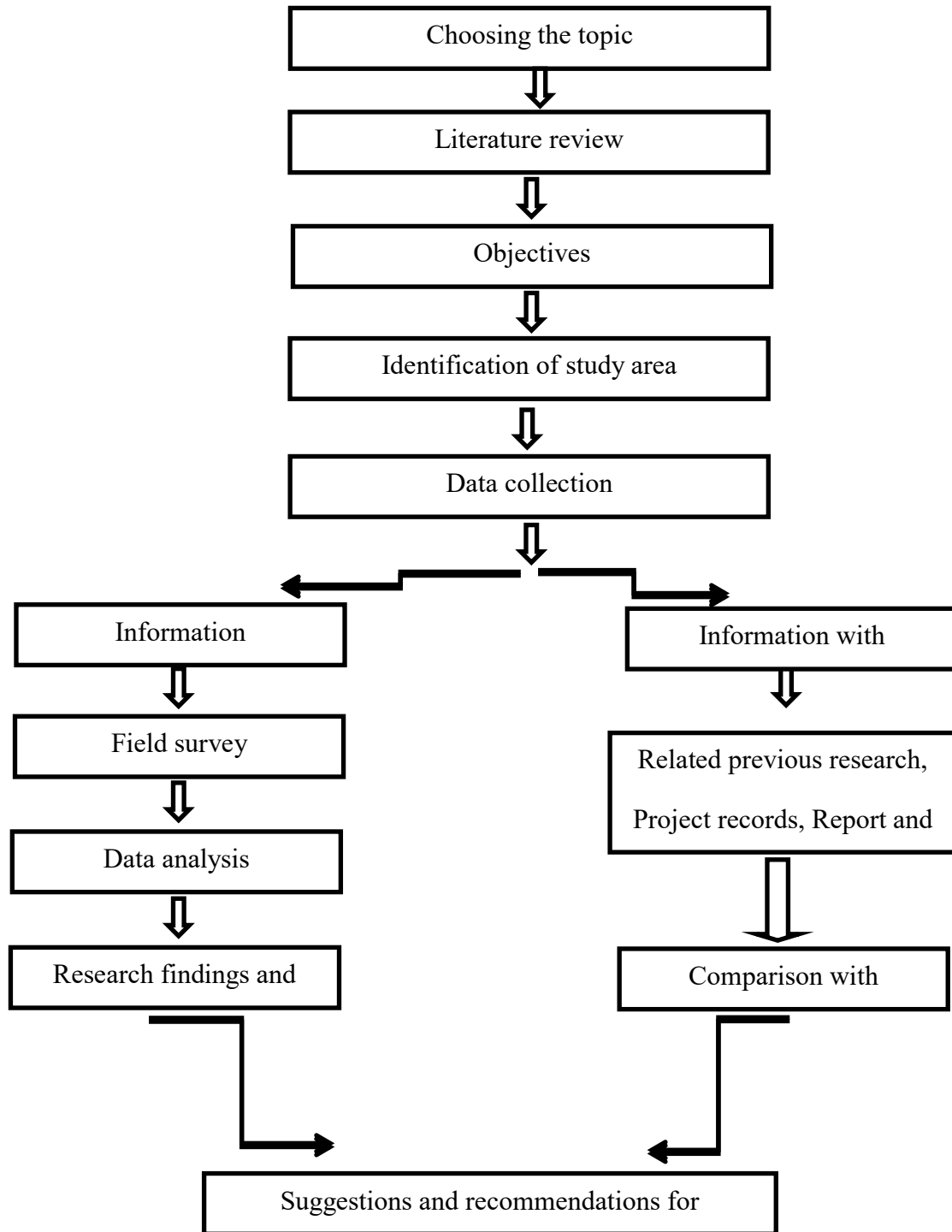


Figure 3.1: Flow Chart Diagram of a Methodology Process

### 3.4 Study Area and Survey Image

To assess the problems of the driver's and passenger's with the current public bus service quality and to find out their opinion about the bus service quality in Dhaka city. In figure 3.2; Farmgate to Mirpur-10 route has been selected for this study. Total length of the route is 9.2 kilometer .In this route points/stations has been selected to conduct the survey.



Figure 3.2: Bus at Route

#### 3.4.1. Farmgate Bus Stop

Farmgate is the starting point of the selected route. The drivers who drive from Farmgate – Mirpur 10 route were considered for this study purpose. The Farmgate Bus Stop is shown in figure 3.3.



Figure 3.3: (a)



Figure 3.3: (b)

Figure 3.3: Farmgate Bus Stop



### 3.4.2 Mirpur10 Bus Stop

Mirpur bus stand is last point of this route in which the researchers of this study conducted the survey. Several buses start their journey from this bus stand to go along in this route. The Station picture has given in figure 3.4.



**Figure 3.4: Mirpur 10 Bus Stop**

### 3.5 Bus Service Quality Evaluation

**Table 3.1: Respondents' Demographic and Driving Characteristics**

Geographic and characteristics	Categories	Frequency	Percent%	
1. Gender	Male	240	83.33	
	Female	60	16.66	
	Total	300	100	
2. Age	0-18	60	20	
	18-24	120	40	
	24-30	20	6.66	
	30-60	60	20	
	60+	40	13.33	
	Total	300	100	
	3. Education	Illiterate	40	13.33
		Class	100	33.33
Graduate		80	26.66	
Higher education		80	26.66	
Total		300	100	
4. Occupation	Service h	50	16.66	
	Businessman	80	26.66	
	Day labor	30	10	
	Student	120	40	
	Unemployed	20	6.66	
	Other	00	00	
	Total	300	100	
5. Juerney frequency	Time/month	180	60	
	Daily	120	40	
	Total	300	100	
6. Jurney distance	0-10	150	50	
	10-20	100	33.33	
	20-30	20	6.66	
	30-50	10	3.33	

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### 3.6 Data Collection Tools

Problems drivers and passengers faced in the current bus service quality were investigated by conducted a survey among the drivers and passengers of the selected road. In this study, problems have been assessed by the percentage in terms of the condition they face every day. A multiple choice type of questionnaire was used for assessing the problems. In addition to the multiple choice type questionnaires, the survey form contained a brief introduction about the purpose of the study, and some specific queries regarding the respondents' demographic, driving and personal characteristics. The questionnaire was divided into two parts. In the drivers survey, the first part of the survey form contained 6 information regarding the respondents' demographic and driving characteristics such as driver name, marital status, age, educational background, license category, driving experience. In the passenger's survey, the first part contained 4 information regarding the respondents' demographic characteristics such as name, age, gender and marital status. The second part evaluated drivers training program, regular problems that created by them and the solution they want from their perspectives. In the passengers form they were asked about their comfort ability towards the bus conductors and drivers and the problem they face in their life daily. The survey questionnaire was written in Bangla, the national and official language of Bangladesh and the language with which Bangladesh's people are most familiar. The questionnaire form was printed in true color. Four options were given for each question. And there are also some question which answers was taken by written. The drivers and passengers who were educated enough to read and understand the questions in the questionnaire, completed the survey themselves whereas the drivers and passengers who were not educated enough, the questions were read out in front of them so that they could understand the meaning of the questions and the options were marked according to their choices.

## CHAPTER 4

### RESULT AND DATA ANALYSIS

#### 4.1 Introduction

This chapter shows the data collected by the researchers. In the following sections, drivers' characteristics and their perception about bus service quality and passenger's characteristics and their perception about bus service quality has been investigated. In order to achieve the general objective of the research, which is to determine drivers' characteristics and their perception about bus service quality and passenger's characteristics and their perception about bus service quality, the questionnaire was prepared. The collected data was then presented in the different chart in percentage form, which would give a good idea about the drivers' drivers' characteristics and their perception about bus service quality and passenger's characteristics and their perception about bus service quality. Also, the impact of respondents' demographic and characteristics (marital status, gender, age, educational background, license Category, driving experience) on bus service quality is discussed.

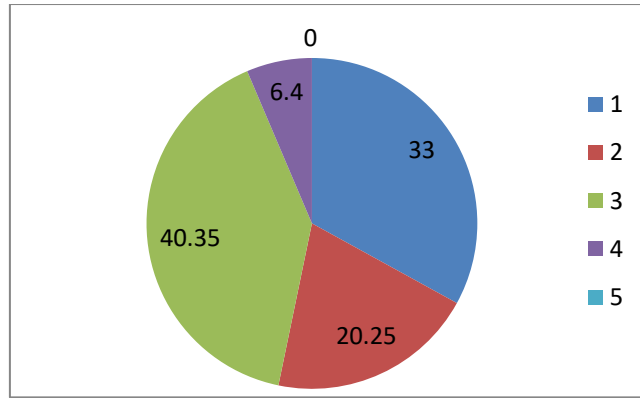
#### 4.2 Data Analysis and Result

##### 4.2.1: Physical Condition of Bus:

Most of the respondents 33% assessed the physical condition of bus is very poor while 20.25% is poor, 40.35% answered physical condition medium and 6.4% answered physical condition of bus is very good (Table 4.1).

**Table 4.1: Physical Condition of Bus**

Categories	% percent
1(very poor)	33
2(poor)	20.25
3(medium)	40.35
4(good)	6.4
5(very good)	00
Total	100



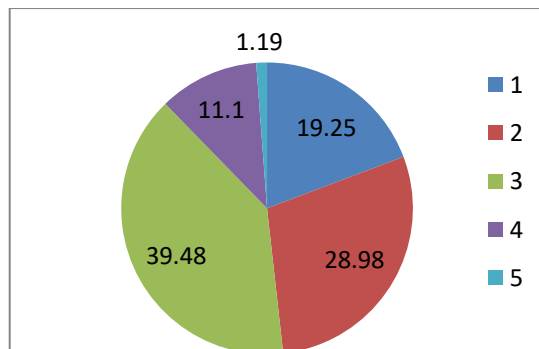
**Figure 4.1: Physical Condition of Bus**

#### 4.2.2: Speed of Bus:

About 19.25% respondents assessed the speed of the bus is very poor, while 29.98% respondents speed of bus as poor, 39.48% respondents assessed the speed of the bus evaluated as medium, 11.1% respondents assessed the speed of the bus good and 1.19% very good as shown in Table 4.2.

**Table 4.2: Speed of Bus**

Categories	% percent
1(very poor)	19.25
2(poor)	28.98
3(media)	39.48
4(good)	11.1
5(very good)	1.19
Total	100



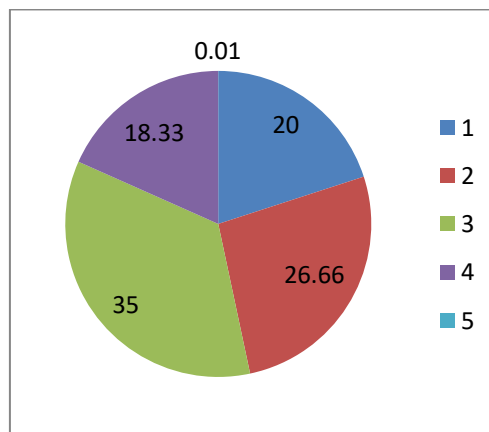
**Figure 4.2: Speed of Bus**

#### 4.2.3: Fitness of Bus:

About 20% of the respondents expressed that the overall fitness of bus is very poor while 26.66% said poor, 35% said medium, 18.33% said good and 0.01% said is very good as shown in Table 4.3.

**Table 4.3: Fitness of Bus**

Categories	% percent
1(very poor)	20.00
2(poor)	26.66
3(medium)	35
4(good)	18.33
5(very good)	0.01
Total	100



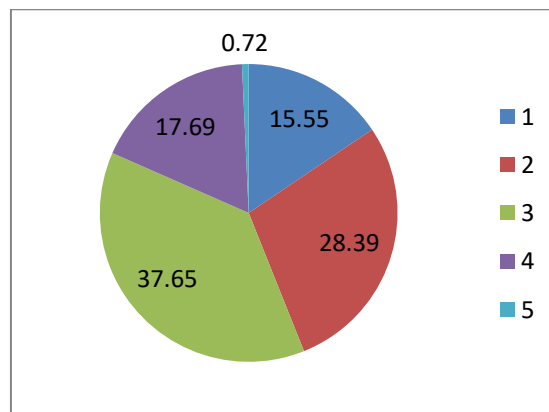
**Figure 4.3: Fitness of Bus**

#### 4.2.4: Security of Bus:

About 15.55% of the respondents expressed that the security of bus is very poor while 28.39% said poor, 37.65% said medium, 17.69% said good and 0.72% said very good (Table 4.4).

**Table 4.4: Security of Bus**

Categories	% percent
1(very poor)	15.55
2(poor)	28.39
3(mediaum)	37.65
4(good)	17.69
5(very good)	0.72
Total	100



**Figure 4.4: Security of Bus**

### 4.3 Service and Economy

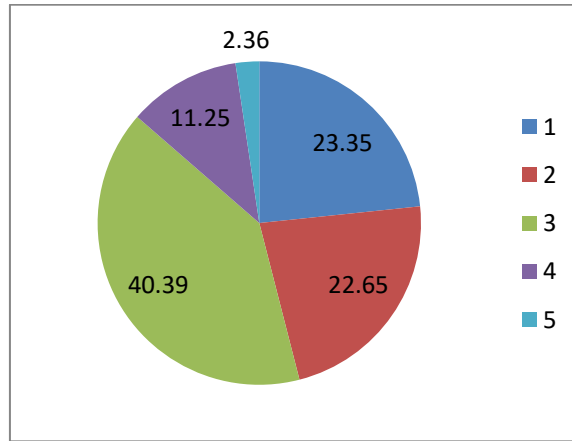
#### 4.3.1: Staff Behavior

Figure 4.5 shows that majority 25.35% of the respondents replied that the behavior of staff is very poor while 22.65% and 40.39% replied fairly poor and medium, 11.25% is good and 2.36% is very good respectively.

**Table 4.5: Staff Behavior**

Categories	% percent
1(very poor)	23.35
2(poor)	22.65
3(mediaum)	40.39
4(good)	11.25

5(very good)	2.36
Total	100



**Figure 4.5: Staff Behavior**

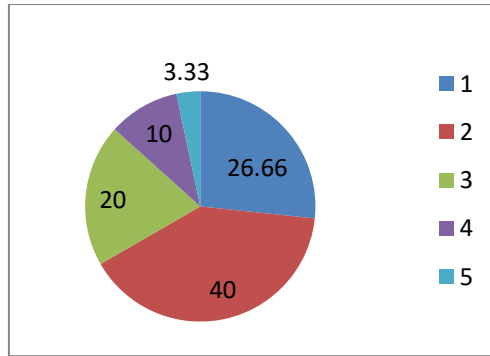
#### 4.3.2: Driver Skills

Figure 4.6 shows that 26.66% of the respondents replied that the driver skills behavior is very poor while 40% and 20% replied fairly poor and medium, 10% is good and 3.33% is very good respectively.

**Table 4.6: Driver Skills**

Categories	% percent
1(very poor)	26.66
2(poor)	40.00
3(medium)	20.00
4(good)	10.00
5(very good)	3.33
Total	100





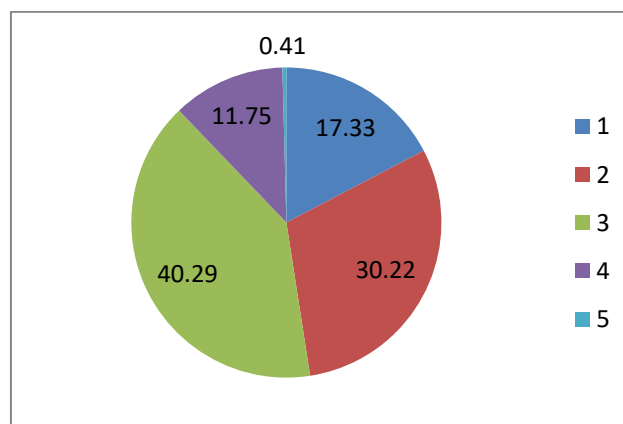
**Figure 4.6: Driver Skills**

### 4.3.3 Lighting Facility

Figure 4.7 shows the lighting facility of bus services. According to the survey report maximum 40.22 respondents perceive that the lighting facility is medium while 17.33% people said very poor, 30.22% poor, 11.75% good and 0.41% answered is very good.

**Table 4.7: Lighting Facility**

Categories	% percent
1(very poor)	17.33
2(poor)	30.22
3(mediaum)	40.22
4(good)	11.75
5(very good)	0.41
Total	100



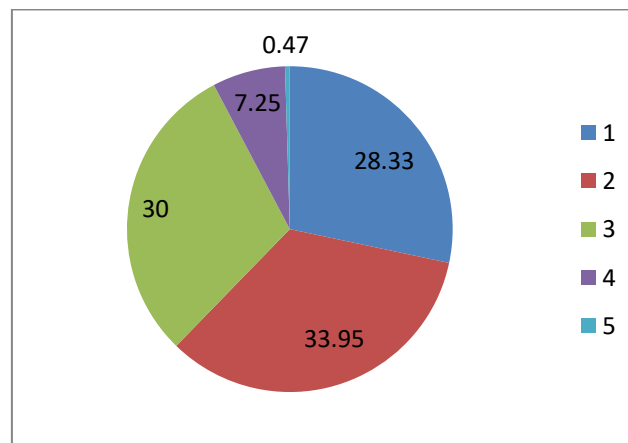
**Figure 4.7: Lighting Facility**

#### 4.3.4 Cleanliness of Bus

Figure 4.8 shows that about half of the users' 33.95% answered that the cleanliness of bus is poor while 28.33% and 30% replied very poor and medium, 7.25% replied good and 0.47% replied is very good.

**Table 4.8: Cleanliness of Bus**

Categories	% percent
1(very poor)	28.33
2(poor)	33.95
3(medium)	30.00
4(good)	7.25
5(very good)	0.47
Total	100



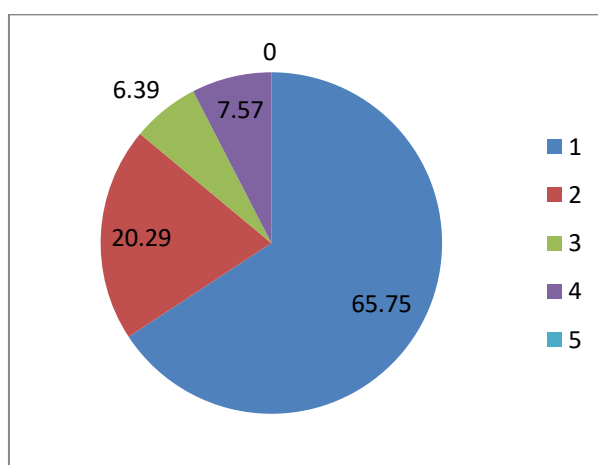
**Figure 4.8: Cleanliness of Bus**

#### 4.3.5 Bus Information Availability

Nobody rated the bus information availability as excellent. About 65.75% respondents rated the availability of information of bus service is very poor while 20.29% ranked poor as shown in Table 4.9.

**Table 4.9: Bus Information Availability**

Categories	% percent
1(very poor)	65.75
2(poor)	20.29
3(mediaium)	6.39
4(good)	7.57
5(very good)	0
Total	100



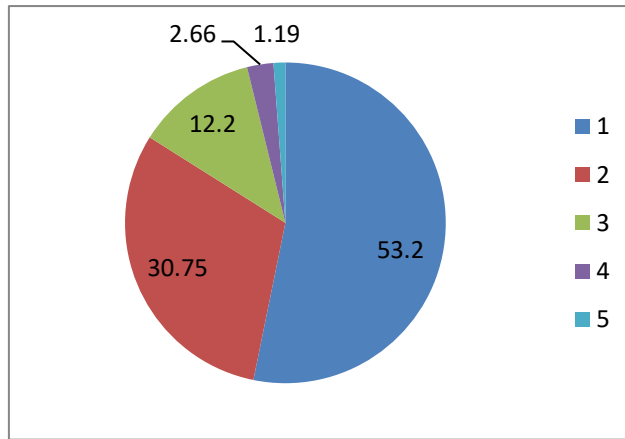
**Figure 4.9: Bus Information Availability**

#### 4.3.6 Fare Pricing

Figure 4.10 shows that about half of the users 53.2% answered very poor while 30.75% poor, 12.2% replied very medium, 2.66% replied is good and 1.19% replied is very good.

**Table 4.10: Fare Pricing**

Categories	% percent
1(very poor)	53.2
2(poor)	30.75
3(mediaium)	12.2
4(good)	2.66
5(very good)	1.19
Total	100



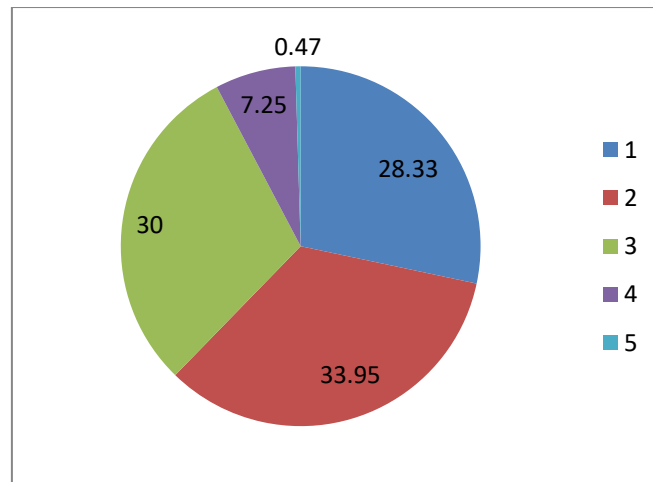
**Figure 4.10: Fare Pricing**

#### 4.3.7 Weekend Travel Time

28.33% of the respondents replied that the weekend travel time of bus service is very poor (Figure 4.11) while 33.95% is poor, 30.0% rated it as medium, 7.25% good and 0.47% is very good.

**Table 4.11: Weekend Travel Time**

Categories	% percent
1(very poor)	28.33
2(poor)	33.95
3(medium)	30.00
4(good)	7.25
5(very good)	0.47
Total	100



**Figure 4.11: Weekend Travel Time**

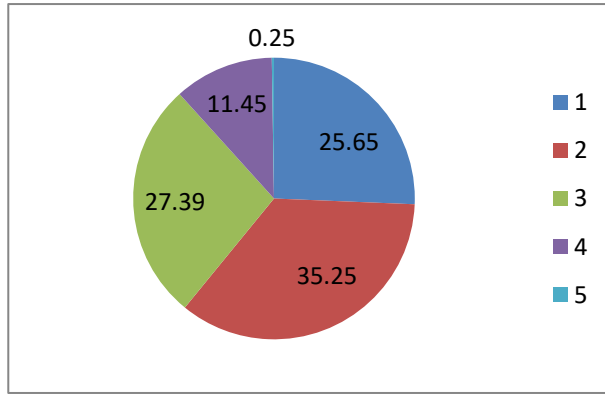
#### **4.4 Convenience and Comfort**

##### **4.4.1 Service Frequency**

About 25.65% of the respondents' answered the frequency of the bus service is very poor while 35.25% answered poor. 27.39%, 11.45% and 0.25% answered medium, good and very poor respectively as shown in Table 4.12.

**Table 4.12: Service Frequency**

Categories	% percent
1(very poor)	25.65
2(poor)	35.25
3(medium)	27.39
4(good)	11.45
5(very good)	0.25
Total	100



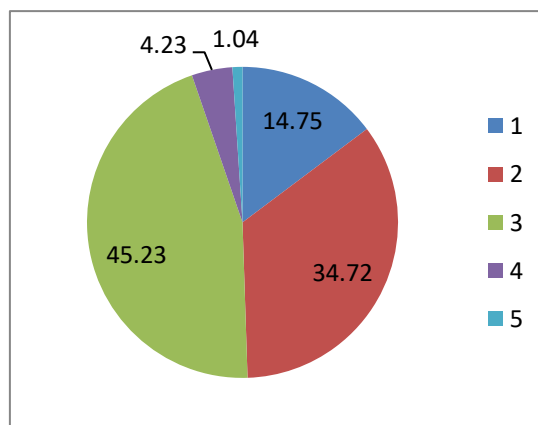
**Figure 4.12: Service Frequency**

**4.4.2 Ride Smoothness**

14.75% of the respondents replied is very poor while 34.72% is poor, 45.23% rated it as medium, 4.23% good and 1.04% is very good (Figure 4.13).

**Table 4.13: Ride Smoothness**

Categories	% percent
1(very poor)	14.75
2(poor)	34.72
3(mediaum)	45.25
4(good)	4.23
5(very good)	1.04
Total	100



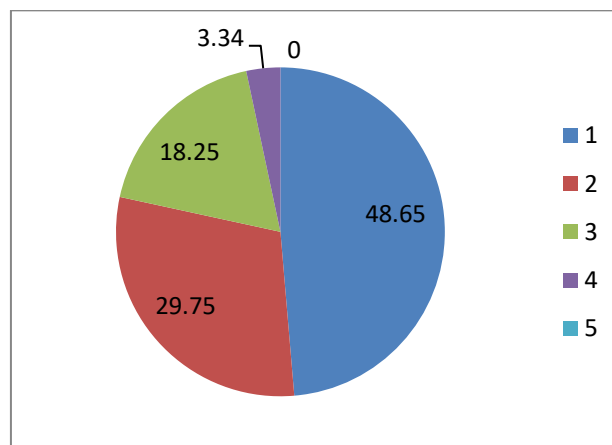
**Figure 4.13: Ride Smoothness**

### 4.4.3 Crowdedness

About 48.65% users strongly agree that the bus is always over crowded as shown in Figure 4.14.

**Table 4.14: Crowdedness**

Categories	% percent
1(very poor)	48.65
2(poor)	29.75
3(media)	18.25
4(good)	3.34
5(very good)	0.00
Total	100



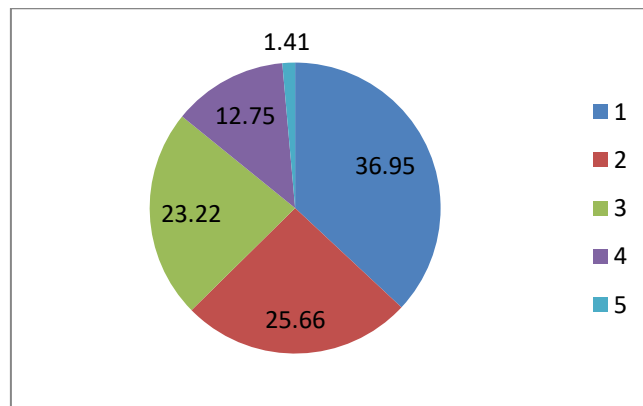
**Figure 4.14: Crowdedness**

### 4.4.4 Seating Arrangements

Figure 4.15 shows the sitting arrangements inside the bus for men and women. 36.95% of the respondents rated it is very poor and 25.6% replied poor. 23.22% medium, 12.75% is good and 1.41% is very good.

**Table 4.15: Seating Arrangements**

Categories	% percent
1(very poor)	36.75
2(poor)	25.6
3(media)	23.22
4(good)	12.75
5(very good)	1.41
Total	100



**Figure 4.15: Seating Arrangements**

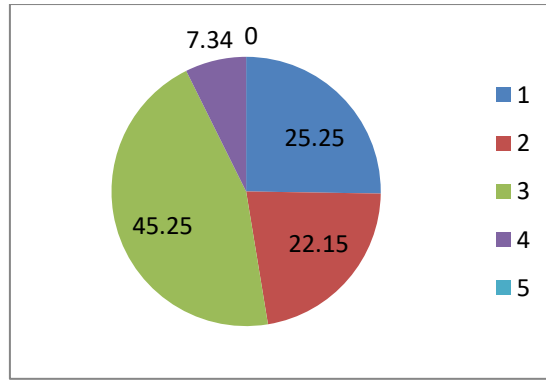
#### 4.4.5 Seat Condition

Figure 4.16, the respondents 25.25% said that the seat condition of bus is very poor, 22.15% revealed is poor, majority of the respondents 45.25% said is medium and 7.34% is good.

**Table 4.16: Seat Condition**

Categories	% percent
1(very poor)	25.25
2(poor)	22.15
3(media)	45.25
4(good)	7.34
5(very good)	0.00
Total	100





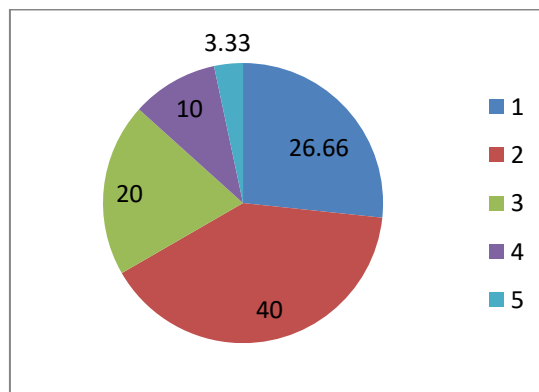
**Figure 4.16: Seat Condition**

#### 4.4.6 Quality of bus services

Respondents were asked to rate the quality of bus services. About 26.66% of the respondents' rated the service quality is very poor, 40% answered poor, 20% answered medium, 10% answered good and 3.33% answered is very good as shown in Table 4.17.

**Table 4.17: Quality of bus service**

Categories	Frequency	% percent
1(very poor)	80	26.66
2(poor)	120	40
3(mediaum)	60	20
4(good)	30	10
5(very good)	10	3.33
Total	300	100



**Figure 4.17: Quality of bus services**

## CHAPTER 5

### CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Conclusions

In this research study the researchers basically assessed the passenger's and driver's perception on the bus service quality from Farmgate to Mirpur 10 Route. The researchers chose one route the survey was conducted on the passengers and drivers of this route. There were total 300 passengers on the questionnaire related to the bus service quality. The data was assessed by the percentage of total passengers and drivers. According to results obtained by data analysis, the following conclusions can be made:

- About 36.95% passengers think that the sitting arrangement is very poor and 25.6% is poor. This is because all most all of the bodies of the buses are made in Bangladesh and during their establishment the capacity is always exceeded. So, the bus companies should focus about the comfort level of the passengers.
- Around 40% and 26.66% of the respondents replied that the driver behavior is poor and very poor. Passengers think that drivers are careless while driving.
- 25.35% of the respondents replied that the behavior of staff is very poor while 22.65% replied is poor, 40.39% people are medium with the behavior of the staff.
- About 48.65% passengers think that the public bus is always crowded. Bus is one of the cheapest and affordable modes of transportation due to which a huge number of people uses the bus service daily and compared to this huge population there are only a few amount of buses available. So, number of buses should be increased or introduce a new way of transport to reduce the crowd in buses as government has already started project like metro rail.
- Around 40% passengers think that the quality of service is poor and 26.66% of the respondents the service quality is very poor. So, the bus companies should be focused on their quality of service.
- In the survey, it was found that there is no proper training system for bus drivers in Dhaka city. Many drivers and passengers suggested that the Government should make an institute to train all the drivers and guide them to know and follow the traffic rules.

- According to the bus drivers maximum passenger occupancy is seen between 7am-10am and 5pm-8pm.

In few questions like the income of drivers, the researchers have the answer in the positive way. But it cannot cover up the problems of bus service quality in Dhaka city. It can be clearly seen from the data that the bus service quality in Dhaka city does not meet the global standard. So a more advanced bus service quality is essential in Dhaka city for better livings.

## **5.2 Limitations of the Study**

All studies have some limitations. The limitations of the study are those characteristics of design or methodology that impacted or influenced the interpretation of the findings from research. The possible limitations of this study are as follows:

- We could not able to collect large number of data due to covid-19 pandemic
- We studied on only one route (Farmgate to Mirpur -10).
- Most of the passengers did not give much time to fill up the survey form as they were in a hurry.
- Reliable data is not readily available from previous studies. Most of the studies include data that dates back to couple of years ago.
- Most of the passengers did not give much time to fill up the survey as they were in a hurry.
- Some divers who does not have license, they did not give any kind of interview and tied to run away. Some drivers became angry and thought that it would be problem for them. Some drivers told us there problems willingly.
- The study could have been done more elaborately with longer duration. Time restrain could put some limitations on the scope of the study.

## **5.3 Recommendations**

Few problems came out on bus service quality in Dhaka city from this limited study. Safety, Security, Service, Fare, Behaviors are the major one. There have total 366 routes in Dhaka city. This study is only for one route. There has different point of views mostly the passenger's and driver's point of view. Here is the sum of all point of views and suggest that the following recommendations:

- The result of the study should be shared with BRTA and other relevant government agencies for helping them to know the real problems and give realistic solution and make the bus service quality more effective and secured.
- All over the world, the bus service quality is becoming digital day by day. Bangladesh Government should be more proactive to fully digitalize the bus service quality for making it more efficient and user friendly that will also help in enforcing the traffic rules and regulations as well as reducing the traffic jam in Dhaka city.
- Bus stations need to be more visible and fixed for disciplining the bus service quality.
- Bus drivers need to have more professional training and attitude, who would know the traffic and driving rules, and obey the related rules and regulations.
- Bus companies need to be more helpful for drivers and should think about good services for passengers.
- Road structure and the right alignment should provide a smooth and safe journey. So, the distresses of the road should be minimized.
- The buses also need to be introduced with the photo and ID of the drivers so that the passengers can be assured of the identity and qualifications of the driver that would help enhancing their safety too.
- Passengers need to know and obey the rules for journey of a bus, for example they need to understand they are not able to come out or enter the bus from anywhere, they must use zebra crossing for crossing the road (where available), etc.
- Drivers must slowdown their vehicles near the zebra crossing.
- Stricter rules and regulation are needed to make sure that the drivers are only stopping their buses at the stations. This will also minimize the traffic.

#### **5.4 Recommendations for Future Work**

During the survey the researchers found some limitations of bus service quality that can be developed through future research work. So, in future there should be more research work about bus service quality. The following recommendations are for the future development of bus service quality.

- With our data another study can be perform to analyze future bus service quality.
- With the help of this data, we will be able to know what kind of bus service is required for the public and how the service quality can be improved.
- This study will be helpful for taking master plan to improve present bus service quality.

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## APPENDIX

### Bus Service Quality Evaluation

Variables	Service Attribute	Numerical Scale	Qualitative Scale
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#### Description of the variable

#### Demographic Characteristics

##### 1. Gender

Male

Female

##### 2. Age (Years)

0-18

19-24

25-30

31-60

60+

##### 3. Education

Illiterate

Class

Class

Graduate

Higher Educated

##### 4. Occupation

Service Holder

Student

Businessman

Day Labour

Unemployed

Other

5. Monthly Income (Bangladeshi Taka, BDT)

0-8000	<input type="text"/>	9000-16000	<input type="text"/>
17000-30000	<input type="text"/>	31000-50000	<input type="text"/>
50000 +	<input type="text"/>		

**Travel Characteristics**

1. Journey Frequency

1 times /month	<input type="text"/>	2-5 times/month	<input type="text"/>
6-10times/month	<input type="text"/>	Daily	<input type="text"/>

2. Journey Reason

Work	<input type="text"/>	Education	<input type="text"/>
Leisure	<input type="text"/>	Shopping	<input type="text"/>
Health	<input type="text"/>	Other	<input type="text"/>

3. Ticket Cost (BDT)

0-10	<input type="text"/>	11-30	<input type="text"/>
31-50	<input type="text"/>	50+	<input type="text"/>

4. Journey Distance(km)

0-10	<input type="text"/>	11-20	<input type="text"/>
21-30	<input type="text"/>	31-50	<input type="text"/>
50+	<input type="text"/>		

5. Delay

No delay	<input type="text"/>	>10 min	<input type="text"/>
10-30 min	<input type="text"/>	30-1 hour	<input type="text"/>
1 hour +	<input type="text"/>		



**Satisfaction**

PBSQ (Public Bus Service Quality)

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

**Safety**

1. Physical Condition of Bus

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

2. Speed of bus

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

3. Fitness of bus

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

4. Security inside of bus

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

**Service and Economy**

Staff Vahavior

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

Driver's Skills

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

Lighting Facility

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

Cleanliness of bus

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

Bus Information availability

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

Fare pricing

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

Weekday Travel Time

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

Weekend Travel Time

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

## Convenience and Comfort

### 1. Service Frequency

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

### 2. Ride Smoothness

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

### 3. Crowdedness

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

### 4. Seating Arrangements

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

### 5. Seat Condition

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

**Weekday Travel Time**

1	<input type="text"/>	2	<input type="text"/>	3	<input checked="" type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

**Weekend Travel Time**

1	<input type="text"/>	2	<input type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

**Convenience and Comfort**

**1. Service Frequency**

1	<input type="text"/>	2	<input type="text"/>	3	<input checked="" type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

**2. Ride Smoothness**

1	<input type="text"/>	2	<input type="text"/>	3	<input checked="" type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

**3. Crowdedness**

1	<input type="text"/>	2	<input checked="" type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

**4. Seating Arrangements**

1	<input type="text"/>	2	<input type="text"/>	3	<input checked="" type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

**5. Seat Condition**

1	<input type="text"/>	2	<input type="text"/>	3	<input checked="" type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

3. Fitness of bus

1	<input type="text"/>	2	<input type="text"/>	3	<input checked="" type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

4. Security inside of bus

1	<input type="text"/>	2	<input checked="" type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

Service and Economy

Staff behavior

1	<input type="text"/>	2	<input checked="" type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

Driver's Skills

2	<input type="text"/>	2	<input type="text"/>	3	<input checked="" type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

Lighting Facility

1	<input type="text"/>	2	<input type="text"/>	3	<input checked="" type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

Cleanliness of bus

1	<input type="text"/>	2	<input type="text"/>	3	<input checked="" type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

Bus Information availability

1	<input type="text"/>	2	<input checked="" type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		

Fare pricing

1	<input type="text"/>	2	<input checked="" type="text"/>	3	<input type="text"/>
4	<input type="text"/>	5	<input type="text"/>		