

A Study on Service Quality of Public Transport System at Selected Locations in Dhaka City

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DECLARATION

We, the 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 another University / College / Organization for any academic qualification / certificate / diploma / Degree.

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DEDICATION

We dedicate this thesis to our parents. We would also like to dedicate our work to our supervisor, Tahmina Rahman Chowdhury, Assistant Professor, Department of Civil Engineering, Stamford University Bangladesh.

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ABSTRACT

Dhaka is one of the most densely populated cities of the world. Here huge pedestrian gather in road and intersections. As a result of huge population traffic and transportation problems are increasing day by day. At presents pedestrian crossing is one of the greatest challenges for the traffic and safety engineering communities. Present study deals with Service Quality of Public Transport System at Selected Locations in Dhaka City. Motijheel to Banani has been selected as study area. In our study we using two methods are field survey, photographic survey. We collect data from video records and then we done some calculations. From those data we observed the road surface quality, road marking and signal system, riding condition.

The present study is focus mainly on Service Quality analysis only. Service Quality studies are useful evaluate the more parameters in transportation engineering. There is a scope on Service Quality study on urban road for future work.

In Dhaka city service quality is not good enough. Passengers and operators faced so many problems from poor service quality. In some cases it too difficult to measure service quality because of political difficulties and non-cooperation behavior of bus owners. But it needs to be research about service quality.

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CHAPTER ONE

INTRODUCTION

CHAPTER I

INTRODUCTION

1.1 General

Public transport plays an important role to provide transport for passengers. Providing service transportation which is adequate and appropriate is the challenges that encountered in almost all cities. Because of significance member of city are poor who cannot effort personal/privet transport the majority of trip Dhaka are served on public transport. Cities faces problem for transportation system because in developing country large cities are mainly road based. Dhaka is one of the developing and busy city in Bangladesh which transportation system is also road based. In Dhaka city both governmental and non-governmental public transport are giving service daily. Motorized and non-motorized public transport can cause problem when they play on same road which is common in Dhaka city. There are many problems in Dhaka city transport system like weak traffic control, low parking facilities, lack of co-ordination of traffic which causes traffic jam on road. In Dhaka city there is less governmental public bus service there is only one public bus service which is Bangladesh Road Transport Corporation (BRTC) and most of the public bus service is commercial. Bus service is a prevalent service in transportation system because bus provides the highest passenger-km travel. The good or poor transportation system depends on the public policies issued by the government. Mass transportation like metro rail in Dhaka city is not improved yet it is under construction.

The main public transportation in Dhaka is bus and minibus. The commercial bus need to profit from the bus service. For this reason the commercial bus is not look after the physical and mechanical condition of bus so most of the bus is physically unfit and mechanically also. About 7700 bus are serving regularly in 366 routes in Dhaka. But due to this unfit bus sometimes it causes traffic congestion which is the main problem in Dhaka city. Road of Dhaka city is not so smooth because of this the buses going to unfit easily.

About 44% of driver does not obey the traffic rules so it causes accident on the road. The crashes and deaths increased last year by 51.53 percent and 17.75 percent over 2018. Accident also

happened due to lack of proper planning management and maintenance. In some cases it is one of the main reasons for traffic congestion. Congestion of traffic is the main problem of Dhaka city.

In Dhaka many of the public transport are operated by many agencies. The agencies are careless about the quality of public transport because of fund and for the profit for their business. For the commercial purpose they have syndicate of bus owners or agencies. Because of this syndicate it is difficult to operate the bus properly. They have their own rules for operate. The government set rules for the bus operation like fare but in most cases the bus operator does not follow this rule the collect extra fare from the passengers. This study is for investigate for the quality of bus and suggest some suggestions for public transport.

1.2 Objectives

Based on the study the objective consists of the public transport service quality in Dhaka city at a selected route. From the above statement this study is to analyze the service quality of bus and problem of passenger of BRTC at a selected route.

- ✓ To investigate the present condition of the public transport at some selected routes.
- ✓ To gather some information regarding service quality of public transport.
- ✓ To suggest some measures that can be effective for improving present conditions.

1.3 Limitations of the study

During these study and collecting data faced some unwanted problems which delayed the study. Some of the problems are given bellow-

1. Bus associations were not co-operative and not interested to give us the information.
2. The passengers and bus operators were not co-operative for questioning.
3. Data for some day was collected due to time contains however it is necessary to collect data for whole year for exact data result.

1.4 Organization of Thesis Works

Chapter ONE: The first chapter is introduction which discusses the general information, objectives, limitation and approaches of the survey work.

Chapter TWO: It is the literature review, which discusses the basic concept of Service Quality of Public Transport System.

Chapter THREE: It is the methodology. It discusses about site selection and work procedure.

Chapter FOUR: The Four chapters is data analysis which we are Survey of Service Quality of Public Transport System at Selected Locations in Dhaka City.

Chapter FIVE: It presents the conclusions and recommendation.



CHAPTER TWO

LITERATURE REVIEW

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

According to the service quality of public transport the key of the transport are scheduling, physical demands, fare collection, running time and supervisions of vehicles, and maintenance. This article reviews the key point and the important factors which affect the public transport service quality. The most public demanded factors of service quality are waiting time, cleanliness, comfort are overviewed. In public transport the operators' behavior is also an important factor. Service quality is measured by three important factors which are travel time, fare cost and speed of transport.

2.2 Literature Review

Serviceability levels an overall amount of all serviceability individuality that affects the ultimate consumer. The layer of serviceability under amount the reaction of factors such as tour time, speed, worth, which combination with other factors, determines the type of serviceability that any given efficiency provides to the consumer under the stated situation. There are three major groups of reasons:

- I. Performance factors affecting users (such as operating speed, reliability, safety);
- II. Quality of service (i.e. convenience and ease of use, aesthetics, cleanliness, conduct);
And
- III. The rental rate for the user or service.

Shelter, comfort (such as seating arrangements) and safety facilities need to be provided Stops where passengers have to wait (Curry 2003); So stops or stations are very important for public transport services. In addition to its physical needs, schedule, running and supervision Vehicles, rent collection and maintenance are keys to public transport services. Identifies important performance factors: service frequency, operating speed, reliability, safety, line capacity (maximum number of seats / space or persons can carry past) one hour time points along the

line), productive capacity, productivity and usage. There is a various factors affect public transport activities; whose reliability, passenger comfort and Safety are important. Of course, the reasons may vary with different socio-economic conditions there are several public transport systems. Identify Trent Bass, a bus operator in the Midlands, UK top customer requirements: service reliability / frequency, service friendliness, clean Bus interior, comfort, value for money, clean bus exterior, easy access, reasonable fare and easy to understand and remember schedule .

Tirinoplos and Antonio (2007) found that transfer quality and quality service are the highest priority on bus services for Athens customers. According to them, the key satisfaction indicators are service frequency, transfer distance, ticketing arrangements and vehicles cleanliness. Paulie et al (2006) explored the interchange between modes one of them quality of service for public transport in the UK; For example walking and waiting the time required during an exchange puts the passenger in the car for 21 minutes ize37 minutes IVT on a bus travel time (IVT) or on a train trip. In Global North, which is not suitable for Dhaka city where no bus schedule is followed. Both the interior and exterior of the operator and the bus are quite dirty.

In fact, not much research papers or published documents on the quality of bus services or public transport Global Southern City. This is probably because, southern cities are facing more problems even providing public transport to meet the demand and hence no effort/resources for better quality.

Most of the service levels of bus or public transport are dealt with in the study of operational Performance Index rather than exploring passengers 'opinions about the quality of the ride. From Some developing cities argues for ensuring safe and secure Bus stops with passenger shelters and designated areas for vendors. In reality, there is no extensive research on customer satisfaction with transportation services in Bangladesh. Five functional arrangements (travel time, the waiting time, accessibility or load factor, regularity of service and comfort) to measure the quality of a few selected (only one of the best quality) bus services operated on the bus.

Dhaka city has two routes. We found that the majority (26% overall and 52.5% when considered) advanced bus passengers only travel on it because of the improved air-conditioned buses comfort; However, low frequency of service and overcrowding (45% and 26.5% of respondents) is the main problem of air-conditioned buses running in Dhaka city between Banani-Motijheel route. The study of we et al proves that the causes of comfort, are necessary us changes, staff behavior and government supervision are significant but quality the journey, the

behavior of the passengers and the feeling of insecurity are not significant in predicting satisfaction of passengers about bus service in the city.

Nonetheless, rentals, service frequencies, waiting time, travel time, etc. can also be the main features of bus service evaluation quality. Based on other studies in European cities, as well as studies in Dhaka, some are shown in Table 1. Possible indicators would be appropriate to measure the quality of bus service within the Dhaka.

Table 2.1: Public Transport Service Index

Convenient level	The seats are comfortable, the ceilings are at a comfortable height, there are amenities inside buses are in good condition, adequate lay-room or foot space and buses are good maintenance.
Ride quality	Drivers often do not brake hard or blow too many horns and no drive very fast, buses do not overtake other vehicles dangerously and buses do not often broken.
Behavior of fellow passengers	Passengers are disciplined, passengers behave well and passengers maintain cleanliness.
Insecurity	Fear of snatching/coercion at the bus stand, fear of being noticed the bus.
Behavior of bus operators (Conductor)	The staff treats the passengers properly.
Similarity	Adequate number of buses on the route, seats is usually available buses, buses have enough seats.
Advantages and disadvantages Bus stand	Shelter against rain or sun at bus stands, adequate seating and adequate lighting at the bus stand.
Direct service	There is no need to change buses many times to reach the destination.
Government supervision	Government supervision to check bus fares, buses are checked randomly to ensure mechanical fitness and safety.

2.3 Bus serviceability and Bus Direction in Dhaka City

Bus services available in Dhaka city can be classified into two groups: counter bus service and local bus service. Counter bus service has specified stopping for boarding and boarding passengers and tickets are sold at the counter at that stop. Such buses, for passengers they have to buy tickets from the bus counter just before getting on the bus. Too small number of counter buses is air-conditioned. In contrast, there is no specific local bus service stoppage (stop anywhere on the way passengers travel and depart) and passengers pay fare to the bus conductor on the bus (after boarding). Both types of buses are often heavy overcrowded; mostly due to the gap between demand and supply. But there are a few seating service buses operate on certain limited routes which only allow boarding passengers. An empty seat is available for the person. These buses carry passengers and passengers at certain stops (sometimes allow passengers to travel anywhere want), and passengers have to pay for their tickets inside the bus. Only 6 seats in each bus, it is reserved for female passengers but not for persons with disabilities or the elderly Citizens.

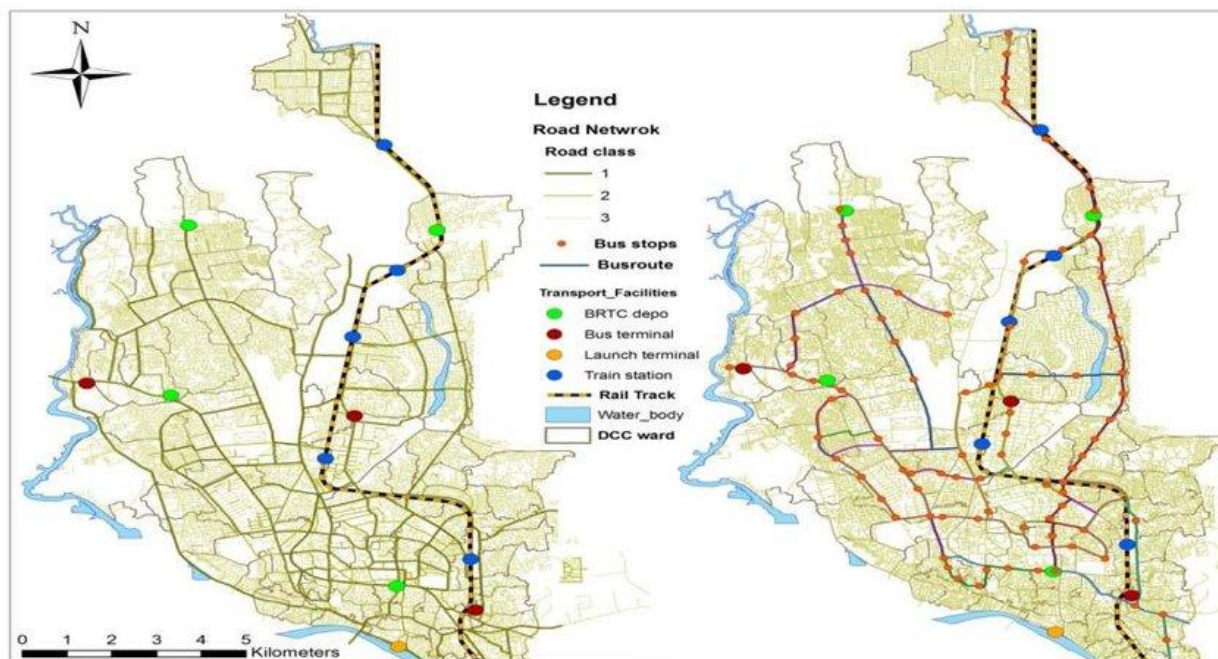


Figure 2.1: Road network and existing bus route and bus stops of Dhaka city (Source internet)

Dhaka is identified and determined by bus routes for the provision of transport services in Dhaka city. Aka Metropolitan Regional Transport Committee (DMRTC), The committee includes members of transport service provider and facilitated by Bangladesh Road. The legitimate authority to control and operate the Transport Authority (BRTA). Possible bus route, on which private transport companies/decisions are to be made operate, they identify the routes and then apply to DMRTC for approval. No scientific method or the planning process is applied to identify such bus routes for operating and bus stops. The DMRTC committee then decides only to allow or deny them agency for operating on that route. As of April 2020, the bus had 366 different routes DM service is approved by DMTRC. However, there are different types of each of these route service options (route variations for operating). Figure 1 shows the existing bus routes in Dhaka City.

2.4 Procedure

It was quite impossible to cover it completely because of the whole city or all the bus routes and operators in the city time and resource constraints. Therefore, Motijheel-Uttra route has only 3 major bus routes; Motijheel-Banani Route was selected for this study.

It routes when selecting the bus It was assumed that they would cover the entire city (e.g. central territory and perimeter, planned), unplanned areas, and high-income and low-income residential areas). All major bus service providers (previously mentioned) were running on the selected route. Considered for this study both are counter-counter when selecting a particular route bus provider. The service (and seating service) and the local service were supposed to have a complete picture existing bus service in the city.

A discussion with bus operators (e.g. counter staff, bus conductor, bus driver) this was done to find out the frequency of their services as well as other issues related to the service. From each route were randomly selected and interviewed with predefined structured questionnaires at different bus stops.

Table 2.2: Bus routes

Bus routes (Selected for this Research)	Bus stop	Selected bus service (Passenger interview Managed).	Of sorts Service
Mirpur- Motijheel Route	Mirpur 1 , Technical, Kolyanpur, Asadgate, Kolabagan, Science Lab, Shahbag, Press Club , Gulistan, Motijhil, Jatrabari, Mirpur 10, Mirpur 12, Farmgate,	# TRANS SILVA LIMITED # Myline Paribahan # Shatabdi Paribahan # Bus No. 9	• Counter • Counter • Local
Motijhil-Notun Bazar	Motijhil, Gulistan, Polton, Malibag, Mogbazar, Karwanbazar, Farmgate, BijoySarani, Mohakhali, Gulshan 1 , Gulshan 2 , Notun Bazar Motijhil, Gulistan, Polton, Malibag, Mogbazar, Saatrasta, Nabisko, Mohakhali, Gulshan 1 ,Badda Link Road, NotunBazar,Banani	# 6 NUMBER MOTIJHIL BANANI TRANSPORT LIMITED	• Local
Motijhil- Balughat Route	Balughat, Cantonment , BijoySarani, Farmgate, Banglamotor, Shahbag, Polton, Gulistan, Motijhil	# 4 NUMBER ALIKE TRANSPORT & BRTC ARTICULATED (WI-FI BUS)	• Counter
Gulshan- Motijheel	Mouchak, Malibagh, Doinik Banglar Moor, PuranaPolton	# Modhumoti Paribahan # Bus No. 6 (A/B/C/D) # Local buses	• Counter • Ticket • Local

Questionnaire cover this is their experience and satisfaction level of current bus travel and points to explore it overall expectations about bus service. When selecting respondents for a specific bus route, it was further considered that the passengers (operators) of all the different bus services, which the ones selected for this study, as shown in Table 2, represent the route equally and the sample is drawn from different stops on that route. When conducting passenger interviews, sometimes the interviewer also travels the bus with the respondents (when the interview was halfway through, the passenger get on the bus as soon as it arrives at the stop to complete the interview.

2.5 Feedback from bus users

Dhaka There is about four different bus routes in Dhaka city, approx of these 80% said they traveled regularly at regular intervals, although the rest did not regular travelers indicate that the study represents the views of those who use it. They live regularly as a means of travel. Respondents were asked why they use buses as travel. Of these, about 80% said the bus was 'cheaper than any other mode', on the other hand referred to as 'cheap and available' or 'cheap and convenient' or 'cheap and safe' or 'cheap and' fast 'each reported by 10%. All passengers refer to the bus service as cheap mode and affordable for them. This is not surprising since the bus is the cheapest of the available modes of travel Dhaka City but due to extra congestion and traffic congestion of bus passengers.

The understanding is that existing bus systems are not able to meet their travel needs claim. Moreover, all passengers believe that making a bus carry extra passengers' lots of problems for them. The following sections describe bus passengers' feedback on the quality of bus services, headway (bus frequency) and waiting time for the bus at the station. The bus waiting time at the stop is reported to be less than 20 minutes than 80% minute's respondents. However, 10% of respondents have to wait 40 minutes to an hour and 10% have to wait about 30 minutes for a bus. This indicates that a large waiting time is required for about one-third of the passengers. This high waiting time is due to the low frequency of most buses due to lack of space and sometimes a few passengers are unable to board the bus and so will have to wait for the next. Considering the bus frequency, only 10% are satisfied bus availability with moderation and dissatisfaction is

50% and 30%, respectively. However, if considered only as a local bus, about 80% of respondents are not satisfied including its availability.



Photo 2.1: Waiting for bus (Source internet)

2.6 Vacancy of a seat and extra crowd

The seating capacity of conventional existing buses varies greatly. Counter bus services are frequent. Local buses have 52 to 56 seats including 3 seats. However, there are several counter buses with three counter buses 45 seats. Regardless of seating capacity, almost all buses carry extra passengers standing. Often the bus is so crowded that it becomes impossible for the elderly person or woman or those kids get a room inside the bus. As a result, these groups are not weak people access to bus service during rush hour. That is what the bus operators are demanding local buses always carry extra passengers and do not carry several of the counter bus operators any additional or permanent passengers. However, there is no rationale for such claims as about 84%r respondents (bus passengers) mentioned that most of the time they do not get seats travel by bus.



Photo 2.2: More crowded buses (Source internet)

2.7 Bus fares and tickets

The BRTA fixes the bus fare and it is based on the rate per kilometer. But almost all live services in Dhaka are charged and collected from passengers in excess of the prescribed rate. In 2019, several reports about this and the government were published in newspapers and on TV, tried to reapply the set rate. However, bus operators are charging more from passengers; they often claim that they adhere to the rates set by the government. Still, about 50% of respondents are satisfied with the current ticket price. The rest believe that they are paying more than the rental rate set by the government. Consistently with this, about 60% believe that bus fares are unreasonably high and compared to services, it was mentioned that the government should increase the rent. Of course, they are lower class people; however, about 70% of respondents argued that ticketing was better than local bus service.

2.8 The physical condition of the bus

Dhaka The condition of buses plying in Dhaka city is not good. This is because the majority of buses the fleet is very old and maintenance is almost missing or too bad. Yet, perception about 40% of passengers were found in moderate condition, while 30% and 30% were found, respectively satisfactory and bad about the physical condition of the bus. Although the condition of the bus is not bad, they are not feeling it or not mentioning it because their main concern is getting a seat or the room of the house regardless of the internal condition of the bus. For example, as one of the passengers the interiors of the counter buses are medium, but the local buses are very bad here the size of the seat in the indoor environment, the availability of seat covers, odor free, light and air availability and minimal cleanliness. Surprisingly, 35% of respondents said 'good' and 20% said 'moderate' about the interior of the bus. However, bad and very bad were reported by 15% and 30%, respectively.

2.9 Facility inside the bus

About 75% of bus passengers do not feel comfortable traveling by bus. According to them, the main factors that are responsible for the level of comfort are the unavailability of a seat and its overcrowding minor factors when passengers are leaking rainwater, the interior of the bus, its behavior bus staff. For example, one-third of passengers argued that there was a counter bus facility comfortable because there are good seating facilities. About 35% of respondents mentioned that the bus seat is uncomfortable. However, if only considered as local buses, almost all passengers said uncomfortable seats.



Photo 2.3: The condition of a bus seat is very bad (Source internet)

2.10 Easy movement inside the bus

Very limited space is often available inside the bus for comfortable movement. Related, there is still space for comfortable movement inside the bus, but passengers on the local bus cannot jam packet removed due to situation. Many buses do not provide adequate legroom or even adequate

ceiling height for standing. Passengers' discomfort increases during rush-hour traffic drivers have to stand all the way in a very crowded position. Even so, owning one is still beyond the reach of the average person a few passengers are standing at the door and some of them are not even able to stand and hanging outside the door. Only 25% of passengers are satisfied with the prospect movement inside the bus; And of course none of them are local bus passengers.



Photo 2.4: Hanging Passengers (Source internet)

2.11 Speed the time when the bus was running

About 80% of respondents said they were waiting at the bus stop the delay of each stop on the way is suffering for the time being. Drivers often wait they will stop for a certain period of time with the expectation that they will get some more passengers. It's one general practice for local bus service.

Even so, owning one is still beyond the reach of the average person unexpected stops. This unexpected stop results in unnecessary delays for passengers on board. This may be due to higher lighting and delays in boarding. About 70% passengers reported that they suffered from this national delay for about 10 minutes.



Photo 2.5: Boarding and departure of passengers from local buses; No specific stoppage or Passenger waiting facility (Source internet)

2.12 Physical harassment of female passengers

About 60% of the bus passengers said that they have faced various problems harassment while moving their buses. The main problems include problems with boarding or illumination is 60%, related to the ticket counter 20%, associates on the trip the destination is 5%, and 15% is associated with employee behavior. Sexual harassment on women a crowded bus is a common problem in Dhaka.



Photo 2.6: The bus conductor at the door is harassing a woman (Source internet)

2.13 Speech of bus staff

About staff behavior (bus conductor or supervisor), about 30% respondents reported satisfactory although 40% cited moderate and the remaining 40% cited mention the poor. However, if only local buses are considered, about 80% are not satisfied. This indicates that the behavior of any staff of the counter bus is much better than that of the local bus. It could be this is because often there is a dispute between the conductor and the passengers for fixing the fare for a particular occasion travel by local bus.

2.14 Trouble by common gender

They get on the bus, take money from passengers, abuse them, and abuse people. They talk loudly with the help of the bus and hurt the people. They fight with the bus driver. For that, the passengers get hurt with the help of the bus.



Photo 2.7: Common Gender on bus (Source internet)

2.15 Location of bus station and accessibility to it

Among the respondents, almost 50% mentioned that their closest bus stoppage is within 0.5 km whilst 30% mentioned 0.5 to 1 km and 20% mentioned more than 1 km to catch the bus. The respondents reported that continuous stopping increases the travel time and decreases the service level. Hence, the majority of the passengers of the local bus argued that the distance between the two stoppages should be more. Surprisingly, few passengers of the counter bus mentioned that distance between two stoppages should be reduced.

2.16 Facilities in the bus station area

Many bus stands do not provide protection from the sun, rain, dust and other elements significant impact for health or safety. However, a few vendors or shops have occupied and the bus passengers have no use. Inside some of the counter bus stops have ticket masters and large

umbrellas for passengers. However, this umbrella is not able to provide any protection to the passenger from the heat of the sun or rain. There is no seating for passengers. Often passengers sit on the sidewalk, blocked pedestrians stand in a queue while waiting for the path or bus. Sometimes the bus stands are located near the dump and create unhealthy and suffocating conditions for passengers.

2.17 Sudden bus breakdown

Due to poor maintenance of the bus fleet, they often get out of the way and become a cause the problem for its passengers is that about 40% of respondents said they have experience unexpected bus breakdown during travel, mostly due to bus or staff fitness issues related problems are sudden for two.

2.18 The needs and expectations of bus passengers

Considering the overall satisfaction about the bus service, about 68% of the respondents do not satisfied and the remaining 32% satisfied about existing bus service. Respondents were asked what they want to get better bus service. Despite being various problems with the poor condition of the bus service, they just said to have more frequent buses service so they can get a seat. Their perceptions of improved service centered on the improved bus quality and seat conditions them. The majority gave their first priority to get more buses so that the journey could begin travel time and waiting time is low. The second priority was a guaranteed seat which was somewhat related to the first. The internal environment of the bus and the behavior of the staff Dhaka are not final for Dhaka City bus passengers.

2.19 Impacts on bus service quality in Dhaka

2.19.1 Flyover Impacts

Success of a city predominantly depends on the efficient delivery of urban services of which efficient transportation system can identify as the key element. An adequate and efficient

transport system is a pre-requisite for sustainable economic development. The present paper comprises impact of Flyovers of Dhaka City on the Affected People in the Adjacent Areas. The ever-increasing migration rate from fringe areas initiates both horizontal and vertical expansion of the capital after the independence. The country failed to adopt any decentralization policy to overcome the population problem. To predict the changes in influence of the flyover economic evaluation is also conducted side by side. During the study, some problems have been identified and feasible recommendation evaluated in this context. The ability of Dhaka's transport system to sustain economic growth has been declining steadily day by day.

There are lots of impacts of flyover in Dhaka city for bus service. People can't get any bus stop in flyover. There is no bus stop for people, so they can't get on or off a bus at the point. Therefore a lot of people try to get off or on a bus at a start point or ending point in a flyover because of maximum ticket counters are selling their ticket at that point. It makes traffic din. But a flyover is very good to save time to travel. There is no traffic because no stop point, so it's totally free to flow for a bus.

2.19.2 Congestion Impacts

Buses are often perceived to be a cause of traffic congestion, or at least a contributory factor. This is often the case where services are unregulated and provided by a large number of small operators, particularly when small vehicles are used.

Compared to private transport, buses require less road space per passenger, and should therefore cause less congestion. However, excessive dwell times, poor driving, inappropriate vehicle size or type, and an excess of vehicles often result in increased congestion.

2.19.3 The right of way

The right of way is the total land area acquired for the construction of the roadway. Its width should be enough to accommodate all the elements of the roadway cross section, any future widening of the road and any public utility facilities that will be installed along the roadway. RoW is the area of the road acquired for carriageway + other necessities + future extension, along its alignment. Good practice is to acquire RoW wide enough to accommodate the ultimate

development and all components of the road. The driver of a vehicle shall yield the right-of-way to a transit vehicle traveling in the same direction that has signaled and is re-entering the flow of traffic. Lots of driver don't know about this so it's make traffic and we can't get a proper bus service at our Dhaka city.

2.19.4 Small lane Impacts

A number of different bus priority schemes have been implemented in many urban areas around the world to offer priority treatment to bus movements along streets. The main objective of their implementation is to enhance bus attractiveness and improve travel time with respect to cars. In addition, bus priority schemes may also provide operating savings to transit operation, improve fuel efficiency, reduce energy consumption, and enhance air quality. Among bus priority schemes such as bus gate, bus malls, bus lanes, bus priority signals, etc., bus lanes are one approach utilized in many areas to deal with concerns related to traffic congestion and mobility. In some areas, bus lanes are serviced within traffic signal controls for providing priority to buses at signalized intersections. In recent years interest has grown for granting priority to buses at signalized intersections, but buses may still be involved in the general traffic flow, sometimes having to suffer heavy time losses when no dedicated bus lanes are reserved in those cases with heavier traffic.

2.19.5 Broken road Impacts

Road works are perhaps the most controversial topic in transport professional field. On one hand, they are a necessity to assure the current and future functionality of the traffic network, while on the other, they are seen as a major disturbance by road users with concerns for excessive travel time delays. The impact of road works is usually analyzed at a local level however the network-wide effects are crucial to ensure reliable travel times. Moreover the analysis usually focuses on private cars and the reliability impact on public transport services are too important to ignore. This paper investigates the impact of road works undertaken on a given road link over wider parts of the network and assesses travel time reliability for both cars and buses. This research involves setting up of a conventional network assignment model to arrive at the route choice of

drivers as a result of the road works and then integrates the outcomes with a micro-simulation model to generate space-time trajectories to arrive at travel times of individual vehicles. We adopted a reliability measure from the literature to compute travel time reliability of a given type of vehicle by unique origin-destination (O-D) pair combinations and also more generally to provide a wider picture at an aggregated network level. The method was tested on a real life network in England, and travel time reliability results were analyzed both at the network scale and significant O-D pair level for private cars and bus routes. So, broken road is not good for proper bus service. They can't reach their one bus stop to another at proper time. In own times we can see same roads buses are one place for this broken road. They can't make their service at time.

2.19.6 Non- Motorized Impacts

Non- Motorized Transports (NMTs) play a significant role in catering to the transport demand in metropolitan Dhaka and other regions of Bangladesh. But, these modes of transport are given very little consideration in the transport planning phase, and are almost ignored in the planning of metropolitan road network. Lack of traffic regulations and management schemes for non-motorized transport in metropolitan Dhaka has created ever increasing traffic problems, viz. traffic accidents, congestion, delay, emissions et . Providing separate rickshaw lanes, improving road surface and maintenance, providing 'islands' to enable rickshaws/pedestrians to cross busy main roads, providing traffic lights! Pedestrian signals to enable rickshaws/pedestrians to cross, busy main roads .without non motorized lane it's difficult to maintain the main road lane. They have no lane so they try to run at main road lane. It is not for easy to drive proper speed on main road. a bus has to break much time for this non motorized vehicle at running road. So it's very difficult to give a proper service at proper time. Maximum time non motorized vehicle create accident at road and its make traffic. So bus or other vehicles can't get their destination at proper time.

2.19.7 Vehicle and small vehicle Impacts

Maximum vehicles in a road are private or public transport. but private vehicles are more than

public transport. car, motorbike, microbus, CNG etc are that vehicle which are small vehicle. People are very interest to use those private vehicles for freedom to travel. They can move any where they want to travel. There is no stop as public transport. For those reasons it is very comfort than public transport. But it makes huge traffic volume in a road. A huge volume of traffic buses can move their proper speed. Vehicle and small vehicle make public transport quality decreasing for their huge volume of traffic.

2.19.8 Poor traffic system and control Impacts

Traffic system is very important for a running road. Without it vehicles can't move properly and also it's helping to create accident. Poor traffic system means people doest know where is the bus stop. Where they can get in or off from a bus. Without strong traffic system any vehicles can stop at any place even middle at the road. For this it can make traffic result in increased congestion. So people can't move proper time or proper bus stop. Every vehicle tries to overtake, try to stop where they want. Other point is people try to drive vehicle without driving license. It's also make accident. Without strong traffic system people doesn't know how to safe ride.

Due to faulty traffic control, buses are not able to reach the bus station on time, making it difficult for passengers to reach their destination on time, wasting hours of passengers.

Occasionally there are accidents like road accidents due to faulty traffic control which puts a huge dent on bus service quality. This causes damage to the physical condition of the bus as well as loss of life and property of the passengers.

Faulty traffic control is one of the main causes of traffic jams which are a threat to bus service.

2.20 Conclusion

The city's public transport system failed to meet the needs of the people and failed to maintain adequate services at affordable prices for the poor. It was found that most of the respondents were not very satisfied with the waiting time as they would have to wait for a longer time for the bus. To deal with this, it is necessary to increase the number of high capacity buses and their service level Therefore, with the current demand, the city's transportation opportunities must be

provided keeping in mind the population growth, economic development and the future travel needs of the city.

This paper discusses the types of bus service quality, factors and impacts that affect public bus traffic. The paper also mentioned the role of bus providers and bus drivers in providing the best quality service expected by the passengers. The effectiveness of the public bus service will be greatly affected by the quality of service. Buses are now the only used public transport available in Dhaka. Explore the overall situation of the bus service; Passengers in particular are facing major problems based on their experience and have some suggestions for improving services Quality.

In areas especially public transport operators may need to improve operational performance by improving the factors that affect public access to buses, such as reliability, safety, comfort and cleanliness of bus services. Improving these national factors will help to encourage people are transferred from private to public transport.



CHAPTER THREE

METHODOLOGY

CHAPTER III

METHODOLOGY

3.1 General

The methodology is for find the method of way of the research objectives stated above. In Dhaka city there are 366 routes. Due to time and resource constraints it is quite difficult to cover all routes for research and study. But it is needed to research the quality of service of public transport. In this chapter the method of research and data are discussed in short.

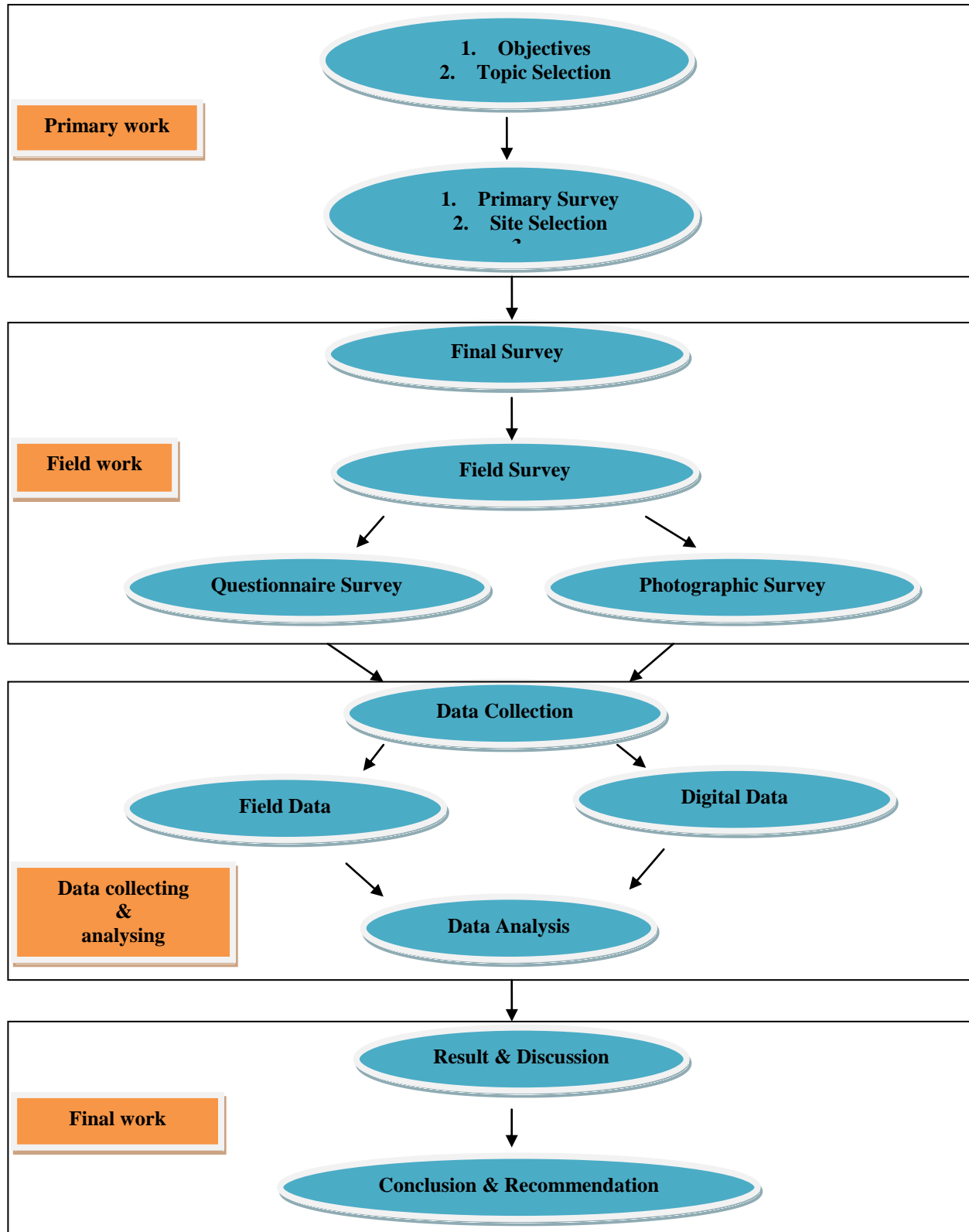
3.2 Methodology:

It is the systematic procedure of the study. If collecting data and information do not process in systematic way it is difficult to gather and arrange the research properly. So the methodological arrangement is quite important for this research.

In this study and research a major route Motijheel to Banani had been chosen for the study. This had been chosen because this route covers the major part of Dhaka city. The method we have followed for the study is discussed step by step below:

- ✓ **First step:** Identify the objective of the study.
- ✓ **Second step:** Selection of the study area and bus then primary survey is performed.
- ✓ **Third step:** Field survey is performed for better experience.
- ✓ **Fourth step:** Collection of data from the field.
- ✓ **Fifth step:** Then questionnaire survey from the passengers and operators.
- ✓ **Sixth step:** Then analysis data which collected from field.
- ✓ **Seventh step:** It is last step including result, discussion, conclusion and recommendation.

3.3 Methodology Flow Chart:



3.4 Site Selection

From many route it is quite difficult to selection a route which cover the main part of Dhaka city. As a main route of Dhaka we have selected Motijheel to Banani route.

Map of the Route:

Motijheel to Banani route map:

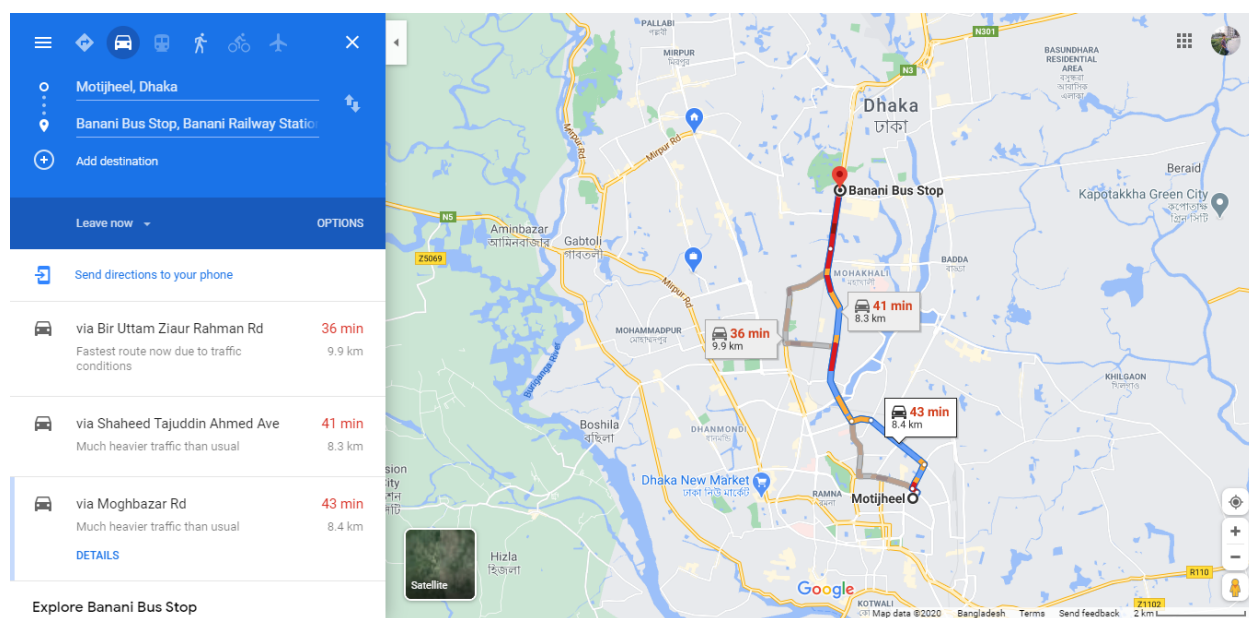


Figure 3.1: Motijheel to Banani route map (Source Google Map)



CHAPTER FOUR

DATA ANALYSIS

CHAPTER VI

DATA ANALYSIS

4.1 General

Transportation is one the major part of life system as government system, social system. Government sets some rules and policy to provide transport system for public. For suitable public transport system need to revitalization in all subject related to the public transport. There is an important role of government in public transport system in the process of planning and implementation. But some rules can be affect the public transport policy which applied by the government.

Public transport must be operated with capacity and demand of public transport as the sector which serves public. Reliable public transport can be decrease the use of privet transport. And public transport can provide benefits in terms of public health, the environment, reduce congestion. According to research in Dhaka city public demand the public transport. But bus services are not reliable, not comfortable, and dangerous in Dhaka city. So the public transport fails to fulfill the demand of public.

4.2 Work Procedure

It is too difficult to pulling out the service quality because of complex service quality, different product assessment of service, deferent public demands and different pattern of production. Public are directly involved and participate in the bus service quality process so it comes to service quality the consumer response, consumer expectation and how they enjoyed service quality comes.

For this study, we have followed seven step surveys. . In this study we compared two main bus qualities in Dhaka city. First we have selected the topic of research. After the selection of topic the seven steps come. The method we have followed for the study is discussed step by step below:

✓ **I:** Find out the objective of the study

The main objective of the study is to find the quality of bus at a selected route. According to this study the quality included the mechanical and physical quality of bus, public demand and satisfaction from the bus, performance of the bus, check fare rate etc.

✓ **II:** Selection of the study area and bus then primary survey is performed.

Then it comes to selection of the study area where we can survey. After that the primary survey is done with the search on internet for more information of service quality. Location of the bus counter, route selection etc comes to primary survey.

✓ **III:** Field survey is performed for better experience.

It is the most important part of this study. Mostly it is the main part. When it comes to field survey the survey is done on field like at bus station, on the bus, at the office of the company.

✓ **IV:** Collection of data from the field.

Data from the field like photographic evidence of bus, how many operator are operating, ticket system of bus, passenger participation etc.

✓ **V:** Then questionnaire survey from the passengers and operators.

Questionnaire is the main part of this study. It is done by questioning bus operators and passengers. First we have made some question for questioning passengers and operators. Then on the field we apply those questions on passengers and operators. It is the most challenging part of this survey because most of passengers and operator are not so cooperative with questioning.

✓ **VI:** Then analysis data which collected from field.

After the questionnaire survey the part of the data analysis comes. In this part we have compared two buses data that we have collected data with questioning and surveying.

✓ **VII:** It is last step including result, discussion, conclusion and recommendation.

4.3 Questionnaire Survey Data:

4.3.1 Questionnaire survey for BRTC driver:

Question-1: The age of drivers

- i. 20 to 30 years = 5
- ii. 30 to 40 years = 8
- iii. 40 to 50 years = 5
- iv. 50 to 60 years = 2

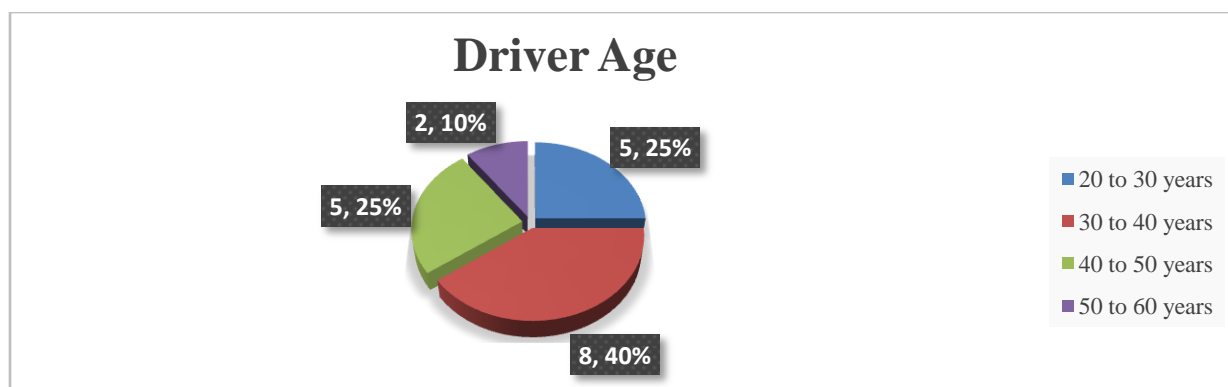


Figure-4.1 Percentage of The age of BRTC drivers

Figure-1, we saw that the percentage of driver age. The maximum number of age percentage is 40% which belongs to 30 to 40 years old.

Question-2: Educational qualification of drivers

- i. Class 1 to 5 = 3
- ii. Class 6 to 8 = 10
- iii. Class 9 to S.S.C = 5
- iv. H.S.C to Honors = 2

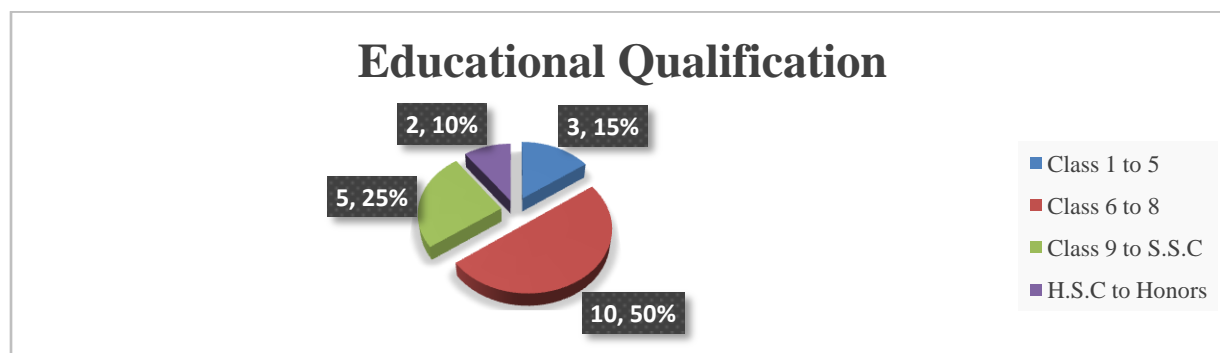


Figure-4.2 Percentage of Educational qualification of BRTC drivers

Figure-2 shows the educational qualification of drivers. Most of the drivers are not well educated.

- The maximum number of percentage is 50% (class 6 to 8)
- About 25% drivers belongs to class 9 to S.S.C
- 15% are class 1 to 5.

Question-3: How many years of yours driving?

- 1 to 5 years = 3
- 5 to 10 years = 10
- Above 10 years = 7

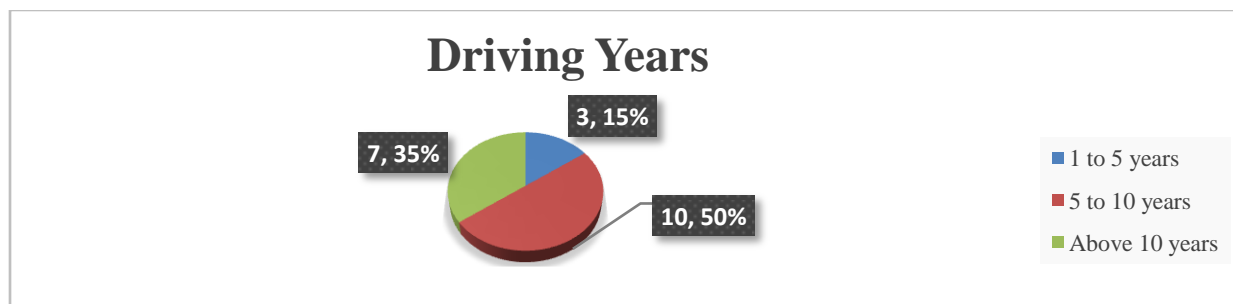


Figure-4.3 Percentage of Driving Years of BRTC

Figure-3 we saw that the percentage of driving years. Most of the drivers are belongs to 4 driving in 5 to 10 years and its percentage is 50%, 1 to 5 years is 15% and above 10 years is 35%.

Question-4: Do you drive regularly?

- Regular = 17
- Irregular = 3

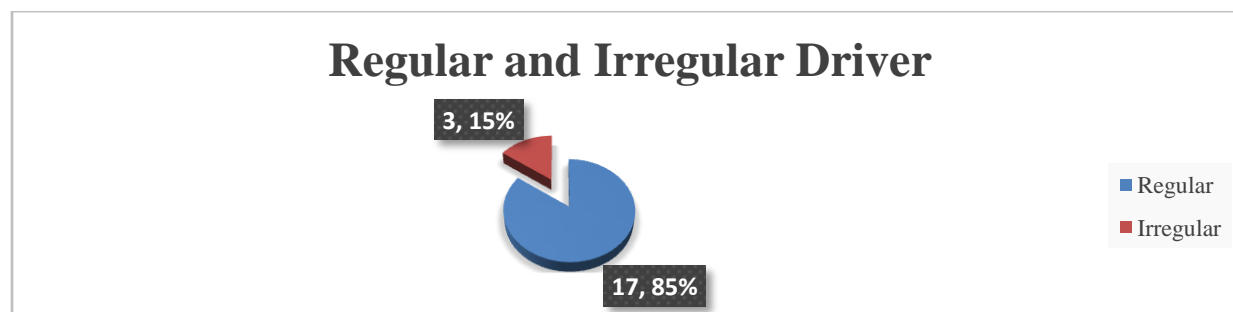


Figure-4.4 Percentage of Regular and Irregular Driver of BRTC

Figure-4 we find out the percentage of Regular & Irregular Drivers. About 87% drivers are regular & 13% are irregular drivers that are they are drive occasionally.

Question-5: Do you have license?

- i. Yes = 20
- ii. No = 0

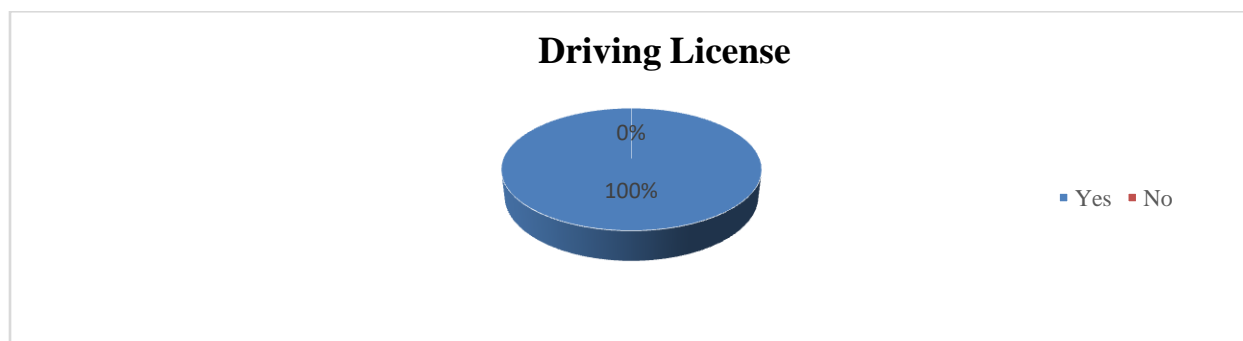
**Figure-4.5** Percentage of Driving License of BRTC

Figure-5 we find out the percentage of driving license of drivers.

- About 100% drivers have their driving license.
- 0% drivers have no license.

Question-6: What are the characteristics of the passengers?

- i. Good = 5
- ii. Bad = 3
- iii. Mixed = 7
- iv. Friendly = 5

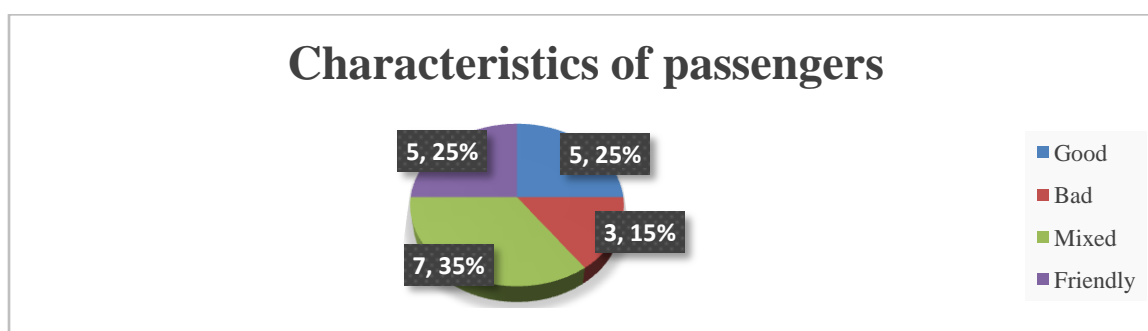
**Figure-4.6** Percentage of Characteristics of passengers of BRTC

Figure-6 we saw that the percentage of characteristics of passengers. About 25% passengers were good and also 25% were friendly. 15% were bad and 35% passengers were mixed characteristics.

Question-7: What's about your driving experience?

- i. Good = 15
- ii. Bad = 2
- iii. Thrilling = 3

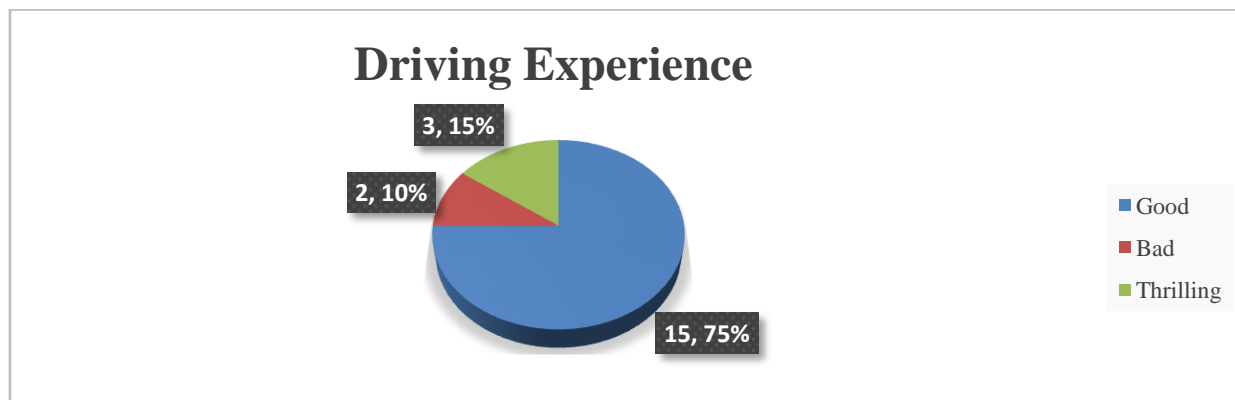


Figure-4.7 Percentage of Driving Experience of BRTC drivers

Figure-7 we saw that the experience percentage of drivers. Most of the drivers are well experienced 75%.

Question-8: Do you have any bad experience?

- i. Yes = 17
- ii. No = 3

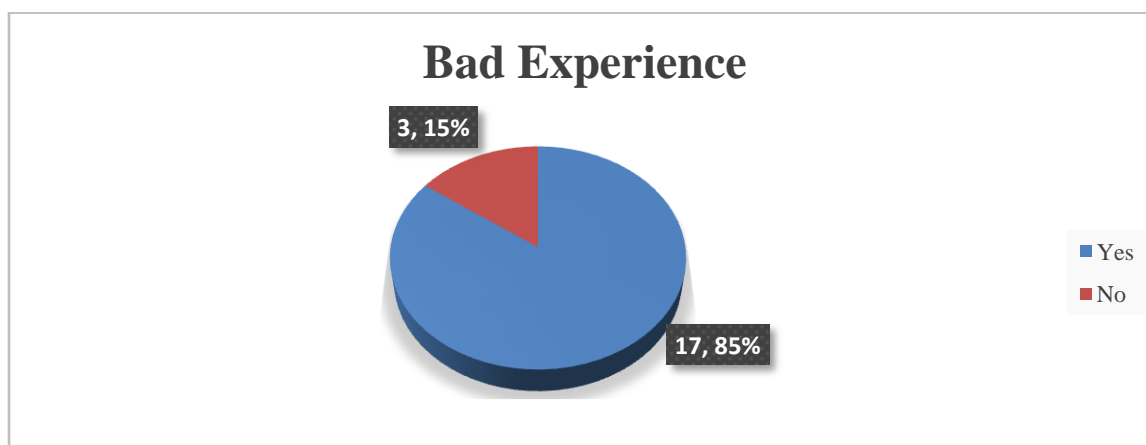


Figure-4.8 Percentage of Bad Experience of BRTC drivers

Figure-8 we saw that the bad experience percentage of drivers.

- Yes percentage is 85% that means drivers are already faced bad situation
- About 15% said No

Question-9: About you're driving Hours?

- i. 5 to 8 hours = 5
- ii. 8 to 10 hours = 10
- iii. 10 to 12 hours = 5

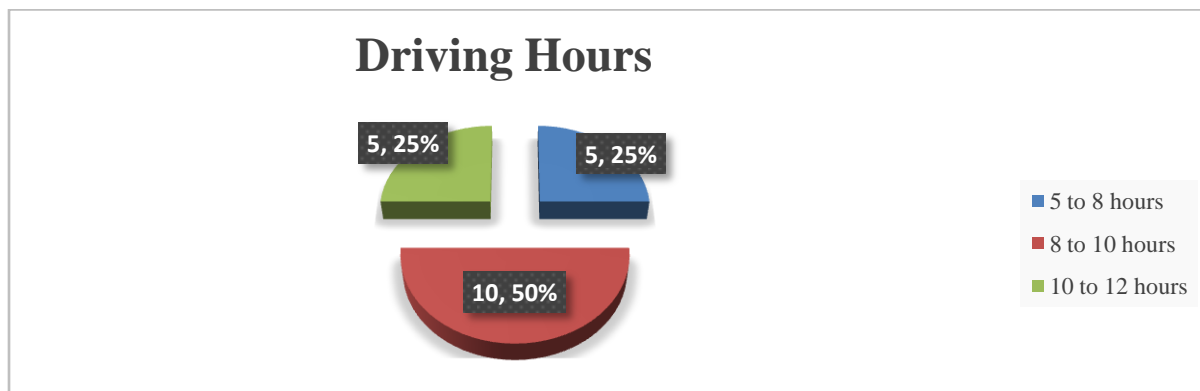


Figure-4.9 Percentage of Driving Hours of BRTC drivers

Figure-9 we saw that the percentage of the driving hours.

- 50% Drivers drives the bus 8 to 10 hours
- 25% Drivers drives the bus 5 to 8 hours
- 25% Drivers drives the bus 10 to 12 hours

Question-10: Are there any enough space for parking facilities?

- i. Yes = 2
- ii. No = 18

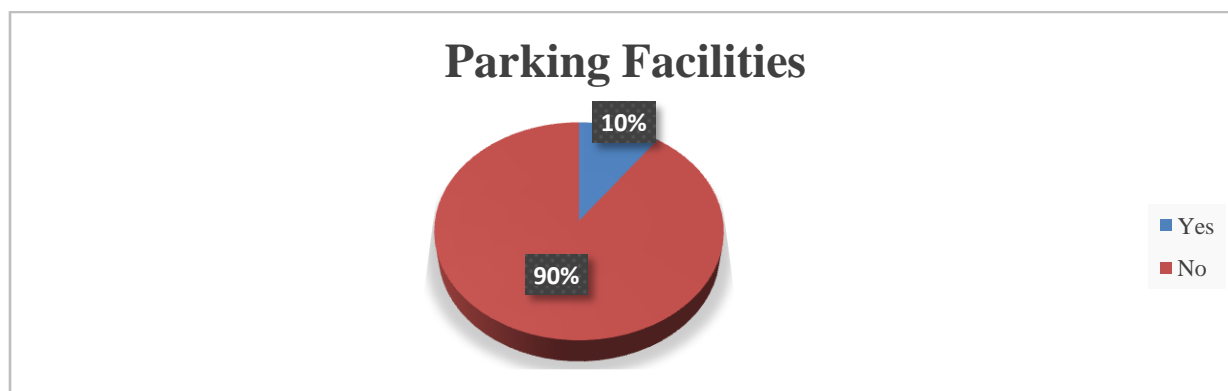


Figure-4.10 Percentages of Parking Facilities of BRTC

Figure-10, we saw that the percentage of the space for parking facilities. There are not enough parking facilities and its percentage is 90%.

Question-11: Do the buses maintain scheduled?

- i. Yes = 20
- ii. No = 0

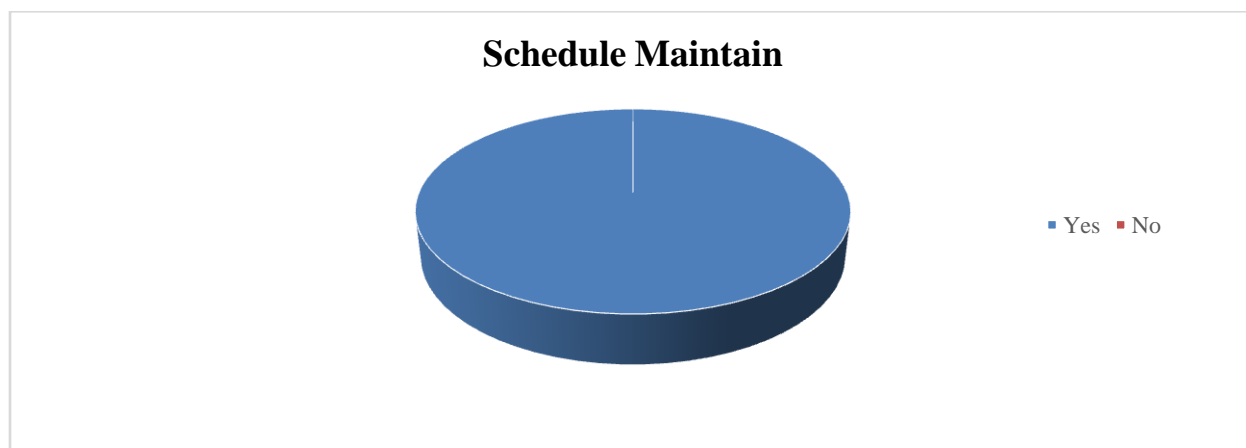


Figure-4.11 Percentage of Schedule Maintain of BRTC drivers

Figure 11, we saw that the percentage of available in schedule bus. The maximum number of percentage is 100%. That means there are lots of available in scheduled bus.

Question-12: Is there any ticketing system?

- i. Yes = 20
- ii. No = 0

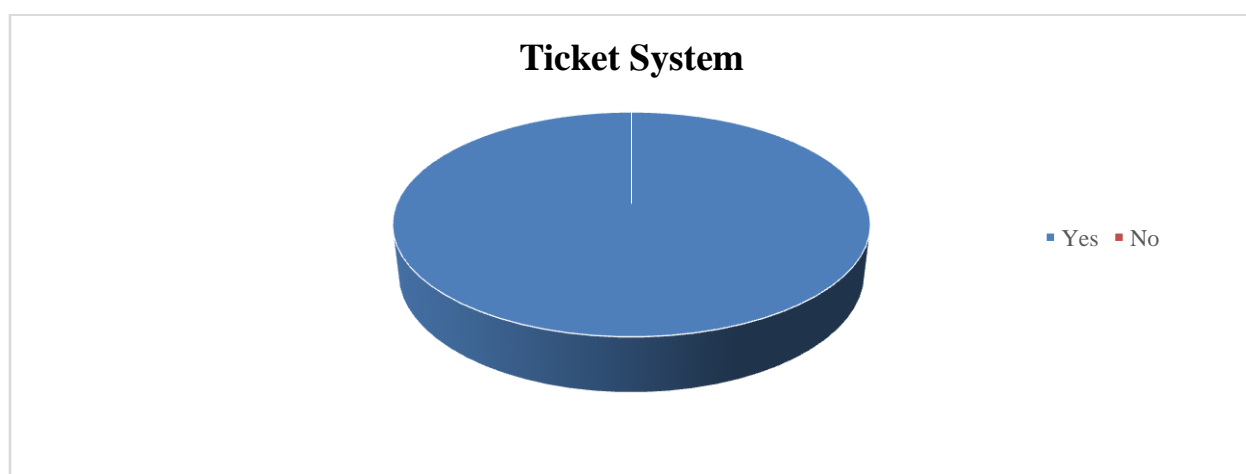


Figure-4.12 Percentage of Ticket System of BRTC

Figure-10 we saw that the percentage of ticketing system

- 100% Drivers said Yes

Question-13: What are the main reasons for accident?

- i. Overtaking tendency = 5
- ii. Competition = 5
- iii. Contract driving = 10

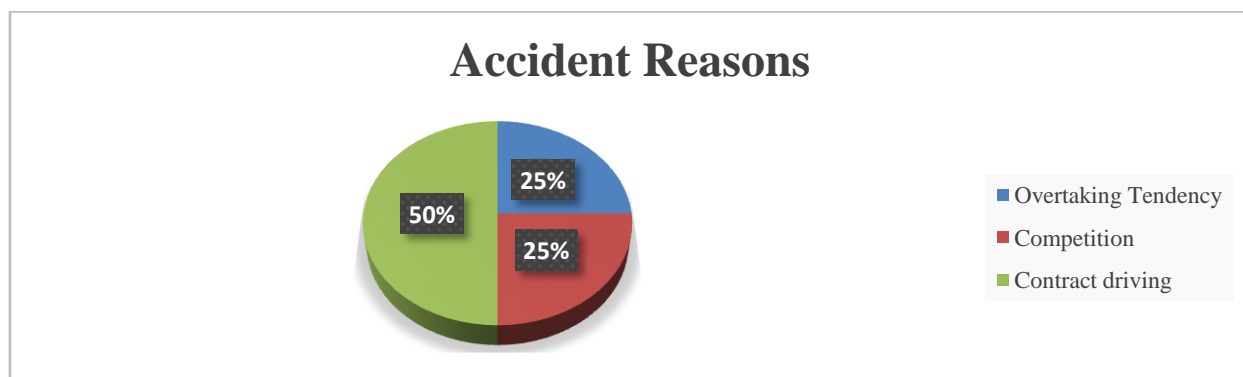


Figure-4.13 Percentage of Accident reasons of BRTC

Figure-13 we saw that the percentage of accident reason.

- 50% drivers said that main reason of accident for contract driving.
- 25% said for competition
- Also 25% said for overtaking tendency

Question-14: Is these buses have insurance?

- i. Yes = 20
- ii. No = 0

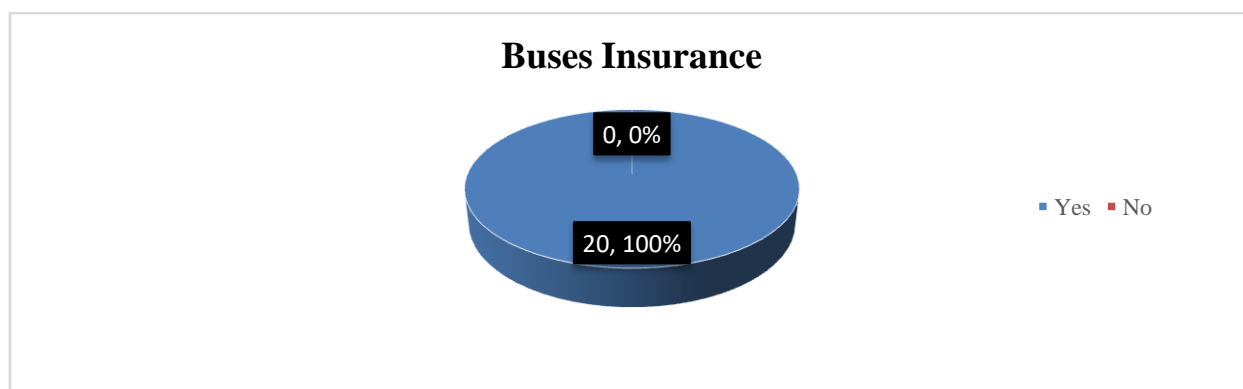


Figure-4.14 Percentage of Buses Insurance of BRTC

Figure-14 we saw that the percentage of bus insurance. All drivers said that the buses have insurance.

Question-15: How much time interval buses are left the terminal?

- i. 5 to 10 minutes = 0
- ii. 10 to 15 minutes = 3
- iii. 15 to 20 minutes = 17

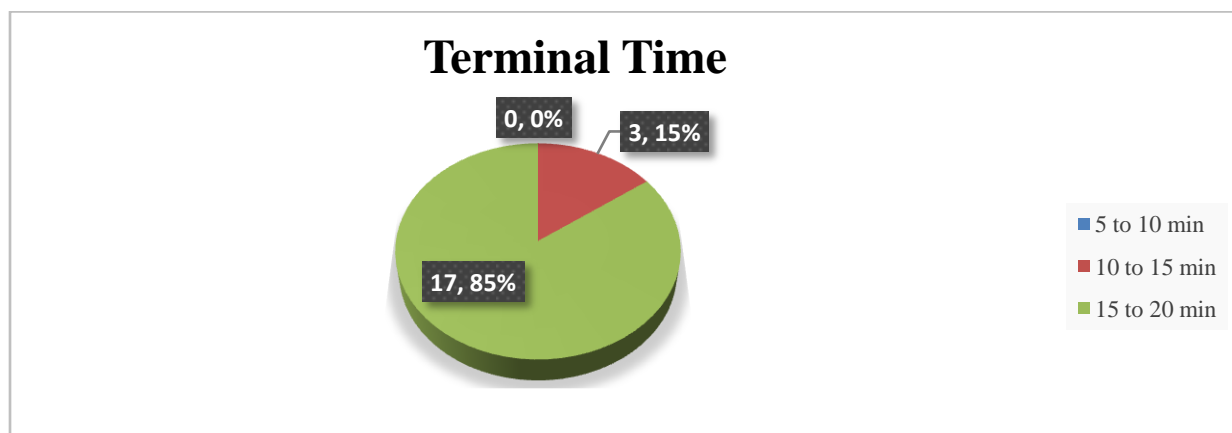


Figure-4.15 Percentage of Terminal Time of BRTC

Figure-15 we saw that the percentage of terminal time.

- About 85% drivers said that terminal time 15 to 20 minutes
- 15% said 10 to 15 minutes

Question-16: About your salary

- i. Contract driving = 0
- ii. Monthly salary = 20



Figure-4.16 Percentage of About Salary of BRTC drivers

Figure-16 we saw that the percentage of drivers salary. 100% drivers drive the buses for monthly salary basis.

Question-17: Is this buses control by the government?

- i. Yes = 18
- ii. No = 2

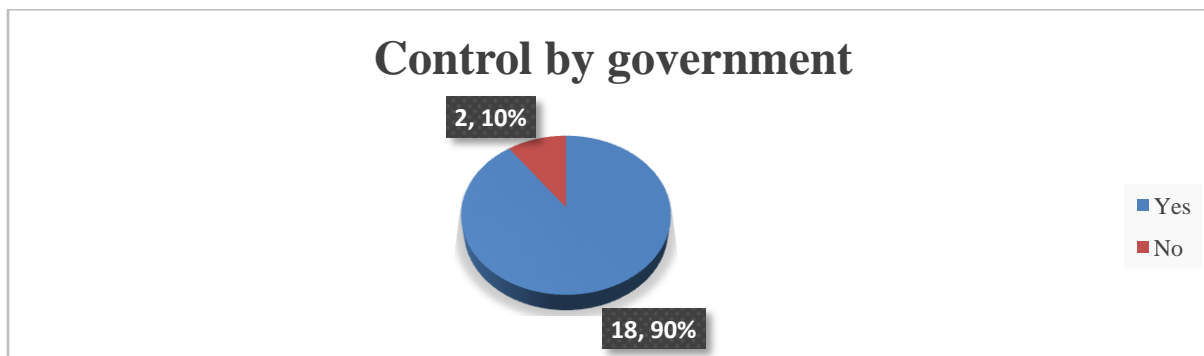


Figure-4.17 Percentage of Control by government of BRTC

Figure-17 we saw that the percentage of bus control by the government were.

- 90% drivers said buses control by the government
- 10% said No

Question-18: How many Trip you done in a day?

- i. 3 to 5 trip = 7
- ii. 5 to 8 trip = 13
- iii. 8 to 10 trip = 0

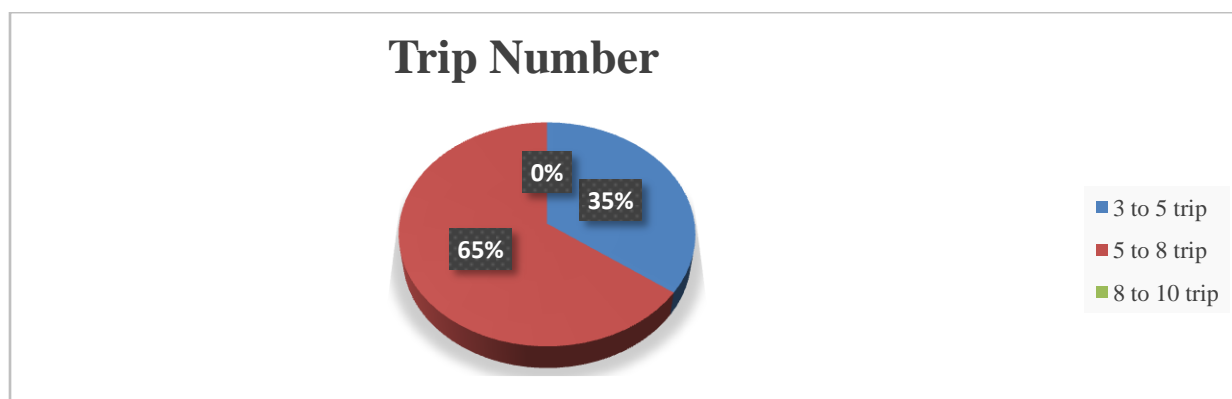


Figure-4.18 Percentage of Trip Number of BRTC

Figure-18 we saw that the percentage of trip number were.

- About 65% drivers said they done 5 to 8 trip in a day
- 35% drivers said 8 to 10 trip

Question-19: What are the most effective ways to solving traffic congestion?

- i. Reduce old local buses = 8
- ii. Reduce Rickshaw, Private cars = 5
- iii. Do not stop buses here and there = 5
- iv. Follow the traffic rules = 2

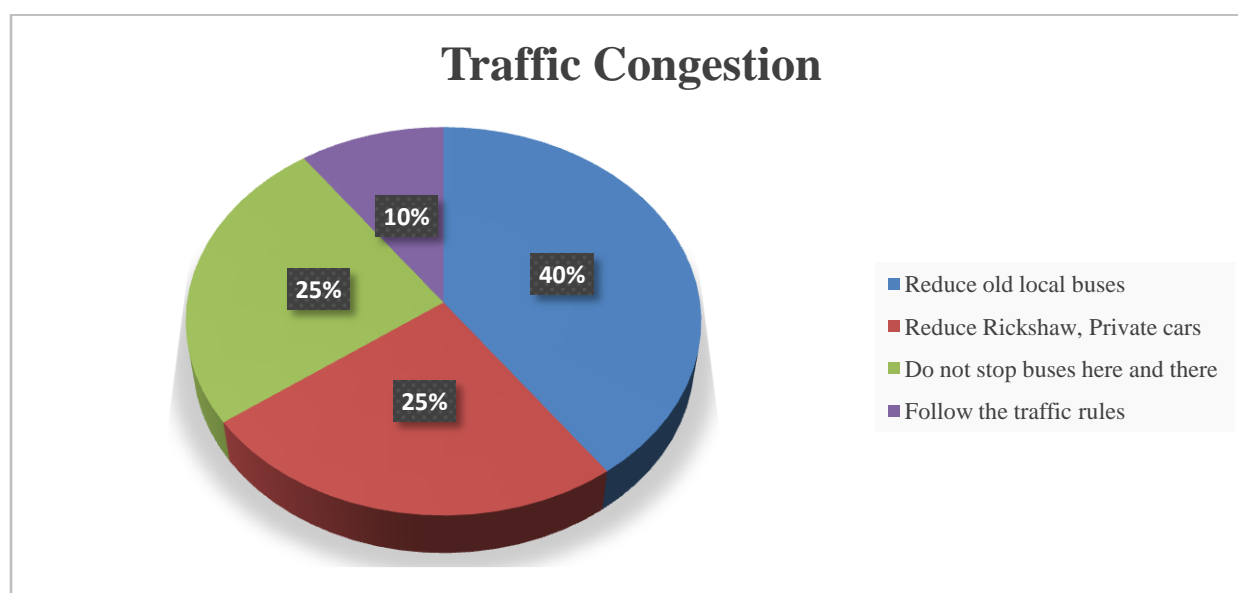


Figure-4.19 Percentage of Traffic Congestion of BRTC

Figure-19 we saw that the percentage of traffic congestion were.

- 40% drivers said Reduce old local buses
- 25% said Reduce Rickshaw, private cars
- 25% said Do not stop buses here and there
- 10% said Follow the traffic rules

Question-20: What are the specialists of these buses?

- i. Camera
- ii. Wireless
- iii. Dustbin
- iv. LED Screen
- v. Only sitting
- vi. Fire hydrant
- vii. Emergency exit door

4.3.2 Questionnaire survey for BRTC passengers:

Question-1: Gender

- i. Male = 60
- ii. Female = 20

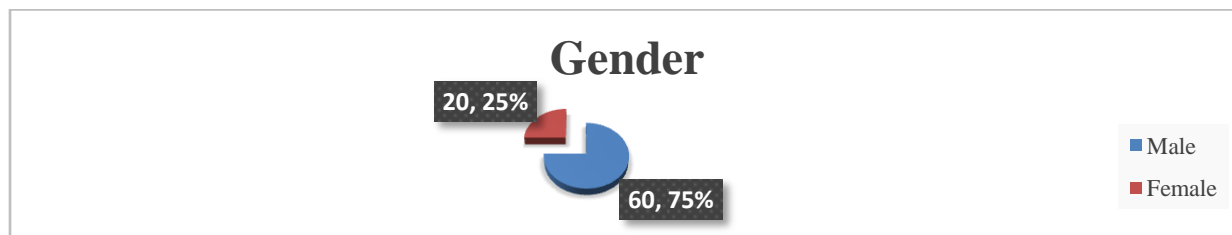


Figure-4.20 Percentage passengers of BRTC

Figure-1 we find out the percentage of male and female for our questionnaire survey.

- There were 75% Male
- 25% were Female

Question-2: Age of the passengers

- i. 20 to 30 years = 18
- ii. 30 to 40 years = 26
- iii. 40 to 50 years = 23
- iv. 50 to 60 years = 13

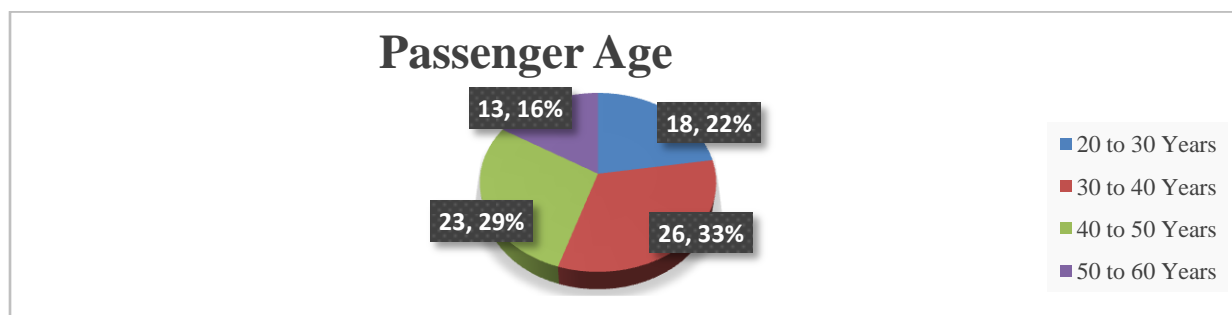


Figure-4.21 Percentage of Age of the passengers of BRTC

Figure-2 we find out the age percentage of the passengers

- 33% passengers were 30 to 40 years old in our questionnaire survey
- 29% were 40 to 50 years
- 22% were 20 to 30 years
- Only 16% were 50 to 60 years old

Question-3: Educational Qualification

- i. Under S.S.C = 15
- ii. S.S.C/Equivalent = 20
- iii. H.S.C/Equivalent = 25
- iv. Honors/Equivalent = 14
- v. Masters = 06

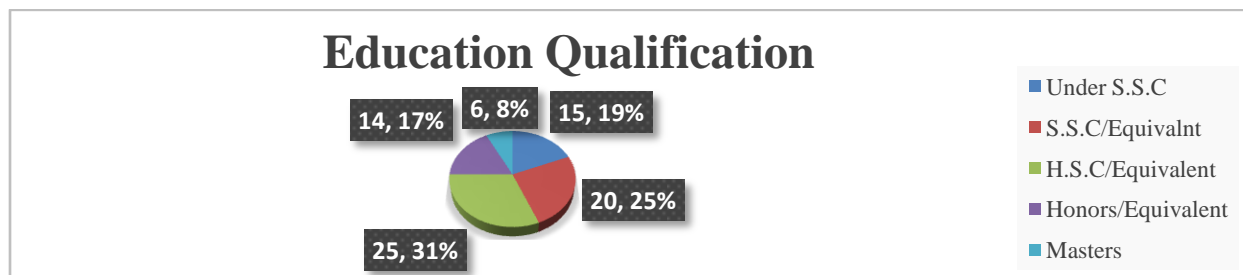


Figure-4.22 Percentage of Educational Qualification of BRTC passengers

Figure-3 we find out percentage of educational qualification of passengers

- About 31% passengers were H.S.C/Equivalent
- 25% were S.S.C/Equivalent
- 19% were under S.S.C
- 17% were Honors/Equivalent
- There were only 8% Masters pass

Question-4: Where are you coming from?

- i. Home = 18
- ii. Work place = 29
- iii. Shopping = 11
- iv. School/college = 22

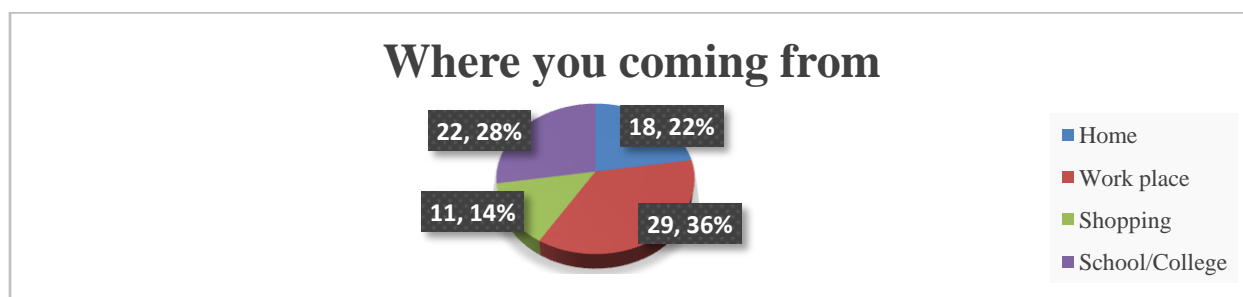


Figure-4.23 Percentage of riding location of BRTC passengers

Figure 4, we saw that the percentage of passengers are coming from

- About 36% passengers were coming from their working place
- 28% were school/college
- 22% were home

Question-5: Did you ride this bus every day?

- Yes = 46
- No = 34

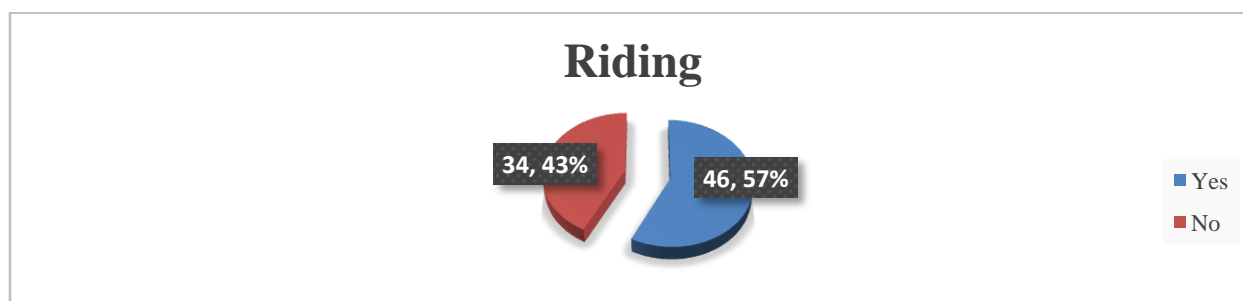


Figure-4.24 Percentage of Riding of BRTC passengers

Figure-5 we saw that the percentage of passengers were ride this bus everyday

- About 57% passengers said Yes were ride this bus everyday
- 43% said No

Question-6: Do you have own cars?

- Yes = 11
- No = 69

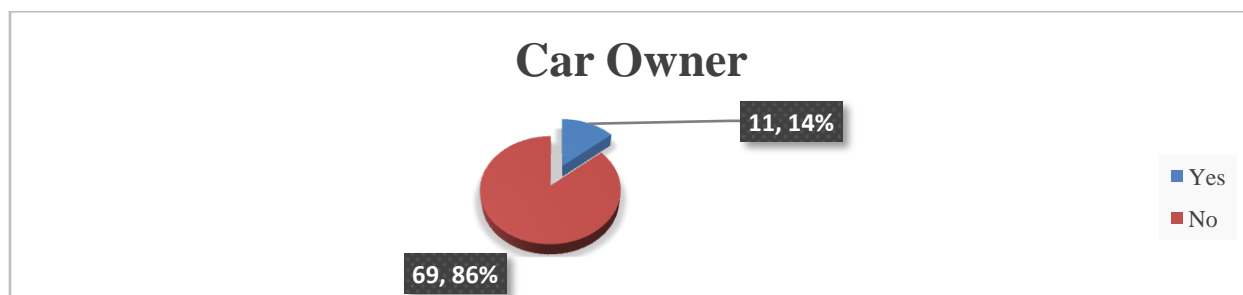


Figure-4.25 Percentage of Car Owner of BRTC passengers

Figure-6, we saw that the passengers of car owners

- About 86% passengers said that they have No car
- 14% said Yes

Question-7: What is your opinion about physical condition of this bus?

- i. Good = 65
- ii. Average = 15
- iii. Poor= 0

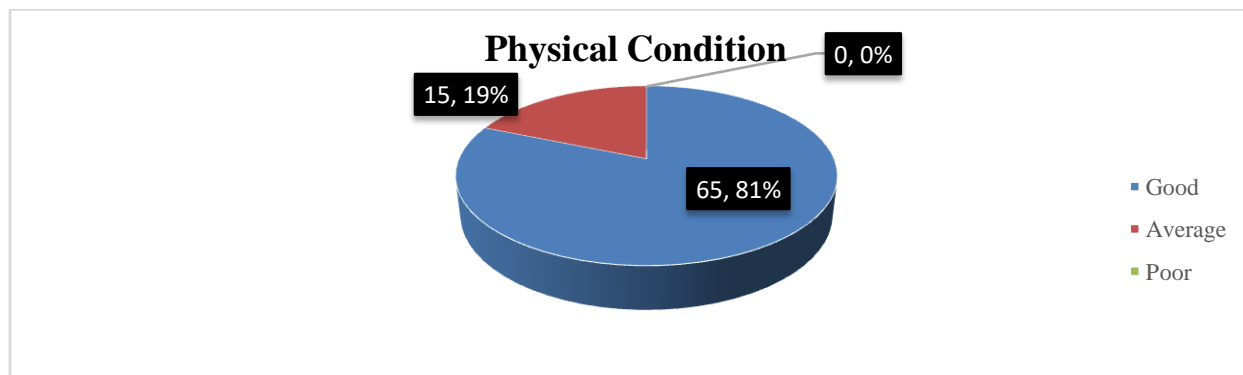


Figure-4.26 Percentage of Physical Condition of BRTC

Figure-7 we find out the condition of the physical condition

- 81% passengers said that physical condition is Good
- 19% passengers said that physical condition is Average

Question-8: Do you think there is enough waiting place for heavy passengers?

- i. Yes = 26
- ii. No = 54

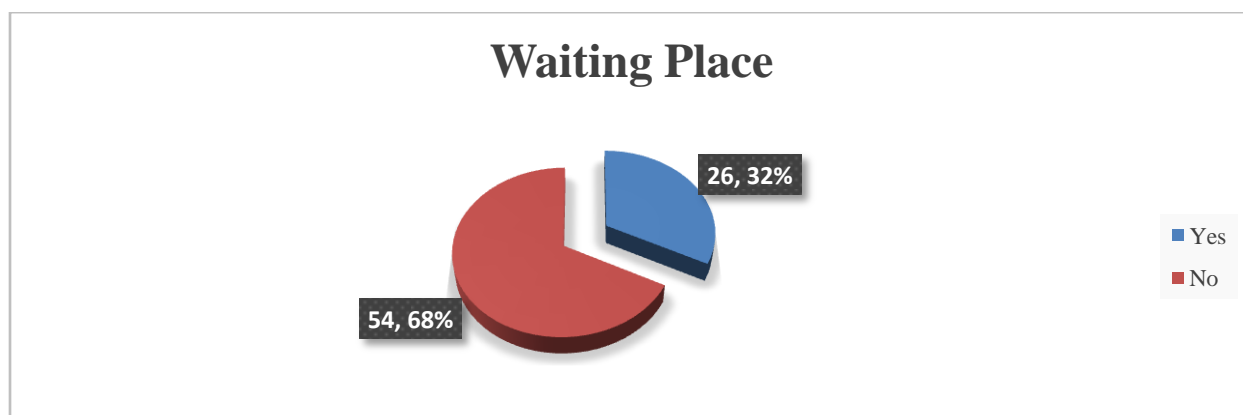


Figure-4.27 Percentage of Waiting Place of BRTC passengers

Figure-8 we find out the percentage of enough waiting place for heavy passengers

- 68% passengers said that NO. There are no enough waiting place for heavy passengers
- Only 32% said Yes

Question-9: Do you feel comfortable in this bus?

- i. Yes = 73
- ii. No = 07

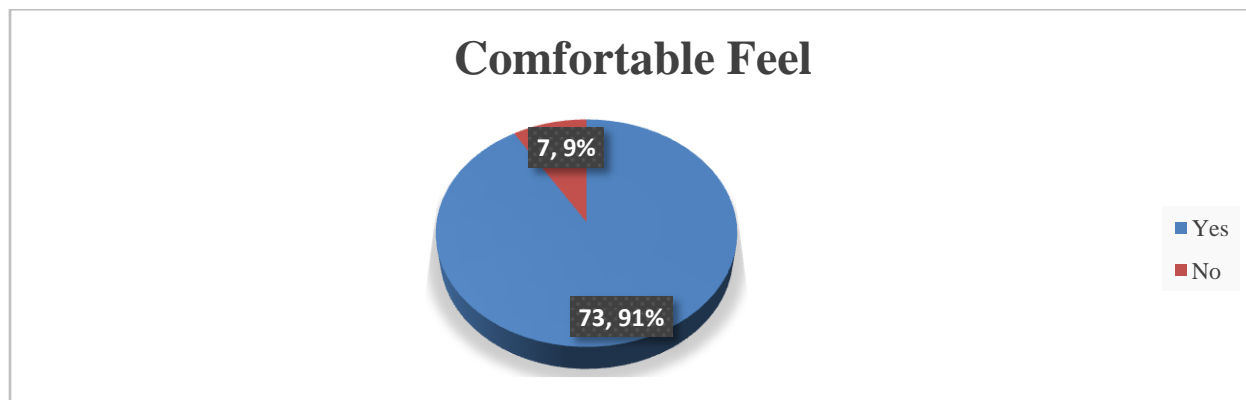


Figure-4.28 Percentage of Comfortable Feel of BRTC passengers

Figure-9, we saw that the percentage of passengers comfortable in this bus

- Almost 91% passengers said that they feel comfortable in this bus
- 7% said they never comfortable

Question-10: Are there any ticketing system?

- i. Yes =80
- ii. No = 0

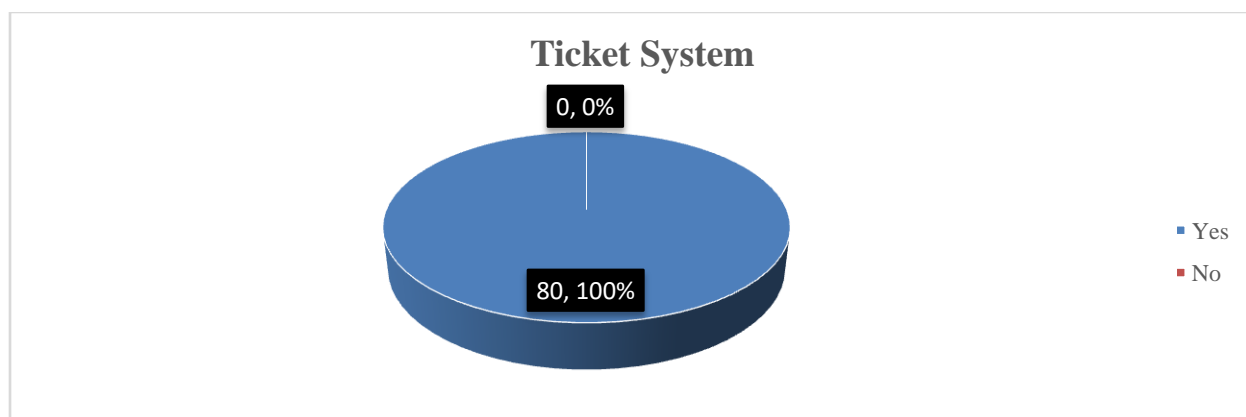


Figure-4.29 Percentage of Ticket System of BRTC passengers

Figure-10 we saw that the percentage of ticketing system

- 100% passengers said Yes

Question-11: Do you feel buses are overcrowded in peak hours?

- i. Yes = 07
- ii. No = 73

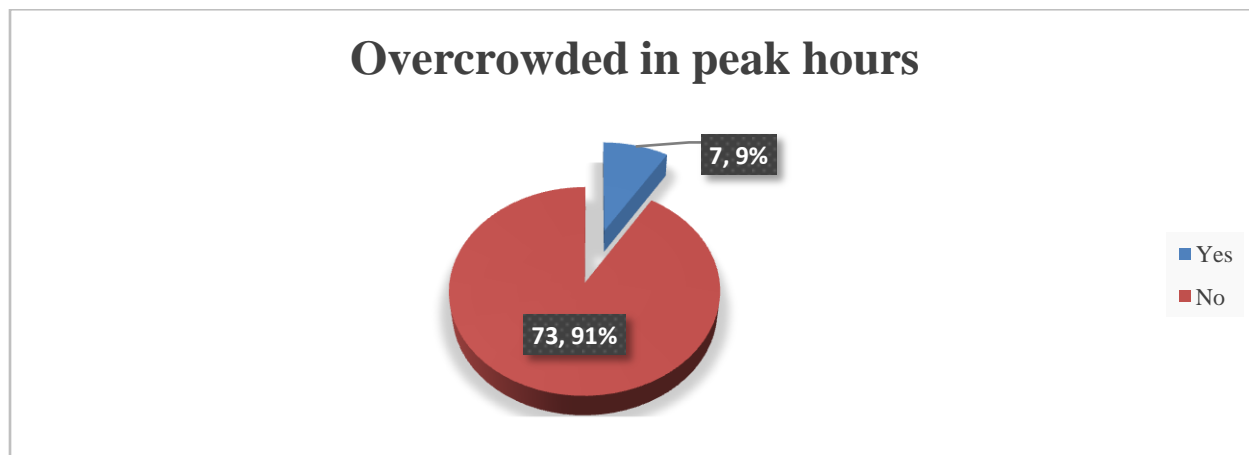


Figure-4.30 Percentage of Overcrowded in peak hours of BRTC passengers

Figure-11 we saw that the percentage of busses are overcrowded in peak hours

- 91% passengers said No
- 9% said Yes

Question-12: Have you ever faced any bad situation?

- i. Yes = 50
- ii. No = 30

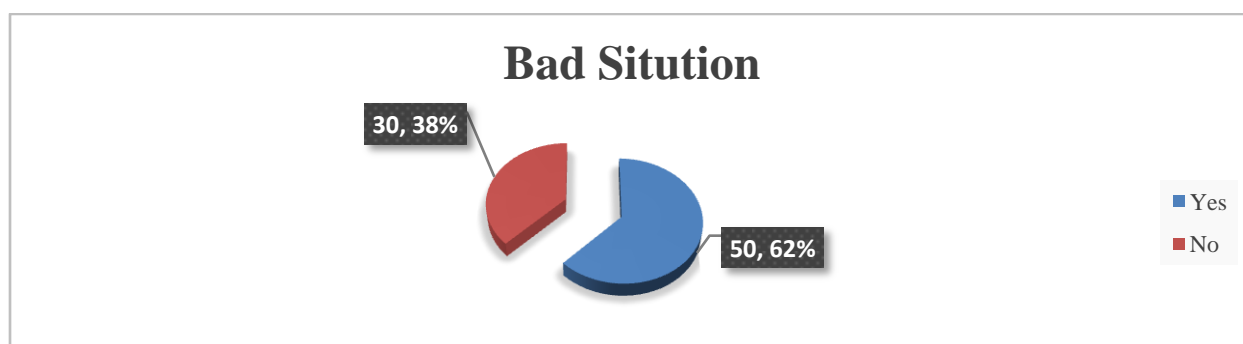


Figure-4.31 Percentage of Bad Situation of BRTC passengers

Figure-12 we saw the percentage of passengers faced bad situation.

- 62% passengers said that they faced some unwanted situation.
- 38% said No

Question-13: Information system

- i. Boards = 0
- ii. Wireless= 72
- iii. Personal communication = 0
- iv. Video monitor = 08

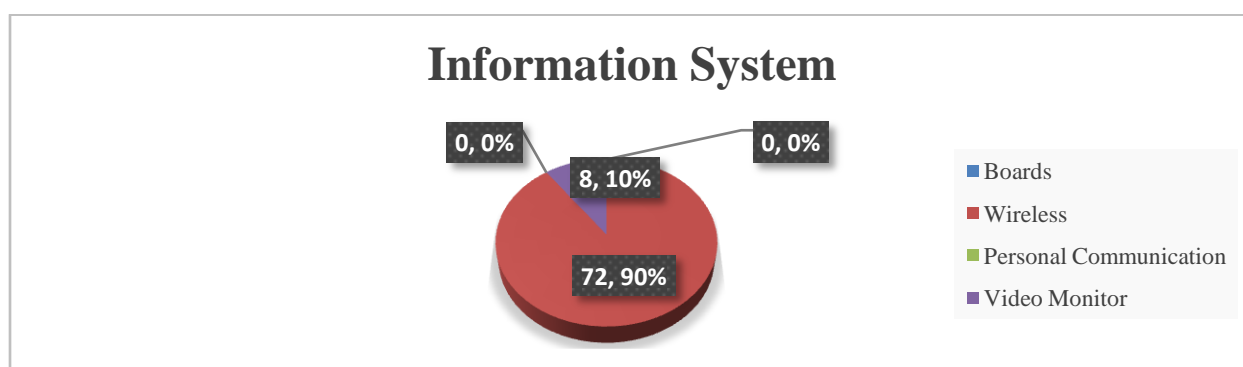


Figure-4.32 Percentage of Information System of BRTC passengers

Figure-13 we find out the percentage of information system

- By Wireless its 90%
- Video monitor 10%
- By Personal communication 0%

Question-14: What type of transport you like most in Dhaka City?

- i. Pathao/Uber = 29
- ii. CNG= 16
- iii. Private car = 07
- iv. A/C bus = 28

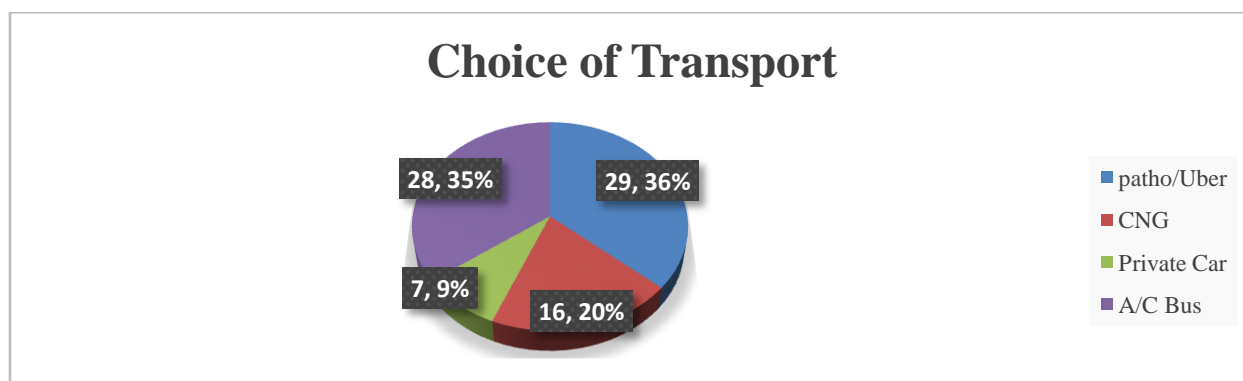


Figure-4.33 Percentage of Choice of Transport of BRTC passengers

Figure-14, we saw that the percentage of passenger most like transport

- About 36% passengers were most like Pathao/Uber
- Also 35% like A/C bus service
- 20% like CNG
- 9% like Private car

Question-15: What do you think about the public transportation in Dhaka city?

- Very bad = 26
- Poor = 22
- Good = 09
- Mixed = 23

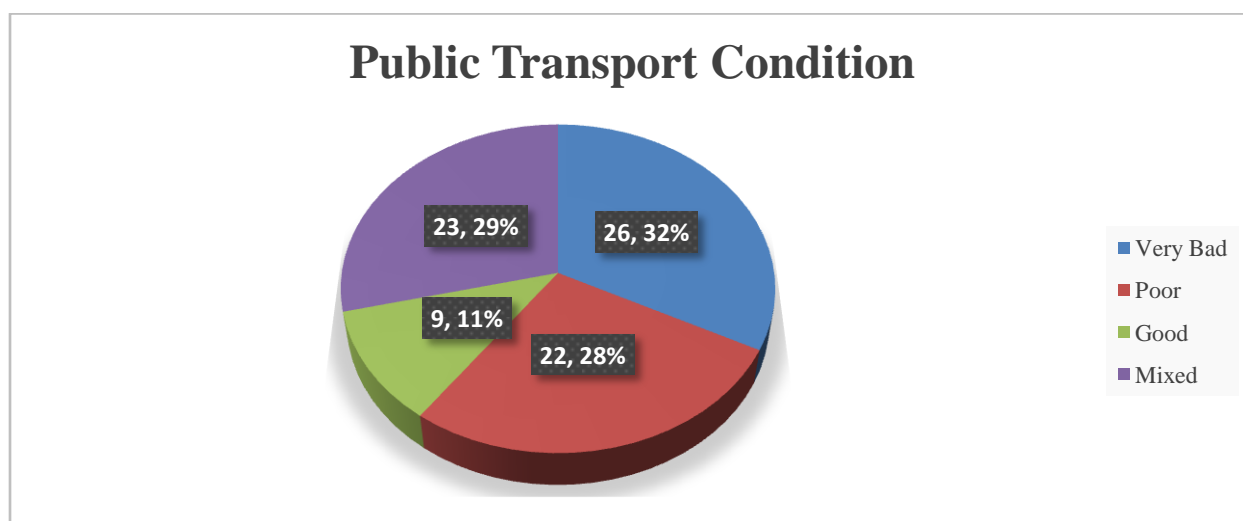


Figure-4.34 Percentage of Public Transport Condition of BRTC passengers

Figure-15, we find out the percentage of public transportation condition

- About 32% passengers said very bad condition
- 28% said poor condition
- Also 29% said mixed condition
- 11% said good condition

Question-16: If available would you like to use local services on holiday?

- Yes = 66
- No = 14

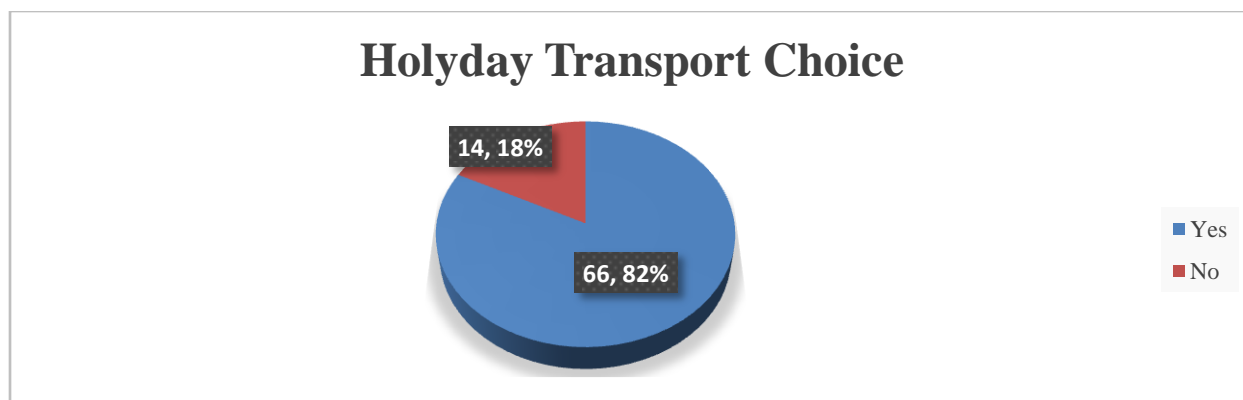


Figure-4.35 Percentage of Holyday Transport Choice of BRTC passengers

Figure-16, we saw that the percentage of holyday transport choice

- About 82% passengers said that they like to use this service
- 18% said No

Question-17: What do you think about the price of ticket?

- Low = 14
- Medium = 54
- High = 12

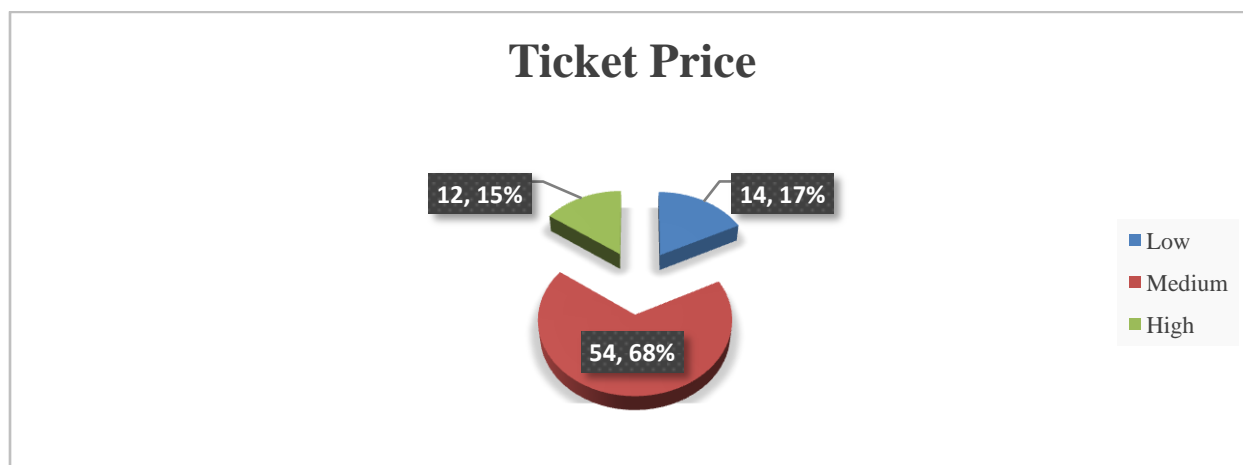


Figure-4.36 Percentage of Ticket Price of BRTC passengers

Figure-17, we saw that the percentage of ticket price in this service

- About 68% passenger said ticket price is Medium
- 17% said Low
- 15% said High

Question-18: Are you satisfied with this service?

- i. Yes = 62
- ii. No = 18

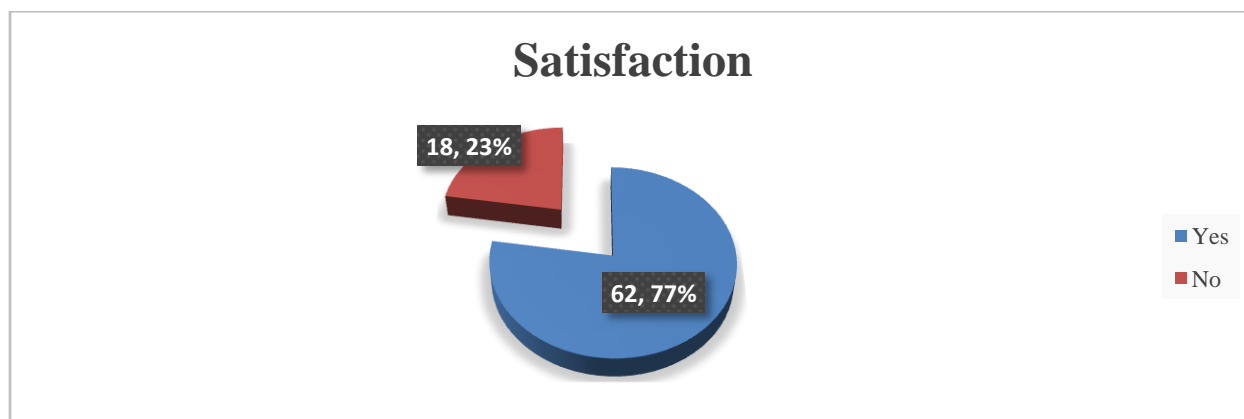
**Figure-4.37** Percentage of Satisfaction of BRTC passengers

Figure 18, we saw that the percentage of passengers satisfaction of this service

- About 77% passengers said that they satisfied of this service
- 23% said No

Question-19: Will you recommend A/C bus service to other?

- i. Yes = 71
- ii. No = 09

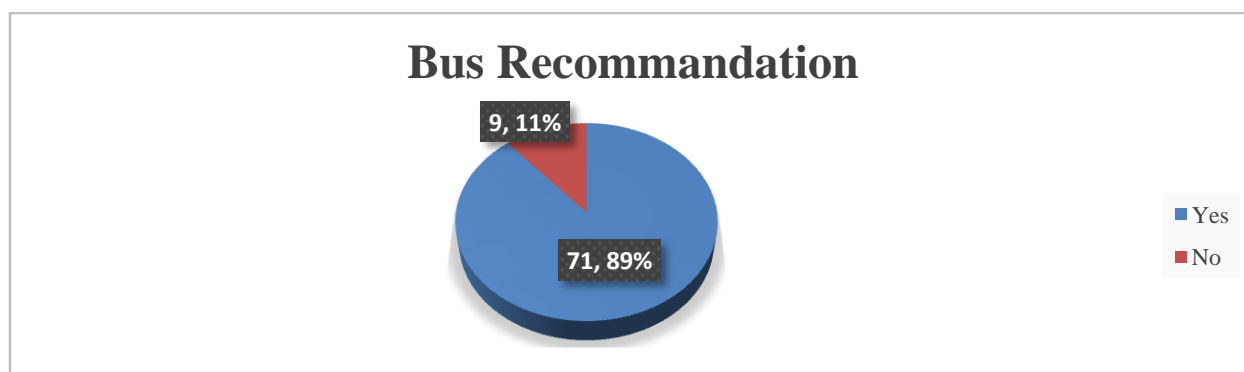
**Figure-4.38** Percentage of Bus Recommendation for BRTC passengers

Figure 19, we saw that the percentage of passengers were recommended A/C service

- About 89% passengers said Yes
- 11% said No

Question-20: How the new bus service been successful?

- i. Yes = 68
- ii. No = 12

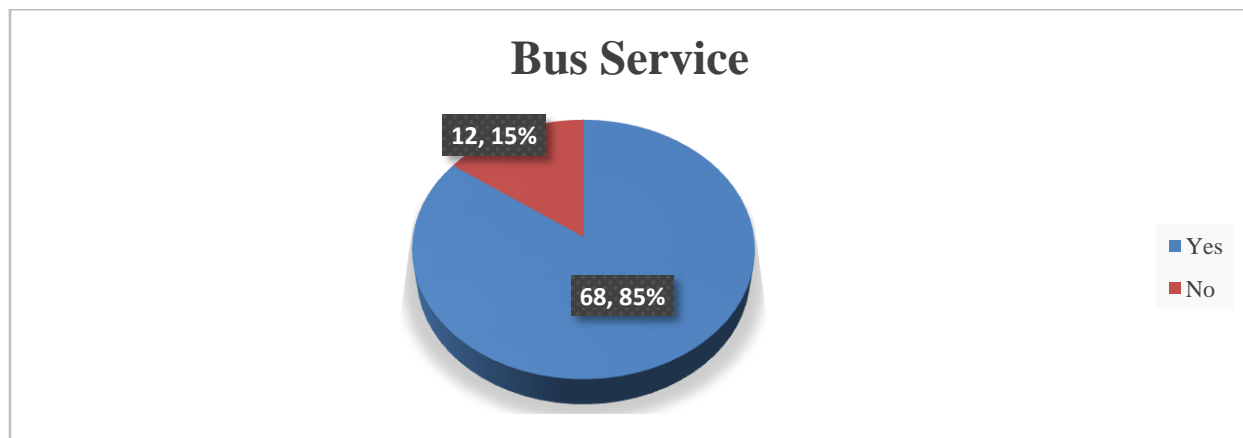
**Figure-4.39** Percentage of Bus Service of BRTC passengers

Figure 20, we saw that the percentage of passengers about new bus service

- About 85% passengers said that this service were successful
- 15% said No

Question-21: Are there any amenities for student?

Answer: There is no half pass for the student.

Question-22: Suggestion about the mass transit in Dhaka City.

- i. Reduce old local buses, car, rickshaw
- ii. Sitting service
- iii. Ticketing system
- iv. Improve traffic rules

4.3.3 Questionnaire survey for Local Bus passengers:

Question-1: Gender

- iii. Male = 146
- iv. Female = 38

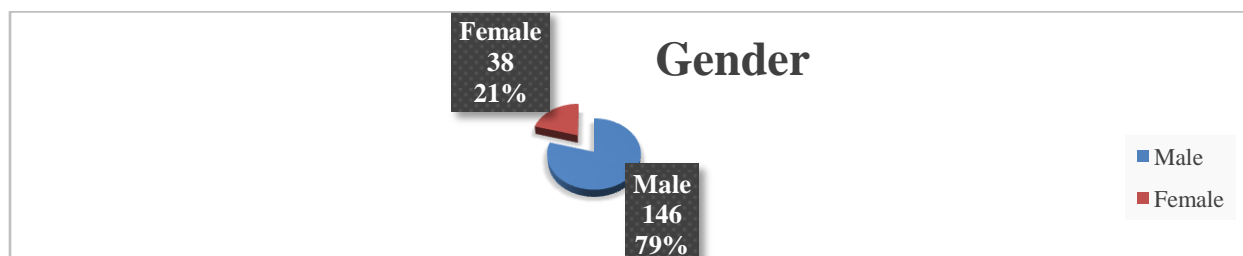


Figure-4.40 Percentage of Gender of Local Bus passengers

Figure-1 we find out the

- The percentage of male and female for our questionnaire survey.
- There were 79% Male
- 21% were Female

Question-2: Age of the passengers

- v. 20 to 30 years = 64
- vi. 30 to 40 years = 76
- vii. 40 to 50 years = 26
- viii. 50 to 60 years = 18

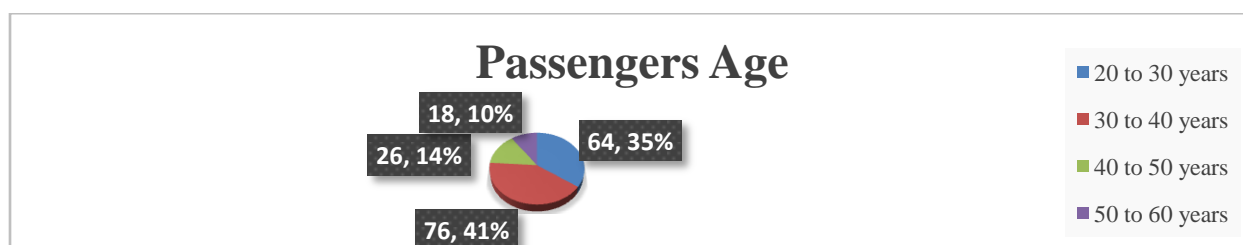


Figure-4.41 Percentage of Passengers Age of Local Bus passengers

Figure-2 we find out the age percentage of the passengers

- 35% passengers were 20 to 30 years old in our questionnaire survey
- 41% were 30 to 40 years
- 14% were 40 to 50 years
- Only 10% were 50 to 60 years old

Question-3: Educational Qualification

- vi. Under S.S.C = 48
- vii. S.S.C/Equivalent = 56
- viii. H.S.C/Equivalent = 43
- ix. Honors/Equivalent = 32
- x. Masters = 05

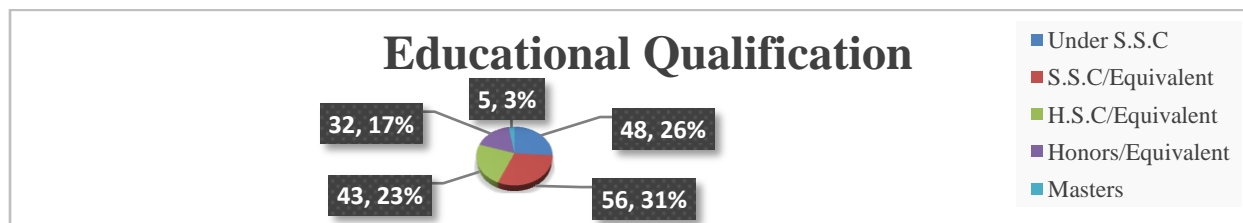


Figure-4.42 Percentage of Educational Qualification of Local Bus passengers

Figure-3 we find out percentage of educational qualification of passengers

- About 23% passengers were H.S.C/Equivalent
- 31% were S.S.C/Equivalent
- 26% were under S.S.C
- 17% were Honors/Equivalent
- There were only 3% Masters pass

Question-4: Where are you coming from?

- v. Home = 48
- vi. Work place = 67
- vii. Shopping = 13
- viii. School/college = 56

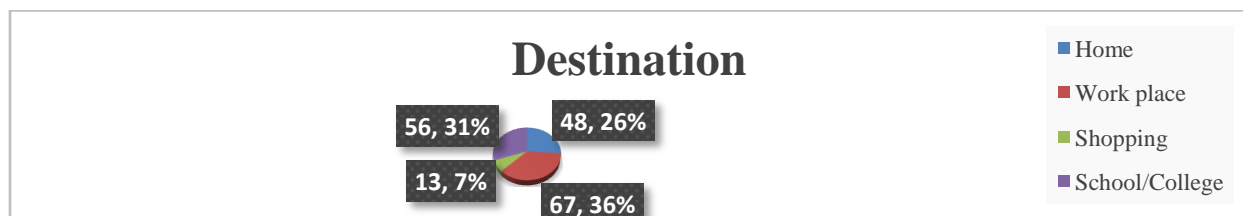


Figure-4.43 Percentage of Destination of Local Bus passengers

Figure 4, we saw that the percentage of passengers are coming from

- About 36% passengers were coming from their working place

- 31% were school/college
- 26% were home

Question-5: Did you ride this bus every day?

- iii. Yes = 123
- iv. No = 61

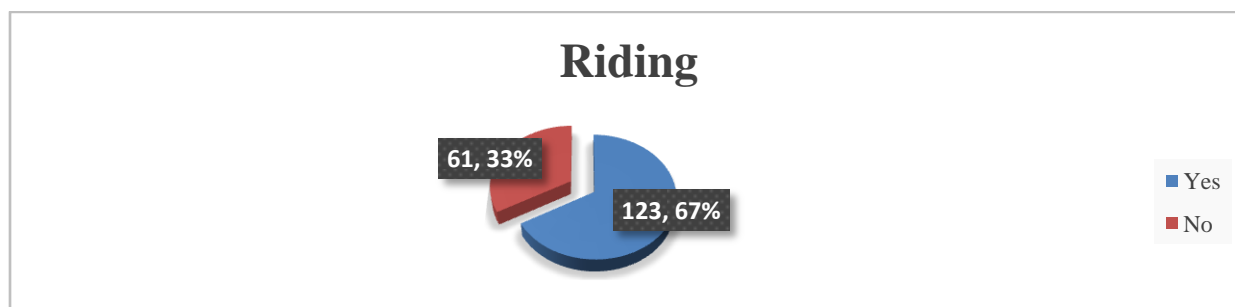


Figure-4.44 Percentage of Riding of Local Bus passengers

Figure-5 we saw that the percentage of passengers were ride this bus everyday

- About 67% passengers said Yes were ride this bus everyday
- 33% said No

Question-6: Do you have own cars?

- iii. Yes = 09
- iv. No = 175

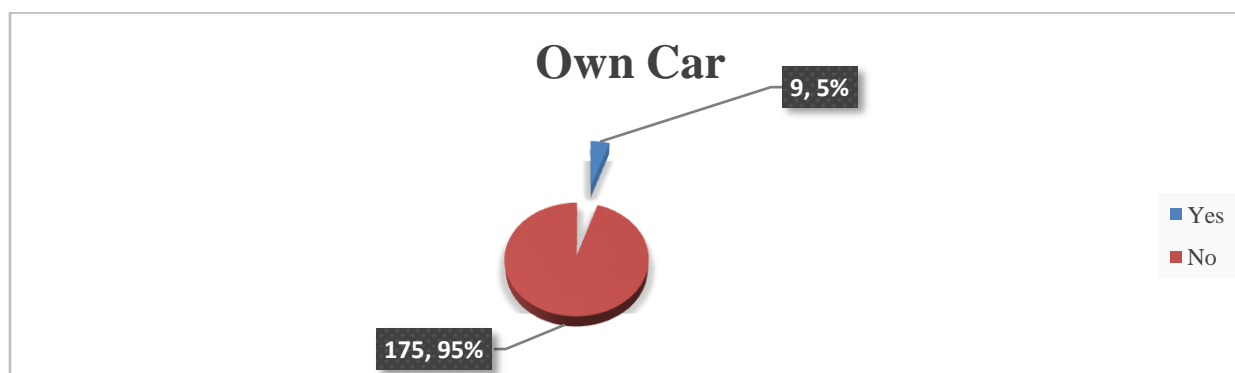


Figure-4.45 Percentage of Own Car of Local Bus passengers

Figure-6, we saw that the passengers of car owners

- About 95% passengers said that they have No car
- 5% said Yes

Question-7: What is your opinion about physical condition of this bus?

- iv. Good = 22
- v. Average = 87
- vi. Poor= 75

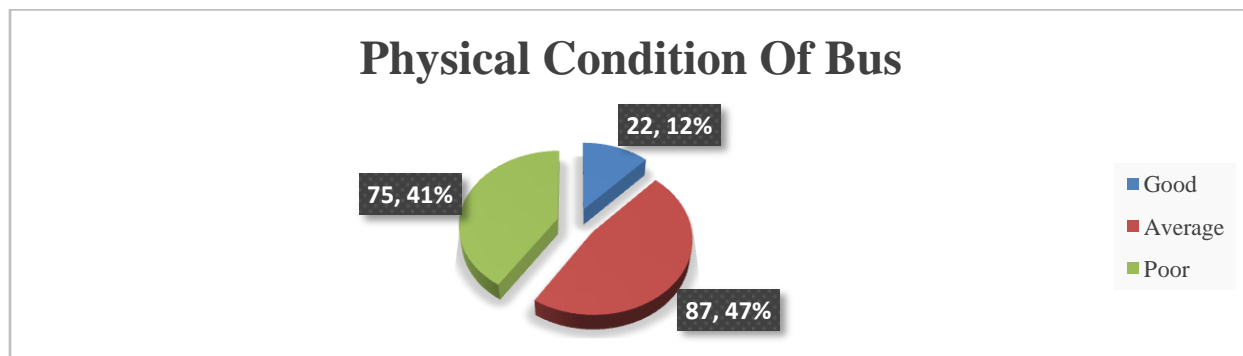


Figure-4.46 Percentage of Physical Condition of Bus

Figure-7 we find out the condition of the bus stoppages

- 12% passengers said that Bus Stoppages condition is Good
- 47% passengers said that Bus Stoppages condition is Average
- 41% passengers said that Bus Stoppages condition is Poor

Question-8: Do you think there is enough waiting place for heavy passengers?

- iii. Yes = 13
- iv. No = 171

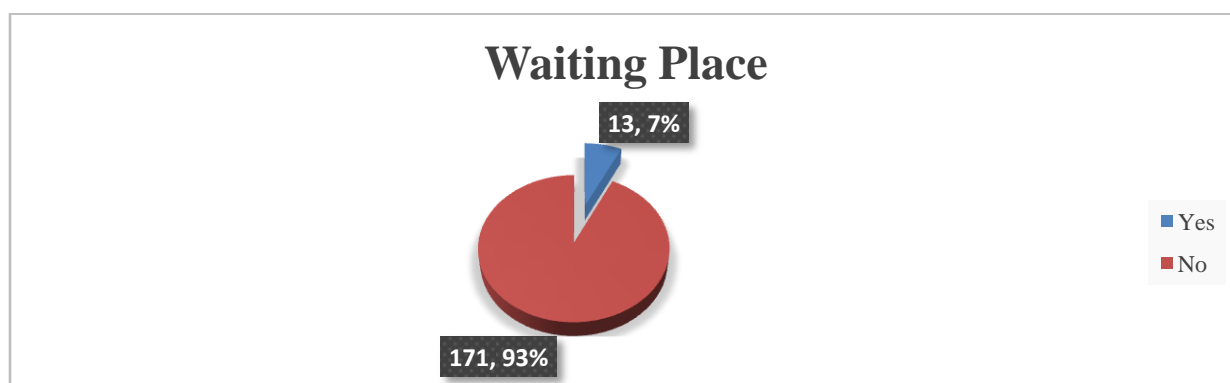


Figure-4.47 Percentage of Waiting Place of Local Bus passengers

Figure-8 we find out the percentage of enough waiting place for heavy passengers

- 93% passengers said that NO. There are no enough waiting place for heavy passengers
- Only 7% said Yes

Question-9: Do you feel comfortable in this bus?

- iii. Yes = 20
- iv. No = 164

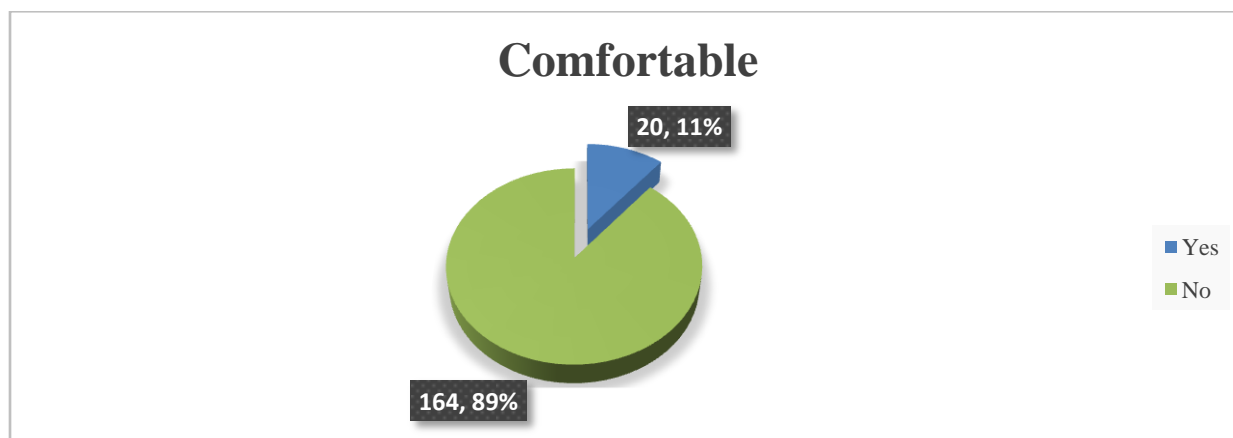
**Figure-4.48** Percentage of Comfortable of Local Bus passengers

Figure-9, we saw that the percentage of passengers comfortable in this bus station.

- Almost 89% passengers said that they never feel comfortable in this bus station

Question-10: Are there any ticketing system?

- iii. Yes = 0
- iv. No = 184

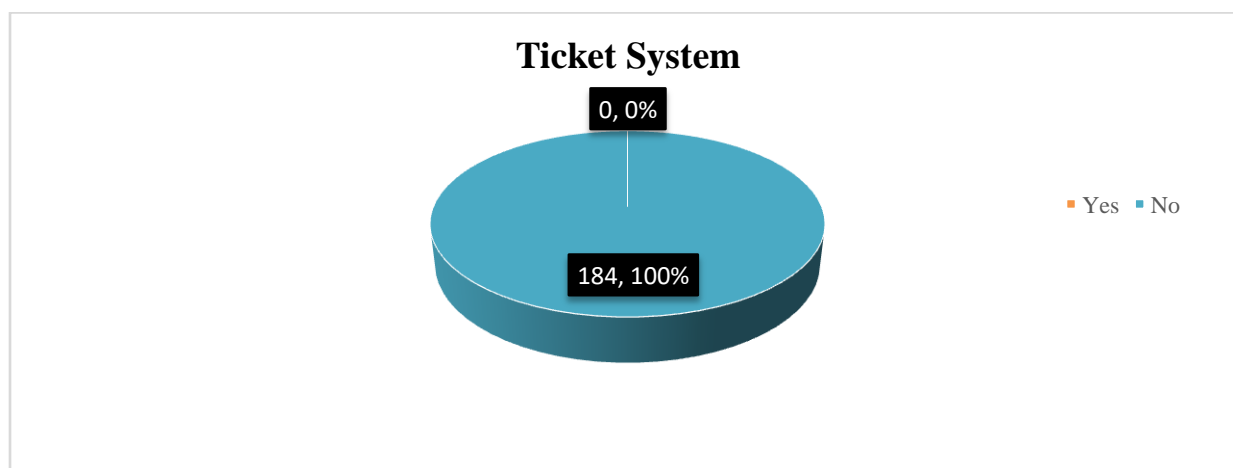
**Figure-4.49** Percentage of Ticket System of Local Bus passengers

Figure-10 we know

- There are no Ticketing systems in selected bus service.

Question-11: Do you feel buses are overcrowded in peak hours?

iii. Yes = 184

iv. No = 0

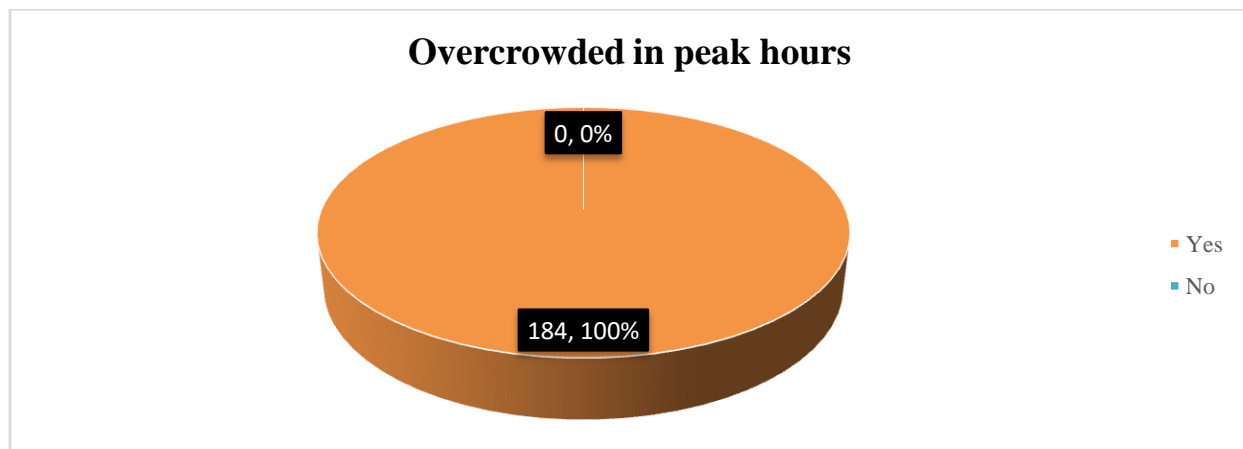


Figure-4.50 Percentage of Overcrowded in peak hours of Local Bus passengers

Figure-11 we saw that

- 100% passengers said that Busses are overcrowded in Peak hours.

Question-12: Have you ever faced any bad situation?

iii. Yes = 127

iv. No = 57

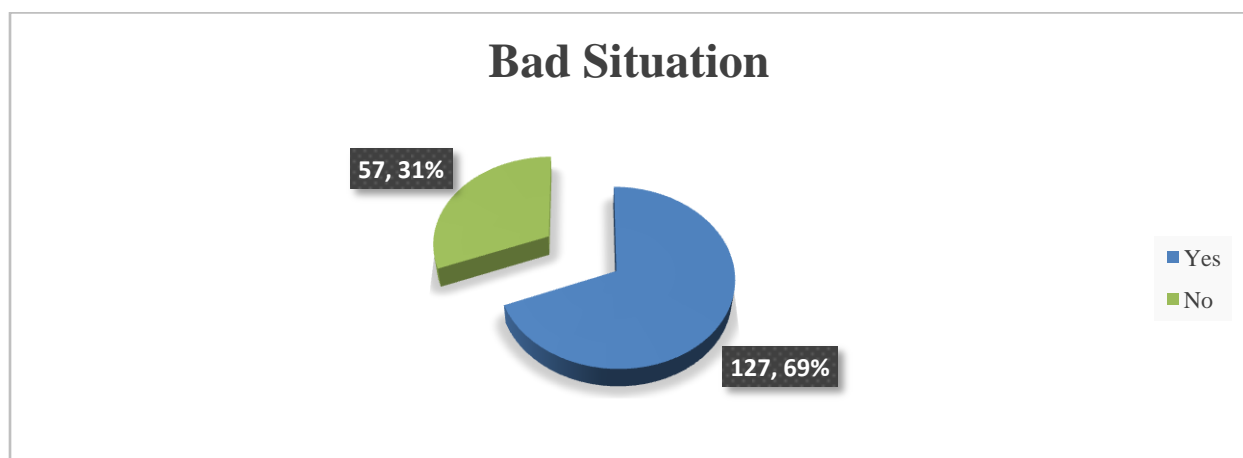


Figure-4.51 Percentage of Bad Situation of Local Bus passengers

Figure-12 we saw the percentage of passengers bad situation.

- 69% passengers said that they faced some unwanted situation.

Question-13: Information system

- v. Boards = 2
- vi. Telephone= 11
- vii. Personal communication = 145
- viii. Video monitor = 26

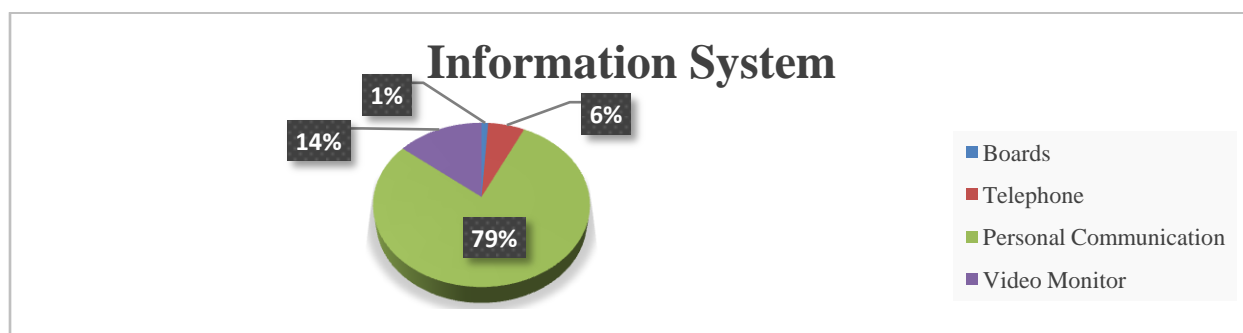


Figure-4.52 Percentage of Information System of Local Bus passengers

Figure-13 we find out the percentage of information system

- By Boards there its only 1%
- By Telephone its 6%
- By Personal communication 79%
- Video monitor 14%

Question-14: What do you think about the public transportation in Dhaka city?

- v. Very bad = 61
- vi. Poor = 17
- vii. Good = 44
- viii. Mixed = 62

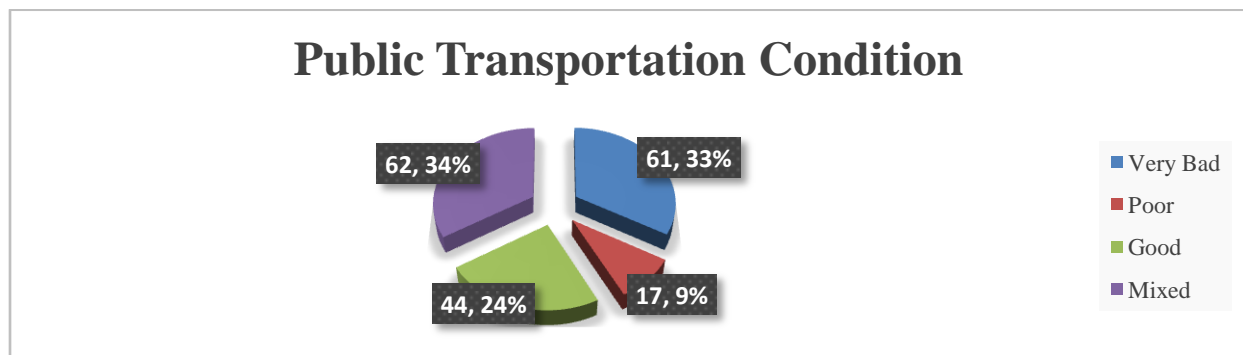


Figure-4.53 Percentage of Public Transportation Condition of Local Bus passengers

Figure-14, we find out the percentage of public transportation condition

- About 33% passengers said very bad condition
- 9% said poor condition
- 34% said mixed condition
- 24% said good condition

Question-15: If available would you like to use local services on holiday?

iii. Yes = 41

iv. No = 143

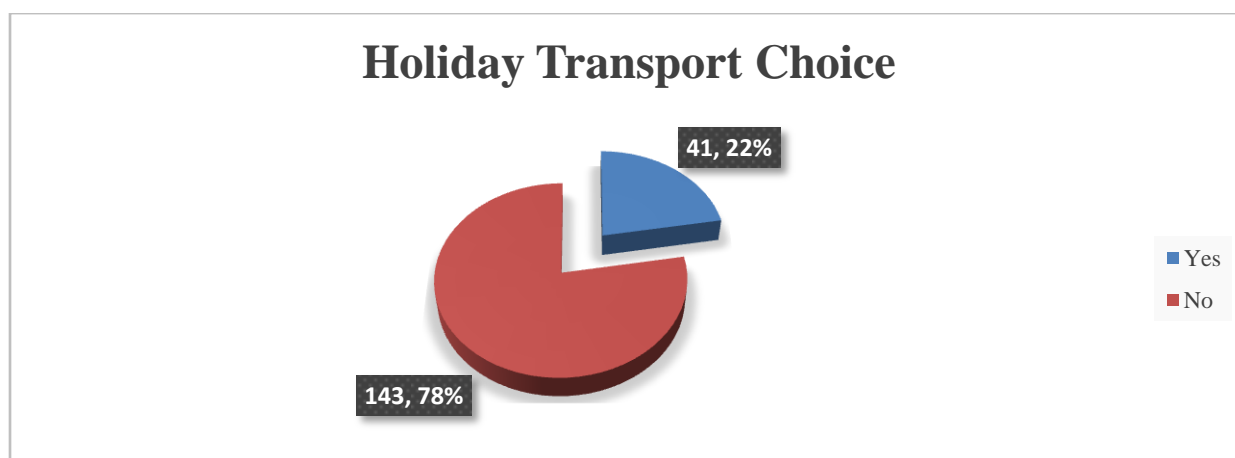


Figure-4.54 Percentage of Holiday Transport Choice of Local Bus passengers

Figure-15, we saw that the percentage of holiday transport choice

- About 78% passengers said that they like to use this service
- 22% said No

4.3.4 Questionnaire Survey for Local Bus Drivers:

Question-1: The age of Drivers

- i. Age range 20 to 30 = 60
- ii. Age range 30 to 40 = 49
- iii. Age range 40 to 50 = 32
- iv. Age range 50 to 60 = 9

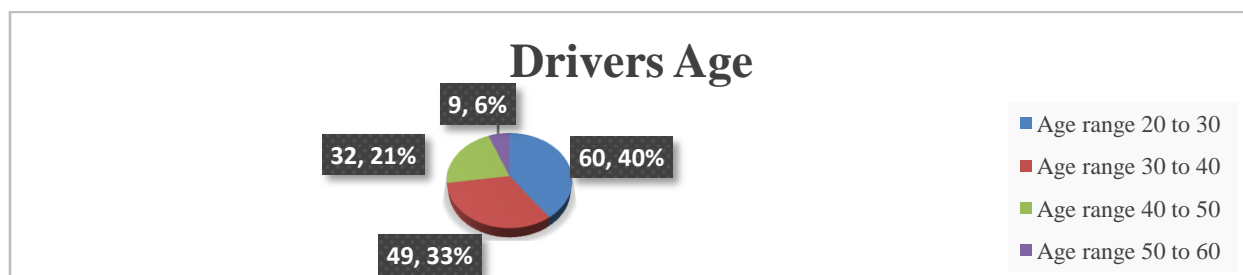


Figure: 4.55 Percentage of Drivers Age of Local Bus Drivers

Figure 1, we saw that percentage of driver age. The maximum number of age percentage is 40% which belongs to 20 to 30 years old.

Question-2: Education qualifications of drivers

- i. Class 1 to 5 = 42
- ii. Class 6 to 8 = 60
- iii. Class 9 to SSC = 35
- iv. Class HSC to Honors = 13

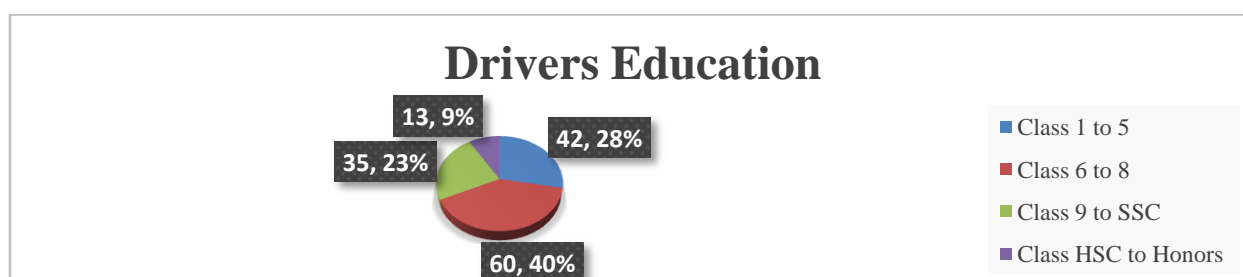


Figure: 4.56 Percentage of Drivers Education of Local Bus Drivers

Figure 2 shows the educational qualifications of drivers. Most of the drivers are not well educated.

- The maximum number of percentage is 40% (Class 6 to 8)
- About 28% drivers belong to class 1 to 5.
- 23% are class 9 to SSC.

Question-3: How many years of yours driving?

- i. 1 to 5 years = 59
- ii. 5 to 10 years = 51
- iii. Above 10 years = 40

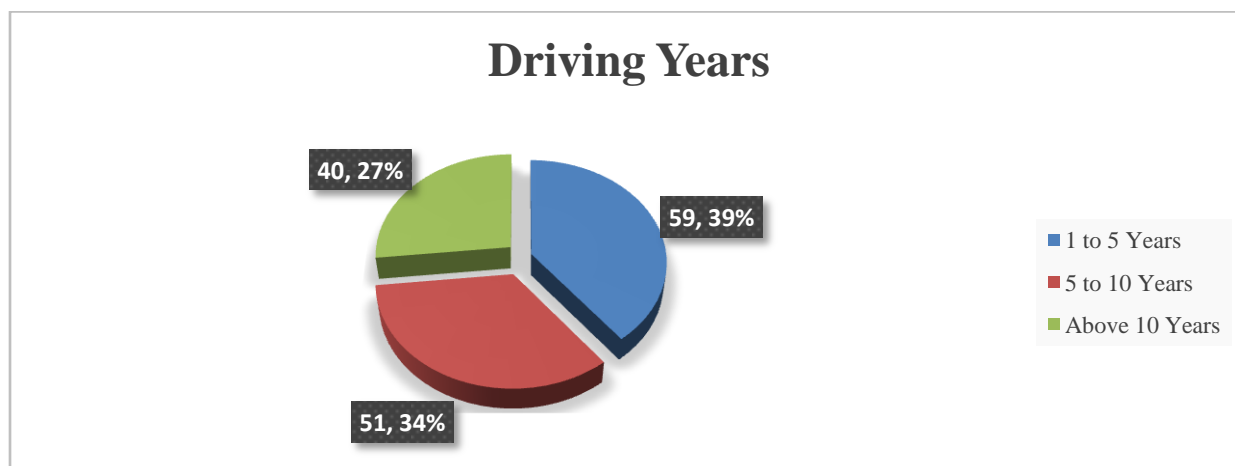


Figure 4.57 Percentage of Driving Years of Local Bus Drivers

Figure 3 we saw that the percentage of driving years. Most of the drivers are belongs to driving in 5 years and its percentage is 39%, 10 years 34% and above 10 years is 27%.

Question-4: Do you drive regularly?

- i. Regular = 131
- ii. Irregular = 19

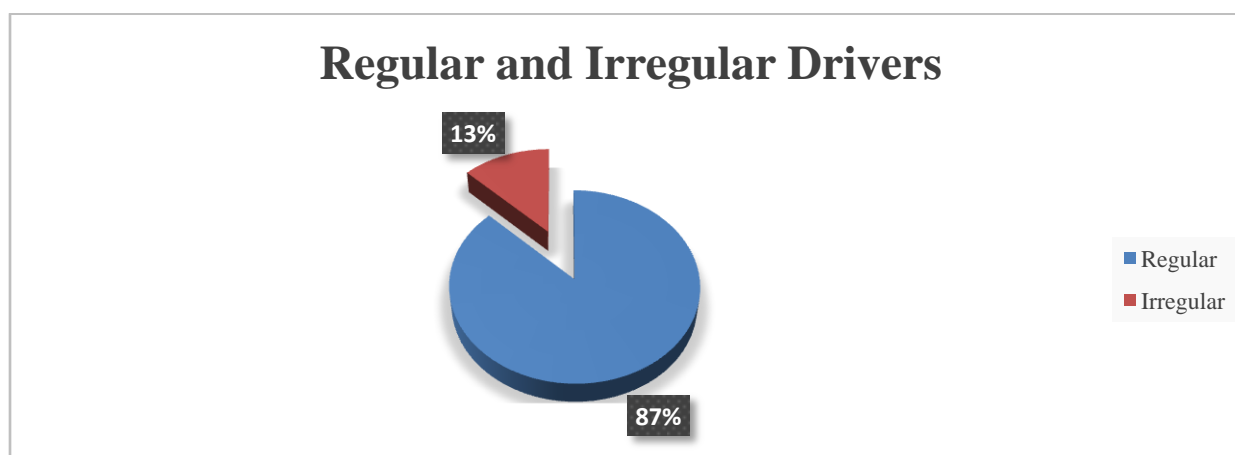


Figure: 4.58 Percentage of Regular and Irregular Drivers of Local Bus Drivers

Figure 4 we find out the percentage of regular and irregular drivers. About 87% drivers are regular and 13% are irregular drivers, that they are drive occasionally.

Question-5: Do you have license?

- i. Yes = 138
- ii. No = 12

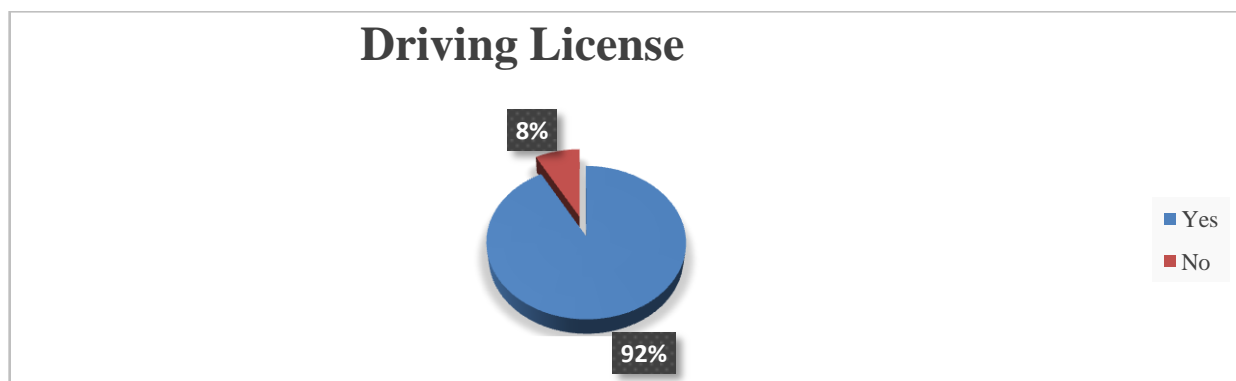
**Figure 4.59** Percentage of Driving License of Local Bus Drivers

Figure 5 we find out the percentage of driving license of drivers. About 92% drivers have their driving license and 8% drivers have no license.

Question-6: What are the characteristics of public transport user?

- i. Good = 32
- ii. Bad = 44
- iii. Mixed = 63
- iv. Friendly = 11

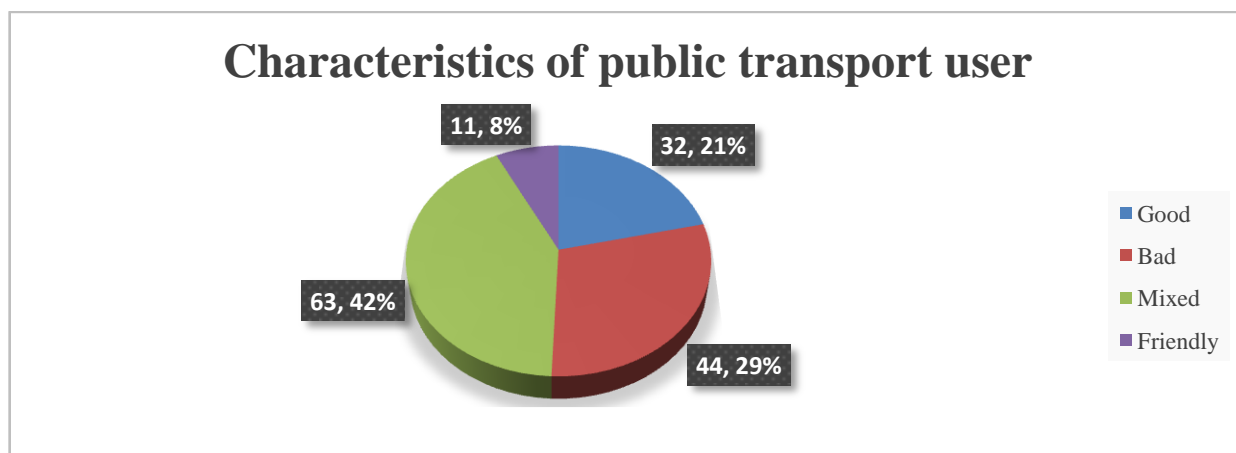
**Figure 4.60** Percentage of Characteristics of public transport user of Local Bus Drivers

Figure-6, we saw that the percentage of characteristics of passengers. About 21% passengers were good. 29% were bad and 42% passengers were mixed characteristics.

Question-7: What's about your driving experience?

- i. Good =120
- ii. Bad =26
- iii. Thrilling =04

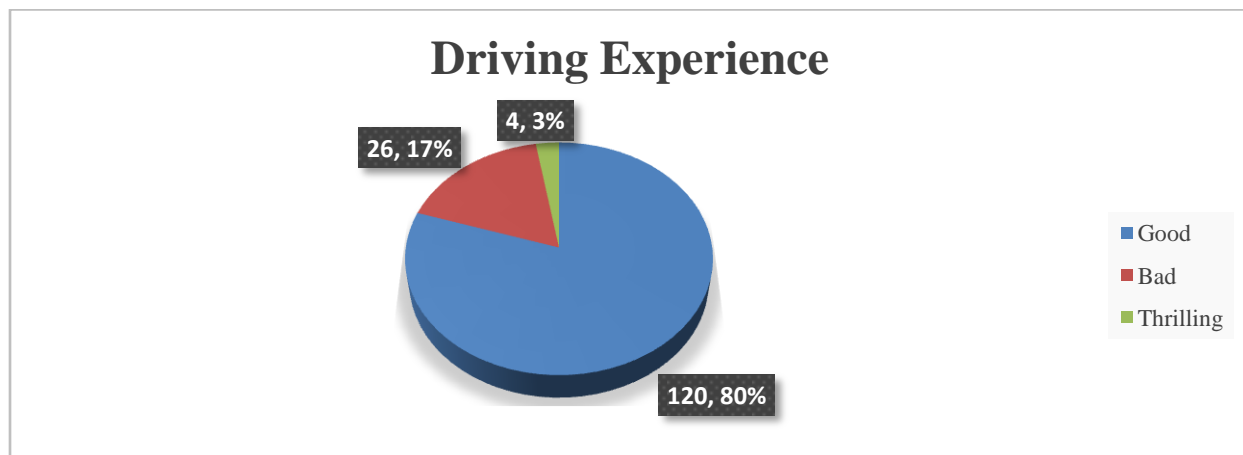


Figure 4.61 Percentage of Driving Experience of Local Bus Drivers

Figure 7, we saw that the experience percentage of drivers. Most of the drivers are well experienced 80%.

Question-8: Do you have any bad experience in driving?

- i. Yes = 102
- ii. No = 48

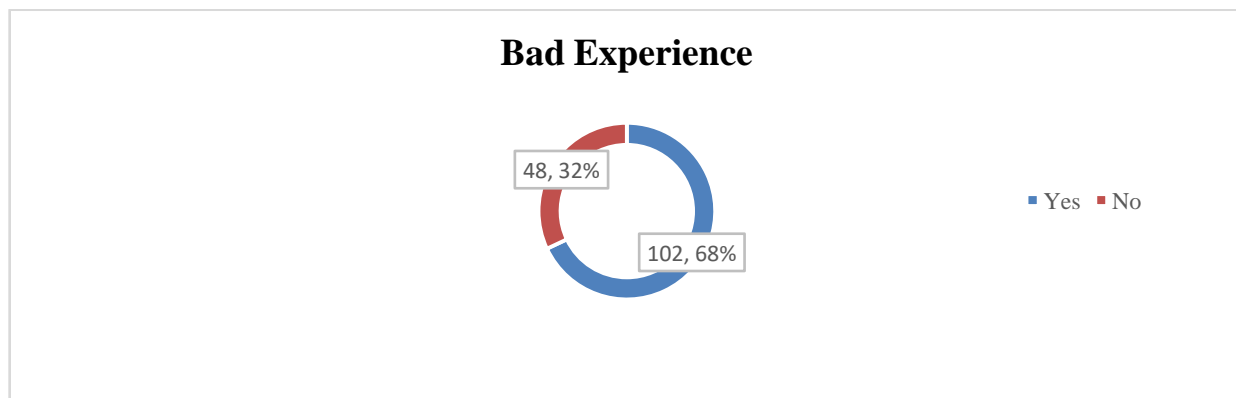


Figure 4.62 Percentage of Bad Experience of Local Bus Drivers

Figure 8, we saw that the bad experience percentage of drivers.

- Yes percentage is 68% that means drivers are already faced bad situation.
- About 32% said no.

Question-9: About yours driving hours?

- i. 3 to 5 hours = 27
- ii. 5 to 8 hours = 50
- iii. 8 to 12 hours = 73

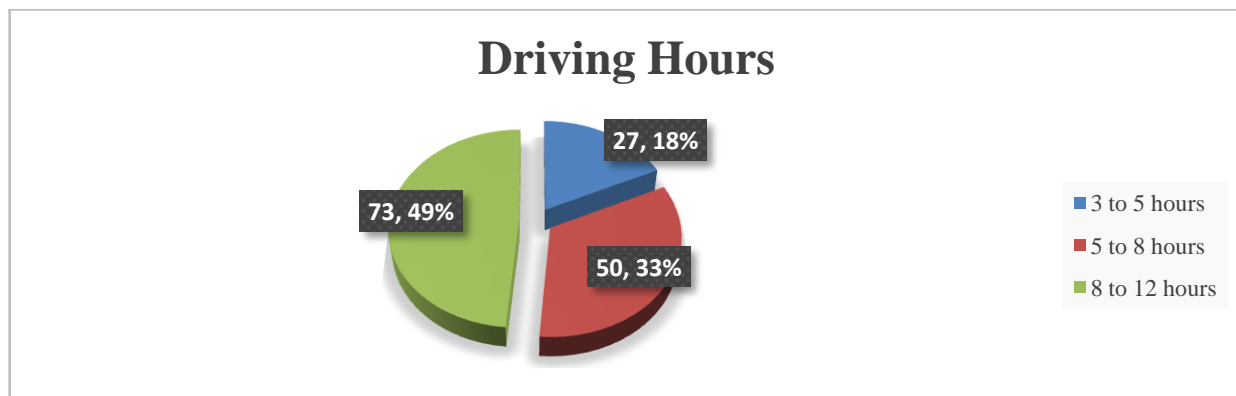
**Figure 4.63** Percentage of Driving Hours of Local Bus Drivers

Figure 9, we saw that the percentage of driving hour.

- 49% drivers drive the bus 8 to 12 hours.
- 33% drivers drive the bus 5 to 8 hours.
- 18% drivers drive the bus 3 to 5 hours.

Question-10: Are there any enough space for parking facilities?

- i. Yes = 13
- ii. No = 137

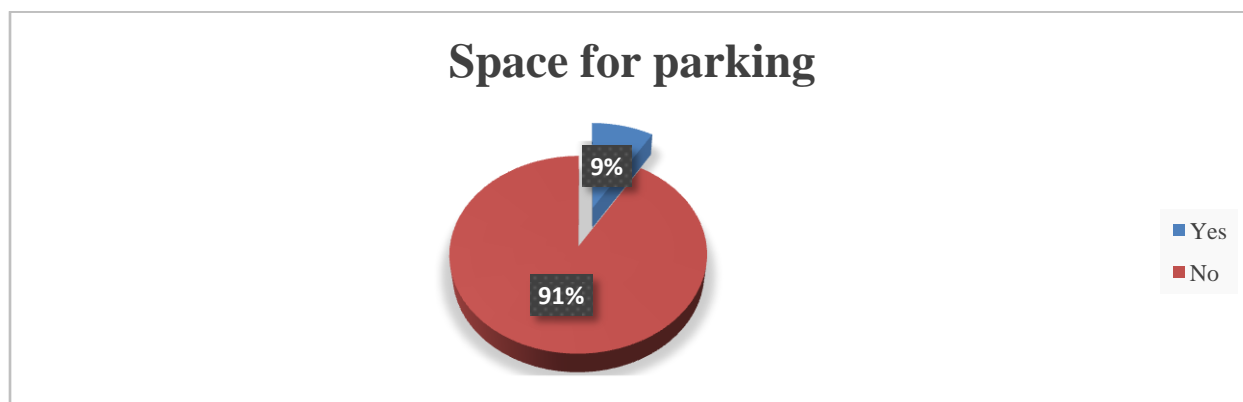
**Figure 4.64** Percentage of Space for parking of Local Bus Drivers

Figure 10, we saw that the percentage of space for parking facilities. There are not enough parking facilities and its percentage is 91%.

Question-11: Do the buses maintain scheduled?

- i. Yes = 110
- ii. No = 40

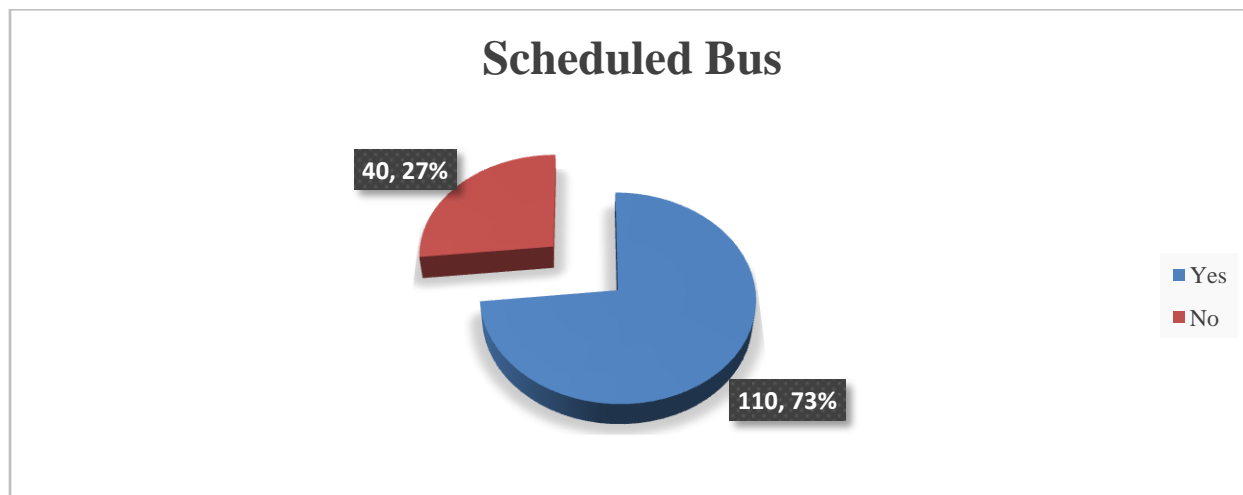


Figure 4.65 Percentage of Scheduled Bus of Local Bus Drivers

Figure 11, we saw that the percentage of available in schedule bus. The maximum number of percentage is 73%. That means there are lots of available in scheduled bus.

Question-12: Are the buses overcrowded in peak hours?

- i. Yes = 144
- ii. No = 06

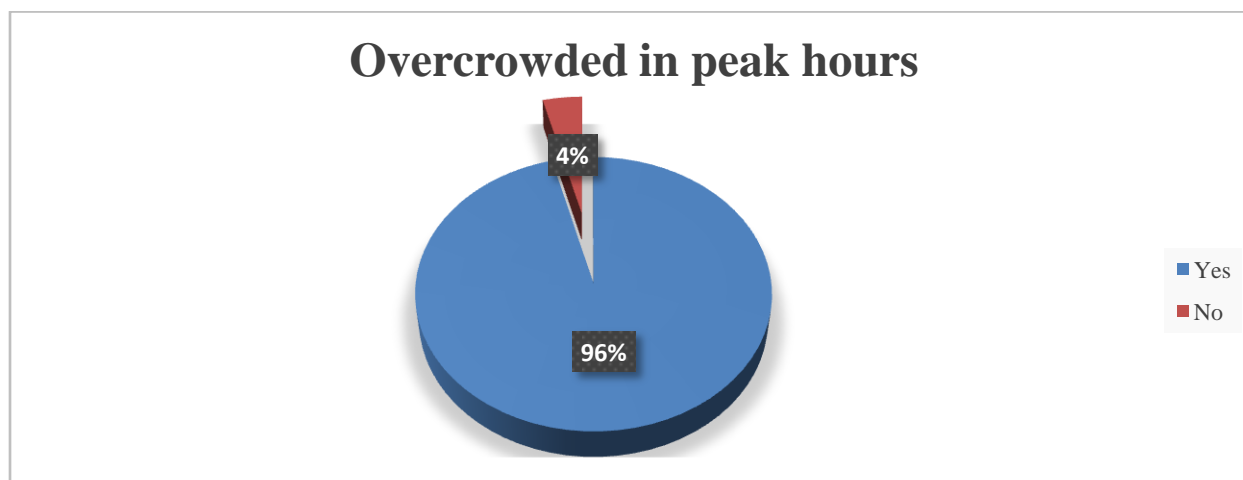


Figure: 4.66 Percentage of Overcrowded in peak hours of Local Bus Drivers

Figure 12, we saw that the percentages of overcrowded buses in peak hour. The 96% of overcrowded buses is peak hour.

Question-13: What are the main reasons for accident?

- i. Overtaking tendency = 48
- ii. Competition = 59
- iii. Contract driving = 33
- iv. Road condition = 10

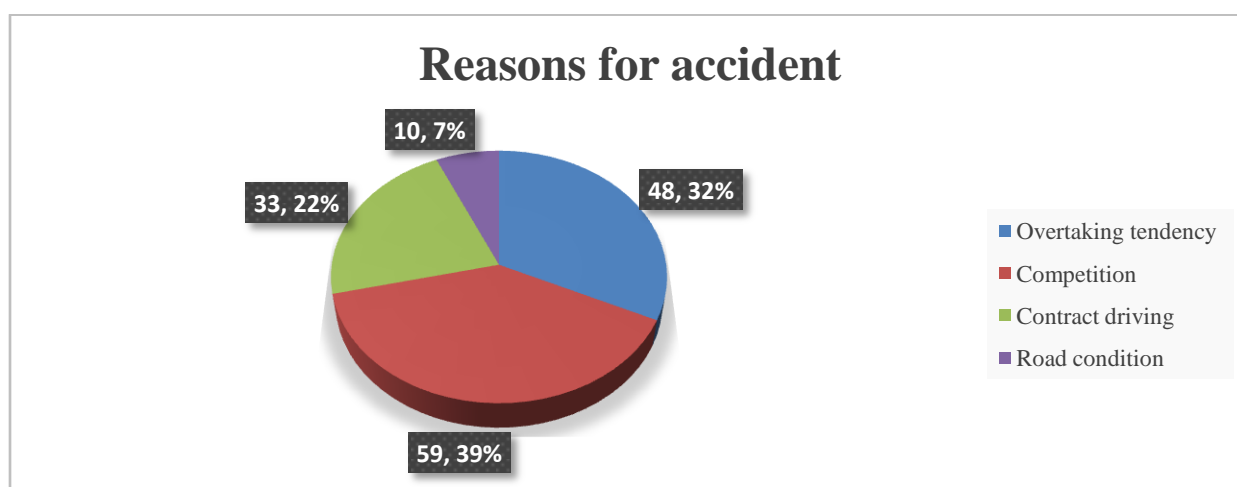


Figure-4.67 Percentage of Reasons for accident of Local Bus Drivers

Figure-13 we saw that the percentage of accident reason.

- 39% drivers said that main reason of accident for competition
- 32% said for overtaking tendency
- 22% said for contract driving
- 7% said for road condition

Question-14: Do you have any suggestion for this sector?

- i. Reduce local buses & reduce rickshaw
- ii. Reduce private car
- iii. Improve traffic rules
- iv. Improve road condition

4.3.5 Questionnaire Survey for Local Bus Helpers:

Question-1: The age of Helpers

- v. Age range 20 to 25 = 32
- vi. Age range 25 to 30 = 51
- vii. Age range 30 to 35 = 42
- viii. Age range 35 to 40 = 25

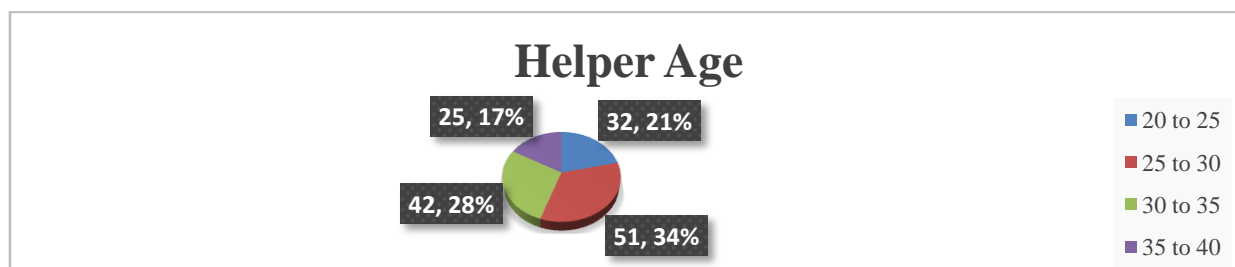


Figure-4.68 Percentage of Helper Age of Local Bus Helpers

Figure 1, we saw that percentage of helper ages. The maximum number of age percentage is 34% which belongs to 25 to 30 years old.

Question-2: Education qualifications of Helpers

- v. Class 1 to 5 = 66
- vi. Class 6 to 8 = 48
- vii. Class 9 to SSC = 14
- viii. None = 22

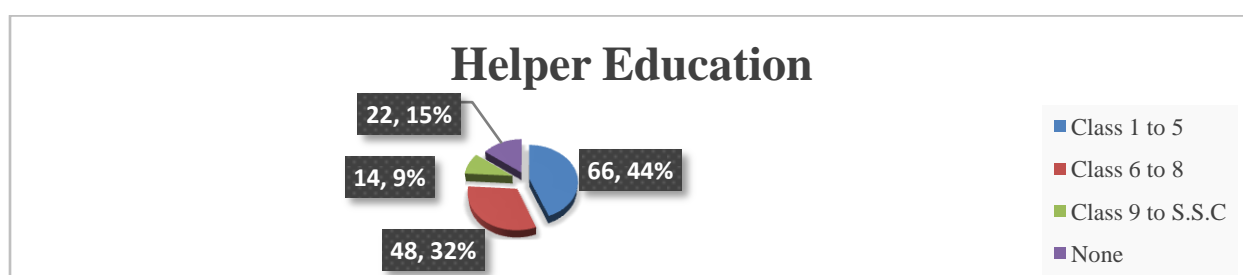


Figure-4.69 Percentage of Helper Education of Local Bus Helpers

Figure 2, we saw that the educational qualification of helper.

- Maximum helpers are belongs to class 1 to 5 (44%).
- 32% are in class 6 to 8.
- About 15% helpers are uneducated.
- Only 9% are class 9 to SSC.

Question-3: How many years of your experience in this position?

- i. 1 to 5 years = 56
- ii. 5 to 10 years = 68
- iii. 10 to 15 years = 26

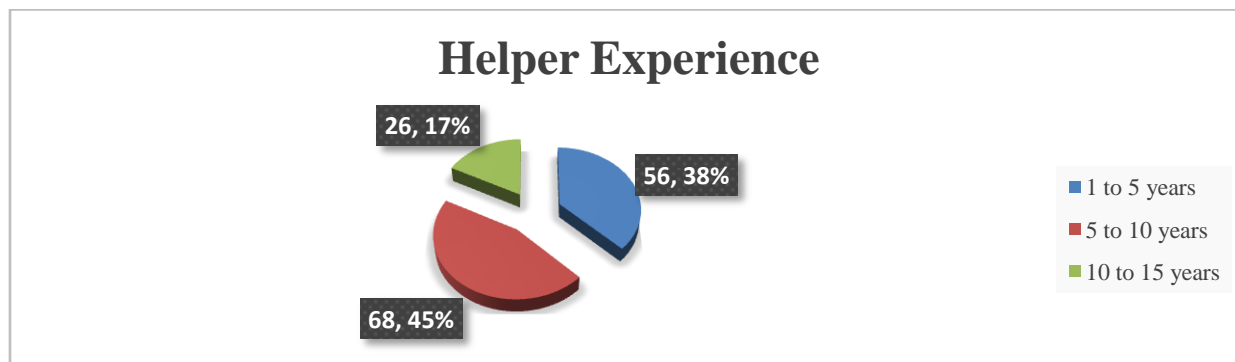


Figure-4.70 Percentage of Helper Experience of Local Bus Helpers

Figure 3, we saw that the experience of helper.

- About 45% helpers are belongs to 5 to 10 years in this position
- 38% are 1 to 5 years in this position
- 17 % are 10 to 15 years in this position

Question-4: Have you any good experience?

- i. Yes = 39
- ii. No = 111

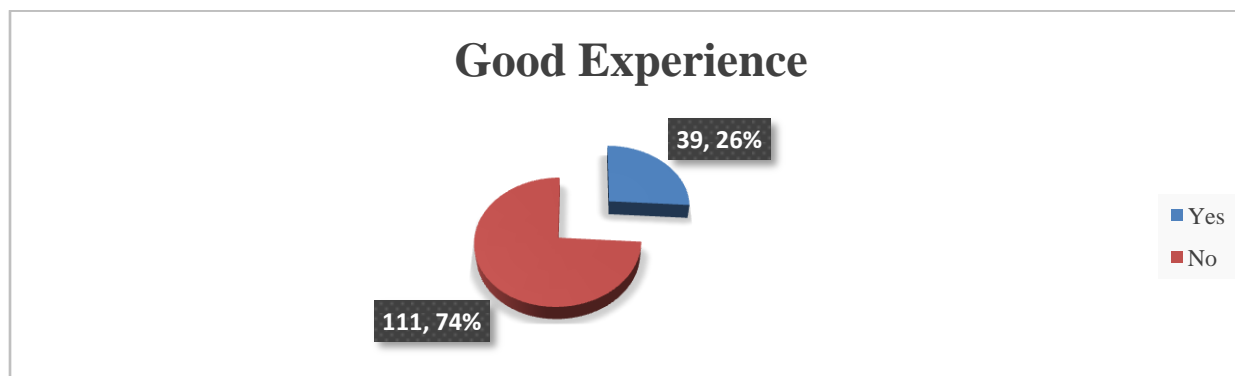


Figure-4.71 Percentage of Good Experience of Local Bus Helpers

Figure 4, we find out the percentage of good experience of helper.

- About 74% said NO. They have no good experience in this position.
- 26% said YES.

Question-5: Have you any bad experience?

- i. Yes = 123
- ii. No = 27

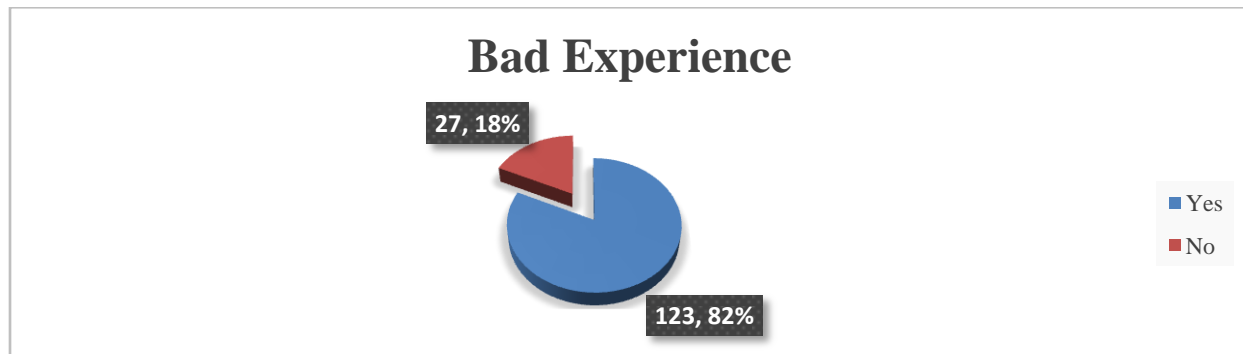
**Figure-4.72** Percentage of Bad Experience of Local Bus Helpers

Figure-5 we find out the percentage of helper

- About 82% said Yes. They have a lot of bad experience.
- 18% are said No.

Question-6: How is the relation with your driver?

- i. Good= 102
- ii. Bad = 12
- iii. Average = 36

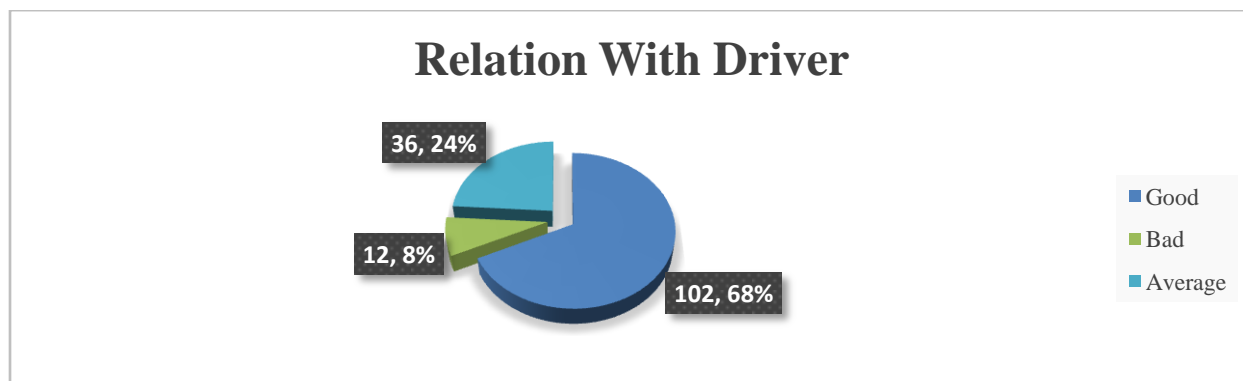
**Figure-4.73** Percentage of Relation With Driver of Local Bus Helpers

Figure-6 we saw that the percentage of helpers relation with driver.

- About 68% helpers said that Good relation with driver.
- 24% helpers said the average relation with driver.
- Only 8% helpers said bad relation with drivers.

Question-7: How Passengers behave properly with you?

- i. Very Good =12
- ii. Good = 66
- iii. Average =59
- iv. Poor = 13

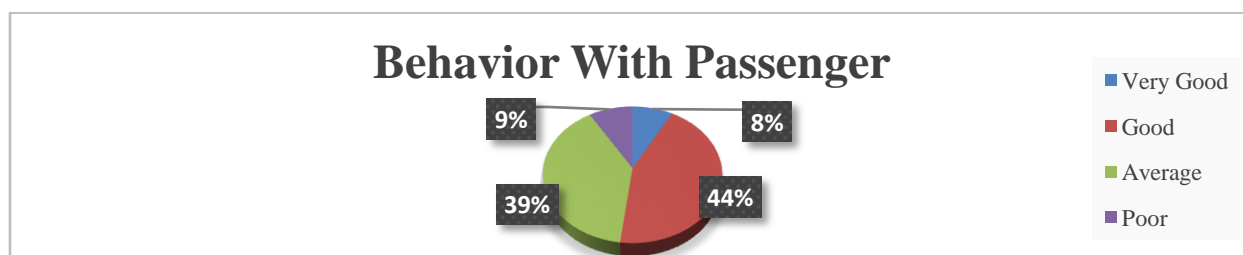


Figure-4.74 Percentage of Behavior With Passenger of Local Bus Helpers

Figure-7 we find out the percentage of behavior with passenger.

- 8% helpers said that Very Good relation with passengers.
- 44% are said that Good relation with passengers.
- 39% are said that Average relation with passengers.
- Only 9% are said that Poor Relation with passengers.

Question-8: Loading/Unloading Time

- i. Proper time = 48
- ii. No proper time = 65
- iii. No time limits = 37

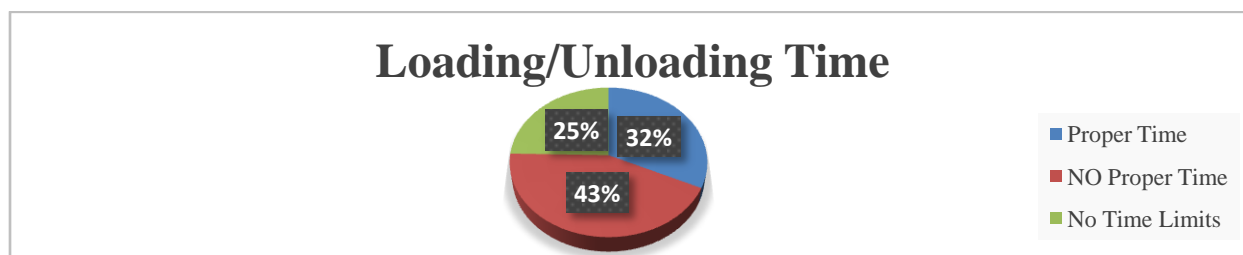


Figure-4.75 Percentage of Loading/Unloading Time of Local Bus Helpers

Figure-8 we identified that the loading/unloading time

- About 32% helpers said that loading/unloading time > proper time.
- 43% said that No proper time
- 25% said that there are no time limits for loading/unloading time.

Question-9: Loading/Unloading passengers in proper place.

- i. Yes = 135
- ii. No = 15

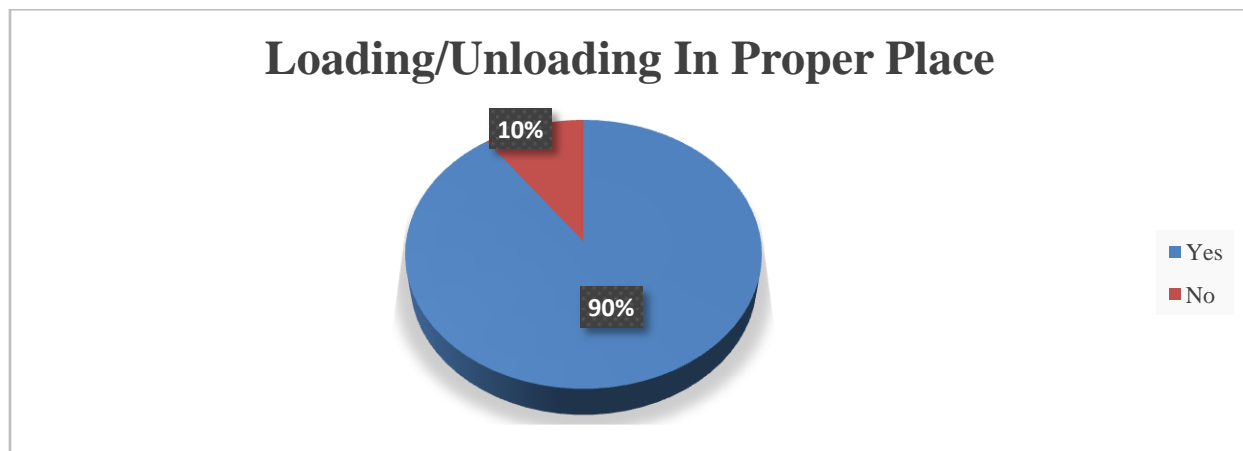


Figure-4.76 Percentage of Loading/Unloading In Proper Place of Local Bus Helpers

Figure-9, we saw that the percentage of Loading/Unloading passengers in proper place

- Almost 90% helpers said that they Loading/Unloading passengers in proper place,

Question-10: Is there any Ticketing system?

- i. Yes = 0
- ii. No = 150

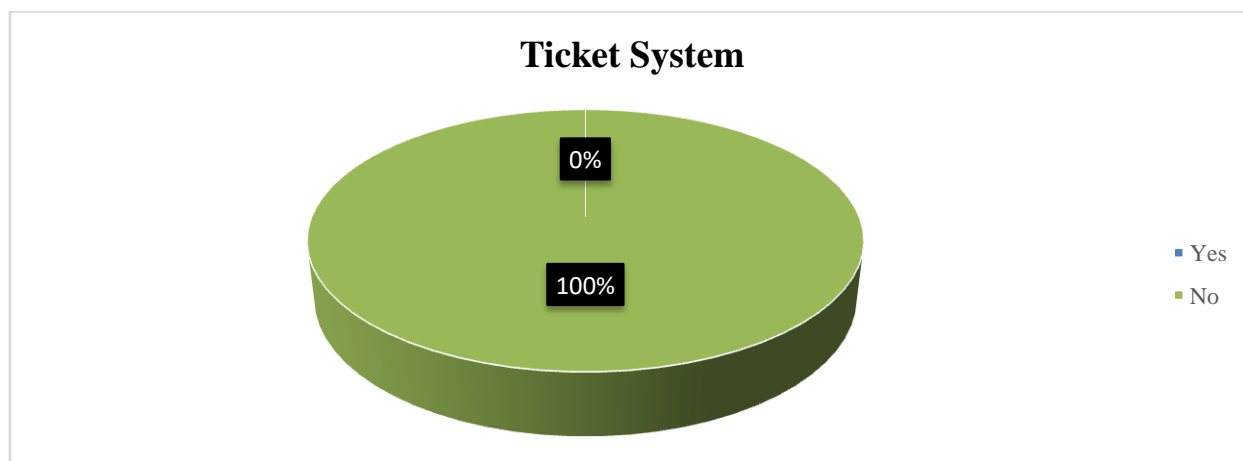


Figure-4.77 Percentage of Ticket System of Local Bus Helpers

Figure-10 we saw that the percentage of ticketing system

- 100% helpers said Yes

Question-11: Suggestion about bus service.

- i. Sitting service = 39
- ii. Ticketing system= 32
- iii. Improve road condition = 21
- iv. Reduced old buses, Rickshaw, Car = 58

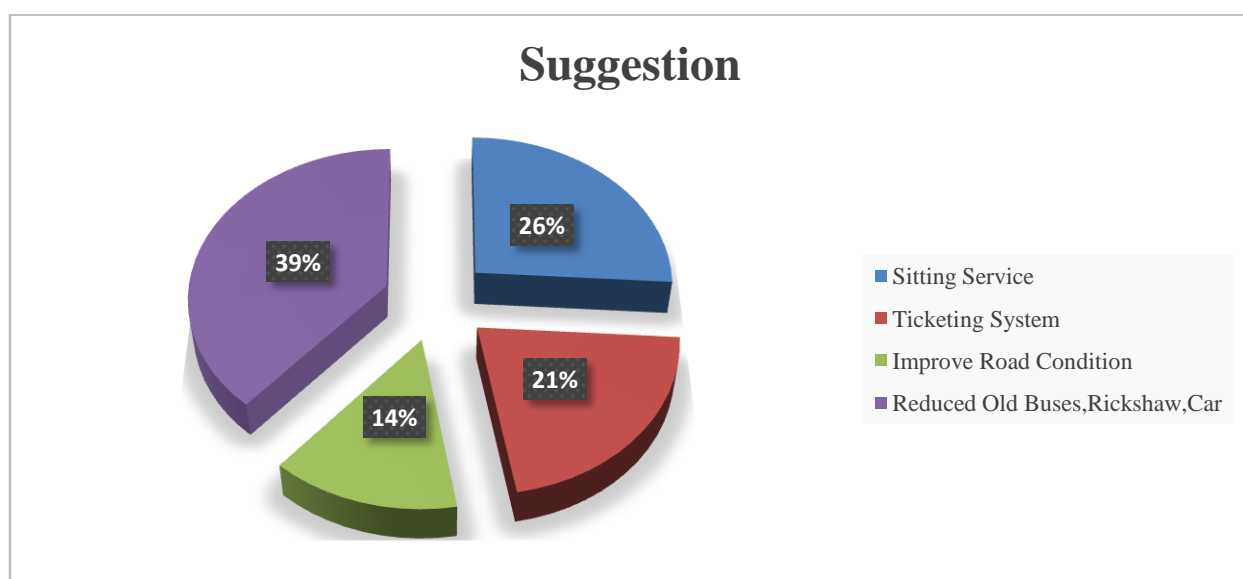


Figure-4.78 Percentage of Suggestion about bus service of Local Bus Helpers

Figure 11, we saw that the percentage of bus service suggestion

- About 39% helper said reduce old bus, rickshaw and car
- 26% said need setting service
- 21% said need ticketing system
- 14% said improve road condition

4.4 Photographic Survey

4.4.1 For BRTC



Photo 4.1: BRTC Bus (Double Decker)



Photo 4.2: BRTC Bus (Front)

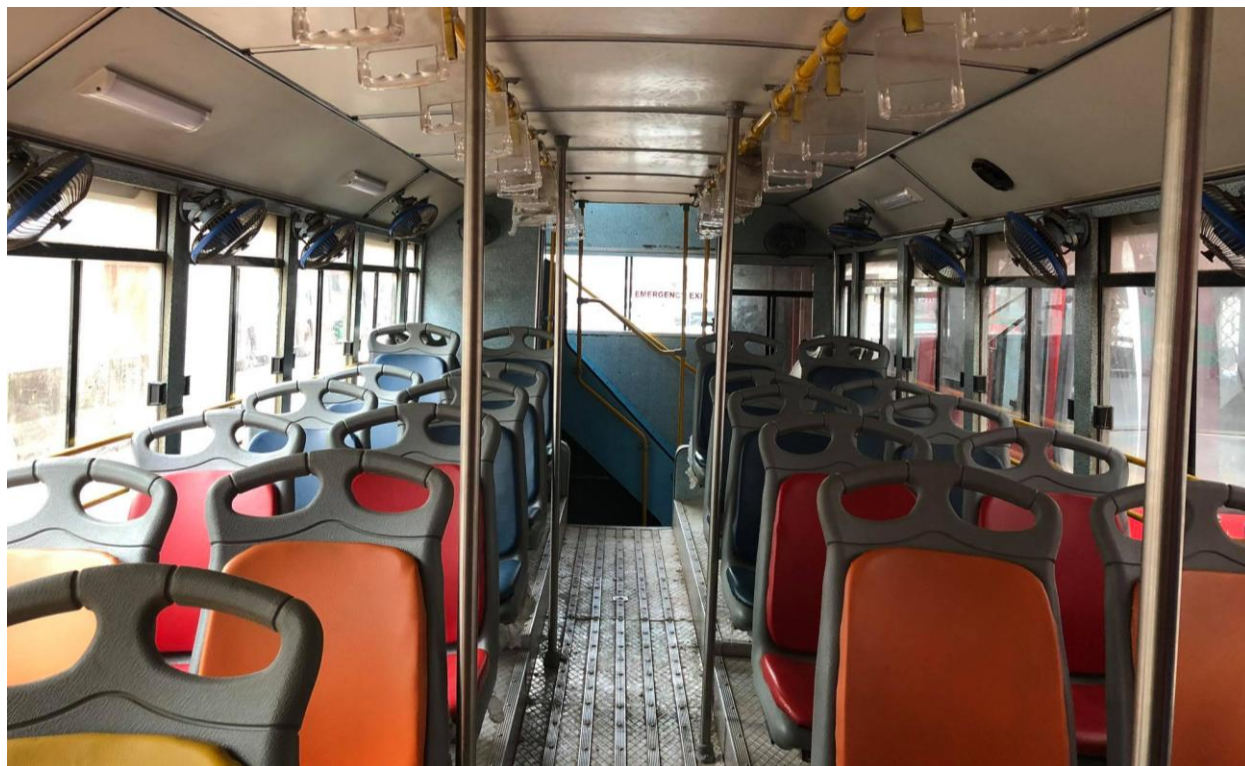


Photo 4.3: BRTC Bus Seating Plan (Ground)



Photo 4.4: BRTC Bus Seating Plan (Up)



Photo 4.5: BRTC Bus Seats



Photo 4.6: BRTC Bus Seats

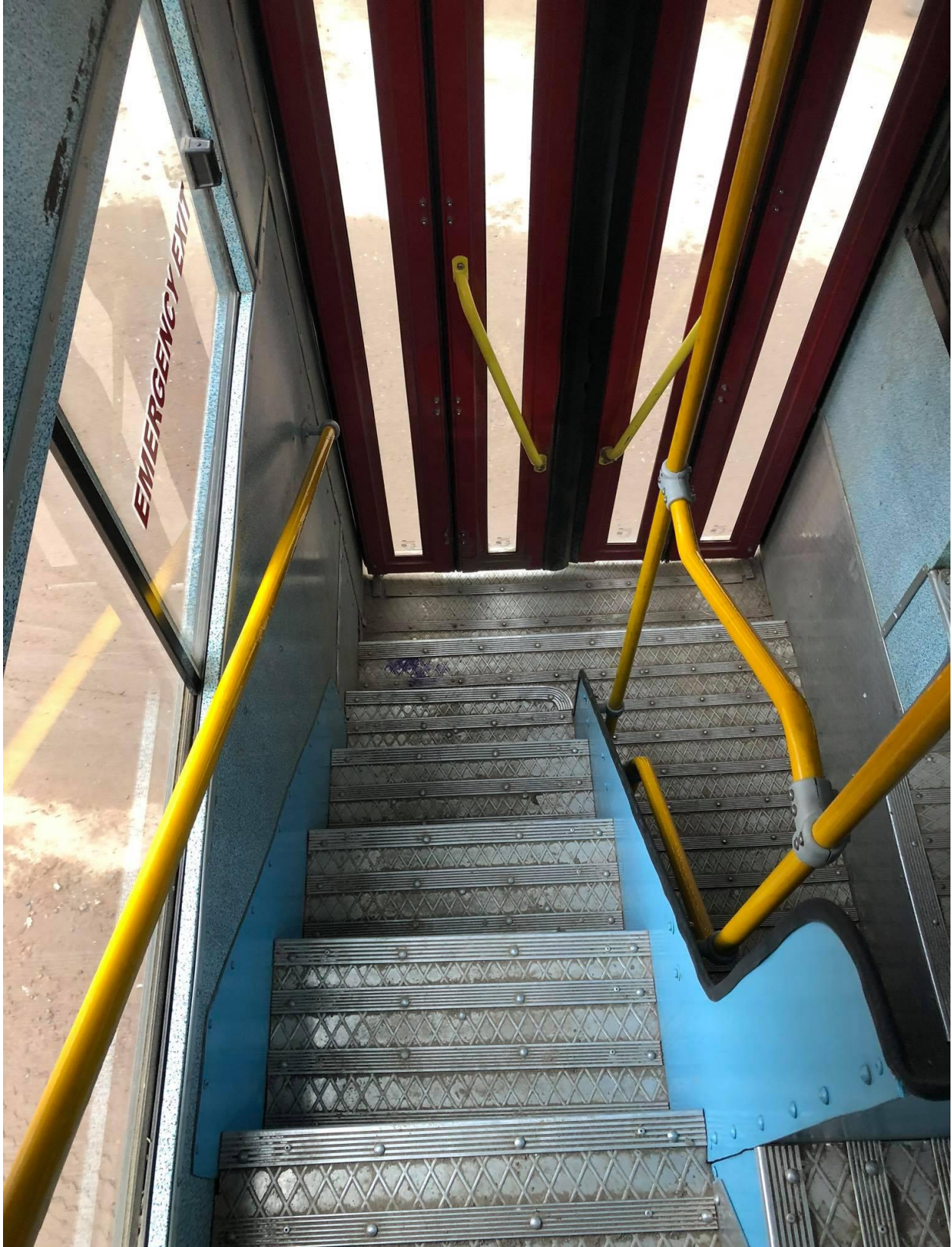


Photo 4.7: BRTC Bus (Door)



Photo 4.8: BRTC Bus (Entry of Passengers)



Photo 4.9: BRTC Bus (Facilities)



Photo 4.10: BRTC Bus (Fan Facilities)



Photo 4.11: BRTC Bus (Fan & Light Facilities)



Photo 4.12: BRTC Bus (Upper level Front & Facilities)



Photo 4.13: BRTC Bus (Ticket Counter)

4.4.2 For Local Bus



Photo 4.14: Local Bus



Photo 4.15: Local Bus (Front)



Photo 4.16: Local Bus (Front with door)



Photo 4.17: Local Bus (Seating Plan)



Photo 4.18: Local Bus (Seat Condition)



Photo 4.19: Local Bus (Seat Condition With Cover)



Photo 4.20: Local Bus (Facilities)



Photo 4.21: Local Bus (Fan Facilities)



Photo 4.22: Local Bus (Driving Area Condition)



Photo 4.23: Local Bus (Driving seat Condition)

4.5 Comparison Between BRTC & Local Bus

In this study found some comparison between two buses. Some parameters like Seat condition, Operators, Physical condition of bus, Facilities comes to when it comes to compare two buses. According to questionnaire and Photographic survey some comparison between two buses is given bellow.

Table 4.1: Comparison between BRTC & Local Bus

Parameters	BRTC	Local Bus
Seat condition	BRTC seats are comfortable for seating.	Local bus seats are not comfortable for seating.
	Seats have maximum space for seating.	Seats have minimum space for seating.
	Physical condition is good enough.	Physical condition is not good enough.
	Seats are flexible.	Seats are not flexible.
Operators	Most of bus operators are well educated.	Most of bus operators are not well educated.
	Operator's behavior is good.	Operator's behavior is not good.
	Most of bus operators are experienced.	Most of bus operators are not well experienced.
	Operators are well aged.	Operators are not well aged.
Physical condition of bus	Physical condition of bus is good.	Physical condition of bus is not good.
	Looks authentic.	Looks not authentic.
Facilities	In BRTC bus there are a lot of facilities for passengers.	In local bus there are not more facilities for passengers.
	Fan, light, sound box, and other facilities are in BRTC bus.	Although there is Fan, light, sound box, and other facilities but is not sufficient for passengers.
	Most of the facilities are good enough.	Most of the facilities are broken.

Riding Facilities	BRTC has large door for passenger riding.	Local bus has not large door for passenger riding.
	BRTC has ticketing facilities for passengers.	Most of the local bus has not ticketing facilities for passengers.
	BRTC has large area in the bus.	Local bus has small are in the bus.
	Riding is safe.	Riding is not safe.

4.6 Conclusion

This study presents comparison between the overall service quality and variety of two buses in a selected rout. Moreover, results from the best service quality are indicated in this study. This study result is explained which parameters should be improved. Since the service quality is not depend on the some parameters but it is depend on the users demand. It shows some variation in the parameter for different passengers. According to questionnaire survey some passenger overrates safety, some passenger overrates riding and some overrate facilities. Travel cost is one of the main facts for the passengers. They are not satisfied. Most of the passengers complained that the local bus operators collect over fare from the passengers. Where, most of the BRTC passengers are satisfied with it.



CHAPTER FIVE

CONCLUSIONS & RECOMMENDATIONS

CHAPTER V

CONCLUSIONS & RECOMMENDATIONS

5.1 GENERAL

In Dhaka city public transport is the most used service. In this paper it's analyzed the service quality of bus. It's also explored that the problem facing by the passengers and operators. This paper is based upon the passengers and operators experience. It will help to improve the service quality. From this paper bus providers can know easily the demand of the passengers and what the passengers mostly expect. According to the survey it's found out that the service quality in Dhaka city is too poor. Fare rate, time schedule of bus, comfort, is too poor.

Public bus transport is failed to fulfill the public demand as they want. The fare rate is not affordable for the poor. Passengers have to wait a long time for the bus. It needs to add high quality bus in this city. According to population high quality bus service is not sufficient in Dhaka city. And lack of bus service facilities it becomes more useless. Most of the bus has no fire protection facilities on the bus. If bus providers can improve bus service qualities most of people will use public bus service.

5.2 FINDINGS/CONCLUSIONS

Service quality is not improved yet properly in Dhaka city. It is one of the major problems for bus service. We surveyed and compared two different buses. From questionnaire and photographic survey we find some problems of service quality of bus. Some parameters like users satisfaction level, cleanliness, behavior, comfort, physical condition of bus, waiting time, terminal time, delay, fare rate, safety of women etc are observed carefully. According to passengers, BRTC is one of the most chosen bus service because service quality is better than other bus services. BRTC seats are comfortable for seating. In BRTC bus there are a lot of facilities for passengers. Physical condition is good enough. On the other hand local buses are totally not good in service quality. Local bus seats are not comfortable for seating. Seats have minimum space for seating. Seats have minimum space for seating. Most of the facilities are broken.

5.2.1 Findings from Questionnaire Survey

- ✓ From questionnaire survey its find out that drivers have faced some problems like they are not comfortable because of huge traffic, huge private cars, faulty traffic system less bypass road, lots of rickshaws on main road, lack ticketing system, illegal parking and presence of hawkers and common genders.
- ✓ Helpers also faced some problems like lack of traffic rules, mixed of motorized and non-motorized vehicle, poor road conditions, illegal parking, no fixed women seat, inadequate seat capacity, misbehaves of passengers. Helpers also said that some fare rate is not good enough and owners pressure them to collect more fare from the passengers and their insufficient salary.
- ✓ According to questionnaire survey, passenger also faces problems of service quality. They said that there are insufficient bus terminals, less seat capacity of bus, inadequate women and children seat, poor physical condition of bus, fewer seats on bus, more waiting time, not clean, always crowed, unhealthy situation on bus, physical and mental harassment of women etc.

5.2.2 Observation from Photographic Survey

- ✓ According to photographic survey traffic rules and traffic system is not good. Lack of traffic rules and poor traffic system permit unrecognized motorize and non-motorize vehicles causes traffic congestion.
- ✓ Huge number of private car, huge number of rickshaw and huge number of buses decrease operating speed on road. So we need to use a particular rout for a good operating speed.
- ✓ Construction on roadside decrease road capacity and damage road. It is a regular view on Dhaka city. For poor road capacity and space causes traffic congestion. So it will be good for service quality when we can improve road condition.
- ✓ We observed that all kind of vehicles are servicing on road at same time because of there is no specific lane for specific vehicles.

5.3 Recommendations

The existing situation is exacerbated by the division of this inadequate space by motorized and motorized traffic. The existing public transport system could not solve the existing problems of Dhaka City. BRTA is this road permit for the benefit of the people of the ruling party. Passengers do not have good quality of bus service because they damage the seat handle of the bus. Our Dhaka City bus fare is much lower than other countries because many big companies do not want to do any business in this transport sector.

1. We realized that if the bus service business in Dhaka City is done by a big company, then the service quality of the bus is very good. Because big companies can be forced to comply with the rules. The BRTA is if only one company gives a road permit. Then the service quality of the bus will be better. But the message is to give him a route permit to do business in the personal human bus service. This is because the big companies do not do bus business. For that, the bus service quality is not good. Politics people take this road permit to do personal bus business. The BRTA is that this road permit is for the benefit of the people of the ruling party.
2. The government will have to maintain the bus service itself. Then the bus service quality will be better. Because the government will not give one road permit to anyone else. We see passengers because the service quality of the bus is not good because they ruin the seat handle of the bus.
3. We see that neither the bus driver nor the helper educated is the reason why the bus service quality is lost.
4. Our Dhaka City bus rent is much lower than other countries. This is because many big companies do not want to do any business in this transport sector. This is because the service quality of the bus is not being improved.



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APPENDICES

APPENDICES





