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Knowledge and Behaviour Assessment of Drivers and Community People towards Road Safety

A Baseline Study

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Abstract

Recently, road traffic accidents are considered as the leading cause of death both in the developed and developing countries. In Bangladesh, BRAC has recently initiated a new programme on road safety in aiming to increase road safety awareness among road users. The ultimate goal of the programme is to achieve “zero fatal road accidents” between Syedpur- Enayetganj road of Nabiganj *Upazila* in Habiganj district. The study intends to understand the current status of knowledge and practices on road safety of selected motor and non-motor drivers, students, teachers and a group named community road safety group (CRSG). To achieve this goal, the present study conducts conducted a baseline survey in both intervention and control areas followed by Focus Group Discussion (FGD), in-depth interviews, and investing the CRSG group formation including its activity plan in the treatment area. Findings show that both the drivers and students possess poor knowledge about the traffic rules and the road safety issue. Alternatively, it is also found a significant issue that there is a huge gap between knowledge and behaviour of drivers at time of driving. Finally, it has been revealed that road accidents blame to many contributory factors leading to site-specific road accidents such as variety of vehicles in a specific road structure, speed of the vehicles, traffic regulations, poor education of students etc. and all of these are interrelated with the human attitude, behaviour and road conditions.

Chapter 1.

Introduction

1.1 Overview of road accidents and safety

In the recent decades, road accidents have been considered as an important cause of deaths and injuries globally. Regarding this, each year more than 20 million people are severely injured or killed on the roads throughout the world and the burden falls mostly on low income countries with large consequences (Zwi 2010). Road safety problems represent a very significant domestic, social and economic problems while victim people cannot be afforded independently to overcome the situation, especially in developing countries where resources are scarce and cannot be spent on preventing 'accidents'. Having an effect on short-term 'health' problems, road accidents cause injuries, which need long periods of rehabilitation as well as permanent disabilities (Oginni and others 2012).

In Bangladesh, road accidents are now a great concern considering both economic and social impacts of the development. The yearly loss of the country can be measured by road accidents, which is equivalent to around 2 per cent of country's GDP (Mahmud & Hoque 2011). According to the police reports (average 3,500 each year) of Bangladesh, at least 3,000 people are become death, 3,000 live with permanent disability and around 35,000 get injures in their life. Other sources estimate that about 4,000 lives are lost due to road accidents whereas the annual cost of road accident is approximately 5,000 core per year (BRTA 2011). In compare with many other countries around the world, Bangladesh situation is being worst over the period. For an example, 60 to 150 people are wounded per 10,000 vehicles in Bangladesh contrasted to about 1.4, 2, 16 and 25 in the United Kingdom, the United States, Srilanka and India respectively (Ahsan 2012).

The following graphical presentation can give an idea about the trend of road accident in Bangladesh.

Figure 1. Trend of road accidents in Bangladesh (Source- A PPRC report on road safety in Bangladesh)



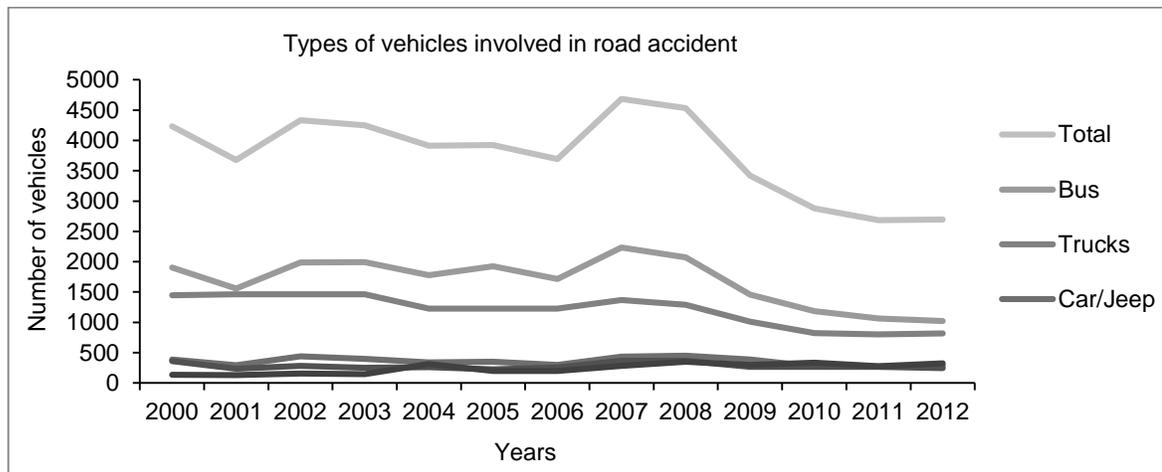
At present, the ownership of motor vehicles is being steadily increased. On an average, every 1,000 persons have 2 to 10 vehicles (Ahsan 2012). However, the large growth of

population in the country demands their transportation system up-ward. Generally, more vehicles involve in transportation services to meet up extra demand of the increased population regardless settling some sort of good policies compared to the low-accident countries. This is actually lack of hidden factor of 'road safety' problems in Bangladesh which has been exposed over a period of time as one of the most prioritised issues for country's sustainable development.

1.2 Types of accident characteristics

Accidents statistics clearly report that heavy vehicles including bus, track, lorry or alike are the major contributors for road accidents in Bangladesh. Even, this rate is getting higher (currently more than 75 per cent) in the last decade compared to before (PPRC Report 2014); but there are many features of causalities as evolved to the significant fluctuations in accident occurrences (previous figure). Such fluctuations denote all about the road users that are more or less accountable to the road accidents. Here, a further trend is given below which summarises the last twelve years' scenarios of road accidents in terms of involvement by different vehicles at the same time.

Figure 2. Trend of involvement in road accident by different types of vehicles (Source- A PPRC report on road safety in Bangladesh)



However, pedestrians are the significant vulnerable group for road accidents which accounts 49 per cent of all fatalities in the accident record. The trend of this situation mostly occurs in the metropolitan areas rather than the rural part of Bangladesh. But, the current proportion is higher in the rural areas while pedestrians walk alongside the road. Statistically, about 50 per cent such incidents are recorded in the urban areas during crossing the road whereas 52 per cent in the rural road side. In this regard, overseas research blames our lack of awareness about traffic rules during use of road. Another way, 63 per cent is recorded for highest grievous and normal injuries of passengers.

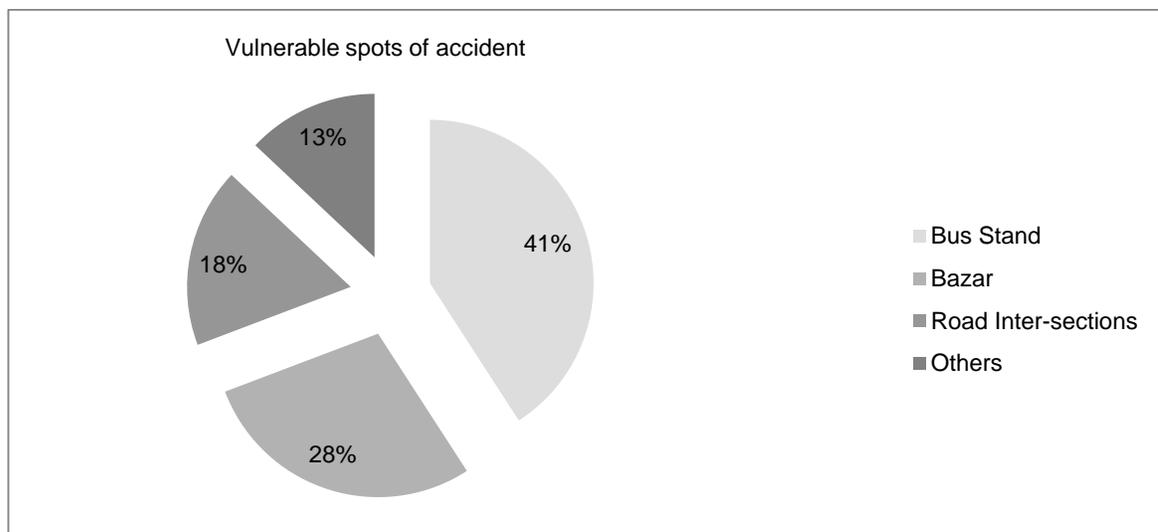
Children are another thread to road accidents. Statistically, 16 per cent road accident occurs due to unsafe child movement in the road, whereas, the children age is 5 to 14 years mostly. But, in other developing countries the children are usually upper 15 years in road accident fatalities (Ahsan 2012).

Other vibrant threat is now being considered as the informal vehicle sectors such as Rickshaw, Van, Motor cycle, CNG or similar types of vehicles in both urban and local areas. Most of these vehicles are in high demand because of its low-priced transportation services. Poor people can easily access it for their travelling of short distance using high way. But, usually in Bangladesh, high ways do not have such space to use these vehicles safely.

1.3 Locations of accidents

Road accidents usually occur on high ways whereas all portion of the highways are not same vulnerable for road accidents. Avoiding highways traffic rules are considered as the main cause of accidents. On the other hand, good infrastructure of the highways and population density alongside the road also has contribution on road accidents partially. Frequent accidents occur at the turning point of the highways when usual speed of the vehicles across its permitted limit. Other than this, the road of urban areas is also vulnerable for the pedestrians mostly rather than collision between two vehicles. Overall, the locations of the accidents are addressed by the site-specific features as can be shown in the following manner:

Figure 3. Classification of major accidents spots (Source- A PPRC research centre)



1.4 Factors contributing accidents

Human, vehicle and road are three major categorical indicators to measure the accident causal factors. It is essential to know the interaction among these three components which should perform perfectly in the road traffic system. These categorical indicators are linked with a multi-functional chain of command that leads to the road accident in case of its interactive system failure. In this case, an approach can be identified into three main phases- before, during and after the injury event. The overall approach refers to a 3x3 matrix, which is called Haddon's matrix. This useful matrix provides a very significant framework to analyse the road accidents and find out its contributory factors (Ahsan 2012).

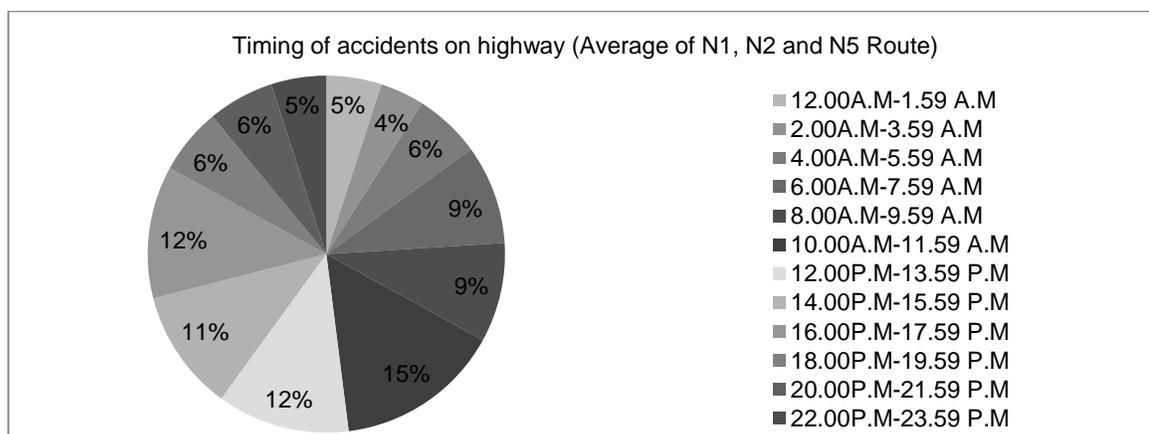
In Bangladesh, the conflicts between human and vehicle are the greatest interactions for road accidents where bus and trucks involve in the event as major vehicles. In this

interaction the road pattern is also important. But, a huge lack of both priority and attention is susceptible to the road accidents. Because, the casualty type of the road accidents actively depends on the good performances of this interaction.

1.5 Road safety measures

Low to middle income countries face particular challenges related to lack of resources to address safety concerns including infrastructure and enforcement efforts, cultural usage norms for safety devices, and compromised road engineering due to lack of innovation and upkeep (Forjuoh 2003). Different statistics as shown before alarm us to go for useful integrated road safety policies which require a significant change in the existing road safety standards. The implementers of different road safety programmes need to improve many relevant sectors, such as enforcement, vehicle standards, road infrastructure, public education, public awareness etc. There is need to identify the specific goal oriented prevention measures of the pedestrians. Sometimes, many problem specific targets (e.g. reduction of pedestrian deaths from walking) are more important than the macro target (e.g. reduction of pedestrian deaths from the registered vehicles). One important issue is about the ‘timing’ of accident which should be considered importantly in setting up different target specific road safety measures. The following figure shows about an idea where the tendency of road accident rate is higher in the day time than the occurrence rate at night. Over the analysis of different slot, the highest percentage (15%) of road accident is found during the time period 10 A.M – 12 P.M.

Figure 4. Average time slot of accident rate during the full day period (12 A.M – 12 P.M). (Source- Rahman *et al.* 2012)



1.6 Objective of the study

Drivers and pedestrians are the main sufferers within the entire victim for road accident. In most cases the reasons behind the accidents are their ignorance to different road safety issues. In other way, drivers have no formal training to drive, as well as they have other limitations such as enough knowledge about the vehicle, lack of tendency to abide by traffic law, less careful on the road etc. Moreover, there are other reasons such as bad condition of road, narrow road, road with many turns might cause accidents. In addition if there are residents beside highway or local road the possibility of accidents likely to be much more than other places. A junction of the road is also vulnerable place for accident. A report (Alim

and others 2006) suggested that the unauthorised vehicles are to be usually in vulnerable condition, and also they have no fitness to run on the road. As a result, these vehicles cause road accidents mostly over all the running vehicles. Overload and illegal parking of these vehicles are another cause of accident where pedestrian unmindful attitude falls into accident during use of local roads and highway.

However, on basis of the present problems of road safety the study intends to understand the current status of individual and group level knowledge- practices of drivers and community members regarding road safety. The present status of knowledge and behaviour of pedestrians and drivers is necessary to know the situation as it is before the 'road safety' programme intervention in order to determine the impact of intervention in the post intervention period. This study however has some specific objectives to answer the core research question on the ground of which this research stands for. The specific objectives are:

- Asses the level of knowledge of motor and non-motor drivers
- Assess the knowledge of students and teachers
- Exploring the dynamics within the CRSG (Community Road Safety Group) groups and It's effectiveness in promoting road safety.

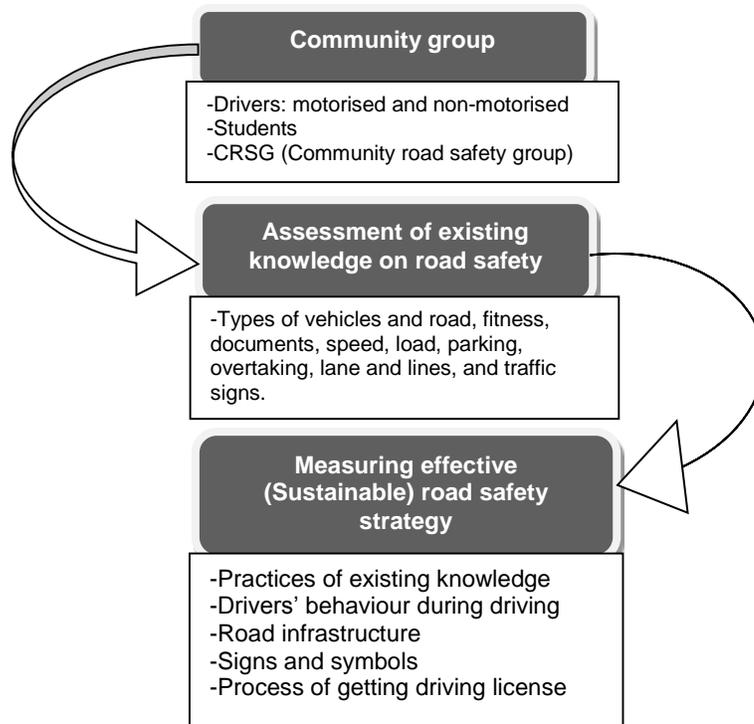
1.7 Rationalisation of the study objective towards road safety intervention

Bangladesh government, civil society, CBO/NGOs, press and public in general are very concerned about the increasing trend of road accident. Given the importance of socio-economic and health impact of the road safety issue in many of the international funding agencies, donor countries and private sector businesses are now coming forward to contribute towards road safety in the country. Chevron Bangladesh – the American Oil and Gas Company involved in developing the country's energy resource since 1974 - has approached BRAC to undertake road safety measures at Bibiana Gas Field Project area to achieve zero fatal road accident between Saidpur - Bandar bazaar portion of the road. Moreover, the heavy vehicle of the company move on this road frequently whereas, the inhabitants and public transport drivers need to have better knowledge about the traffic laws to avoid any kind of casualty around the project site.

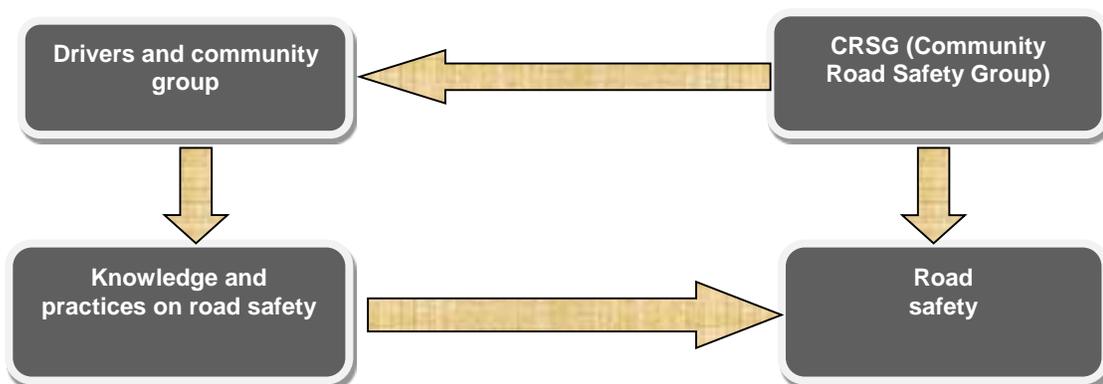
Therefore, BRAC road safety programme emphasises on community centric approach by incorporating community members, educational institutions and drivers to increase the knowledge and thereby change their behaviours. The programme intervention's underlying goal is to achieve zero fatal road accident by creating awareness campaign. The proposed intervention of the programme will launch actions with the aid of different stakeholders with different plans of activities to achieve the intervention's objectives. The programme intervention includes road safety education to the students and teachers of the roadside educational institutions; road safety training for motor and non-motor drivers, training to the CRSG group. To attain this goal, programme has taken initiative to make aware by giving training and workshop to the students, teachers, CRSG committee and both motor and non-motor (Rickshaw and Rickshaw Van) drivers through different interventions.

1.8 Conceptual model

Model 1. The study



Model 2. Programme intervention



Chapter 2.

Methods

2.1 Research strategy

The study predominantly used quantitative method by taking consideration of describing a few issues as included in the survey questionnaire. The study conducted a baseline survey of the selected stakeholders to be intervened in the project area. As intervention messages and activities were different, instruments had been used to collect data from different stakeholders. The status of knowledge and behaviour towards road safety was gathered using survey questionnaire. A short semi-structured survey questionnaire was administered for assessing knowledge and behaviour of two groups, namely teachers and CRSG (Community Road Safety Group) with a view to understand the initial phase of group formation considering socio-demographic information of the group members. After group formation, CRSG was studied qualitatively through FGDs (Focused Group Discussion) and a few IDIs (In-Depth Interviews) where the whole process helped to examine how the objectives of CRSG group formations were met.

The study conducts a baseline survey of selected drivers and students to be intervened along with a corresponding control group of non-intervened drivers and students in the different Thana under different district. This baseline survey data will be compared with the end term survey data of three years later. The study is expected to map changes over time between baseline and end-term periods, and between treatment and control groups. Incorporating a control group allows to account for external factors that influence outcomes. Such factors are likely to equally affect treatment and control groups and therefore, differences may be attributed to the intervention alone. Assessment in change in knowledge between groups and periods are:

Pre intervention period (2014): Compare between intervention and control groups

Post Intervention period (2017): Compare between intervention and control groups

Compare between groups, and pre and post intervention periods

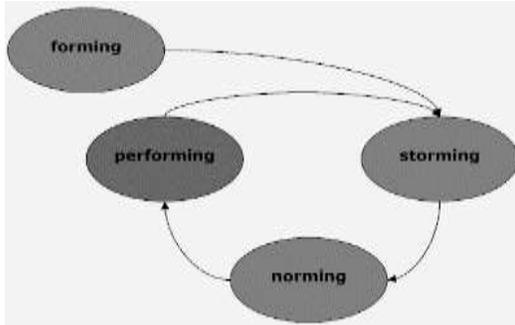
2.2 The framework for community road safety group (CRSG)

The study is carried out in Syedpur to Enayetganj road of Nabiganj *Upazila* under the Habiganj district. The target population is road users from different stakeholder groups. These groups are: Heavy motor driver, Non-motor driver, Rickshaw and Rickshaw van, Community Road Safety Group (CRSG), students and teachers.

CRSG, a group consists of 10 to 12 active local members. Members of the group are preferred to select the person who has reputation and ability to undertake regarding works. This group will be working to create motivation and commitment towards community people by providing information and knowledge dissemination of road safety. They are in aim to map out the local accident prone spot, arranging community level workshops and develop action plan facilitated by their regular meeting. However, considering the importance of CRSG in the study a model has been introduced to understand 'zero history groups' and

its sustainability. The name of this model is 'Tuckman Model' which is very effective in terms of its application for group study.

Tuckman model



Forming: There are no previous experiences or activities as found in a group until it was formed. Group springs from many sources and for different purposes while formation examines the three sets of factors – personal qualities, nature of works, and feeling of liking.

Storming: In this case the interaction between members is focused.

Norming: The functions and goal of the group are set out at this stage.

Performing: Consideration of performance and achievements, emerging difficulties and take new steps to make if effective.

2.3 Sampling

For achieving zero fatal road accident, five different stakeholders are considered in this study. The programme intends to work with five different categories with different population size. So, the sample population is selected from different groups. We have five different stakeholders sample which is drawn from all the groups because each group is different in terms of their population and socioeconomic characteristics etc. Sample size is calculated based on some assumptions with confidence interval of 95% and estimating 7% margin of error from different stakeholders. Respondents of motor and non-motor are selected randomly from the programme as given in the list. Students are selected randomly from attendance register of class five six and eight. Based on these assumptions sample size for this study are as follows. In qualitative section, respondents are selected purposively to conduct in-depth interview (IDI) and FGD from CRSG and teachers. A total of five FGDs and 20 interviews are conducted among the CRSG and teachers.

Table 2.1. Study sample

	Population size	Margin of error %	Confidence interval %	Actual sample
Motor Driver	500	7	95	142
Non-motor Rickshaw/Rickshaw/van	500	7	95	142
Student Class 5	650	7	95	151
Class 6	650	7	95	151
Class 8	650	7	95	151
CSRG	6 (6*10/12)			3-FGD 15-Interviews
Teacher	38			2-FGD 5-Interviews

2.4 Data collection (including indicators table)

To collect data three sets of semi-structured questionnaire have been conducted in survey with the drivers (heavy vehicles and non-motor) and the students. Beside this survey FGDs and IDIs are also incorporated in data collection process for gathering qualitative data. In the following table, it is shown how different indicators on road safety are categorised in data collection process:

Table 2.2. Indicators for the study

Categories	Indicators	Data collection methods
Independent variable: Knowledge and practices on road safety Definition: Existing knowledge on road safety and its implementation in real life		
Socio-demographic information	Age, Education, marital condition	Interview
Type of vehicles and road	Vehicle capacity, ownership, driving training, driving experiences, license and road type	Interview and Primary observation
Fitness	Safety measures before starting drive	Interview
Documents	Necessary papers with drivers	Interview and Primary observation
Speed	Consequences of high speed, maximum speed limit of vehicles in highway and local road	Interview
Load	Consequences of overloading	Interview
Parking	Parking beside highway	Interview and Primary observation
Overtaking	Safety measures while overtaking	Interview
Lane and lines	Benefit of lanes on road, road dividers, driving system on lane oriented road, restriction of crossing lane, driving system on round/cyclic road	Interview
Driving and Accident	Safety measures while driving, possible reasons of accident and victim in accident	Interview
Traffic Signs	Understanding important traffic signals/signs on high way	Interview
Dependent variable: Measuring effective road safety Definition: Ensuring effectiveness of road safety knowledge and practices of the community in compliance with designated traffic rules as well as peoples' awareness		
Practices of existing knowledge	Checking vehicles' fitness before driving on it, maintaining speed limit, maintaining load in against of vehicle capacity	Interview
Drivers' behaviour during driving	Maintaining parking rules, maintaining overtaking rules, driving with sickness, receiving phone call during drive	Interview
Road infrastructure	Footpath space, turning point, dividers, lane, physical condition of road	Interview and primary observation
Signs and symbols	Following all types of driving instructions on road with necessary traffic signals	Interview and primary observation
Driving license	Showing valid license and process of obtaining license	Interview and primary observation

2.5 Data processing and analysis

The research team developed number of interviewer administered questionnaire that includes questions regarding knowledge, attitude and practices of the pedestrians and drivers towards safety and measures as well as baseline socio-demographic data. The study instrument also includes open-ended questions to identify the best way improve traffic safety. Besides, few FGD's and in-depth interview are conducted by following a checklist which particularly captures the group member's interest and ability to attend in group activities and participation in workshop, meetings, as well as play a leading role in their community which indicates the group performance and effectiveness. So, because of the semi-structured data nature, the raw field data has been edited with necessary clarification and code. After coding all the collected data, data cleaning was also executed finally when the entry has been finished. SPSS (Statistical Package for Social Survey) software was used for quantitative data entry and analysis. Both univariate and bivariate statistics have been performed. Qualitative data was analysed manually after such data are transferred from the field.

2.6 Limitations

To some extent with research design, observation of the drivers' knowledge into practices on road was not possible in case of specific indicator to be determined either in qualitatively, or quantitatively. On the other hand, if more cases are evaluated in more regions under the same compliance of road safety, the dataset of the study could be more rigorous to come up with the concrete research answers. Treatment respondents of the study are sampled in only a small portion of Nobiganj Thana under Hobiganj district where existing knowledge and practices on road safety policies are not justified widely under the same compliance.

Chapter 3.

Results

The results are shown with five major divisions of the respondents that are assessed either in quantitative or qualitative approach of the study. The group of respondents of the study is categorised as follows:

Part 3.1 Drivers of motorised/heavy vehicles

Part 3.2 Drivers of non-motorised vehicles/Rickshaw or Rickshaw-van

Part 3.3 Students of class V, VI and VIII

Part 3.4 Teachers of the school level

Part 3.5 Community Road Safety Groups (CRSG)

The result of first three parts has been assessed quantitatively while the selected indicators are evaluated by the per cent frequency of the respective respondents. And, the next two parts are shown with some key findings based on single interview, or through FGDs. However, all parts are shown with many subdivisions including findings of the controlled respondents, but the main discussion is not focused in comparison between treatment and controlled group as follows:

Part 3.1 Drivers of motorised/heavy vehicles

3.1.1 Socio-demographic information

Socio-demographic profile of driver shows that 75 per cent of the drivers are literate with different level of education. Among the educated drivers, about 30 per cent of primary level education is the highest education level in intervention group whereas junior secondary education is the top percentage of education within the control group drivers and it is almost 34 per cent. Majority of them earn Tk.12,000-14,000 per month in both groups. Greater parts of the drivers are under age in below forty and married in both group. As follower to the religion, the Muslim religion is predominant in both groups. Also the surveyed drivers both in intervention and control group show that their family sizes were typically highest in percentage, 43 and 47 accordingly in the range of 5-7 (Table 3.1).

Table 3.1.1 Socio-demographic Profile

Indicators	Per cent of respondents	
	Treatment	Control
Education		
No Schooling	22.5	17.6
Below Primary	26.1	9.9
Primary	29.6	20.4
Junior Secondary	17.6	33.8
Junior Secondary Above	4.2	18.3
Income (BDT)		
4,500-8,000	10.6	16.2
8,100-10,000	16.4	29.6
12,000-14,000	51.9	38.7
15,000-18,000	16.9	9.2
20,000+	4.2	6.3
Age group		
20-30	40.1	38.0
31-40	33.8	41.5
41-50	20.4	16.2
50+	5.6	4.2
Marital		
Married	81.7	93
Religious		
Muslim	94.4	97.9
Hindu	5.6	2.1
No. of family members		
1-4	26.1	39.4
5-7	43.0	47.2
8+	31.0	13.4

3.1.2 Driving experiences and license paper

This section illustrates general information about the related knowledge of driving experiences and license issue. It includes year of driving, ownership of vehicle and the sources of driving license. Table (3.1.2) reveals that the highest percentage of the drivers in intervention group is belonged in 11-15 years age of driving experience whereas, in control group it is in 6 -10 year of experience.

Table 3.1.2 Year of driving experiences

Driving years of experience	Per cent of respondents	
	Treatment	Control
1-5	16.2	21.8
6-10	21.1	25.4
11-15	25.4	21.8
16-20	21.8	15.5
21-25	7.7	7
26+	7.7	8.5

The highest 85.2 and 83.1 per cent respectively of the vehicles are privately owned in the treatment and control group.

Table 3.1.3 Ownership status of the vehicles

Ownership of vehicles	Per cent of respondents	
	Treatment	Control
Self	2.1	6.3
Company	12.7	10.6
Privately owned	85.2	83.1

Table 3.1.4 Origin of license paper

Way of getting license	Per cent of respondents	
	Treatment	Control
BRTA (Bangladesh Road Transport Authority)	77.5	53.5
Broker	10.6	38.7
Trade union	7.0	0.7
No license	4.9	7

Most of the drivers get driving license from Bangladesh Road Transport Authority (BRTA). Few of them have obtained from the broker and their trade union.

Table 3.1.5 Initial learning place to know driving

Place of first learning for driving	Per cent of respondents	
	Treatment	Control
Master	77.5	58.5
Driving school	0	2.8
Working as a helper	21.8	36.6
Other driver	0.7	2.1

Most of the drivers in both groups have acquired driving knowledge from *Ustad* (senior driver) and also got from working as a helper of senior driver. Not found any drivers who have learnt from driving institutions in intervention area while very little percentage of drivers get driving from institutions in control group.

Table 3.1.6 Receive professional training after being driver

Training received after being driver	Per cent of respondents	
	Treatment	Control
No training received	60.6	93.7
From NGO	19	0
From BRTA	14.8	4.2
Trade union	5.6	2.1

Over half of the drivers, 61% have not received any training after being a driver in intervention area whereas, over 90 per cent of the drivers have the same experience in the control area.

3.1.3 Checking of vehicle fitness

Drivers must have convergent knowledge about the vehicles. Other traffic issues and its practices on road during driving help to avoid accident in most cases. In many cases, drivers are ignorant as well as careless with the engine and other necessary vehicle-related documents at the time of running vehicle.

Table 3.1.7 Status of routine check of vehicles at daily basis

Checking of instruments of Bus/Truck before going out for driving	Per cent respondents do have knowledge		Per cent respondents do practices	
	Treatment group	Control group	Treatment group	Control group
Wheel	91.5	94.4	76.1	77.5
Brake and gear	93.7	88	66.2	82.4
Light	48.6	21.1	37.3	6.3
Battery	39.4	33.8	28.2	25.6
Engine	94.4	93	46.5	45.1
Dash board	12.7	1.4		

* Multiple responses counted

Findings show that most of the drivers in both groups have better knowledge on wheel, brake/gear and engine compared to light and battery. But in practice, most of the drivers in both groups have been less focused into checking before running the vehicle (Table 3.1.7).

3.1.4 Legal documents for driving

Findings reveal that the essential documents that a driver must keep with him on way to the destination; but, they have good knowledge on that. Majority of the drivers in intervention and control group know that they should carry legal license, blue book (Registration), insurance and fitness certificate, route permit (Table 3.1.8). In practice, it is found that most of the drivers claim they have legal license and other necessary documents which they don't want to show usually.

Table 3.1.8 Necessary legal documents for driving

Legal documents need to have for driving	Per cent respondents do have knowledge		Per cent respondents do practices	
	Treatment group	Control group	Treatment group	Control group
Legal license	97.2	97.9	95.1	84.5
Registration/Blue book	77.5	93	53.5	78.9
Tax token	44.4	66.2	21.1	63.4
Fitness	83.1	78.9	54.9	66.9
Insurance certificate	74.6	70.4	36.6	51.4
Route permit	80.3	66.9	59.2	55.6

* Multiple responses counted

3.1.5 Parking process

This Table also shows that drivers know the rules of parking whereas 93% and 85% in the experiment and control groups respectively; but in case of practice 41.5% and 54.9% drivers park their vehicles without follow the rules in treatment and control group (Table 3.1.9).

Table 3.1.9 Parking process

Parking process on road side	Per cent respondents do have knowledge		Per cent respondents do practices	
	Treatment group	Control group	Treatment group	Control group
Outside the border line of main road	93	85.9	71.8	66.2
Leave 3 meter space when no border line	7.7	16.2	7.7	17.6
Parking with free space	4.2	2.8	41.5	54.9

* Multiple responses counted

Most often, illegal parking disturbs the natural speed of the running vehicles from both side of the road and cause serious accident. Even, they know somewhat about the consequences of illegal parking to an extent.

3.1.6 Overtaking process

In case of overtaking process, most of the drivers know about four rules among the six overtaking principles. Keeping space and ensuring certain speed (20 km) in between self and overtaking vehicle, knowledge has very limited as 4.2% and 14.1% of drivers in the treatment and control groups respectively. In practice, data illustrates that only two of the rules are followed by the drivers in both treatment and control group and two of the rules are totally ignored by the drivers in both groups (Table 3.1.10).

Table 3.1.10 Overtaking Process

Overtaking process in road	Respondents do have knowledge		Per cent respondents do practices	
	Treatment group	Control group	Treatment group	Control group
Allow first to pass the highway vehicle	77.5	57.7		
Showing right side signal	50.7	85.2	35.2	37.3
Increasing vehicle speed	49.3	54.2	17.6	15.5
Confirm enough space (3 feet) between self and overtaking vehicle	9.2	21.1	7	2.1
Confirm enough speed (20km) between self and overtaking vehicle	4.2	14.1	12	5.6
Showing left side signal after overtaking	16.9	35.9		

* Multiple responses counted

3.1.7 Usage of mobile phone at driving

The use of mobile-phones while driving has been recognised as a safety hazard. Both the intervention and control group's driver have the best knowledge on using mobile phones but in practice, about 54.9% of the treatment group and 78.9% of the control group drivers receive mobile while they were driving. (Table 3.1.11).

Table 3.1.11 Usage of mobile phones

Knowledge and practice of Mobile use	Per cent respondents do have knowledge		Per cent respondents do practices	
	Treatment group	Control group	Treatment group	Control group
Should not receive without emergency	95.1	87.3	54.9	78.9

3.1.8 Overloading

As the consequences of overloading, larger percentage drivers of treatment group (86.6%) have better knowledge about the consequences of overloading, compared to the control group as it is 68.8 per cent. But in practice, it is observed that knowledge could not translate into action. Both groups of drivers carry either additional passengers or goods and it is 85.2% and 67.6% respectively (Table 3.1.12).

Table 3.1.12 Consequences of overloading

Consequences of overloading	Treatment group (Per cent respondents)	Control group (Per cent respondent)	Extra passenger/ carrying goods	Extra passenger/ carrying goods
Occurred accident	86.6	68.8		
No control over vehicle	26.1	52.5		
Downing vehicle speed	36.6	31.9		
Requires extra fuel	13.4	9.9	85.2	67.6
Squeezed engine span	16.9	27.7		
Road destruction	.7	11.3		
Bridge destruction	7.7	10.6		

* Multiple responses counted

3.1.9 Speed of vehicles

Speed of the vehicle needs to be maintained by the drivers in different places of the road. Otherwise, it causes serious damage and death of lives. Drivers must know and follow the rules of speed in local/residential areas and highways. Overtaking in various turning points and junction of road are the reasons of accident. Therefore, the assessment of driver's knowledge on those topics is important.

Table 3.1.13 Speed of the vehicles in local road

Knowledge of maximum speed of bus/truck in local road	Per cent Respondents					
	Treatment			Control		
Having knowledge	32.4			35.2		
Implemented knowledge	Actual speed	Under speed	Over speed	Actual speed	Under speed	Over speed
<i>Treatment (n =46)</i>	34.8	47.8	17.4	58	34	8
<i>Control (n=50)</i>						

However, almost 67% of the intervention group and 65% of the control group respondents don't have knowledge about speed limit in local town/residential areas as well as in highways. In practice, the actual performances in terms of speed limit among the knowledgeable percentages of drivers and the result becomes interesting that only 34.8%

and 26.1% of the treatment drivers drive in actual speed in local and highway respectively. On the other hand, just over 50% and 40% of the control group drivers driving in actual speed both in local and high way.

Table 3.1.14 Speed of the vehicles in highway

Knowledge of maximum speed of bus/truck in highway	Per cent of respondents					
	Treatment			Control		
Having knowledge	32.4			35.9		
Implemented knowledge	Actual speed	Under speed	Over speed	Actual speed	Under speed	Over speed
<i>Treatment (n =46)</i>	26.1	6.5	67.4	43.1	7.8	49
<i>Control (n=50)</i>						

3.1.10 Lanes and lines

There are different types of vehicles plying on road and their speed is also different. For advantages of smooth running these diverse speedy vehicles the road - especially the highway is divided into a number of lanes. It might be one to six lanes based on the width of road. Few steps need to be taken when driver changes the lanes. Moreover, there are some lines in road that bear different meanings must be followed by the drivers; otherwise a serious accident may have occurred. Therefore, the drivers must have knowledge on lanes to stay away from accident. Pertaining to lane, most of the drivers in treatment and control group know the reasons of having different lanes and rule of following lanes in road but they are very much aware of the number of lanes. They also know better about changing lane but they have insufficient knowledge on lines drawn on the road (Table 3.1.15).

Table 3.1.15 Lanes and lines in road

Knowledge	Per cent of respondents	
	Treatment	Control
Significance of dividing road into different lane		
Advantages of different type of speedy car	64.8	64.8
Number of lanes		
One to Six	85.2	75.4
Necessary rules to follow lane		
Driving vehicle adjacent to the left side and Keep free middle of the road	90.8	80.9
Things to be noticed during changing lane		
Looking at mirror	75.4	95.1
Show signal	69	65.5
Allow to pass the backside speedy car/vehicle	21.1	54.2
Don't know	9.9	7.3
Illegality to cross line		
Continuous Line	32.4	12.7
Yellow Line	16.2	19
Don't know	52.8	71.8

3.1.11 Signs and symbol

Different signs and symbols are used on the road to mean various indications to be followed. Among those important signs and symbols few are included in this study. These are restriction and cautious lines and some others are obligatory, informative, overtaking, parking and speed signs. Drivers should have knowledge on the meaning of those signs and symbols and thus they can easily be careful of accidents. During survey, the symbolic chart of different traffic signs has been shown to the respondents. In that case the responses from the respondents on the respective symbol have been identified.

Table 3.1.16 Knowledge on signs and symbols in road

Restriction line and symbols	Per cent respondents	
	Treatment	Control
 Should not overtake without any emergency	24.6	28.9
 symbol of warning on risk	21.1	21.8
Symbol of yellow light	59.9	52.8
 Parking prohibition symbol	25.5	28.2
 Side road symbol of	47.9	45.8
 Pedestrian crossing	69.7	89.4
 Bus stand symbol	74.6	66.2
 Hospital symbol	63.4	69
 Whistle prohibition symbol	78.2	92.3
 Stop first, allow to go first	13.4	18.3

Table (3.1.16) reveals that both the treatment and control group of the drivers have little knowledge on some symbols, e.g. restriction and cautious line, parking prohibition symbol and vehicle moving symbol. In other words, they cannot easily recognise these lines and signs. Data also shows that both groups of drivers have replied correctly and possess better knowledge on yellow light on road, symbols of side road and pedestrian crossing. They also have better knowledge about the informative sign such as bus stand, hospital and whistle prohibition. On the other hand, (Table 3.1.17) three symbols are interviewed among the respondents to identify the gap between knowledge and practices on the respective issue. But in reality, about half of the per cent of the respondents do maintain these symbols on the road rather than the per cent of the respondents do have the knowledge on those traffic signs, except overtaking prohibition practices where it is 66.2% and 62% in the treatment and control group respectively.

Table 3.1.17 Speed of the vehicles

Symbol	Knowledge of per cent respondents		Practice of per cent respondents	
	Treatment	Control	Treatment	Control
 Speed limit symbol	82.4	92.3	26.8	54.9
 Overtaking prohibition	74.6	62	66.2	62.7
 School and speed reduced	82.4	87.3	46.5	64.8

3.1.12 Driving to link road, circle and head light

Testing integrated knowledge of the respondents mentions above, e.g. vehicle parking, positioning headlight at night, driving car at square of road and rules of enter into highway from side road. Table 3.1.17 shows that drivers have better knowledge on the steps to be followed to enter into highway from side road. Drivers have better knowledge on how to park vehicles where there is a boundary line of road but they don't know the parking law for where it is not. On the other side, drivers have the best knowledge on the positioning of headlight at night and are fairly knowledgeable on driving car at square place of the road.

Table 3.1.18 Vehicles' entrance from highway to link road

Necessary rules to follow when enter from highway to link road	Per cent of respondents do have knowledge	
	Treatment	Control
Stop first at the side of highway	52.1	66.2
Allow first to pass the highway vehicles	27.5	26.8
Showing signal	83.8	81
Starting to drive when no car is on highway	50	67.6
Don't know	1.4	8.5

Table 3.1.19 Head light position at night

Head light position at night	Per cent of respondents do have knowledge	
	Treatment	Control
Keeping dipper low	96.5	99.3

Table 3.1.20 Driving rules at circle point

Driving rules at circle point	Per cent of respondents do have knowledge	
	Treatment	Control
Allow first to pass the right side vehicle	73.9	68.3

3.1.13 Vulnerable cases for accident

Table 3.1.21 – 3.1.23, depicts that most of the drivers in treatment and control group recognises the turning point of the road and bazaar vulnerable places where accident can take place. More than sixty per cent of the respondents in treatment and control group state that over speed and unusual overtaking cause accident. Furthermore, about 75% and 60% of the drivers recognise that taking medicine for fever and cold cause accident because this type of medicine made them drowsy and thus fail to control the car in the treatment and control group respectively.

Table 3.1.21 Identifying accident prone area

Knowledge of accident prone area	Per cent of respondents do have knowledge	
	Treatment	Control
Turning point of the road	92.3	90.8
Narrow bridge	42.3	39.4
School/college	45.1	33.8
Bazaar	49.3	50
Others	2.1	12.7

Table 3.1.22 Drivers' fault leading to accident possibility

Driver's fault leads reason of accident possibility	Per cent of respondents do have knowledge	
	Treatment	Control
Increasing speed	83.3	68.3
Taking over goods or passengers	23.2	23.2
Overtaking	70.4	60.6
Doing no check	20.4	29.6
Others	7	19

Table 3.1.23 Driving problem with sickness

Reasons of accident as the result of driving with sickness	Per cent of respondents do have knowledge	
	Treatment	Control
Don't understand the speed of vehicle	78.7	60
Visual power becomes low	65.3	70
Speed out of control	36	40

3.1.14 Assessment of knowledge and practice level

The study assesses the knowledge score and its significant level statistically between two groups of respondents. Full score of each question is equally subdivided among all the right answers deserved from the respondents. All variables are weighted equally that is 1 and the total knowledge score attained from all variables of each respondents has been finally converted into 100%.

General knowledge score has been calculated on total 20 (twenty) variables/questions that have been interviewed with both treatment and control respondents. Similarly, the symbolic knowledge level and practice level of the respondents have been determined on 13 and 15 variables respectively.

Table 3.1.24 General knowledge score of the respondents

Knowledge level per cent on general driving issues	Knowledge score of per cent	
	Treatment	Control
21-40	10.6	18.3
41-50	40.1	27.5
51-60	38	31.7
61-76	11.3	22.5

P value 0.006, means it is statistically significant and refers to the significant differences of general knowledge level on road safety between treatment and control group

Knowledge level of the respondents has been tabulated with the score limit in comparison between treatment and control respondents. However, general knowledge level of the respondents is not found at satisfactory level as it is below 50% in both groups of respondents. The highest 40% of the treatment respondents get the knowledge score between 41 to 50% while the highest 32% of the control respondents exist between 51% and 60% of knowledge level.

[P value: The level of marginal significance within a statistical hypothesis test, representing the probability of the occurrence of a given event. The smaller the p-value, the stronger the evidence is in favour of the alternative hypothesis]

Table 3.1.25 Road Symbol Knowledge Score of the Respondents

Road symbol Knowledge Level per cent	Knowledge Score per cent	
	Treatment	Control
1-40	27.5	21.8
41-60	26.8	27.5
61-70	27.5	27.5
71-90	7.7	18.3
90-100	10.6	4.9

P value 0.042, means it is statistically significant and refers to the significant differences of knowledge level on road symbol between treatment and control group

In assessing the knowledge level on symbolic sign in road, only about 11% of the treatment respondents get the highest range of knowledge level (90 to 100) followed by 5% respondents in the control group. The lowest up to 40% of symbolic knowledge level has been achieved by around 28% respondents in treatment group.

Table 3.1.26 General practice score of the respondents

Practice level on road safety knowledge of the respondents	Practice score of per cent	
	Treatment	Control
13-30	18.3	17.6
31-40	34.5	28.9
41-50	35.9	30.3
51-69	11.3	23.2

P value 0.063, means it is not statistically significant and refers to not significant difference on the practice level between treatment and control group

In general practice of road safety knowledge, the highest score level of the respondents has been found to be between 41% to 50% in both groups of respondents. However, the highest 36% and 30% of the respondents in treatment and control group exist in this range of practice level.

Regression analysis

Since the response variable “accident” is binary, we have used the logistic regression model to identify the probability of occurrence of accident due to different explanatory variables. Here, the variable accident is a dummy variable (1= occurrence of accident while driving; 0= not), “Family member” refers to the number of family members she has, “Education” and “experience” represents the number of years of formal education and experience as a driver respectively, variable “ownership” indicates the ownership of the vehicle (1=owned by others, 0=own vehicle), dummy variable “License” equals 1 if the driver has the driving license from BRTA and equals 0 if it is from any other informal source, variable “minibus driver” equals 1 if a driver drives minibus and equals 0 if a driver drives bus or truck.

Accident	Coef.	Std. Err.	z	Odds Ratio
Number of family member	-0.0141	0.0452	-0.3100	0.9860
Education (Year)	-0.0956	0.0417	-2.2900	0.9088
Income	0.0001	0.0000	1.8500	1.0001
Ownership (others vs own)	0.9087	0.7655	1.1900	2.4810
Experience (year)	0.0614	0.0519	1.1800	1.0634
License from formal institution	-0.1508	0.2815	-0.5400	0.8600
Practice score	0.0073	0.0136	0.5300	1.0073
Knowledge symbols core	0.0033	0.0069	0.4800	1.0033
Minibus driver	0.6934	0.2808	2.4700	2.0004
Training after starting driving	-0.0202	0.3135	-0.0600	0.9800
Marriage	-0.4435	0.4143	-1.0700	0.6418
Experience squared	-0.0011	0.0014	-0.8400	0.9989
Constant	-2.2503	1.2630	-1.7800	0.1054

If the sample size is reasonably large, t distribution converges to the z distribution. As we have followed MLE and the estimated Standard Errors are Asymptotic, we have used z-statistic instead of t-statistic to measure the statistical significance of the coefficients. That is why; conventional t is not meaningful in the binary regression model.

Each of the slope coefficients in this equation is a partial slope coefficient and measures the change in the estimated logit for a unit change in the value of the given regressor (holding other regressors constant). Thus, the “Family member” coefficient of -0.0141 means that if the other variables are held constant, having one more family member, on an average decreases the estimated probability of accident by about -0.0141 units, suggesting a negative relationship between the two.

It is conspicuous from the table that among the other regressors only family member, education, license, training after starting driving, marriage, and experience squared have negative effects on the estimated logit (probability of accident). However, the effect of family member, training after starting driving, marriage, experience squared is not statistically significant. Moreover, we have used LR statistics and its *P-value* to know if the each of the regressor has a significant impact on the accident or not.

A more meaningful interpretation is in terms of odds ratio, which are obtained by taking the antilog of the various slope coefficients. Thus, the odds of education 0.9088 suggests that drivers who are educated are less than two times likely to meet an accident than drivers who are not educated, other things remaining the same.

Similarly, it is also evident from the table that among all the other regressors only income, Ownership, Experience, Practice score, Knowledge symbol score and Minibus driver have positive effects on the estimated logit. However, the impact of ownership, experience, practice score and knowledge symbol score are not statistically significant, with other variables held constant,

The income coefficient of 0.0001 means, with other variables held constant, if income increases by one unit, on an average the estimated logit (accident) increases by 0.0001 units which is negligible, suggesting a positive relationship between these two but at a minuscule rate.

The odds ratio for minibus is 2.0004 suggests that drivers who drives minibus are more than two times likely to meet an accident than the ones who don't drive minibus, other things remaining the same.

Part 3.2 Drivers of non-motorised vehicles/rickshaw or rickshaw-van

3.2.1. Socio-demographic information of the respondents

In the study, most of the respondents are found between 18 to 40 years of age (72.66 and 68.3 per cent respectively in treatment and control group). This indicates that the drivers of rickshaw-van are matured of age for driving, but in some cases of driving, respondents are under 17 years or over 60 years of age.

In case of education level of the respondents, about 50 per cent of the respondents are found as illiterate in treatment group whereas, this amount is relatively low in the control group. In the remaining part of the respondents in treatment group, 25.78 and 21.09 per cent people do have knowledge respectively on primary education and how to put signature. On the other hand, high school education is not found at significant level in the treatment group.

Table 3.2.1 Family

No. Family members	Per cent of respondents	
	Treatment	Control
1-3	13.8	16.4
4-6	62.5	64.6
7+	24.2	19.0

Table 3.2.2 Age

Age of the respondents	Per cent of respondents	
	Treatment	Control
13-17	7.8	3.5
18-40	72.7	68.3
41-60	17.9	21.12
60+	1.6	7.0

Table 3.2.3 Education

Educational qualification	Per cent of respondents	
	Treatment	Control
Illiterate	50.8	30.3
Can only put signature	21.0	23.2
Primary	25.8	35.9
High school (Class VI-IX)	2.3	10.6

Table 3.2.4 Income

Income range (BDT)	Per cent of respondents	
	Treatment	Control
2000-5000	14.8	9.2
5000-10000	78.1	79.4
10000-15000	7.0	10.6
15000-20000	0	0.7

The monthly average income of most of the respondents (78.11 per cent) is between 5,000 to 10,000 BDT which is followed by 14.85 and 7.03 per cent respondents with less than 5,000; or, more than 10,000 BDT respectively.

The highest 78.13 and 91.55 per cent of the respondents are married respectively in treatment and control group.

Table 3.2.5 Marriage

Marital status	Per cent of respondents	
	Treatment	Control
Unmarried	21.9	8.5
Married	78.1	91.6

3.2.2. Types of vehicles and road

As shown in the table, rickshaw is found mostly rather than the rickshaw-van in study area, but the opposite picture is found in the control area. In this regard, the highest 96.09 and 97.18 per cent of rickshaw and rickshaw-van are found respectively in treatment and control area. On the other hand, most of the rickshaw drivers (42.19 per cent) hired their vehicles from the garage as a source of vehicles for treatment respondents. Other sources of their vehicles are defined as from someone or, self source which is followed by 26.56 and 31.25 per cent respectively in the treatment area.

Table 3.2.6 Vehicles type and ownership

Knowledge	Treatment group (% of respondents)	Control group (% of respondents)
Ownership of the vehicles		
Rickshaw	96.0	2.8
Rickshaw-van	3.9	97.2
Personal	31.3	90.9
Hire from persons	26.6	7.8
Hire from Garage	42.2	1.4

Table 3.2.7 License and training

Knowledge	Treatment group (% of respondents)	Control group (% of respondents)
Respondents do have valid license	1.6	0
Ownership of the license	0	0
Receive training somewhere for safe driving	8.5	0

In case of having valid license of the respondents, only 1.56 per cent of the respondents do have license for their vehicles; but these licenses are not their personal, as they have owned these hiring from someone. Even, most of the respondents (91.41 per cent) have never received training somewhere on their driving skills in highway.

3.2.3. Regular checking of vehicles

The study reviews on knowledge of the respondents for preparing their vehicles before starting to drive every day. In this matter, they have answered about what to check usually for confirming fitness of the vehicles everyday as it is required through a routine check-up of the vehicles. Almost all respondents have emphasised on more than one part of the vehicles which should be checked at regular basis to clarify their vehicles' fitness. In the table it has been shown about a check list of the instruments of vehicles while 'others' mentions about some less focused devices in the checklist e.g. seat, handle, spoke, ring, body, gear, bearing, excel etc.

Table 3.2.8 Checking fitness of the vehicles

Checking of instruments of Rickshaw/Van before going out for driving	Respondents do have knowledge (%)		Respondents do practices (%)	
	Treatment group	Control group	Treatment group	Control group
Wheel	64.8	54.2	50.0	49.3
Brake and Nut	78.9	76.0	54.69+42.19= 71.09	48.59+35.92= 66.90
Air pressure of wheel	84.4	88.0	64.8	78.2
Bell	38.3	33.1	35.9	35.2
Chain (including oil and Mobil)	59.4	53.5	32.8	25.4
Others	30.5	8.4	71.4	54.9

* Multiple responses counted

3.2.4. Necessary documents for driving

It is always necessary to keep up some important documents with the vehicles. Drivers should show them during drive whenever necessary. In some sense, all kinds of legal documents of the vehicles are strong evidence that drivers are skilled on driving and about the respective vehicles. In case of legal documents for rickshaw/van, license and personal identity card are essential to carry out with the vehicles, but other minor issues as they think to have with them, e.g. birth certificate, mobile number, identification of vehicle's ownership, plate number and tax token. However, in case of 42.97 per cent respondents of treatment group, they think that the valid license should be kept with the vehicles always, while for the same respondents in practice, no one does practice.

Table 3.2.9 Checking documents of the vehicles

Legal documents need to have for driving	Respondents do have knowledge (%)		Respondents do practices (%)	
	Treatment group	Control group	Treatment group	Control group
Legal license	42.9	50.7	0	0
Identity card	0.8	16.2	0	0
Don't know	55.5	40.1	0	0
Others	7.0	4.9	0	0

* Multiple responses counted

3.2.5. Speed of the vehicles

Even, the respondents of both treatment and controlled group do not drive motorised vehicles; so apparently, they are not supposed to know the speed of highway vehicles. But, the reality to reduce the road accident shows that all the pedestrians and drivers should know about the speed limit of all kinds of vehicles in road or highway. In the study, no respondents are found as they know the maximum speed of bus in highway. In case of speed of truck in highway, only 2.34 and 1.41 per cent of the respondents know its maximum speed in treatment and control group respectively. For vehicles' speed in local road, also the knowledge of the respondents is very poor.

Table 3.2.10 Testing knowledge regarding speed of the vehicles

Knowledge	Treatment group (% of respondents)	Control group (% of respondents)
Respondents know the maximum speed of bus in highway	0	0
Respondents know the maximum speed of truck in highway	2.3	1.4
Respondents know the maximum speed of bus/truck in town or local road	0.8	6.3

3.2.6. Overload of the vehicles

Overloading always may push the vehicles towards road accident. In this regards, the survey finds out with most of the respondents that they are in practices of overloading their vehicles beyond its capacity in highway. In the treatment group the highest 94.12 per cent of the respondents bear goods instead of passengers in their vehicles and, thus they have become overloaded when drive. Even, 45.31 per cent of the treatment respondents become overloaded through bearing more than two persons in their rickshaw in highway.

Table 3.2.11 Checking overload status of the vehicles

Practice	Treatment group (% of respondents)	Control group (% of respondents)
Respondents bear more than two persons in their Rickshaw in highway	45.3	23.9
Respondents bear goods in their Rickshaw	66.4	66.9
Respondents bear goods beyond the capacity in their Rickshaw-Van on highway	94.1	45

3.2.7. Parking of the vehicles

It is very important to park of the vehicles in highway. Regarding the parking process there are some rules as listed in the table. However, according to the majority of the respondents (58.59 per cent of the respondents) the most significant knowledge of them refers to 'outside the border line of main road' as they mention the best way of their parking process in highway. On the other hand, 24.22 per cent of the respondents don't know how to park their rickshaw/van in highway. In case of 'others' options, 9.38 per cent of the respondents follow some processes like beside shop, roadside where safe, roadside where shade, roadside where available space, and roadside where other vehicles don't have in driving difficulties.

Table 3.2.12 Testing knowledge about the parking process

Knowledge	Treatment group (% of respondents)	Control group (% of respondents)
Vehicles parking process on road side		
Outside the border line of main road	58.6	64.8
Leave 3 meter space when no border line	1.6	15.5
Outside of solder	2.3	18.3
At the land part of outside solder when no solder is seen	16.4	19.7
Don't know	24.2	4.2
Others	9.4	4.9

* Multiple responses counted

3.2.8. Overtaking of the vehicles

The study has selected some points of the road where accidents may take place as a result of overtaking between two vehicles. This case has been observed when multiple responses are considered during survey. According to different answers from the respondents, the study listed some major locations in highway which may be the probable cause of road accidents. Most of the respondents (64.06 and 67.61 per cent respectively in treatment and control group) think 'turning point of the road' is not the safe zone for overtaking. On the other hand, only 1.56 per cent respondents know about the 'zebra crossing' of the road as this place is not for overtaking. Few respondents also say about some 'other' risky points of the road for overtaking, e.g. narrow space of the road, right side, bus stand, bazaar, school/madrasa, broken point and bridge.

Table 3.2.13 Testing the process of overtaking

Knowledge	Treatment group (% of respondents)	Control group (% of respondents)
Overtaking should not take places in some following points		
Turning point of the road	64.0	67.6
Junction/circle	31.3	19.0
Zebra crossing	1.6	14.7
Narrow bridge	27.3	11.9
Don't know	17.9	19.7
Others	18.7	7.0

* Multiple responses counted

3.2.9. Lanes and lines of the road

Lanes and lines of the road are also very important to know for safe driving. These symbols are equally important to both motorised and non-motorised drivers. Regarding the issue, the following table mentions about four prioritised area of perception on necessary rules when those are needed to know of a respondent for driving. These rules are mainly applicable for lane existed road. On the other hand, the issue on legal crime of violating those rules and different traffic lines are also considered in the survey question. In this case, most of the respondents (the highest 77.34 and 94.33 per cent in treatment and control group respectively) don't know as they are used to do this crime through violating different rules in road.

Table 3.2.14 Testing knowledge regarding lanes and lines of the road

Knowledge	Treatment group (% of respondents)	Control group (% of respondents)
Necessary rules to follow when enter from highway to link road		
Stop first at the side of highway	53.9	31.7
Allow first to pass the highway vehicles	25.0	14.8
Showing signal	46.0	67.6
Starting to drive when no car is on highway	31.2	43.7
Don't know	10.7	3.5
Others	22.7	12.7

(Table 3.2.14 continued...)

(--- Continued Table 3.2.14)

Knowledge	Treatment group (% of respondents)	Control group (% of respondents)
Necessary rules to follow when enter from link road to highway		
Stop first at the side of highway	54.7	35.2
Allow first to pass the highway vehicles	22.7	17.6
Showing signal	39.8	49.3
Starting to drive when no car is on highway	42.9	63.4
Don't know	10.9	2.1
Others	3.9	7.0
Necessary rules to follow at lane existed road		
Driving adjacent to the left side	50.8	78.9
Keeping the middle of road open for overtaking	0.8	0
Don't know	48.4	21.1
Legal crime of crossing different traffic lines...		
Broken/continuous lines (One/two) on road	20.3	0.7
Yellow line on road	2.3	4.9
Don't know	77.3	94.3

* Multiple responses counted

3.2.10. Behavioral safety and accident

The survey finds out the behaviour with mobile phones when the respondents drive rickshaw or rickshaw-van. In the treatment area, the highest 56.26 per cent of the respondents are used to receive phone calls when they drive their vehicles. But, very few of those respondents (1.40 per cent only) receive phone calls at running vehicles which is very risky as the cause of road accident. Usually, the respondents use mobile phones when they run their vehicles into less speedy, or through standing vehicles at safe road side. However, the per cent of respondents' opinion in some ways of using mobile phones are listed in the table.

Table 3.2.15 Usage of mobile phone

Practice	Treatment group (% of respondents)	Control group (% of respondents)
Respondents receive mobile call while driving		
Yes	56.3	49.3
Way to receive mobile call		
Standing vehicles at any place	22.2	25.7
Doing less speed	41.7	47.14
Standing vehicles at safe place	40.3	37.4
Receive at running vehicles	1.4	1.4

* Multiple responses counted

Table 3.2.16 Victim with accident

Respondents have fallen in accident over their driving period	Treatment group (% of respondents)	Control group (% of respondents)
Yes	35.2	30.3

The study finds out the victim in road accident among all the respondents. In this case, a significant part of the respondents (35.16 per cent in the treatment area) have fallen in accident over their driving period. This finding of the survey is very important for the further intervention to reduce the rate, and also the findings are associated with the existing traffic knowledge of the respondents.

Table 3.2.17 Identifying the reasons of accident locally

Reasons of accident in local town/ locality	Treatment group (% of respondents)	Control group (% of respondents)
Don't know how to move on road	38.38	35.9
Don't know how to drive vehicles	50.0	33.1
Don't know how to cross the road	26.6	31.7
No walking space beside road	9.4	15.5
Drying straw/paddy etc on road	7.0	14.0
Driving rickshaw/van so fast	69.6	71.1
Others	19.6	18.3

* Multiple responses counted

According to the local perception, the respondents mention some reasons as the cause of road accident in their locality. The reasons are accepted in case of multiple responses from a single respondent. The most common reasons are listed in the table accordingly to the proportion of the respondents.

Table 3.2.18 Usage of light while night driving

Knowledge	Respondents do have knowledge (%)		Respondents do Practices (%)	
	Treatment group	Control group	Treatment group	Control group
Maintaining light at night driving	98.4	100.0	67.9	94.4

Almost, all the respondents know that they should maintain light with the vehicles at time of their night driving; but, in case of practices for the same respondents only 67.97 per cent of them do use night light with their vehicles in the treatment area.

Table 3.2.19 Attitude of the respondents while sick

Knowledge	Respondents do have knowledge (%)		Respondents do practices (%)	
	Treatment group	Control group	Treatment group	Control group
Illness as the cause of Accident during driving	86.6	92.9	64.0	19.0

Respective knowledge and its practices of the respondents are also compared in case of their driving in sickness period. However, as the probable cause of road accident most of the respondents (86.61 and 92.96 per cent respectively in treatment and control area) know that they should not drive vehicles when they are sick. But, in reality the respondents do

practices on this perception poorly. The Table shows the gap between the knowledge and practices on per cent of the respondents regarding the issue.

3.2.11. Traffic signs

During survey, the symbolic chart of different traffic signs has been shown to the respondents. In that case the responses from the respondents on the respective symbol have been identified. The table has shown all the symbols in relation to the right definition of different traffic signs identified from the respondents. However, the knowledge of the respondents regarding various traffic signs is very poor. On the other hand, two symbols are interviewed among the respondents to identify the gap between the knowledge and practices on the respective issue. But in reality, very poor per cent of the respondents do maintain these symbols on the road rather than the per cent of the respondents do have the knowledge on those traffic signs.

Table 3.2.20 Knowledge on different traffic signs

Traffic Signs	Treatment group (% of respondents)	Control group (% of respondents)
 (Prohibited to cross if not necessary)	3.9	4.2
 (Information about the risky place)	1.6	0.7
 (Parking forbidden)	0.7	2.1
 (Side road)	8.69	14.8
 (Pedestrian crossing)	6.3	24.7
 (Bus stand)	10.9	23.9
 (Hospital)	5.5	8.5

Table 3.2.21 Comparing knowledge and practices in case of same traffic signs

Traffic Signs	Respondents do have knowledge (%)		Respondents do Practices (%)	
	Treatment group	Control group	Treatment group	Control group
 (Overtaking forbidden)	7.0	11.3	6.3	14.8
 (Speed limit)	7.0	20.4	0.7	7.7

Part 3.3 Students of class V, VI and VIII

3.3.1 Basic profile of the students

Most of the student respondents are from high school level and the primary school students are the second highest respondents in the survey. Among all the student respondents, the per cent of boys are slightly higher than the girls of the treatment area.

Table 3.3.1 Types of school

Type of school	Per cent of respondents	
	Treatment	Control
Primary school	24.7	22.9
KG school	5.7	8.8
Madrassa	14.7	6.2
High school	54.7	62.0

Table 3.3.2 Gender

Gender	Per cent of respondents	
	Treatment	Control
Boy	51.8	39.9
Girl	48.1	60.0

3.3.2. Introduction of road to the students

The assessment of traffic knowledge over the student respondents is very important since they are immature in the reality and experiences of life. Everybody should know some general rules of walking process in road/highway while the students are most vulnerable due to their poor knowledge on the traffic rules. However, the road generally contains a footpath/space for pedestrians' walking; but in this case the study finds out 30.3 per cent of all the student respondents who don't know about different portions or walking space of the road.

Table 3.3.3 Introduction with the different parts/body of road for walking

Different parts/body of the road for walking Instruments/Objects	Respondents do have knowledge (%)	Respondents do have knowledge (%)
	Treatment Group	Control Group
Yes	69.8	68.2
Don't know	30.3	31.8

3.3.3 Types of vehicles on the road

Students are mostly familiar with different types of vehicles which run on the road. Some common vehicles as they usually see in the road and among these vehicles very few are used by them frequently. In the treatment area the highest 93.38 per cent students observe CNG as the most convenient vehicle in their road and most of the students (about 77.7 per

cent) use this type of vehicle for their movement. But, the opposite picture is found in the controlled area (see the table).

Table 3.3.4 Knowledge regarding different types of vehicles and movement in road

What types of vehicles are seen in road/used yourself in highway	Respondents do have knowledge (%)		Respondents do Practices (%)	
	Treatment Group	Control Group	Treatment Group	Control Group
Bicycle	43.5	50.3	4.4	6.4
Motorcycle	69.9	62.3	7.0	8.8
Rickshaw +	78.8	62.5	34.0	32.5
Rickshaw-Van	11.9	81.0	0	53.4
Bus (Mini)	62.9	57.6	42.4	33.3
Bus (Large)	43.5	52.1	28.5	40.8
Maxi, Nosimon/Korimon and Battery related	66.7	97.4	30.5	27.4
CNG	93.38	13.47	77.7	0.44
Others	132.66	157.4	28.92	96.9

* Multiple responses counted

3.3.4. Movement on the road

Most of the students know the right process of walking in the road. The students also follow the rules what they know. The process is either in walking 'beside by beside' or 'one behind another' when the students walk within a group. The table shows the average per cent of the students who have the respective knowledge and practices of each process of walking. On the other hand, the process of crossing the road is also identified among the students. However, most of the student respondents (93.16 per cent in the treatment area) observe the situation around them when they cross the road.

Table 3.3.5 Walking in the road

Knowledge	Respondents do have knowledge (%)		Respondents do Practices (%)	
	Treatment group	Control group	Treatment group	Control group
The process of walking with friends/others in road				
Beside by beside	55.4	62.0	52.5	60.9
One behind another	44.6	38.4	42.8	37.7
Don't know/Others	0.7	0	8.4	2.8
The process of crossing the road				
Looking for safe place	15.0	20.5	14.4	18.5
Stop	38.8	39.39	37.5	39.3
Observe	93.2	94.5	93.2	96.9
Listen in	81.9	54.9	8.8	0
Walk straight forward	43.9	27.2	44.6	26.7
Others	5.7	2.6	8.6	2.2

* Multiple responses counted

3.3.5 Responsibility during or after accident

Most of the students know what they should take initiatives at the accident spot. In most cases, students think about three types of initiatives which are important to take into account during accident. Among these types the highest 95.1 per cent of the students think that they should take the injured people to the nearest hospital immediately after accident. On the other hand, very few students (6.6 per cent) don't know about their responsibilities during the period of accident.

Table 3.3.6 Knowledge of possible initiatives during the post accident

Necessary initiatives after accident	Respondents do have knowledge (%)	
	Treatment Group	Control Group
Giving primary treatment to the injured people	20.1	34.6
Taking injured people to the nearest hospital	95.1	88.5
Informing relatives of the injured people	25.6	18.5
Others/Don't know	6.6	0

* Multiple responses counted

3.3.6. Use of footpath

The presence of footpath at main road may influence the choices of pedestrians' walking area in road. Therefore, the choices of the students refer to the selective road side that has been identified as their best option for safe walk with or without existence of footpath in the road. In this regard, more than 50 per cent students prefer left side of the road for their safe walking in both case of when footpath is present or not present on the road. One important issue, 8.39 per cent of the student respondents don't have choice of any specific side for walking when there is no footpath on road of the treatment area.

Table 3.3.7 Using footpath

Knowledge	Respondents do have knowledge on the specific matter (%)	
	Treatment group	Control group
Which side of the road is safe for walk when no footpath is present on the road		
Left side	56.9	54.9
Right side	42.4	44.6
Don't know	0.7	0.4
Which side of the road is safe for walk when footpath is present on the road		
Left side	53.2	55.4
Right side	38.4	41.3
No specific side	8.4	3.3

3.3.7. Behavioral safety of the students

Students are habituated with some of their usual behaviours in road, e.g. playing, running, observing etc. Regarding road safety issue, the probable consequences of such student behaviour are very crucial to know while the respective respondents need to be aware of their usual behaviour. However, the respondents are asked about the ultimate result when they play or running with the bus at the road side. According to their responses, most of the students know the impact of their usual practices on the road. The table shows a list of major findings with the relative proportion of students based on their knowledge. However, very few students (3.75 and 1.55 per cent in two cases accordingly) don't know about the probable consequences of such road practices in the treatment area.

Table 3.3.8 Regarding awareness of usual behaviour of students in road

Knowledge	Respondents do have knowledge on the specific matter (%)	
	Treatment Group	Control Group
What incidents may be happened in case of playing on road or beside road		
Physical problem	52.1	48.6
Slip on the road	32.8	46.4
Collision with buses	60.5	57.6
Don't know	3.0	1.6
Others	3.7	2.4
What incidents may be happened in case of running at the back of running bus		
Physical problem	45.5	44.4
Slip on the road	46.6	57.8
Collision with buses	59.4	57.2
Don't know	1.6	0.9
Others	3.0	2.7

* Multiple responses counted

3.3.8. Thinking of road accident and responsibility of the students

The study identifies the probable locations/points on road which may be the vulnerable area for road accident. In this case, most of the students (52.76 per cent in the treatment area) think that any turning point of the road might be risky zone for accident. The next prioritised zones of the road are like broken road/narrow pass way, junction/circle and Bazaar. The 'others' includes some more places at the road side which are shown by 78.8 per cent students with multiple responses. Among these places rail crossing, island/speed breaker, zebra crossing, footpath less road and link road important.

In case of identifying reasons for road accident locally, most of the students (60.93 per cent) think that high speed of the vehicles is the main reason for local road accident. On the other hand, the lack of driving knowledge of the drivers has been claimed as the major sources for road accident. Among the 'others' listed in the table, the rising issues are such as absence of light during night driving, presence of cow/dog/goat on the road, overtaking, absence of traffic police, absence of road light etc.

Students need to take some necessary initiatives to reduce road accident. On the basis of student responses, the study identifies 'drivers' who should be made aware of driving knowledge and skills. And, the drivers should also be given first priority in reducing road accident. The relative proportion of the student perception on those matters is given in the table.

Table 3.3.9 Thinking of road accident and possible initiatives

Knowledge	Respondents do have knowledge on the specific matter (%)	
	Treatment group	Control group
What locations on the road may be caused for accident		
Junction/circle	30.2	26.0
Broken road/narrow pass way	32.7	35.5
bazaar	24.0	29.7
Turning point of the road	52.8	30.2
Others	78.8	91.8
Reasons of accident in local town/ locality		
Don't know how to move on road	47.5	37.3
Don't know how to drive vehicles	40.4	33.3
Don't know how to cross the road	29.6	21.4
Vehicles run so fast	60.3	59.4
Others	35.9	48.8
Necessary initiatives need to be taken to reduce road accident		
Make aware of child	54.9	43.3
Make aware of drivers + Traffic laws	56.7	49.9
Constructing footpath	9.9	15.9
Constructing broken road	17.4	16.1
Constructing speed breaker in front of Bazaar/school	10.1	23.4
Others	24.28	31.11
Who should be given first priority to make them aware in reducing road accident		
All	28.92	38.63
Pedestrians	40.62	36.64
Students	56.51	46.58
Drivers	64.02	53.42
Others	30.22	23.82
What processes may be suitable through the people to make them aware		
Formal and informal school syllabus	16.8	29.7
NGO/local meeting and group meeting	54.31	50.8
Poster	17.9	24.9
Billboard	11.2	12.1
Don't know	17.0	10.6
Others	64.7	62.9

* Multiple responses counted

The study gets student thoughts about some suitable process that may be used to make the people aware of road safety knowledge. For example, any kind of group meeting and NGO intervention into the local community can be the best way over the matter. Other process of intervention may be through school syllabus, poster and billboard presentation.

A significant portion of the students (17 per cent in the treatment area) don't have any idea about this process.

3.3.9. Student knowledge on traffic signs

The symbolic chart of different traffic signs has been shown to the student respondents. In that case the responses from the students on the respective symbol have been identified. The table has shown some symbols in relation to the right definition of different traffic signs identified from the respondents. However, the knowledge of the respondents regarding various traffic signs is very poor. And, the students also do have very poor knowledge on different signal lights in road. For an example, the highest 83.44 per cent of the students don't know the meaning of yellow light as it is used in road trafficking.

Table 3.3.10 Traffic signs

Traffic Signs	Treatment group (% of respondents)	Control group (% of respondents)
 (Pedestrians are prohibited to cross the road)	10.4	17.7
 (Pedestrians are allowed to cross the road)	15.8	27.6
 (Pedestrian crossing)	17.7	31.1
 (Bus stand)	12.6	28.7
 (Low speed because of school)	18.3	18.8

Table 3.3.11 Signal light

Interview variables		Respondents do have knowledge on the specific matter (%)	
		Treatment group	Control group
What is the meaning of yellow light on road	Prepare to stop	16.6	27.8
	Don't know/wrong	83.4	72.6

Part 3.4 Teachers of the school level

Perception of teachers on concurrent road safety issues in the treatment area

The study conducts 10 (ten) in-depth interviews with the teachers of different schools. The selection of teachers and schools is located in the study area where the intervention continues among the students. To get better understanding on road safety measures over the teachers, the interview is focused on some selective issues in the treatment area. The major issues are addressed on dimensions of road accident and safety; movement on road and roadside; types and nature of road; and road safety teaching in the class. However,

over discussion with the teachers, the study identifies some major areas of road safety issues which can be elaborated in the following ways:

Psychological attitude as the cause of road accident, referred by the teachers:

- Competitive mode of driving and overtaking among different buses on road
- Most of the time drivers/helpers get very poor punishment or 'no punishment' even they have been legally caused of road accident because of their careless responsibility in driving
- Administrative authority of the road sector is intentionally engaged in corruption with multiple dimensions (at time of trafficking, license issue, road permit etc)
- Driving is not allowed after taking drug, but heavy vehicles drivers are habituated with drug and driving at the same time

To reduce road accident some safety measures have been raised from the teacher respondents:

- Safe walking side of the road
- Process of crossing the road
- Prohibition of child play on road/road side
- Prohibition of mobile talk at time of walking on road/road side
- Prohibition of boundless movement of farm animals on road
- Drying/process of agricultural products on road
- Controlling illegal acquiring vacant place of the road
- Signal establishment at busy points, and/or joints of link roads
- Shifting bazaars, schools, institutions etc maintaining reasonable distance from the road
- Issuing license through maintaining all kinds of legal procedures
- Making strict rules and laws for ensuring traffic and road safety
- Punishment rate of violating traffic rules should be higher than the current rate
- Cancellation of road permit of unfit vehicles on the road
- Restriction of overloading
- Restriction of talking with drivers
- Addition of more pictorial materials on road side

According to the respondents which issues have not been come out from the treatment group:

- Sending information to the police
- Setting available zebra crossing
- Setting foot over bridge at busy point/crossing point
- Advancing drainage facilities beside road
- Arranging road light
- Confirmation of insurance of all vehicles either for maintenance or damage
- Replenishment of necessary supports to the vehicles on road
- Setting island in the middle of road

Part 3.5 Community road safety groups (CRSG)

Full dimensions:

BRAC – road safety programme is promoting awareness campaign and training as a pathway out of accident free road for creating a sustainable and in-built mechanism of road safety. Attaining this goal, road safety programme takes initiative to form CRSG committee. Community Road Safety Group (CRSG) is initiated to serve the local people for creating awareness on road safety, mobilising local resources and providing support for the post accident of victims. CRSG is a group injected externally by BRAC-Road Safety programme mobilising 12 people from different segment of a society apart from the broader vision of the programme to create sustainable road safety measures. Road Safety programme has initiated to formulate six CRSG groups at bazaars/growth centres where community cooperation is expected to be more in Bandar bazaar portion of the road. Road Safety started to form CRSG from the mid of April, 2014 and the process is going on to bond under one umbrella. At this stage the study observes mainly the formation process of the committee. It has already mentioned in the methodology section how the committee will be functioned through the respective model (Tuckman model).

However, it is very difficult to speak about anything on a newly formed committee or group for ensuring road safety. The existing theories and methods on group study permit to initiate a scheme based on exploring the group dynamics study to understand various aspects of a group or committee. But most of the group dynamics studies are primarily applicable to naturally formed group study. Therefore, some complexity might arise to study an injected group like CRSG. Considering these complexities, this study takes a scheme to understand CRSG from group dynamics point of view. Usually group dynamics is defined in a couple of ways by different sociological schools. According to the model the *Forming* of the committee expects no previous experiences or activities as found in a group until it is formed. Group may spring from many sources and for different purposes while formation examines the three sets of factors – personal qualities, nature of works, and feeling of liking. So, the present formation of the CRSG committee has been observed in line with this principle.

Structure of CRSG

A CRSG committee usually includes 12 members from different socio-occupational categories, having good reputation and willing to work for road safety, has selected to from each CRSG. A committee comprises 12 male members who are residing not so far from each other. Different occupational groups are there like, School teachers, Imams, Businessman, Farmer, Tailor and Quazi. CRSG is formed taking the members from hetero socio-occupational groups. All the members of this group do not have the same socio-professional background regarding their status, income, education, interest, culture, network and influence. It is difficult to consider them as a homogenous group even if all of them are gathered to implement the same purpose. So, there is a possibility for the group to contain some natural subgroups. Moreover, the willingness of different sub groups to work with such agenda like road safety issue would not be the same.

CRSG as a group has some objectives of its own such as - The CRSG will provide the leadership, assistance of this project. Meeting will be held once in every month from the

date of the group formation. Action plan will be formulated from the meeting and its progress will be disseminated among all the members in following meeting. Getting support by the BRAC, CRSG will initiate and participate in community level workshop and taking feedback from the participants and resource person. On the basis of feedback training refreshers will be imparted during the meeting. The main principal of the workshop is to create consensus and to identify strategies for problem solving and to aware people about using road and ensuring safety.

Methods

A total number of three CRSG committees from the six committees have been selected randomly. Initially, only qualitative technique has been followed in collection of data. But after collecting the formation timeline quantitative technique will also be added to searching the effectiveness of CRSG activities. At present various data collection tools including interviews, committee formation process and Focus Group Discussion (FGD) have been trailed in data collection, which follows the direction of the adopted model in studying group dynamics of CRSG. A short structured survey has been conducted in the very initial phage of group formation to understand the socio-demographic information of the group members.

Rationale

CRSG as a group has been initiated by BRAC- to ensure safety on road of the road users which is basically injected in nature. An understanding of group dynamics is essential for effective practice with any type of task or treatment group (Toseland *et al.* 2004). Group dynamics is certainly important to study group because it deals with some initials to complex elements of group, which can provide some concrete direction about group even on its future. To practice effectively with groups, social workers should be able to (1) understand group dynamic processes as they emerge during the ongoing interaction of group members, (2) consider the impact of these dynamics on members from different racial/ethnic and socioeconomic backgrounds, (3) assess the impact of emerging dynamics on current and future group functioning, and (4) guide the development of group dynamics that facilitate member participation and satisfaction while simultaneously enabling the group to achieve its goals (Toseland *et al.* 2004). Therefore, group dynamics study of CRSG will be helpful to understand interaction, functions, goal, achievement and emerging difficulties that may provide significant insight to overcome the problems and to take new step to make it more effective to protect legal rights of the poor.

Objectives

The broad objective of the study is to understand the dynamics of CRSG group and explore the sustainability of the group and their effectiveness in promoting road safety. The specific objectives will be - to explore the stages of CRSG and to access the sustainability of the CRSG group regarding its performance, impact and acceptance.

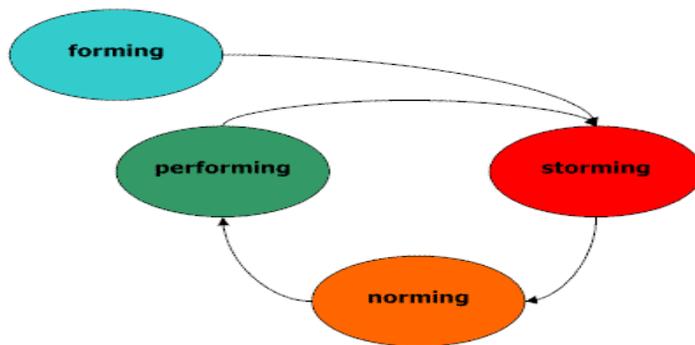
Selection of a model

A committee likes CRSG, as a group is not static by nature and eventually to be changed after formation. In most of the cases, it follows some predictable patterns that consists some stages and phenomena of group development. The same sorts of issues arise over time in

most groups and once resolved the group can develop further. There are several models like group socialization, group development to study group dynamics, by which it become easier to gather knowledge on the prospect of a group.

Group development model introduced by Bruce W. Tuckman often offers five stages (Tuckman 1965; Tuckman and others 1977) to study group dynamics. This model assumes that a group has to pursue the stages one after another. In the forming phase the group members become oriented towards one another. In the storming phase the group members find themselves in conflict, and some solution is sought to improve the group environment. In the norming phase, standards for behaviour and roles develop that regulate behaviour. In the performing phase the group reaches a point where it can work as a unit to achieve desired goals. In the adjourning stage, the sequence of development ends and the group disbands. Throughout these stages groups tend to oscillate back and forth between the task oriented issues and the socio emotional issues and the members of the group strengthen their interpersonal bonds. (Bales, 1965)

Figure: Tuckman's model of group development



Tuckman's model is also effective for zero history groups like newly introduced CRSG having no previous experiences or activities to work as a group until it was formed. Moreover, this model put more emphasis on each and every stages the group whether socialization model only focus on interaction and group cohesion to understand socialization process.

Analysis of the content of CRSG:

At the very beginning of the formation of CRSG, a guideline has been provided to the Programme Organizers (PO), which basically includes its key objectives, expected roles and responsibilities of the group members and some suggested activities. It might be considered as the constitution of the group which prescribes the possible directions for the group to achieve the core objectives. The CRSG guidelines provide list of implementation schedule, objectives, roles and responsibilities, distribution of the members and structure of the committee. The guideline mentioned seven objectives are to be achieved through CRSG committee. Among the objectives, four are very specific and rest three needs to be clearer to the members how and what are the responsibilities to perform.

Firstly CRSG group has some objectives and to achieve these, it has some roles and responsibilities. But these would be accomplished if some specific tasks would be performed. These tasks are germane to some demonstration strategies i.e., how the tasks would be followed by the group or the member and what kind of strategies would be fruitful to conduct the tasks. And finally the component of responsibility that analyse who would be responsible to find and follow the strategies as well as to determine tasks, roles, responsibilities to achieve the core objectives of the group.

If we take a look on the objectives of CRSG, we can broadly categorise them as long term and short-term basis considering the time required to achieve the objectives mentioned. However, four objectives including the agenda of achieving road safety mobilising local resources, liaison with various road related departments, protection road furniture would be considered as long-term objectives as because of these require huge time. In contrast, rest three including the agenda of identifying local road safety problems, mobilises local resources, support post accident time to victim are short -term objectives which require immediate actions. The long-term objectives may seem to be ambiguous to the members of CRSG according to their background.

Group dynamics of CRSG:

Stage 1: Forming

Groups spring from many sources and serve many purposes. But this lecture examines three sets of factors that can create a group which does not exist before: the personal qualities of the people who are seeking membership, the nature of the situation that prompts people to affiliate with one another and the feelings of liking that draw members to each other.

Beyond the formation

Programme Organisers (PO) are assigned persons who mobilise early initiatives as first step of group formation following the programme instruction. Moreover, all the members were not equally interested to attend the meeting, whereas some of them could not recognise the importance of the meeting properly. The other reasons for the delay might be taken place for rigorous engagement of opinion leaders in professional and socio-religious activities, and involvement with some other committees driven by Local Government Offices and NGOs.

Socio-demographic profile of the group members:

Six groups have been followed constituted by 72 members. Data shows that almost 62 per cent of the members are in the age categories of 20 to 40 years. A significant portion of the members have less than 10 years of education. About 30 per cent of the members had no or primary level education and 70 per cent of the member's have upper secondary or twelve class education which represented their knowledge disseminating capacity and strength. Member's occupational diversity was found to be concentrated on Businessman, farmer and teacher. 45.8% per cent of them were involved in business, 31.9 per cent and 9.7 per cent were engaged in Agriculture and teaching profession accordingly.

Affiliation of political parties was found among the members. In local, political parties seeking the people who are in active in local activities and who communicate and participate in one's problem. They are also capable to motivate people to do better for their community. Only 20 per cent of members were affiliated with different NGOs committees. But it has been reported that a significant portion of the members were involved in scout/social work activities.

Socio-demographic profile of the group members

Profile	%	Total (n)
Age Category		
20 – 30	27.8	20
31 – 40	34.7	25
41 – 50	16.7	19
51+	20.8	15
Educational status		
No education	8.3	6
Primary	25	18
Junior/Secondary	38.9	28
Higher secondary	27.8	20
Occupational status		
Businessman	45.8	33
Farmer	31.9	23
Teacher	9.7	7
Others	12.5	12
NGO Affiliation (committee)		
Yes	19.4	14
No	80.5	58
Involvement social work		
Yes	61.1	44
No	38.9	28
Political affiliation		
Yes	50	36
No	30.6	22
Not mentioned	19.4	14

n=72

Social network of members within the group during formation

In a group, the communication status of members follows the interaction process of the members by which it would be understood whether it is working as a group or something else. Interaction increases the group cohesion that is most important to perform expected group activities. Moreover, interpersonal communication might have a significant impact on group consensus. No member was found in a single committee who had communication with all the members. Mostly imam, kazi, schoolteachers, and UP members were the known face within a committee and professionally they were involved in such activities by which they had to interact with more people in the areas. In a community, they were found to be more influential in making societal decisions. Interestingly, most of the CRSG committees have concentrated in certain area from the project undertaken in road whereas most of the members (54) of all committees come from only six villages where the total number of the villages was 17. This data is also verified from the given map of the project road length.

Perceptions and reality of members on group formation

Initially all the members were convinced to join the meeting after receiving the invitation from POs. Most of the member of the groups recognised the significance and necessity of

such group. Previously most of them were not engaged in such activities. Only two of the members had received little knowledge on road users by other NGO. However, formation of the group provides them opportunity to work collectively, which would be considered, as a strong ground of all kind of social activities. They were seemed willing to pay enormous support to achieve objectives of the group and few of them were so, enthusiastic as BRAC take such initiative. They think only BRAC can operate such activities and achieve positive goal. Some of them also argued whether such group like CRSG does have the capability to achieve all the objectives.

However, the first initiative of the CRSG group formation is facilitated with the mobile communication to each other. Most of the members are set out in a discussion at the Bazaar place. This discussion has been conversed to identify the potential members for the CRSG committee. All members of the committee are not well known each other before formation of the committee. Even, those members should have no experiences regarding their prospective function in the community, but some of them are familiar with many activities related to social development. Committee members it is highlighted that they are interested to social work without their self interest. They are also seemed to cooperative intentionally each other in the activities.

Most of the members stated that they have less time to allocate for CRSG because of their professional, occupational, household activities and other social works. But at the same time they showed their willingness to work as it would be beneficial for their community people. Though they were not sure about how many times they could allocate for committee activities. Therefore, allocation of time for group activities might be considered as significant barriers in performance. One of the members' stated that *'If BRAC provides support and take care of it, it would be sustainable and can perform for longtime'*. (Businessmen, Kamargaon). This statement makes echoes of all members. However, they are enthusiastic to drive such activities receiving potential supports from BRAC.

Forecasting CRSG future:

It has been expected that CRSG would perform at satisfactory level and able to generate significant impact on using road. A certain level of performance requires personal endeavors to foster the group activities depending on group cohesion and its capability to make influence on social system. Individual performance has also significant influence on group activities where individuals are part of group and their collective attempts can help to construct a dynamic platform for group productivity. However, this study examined the group performance in two levels –collective and individual – to understand the dynamics of group. Actually collective performance visualises the group activities from macro level whereas micro level put emphasis on individual performance. Therefore, member's possible roles and responsibilities should be given within the short time for acting their performances. Presently, no roles and responsibilities have been prescribed to meet the objective of ensuring road safety. To meet the CRSG objectives strategies should be identified for achieving goal.

Chapter 4.

Discussions and Recommendation

The previous chapter gives some idea about the existing knowledge and practices on various indicators of road safety issues at different groups of respondents. Those results are not elaborated critically rather than showing the frequency level on the issue. In some cases, the findings are assessed in terms of significant gaps between the existing knowledge and practices of the respondents. However, overall findings have been evaluated in depth through the following three sections that guide a path of road safety measurement with some key issues:

4.1 Community group

4.1.1 Drivers (*Motorised and non-motorised*)

During survey at the treatment area, the study did not observe non-motorised vehicles at the significant level. It was really hard to collect the respondents in the survey. People feel comfort with the vehicles of CNG driven three wheelers to move in short distance. The study is lack behind the targeted sample of Rickshaw vehicles in the treatment area.

There is a gap between knowledge and behaviour of drivers regarding driving on road. It means that they had knowledge, although it was not up to the mark, but they did not put it into practice. The study also observes that the drivers did in complying with traffic rules. They knew 'ins and outs' of their vehicles but they were not well informed about traffic signs, lane, overtaking of vehicle, speed limit, and other accident-related issues. At the same time they did not apply properly whatever they knew. As a result, accidents were taken place more often in their locality.

However, most of the Drivers of rickshaw and rickshaw-van are illiterate. That is why; the significance of road safety issue is not well understandable to them with different relative matters like license and driving skills. Drivers think they should not have heavy training skills to drive non-motorised vehicles as it is usually required for the motorised vehicles. But, the reality in road practices, if the motorised and non-motorised vehicles move on road simultaneously, then the several traffic rules for both types of vehicles should be equally important to know for the pedestrians and the concern drivers.

Very few respondents do have valid license of their rickshaw, but none of them have their own. Interestingly, most of the respondents want to know why they should keep the license with them. And, a major portion of the respondents thinks they should have license for their vehicles, but in practice, they are not interested to receive license. In case of average perception of the respondents, some important findings are listed as follows:

- Respondents don't know the maximum speed of different vehicles in highway or local road
- Respondents bear goods/persons beyond their capacity

- A significant portion of the respondents don't know how to park their vehicles on road side
- Respondents don't know the meaning and usage of zebra crossing
- A significant portion of the respondents don't know how to use lane existed road
- Respondents don't know about the punishment if they violate the rules of crossing different traffic lines
- Respondents receive mobile call while driving, but at time of receiving call they reduce the vehicles' speed
- Uncontrolled speed of the vehicles is the main reason for local accident
- Respondents do have knowledge to keep light with their vehicles at night, but they do not do this practically
- Respondents know the impact of driving while they are sick, but in reality they have to drive even they are sick
- Respondents do have very poor knowledge on different traffic signs
- The worst practice of the respondents is not to control vehicle's speed; even they see the direction of the symbolic sign of speed in the respective road side.

In conclusion, the drivers should be given more knowledge and awareness about road safety. After gathering knowledge drivers should respect the traffic rules. Only the drivers should not be blamed for accident always.

4.1.2 Students

Students may be the most useful platform to build up awareness of road safety towards zero fatal road accident within the community. Learning period of the people is usually initiated at student life while so many new things are sowed into mindset. Therefore, the study finds out the existing status of knowledge and practices on road safety issues that are essential for the students. The average age of the students is below 15 and maximum eight class equivalent in the school. During survey, the student respondents were seemed to be enthusiastic to understand the issue. However, the study turns into some major decisions based on the common perception of the students which are as follows:

- A significant portion of the students don't have knowledge on road structure related to the walking side
- According to the students, CNG is the most common vehicle in the treatment area and they mostly use this type of vehicle for shorter length of movement
- Most of the students walk with wrong process in a group when they walk in the road. In this case they walk side by side among the group members.
- Most of the students walk with wrong process in a group when they cross over the road. In this case they cross through one behind another
- For first necessary initiative, most of the students think they should take the injured people to the nearest hospital immediately after occurrence in accident
- Most of the students walk in left side either in case of footpath is present, or not present in the road.

For student learning on road safety, proper text book curriculum of schools is very useful to make awareness of the large society in Bangladesh. Based on student information, current books of different classes are not designed properly containing enough materials on road safety related issues. For example, the text curriculum of class III includes different dimensions on road safety issues which are very useful, but the higher class curriculum covers very few information regarding road safety knowledge. Even, few chapters of different text books discuss very preliminary information regarding traffic system only, but the flow of disseminating of that information is not systematic from lower class to higher class. Based on the existing curriculum in primary and secondary classes, the study gets lack of rigorous curriculum related to road safety knowledge, rules and consequences of violating rules as equivalent standard to class V, VIII, IX and X. The respondents deserve at least one chapter of road safety related issues especially on traffic rules and laws in every class.

4.1.3 Teachers

The study area is the adjacent place of the link road from Syedpur to Enayetgonj under Hobigonj district. Because of local citizenship, all the selected teachers with the interview are much familiar about this road since they have been using the road for long period of time. They know about definition of road accident since it frequently happens in the selective road side. Based on their experiences the average rate of monthly road accident is between 1 to 2 in between distance from Syedpur to Enayetgonj (including Syedpur roundabout on Sylhet – Dhaka highway) whereas the average fatality rate is 1 (one). Apparently, this rate of accident and the victim is very high in against of only 10 kilometer road for the study intervention. In this area the accident happens through collision between heavy vehicles served as multi-business purpose. Here, the intervening road side is well recognised because of operating Bibiana gas field where the field is usually operated with many types of heavy vehicles (mostly containers) using this narrow link road started from Dhaka-Sylhet highway. About the risky condition of this area, teachers think that the authority of the gas field should focus on infrastructure of the link road started from Syedpur, which present condition is the main reason of most of the accidents. Even, the residents of this particular area are mostly conscious about prospective road accidents because of the causality factor 'gas field operation' as considered by them either in wrong or right perception.

Sometimes people are not willing to help the injured or victim on the spot caused by road accident. Even the witnesses just observe the situation during the accident rather than rescue the victim on the spot. According to the teachers, the fear of injustice police case is the most important factor behind such typical human behaviour of the witnesses with victim on the spot. As a result, the immediate situation after accident is become very cruel in a sense of inhuman behaviour of the people. But, this tradition is not common at all the spots and not for all the people in different cases. Rescue and helping the victim depends on regional culture among the people. The study faces this particular problem as kind of psychological behaviour of the people during accident.

Among other important feedback from the teachers, the connected road to the bridges is not well leveled from the ground. That means, most of the bridges are far above from the ground level road and at the end of those bridges the road has been turned to connect

other bridges. However, consequently of such structural design of road, the vehicles are become risky for driving because of the uncontrolled speed when vehicles turn from one bridge to another. Other risk factor is for sometimes as it is not possible to see many vehicles from one side to other side when crossing over the bridge.

All accidents are the cause of not only loss of the people, but also the whole facts lead on both irreplaceable financial and mental loss of the victim.

Livestock rearing adjacent to the local road side is another agent for accident. In this regard, cattle-farming is the most common event on road side locally. Many times, farm animals come across or, on the road and disturb vehicles' movement smoothly. In same way, the local road beside many schools and local Bazaars are become vulnerable in case of movement of heavy vehicles on the road.

4.2 Recommendations

Typically, considering the above discussion, the accidents blame to many accidents contributory factors such as variety of vehicles, speed of the vehicles, traffic regulations, poor education of pedestrians etc. and all of these are interrelated with the human attitude, behaviour and road conditions.

Furthermore, there is need to improve road infrastructure which is design bounded from site specific engineers. It is indicated by many priority based traffic measures vs. vulnerable road users. Non-main stream vehicles like rickshaw, van etc. are to be considered during the design of road infrastructures. Safety measures also focus cost effective outcome for the road users. Here, it is shown some potential sources of safety measures that require improvements:

- Road infrastructure and road environment
- Vehicle improvement
- Traffic operation
- Different awareness programme on road safety
- Related education and research programme
- Situation based care programme during accident
- Post accident care programme

In summary, awareness of road safety can be ensured gradually through some groups of people in the society, e.g. drivers and helpers of the bus, passengers, local union/word chairman/members, teachers, village leaders, traffic polices and all kinds of service holders. The medium of making awareness may be the following ways like meeting at different stages/groups/levels, announcement through radio/television and same kind of media, organising cultural event, school based programme, display of signboard/billboard, advertising in newspapers, street drama, guardian meeting, staged drama/popular theatre, sending mobile SMS/call and administrative approach.

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Annexes

Annex I. General knowledge level of drivers at different vehicle case

Knowledge level on general driving issues						
	Treatment			Control		
	Truck	Bus	Mini Bus	Truck	Bus	Mini Bus
21-40	.0	10.7	14.6	15.0	13.3	22.2
41-50	18.8	25.0	53.7	17.5	23.3	34.7
51-60	68.8	42.9	24.4	40.0	36.7	25.0
61-76	12.5	21.4	7.3	27.5	26.7	18.1

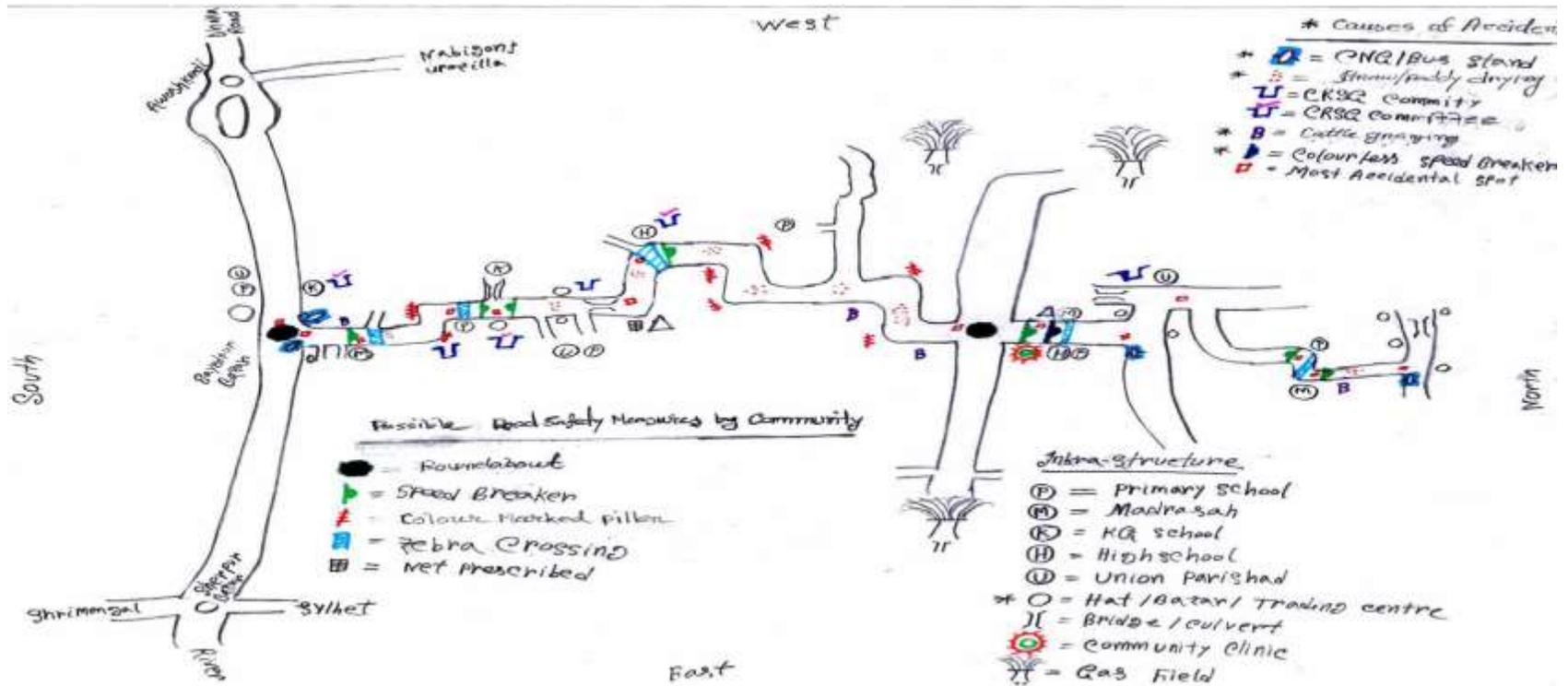
Annex II. Road symbolic knowledge level of drivers at different vehicle case

Knowledge Level on road symbol	Road symbol					
	Treatment			Control		
	Truck	Bus	Mini Bus	Truck	Bus	Mini Bus
1-40	.0	28.6	37.8	22.5	20.0	22.2
41-60	28.1	21.4	28.0	27.5	36.7	23.6
61-70	43.8	28.6	20.7	30.0	28.7	26.4
71-90	18.8	7.1	3.7	12.5	16.7	22.2
90-100	9.4	14.3	9.8	7.5	.0	5.6

Annex III. Road safety practice level of drivers at different vehicle case

Practice level on road safety knowledge of the respondents						
	Treatment			Control		
	Truck	Bus	Mini Bus	Truck	Bus	Mini Bus
13-30	3.1	10.7	26.8	12.5	3.3	26.4
31-40	34.4	35.7	34.1	17.5	36.7	31.9
41-50	46.9	42.9	29.3	37.5	26.7	27.8
51-69	15.6	10.7	9.8	32.5	33.3	13.9

Annex IV. Project location



Map illustrates description of project undertaken in road and its surroundings. It also shows the possible reasons and place for having road accident.

Besides, it gives direction to take measures for ensuring road safety. Map derives from the local community road users.