



**IMPACT OF MICROFINANCE ON HEALTH, EDUCATION  
AND INCOME OF RURAL HOUSEHOLDS: EVIDENCE FROM  
BANGLADESH**

A Thesis Submitted by

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## **ABSTRACT**

Since its inception, microfinance has played a significant role in the economic development of people in rural areas existing on low incomes. One way to increase the domain of microfinance on a sustainable basis is to improve the health-related services and educational facilities among the member households of microfinance. However, there is an absence of substantial amount of comprehensive research on these issues namely on health, education and income, which the study aims to address.

This thesis examines the impact of microfinance on health, education and income of rural households in Bangladesh. Specifically, focusing on the effect of microcredit participation by member households of microfinance, this study provides suggestions as to policies and procedures for the Micro Finance Institutions (MFIs) to improve their operations in near future.

The research is based on the household survey data on 439 households across 20 villages from four districts of Bangladesh namely Narshingdi, Narayanganj, Comilla, and Chandpur. A quasi-experimental survey method was conducted to investigate the impact of microfinance on income and consumption on member and non-member households of MFIs followed by a cross-sectional survey to investigate the impact of microfinance on health-seeking behaviour of adult households, child health and child schooling on member households of MFIs. In Chapter 4, the empirical results showed that participation in microfinance had positive impacts on income and consumption although the poverty effects on microfinance members was higher than for non-members. The results suggest that the overall impact of microfinance operations on the economic well-being of the microfinance participants was positive. The results in Chapter 5 suggest that the overall impact of microfinance operations on the health services and health-seeking behaviour of the participants was mostly positive. Microfinance participants' health-related issues, as indicated by antenatal care, maternal care, family planning, diarrhoea remedial, immunisation provided, malaria/TB treatment, and the accessibility of medicines all improved significantly after joining the microfinance scheme. In Chapter 6, the study investigates the impact of microfinance programs on the nutrition status of the children of rural households embedded with the socioeconomic factors such as household characteristics, child characteristics, village characteristics on nutritional status (measured by height-for-

age, and weight-for-age) of children. This study found no significant associations between microcredit participation and anthropometric indicators of children. In Chapter 7, the study analysed the impact of microfinance programmes on children's schooling outcomes of the rural households in Bangladesh. This study's results reveal that participation in microcredit has had a significant positive effect on school enrolment and negative effect on grade attainment. In Chapter 8, the study conducted four Focus Group Discussions (FGDs) in four districts of Bangladesh. The FGDs revealed that utilisation of credit appears to be a major factor for microcredit recipients in raising their income and reducing poverty, and microcredit recipients tended to be health conscious and education focussed due to the motivation provided by MFIs.

This thesis contributes to the literature by applying the method of quasi-experimental survey to show the impact analysis of microfinance on economic well-being, proxied by income and consumption. Regarding the health and education aspects, this study uses cross-sectional survey to examine the impact of microfinance on the health-seeking behaviour of households, as well as child nutrition and child schooling. Most of the previous studies did not examine some important aspects of health such as health-seeking behaviour and access to health services and health inputs which are the contribution of this study. Although there are few studies on child health in other countries, there have been very few studies on the impact of microfinance on child health in Bangladesh. Despite the numerous studies on schooling, few have investigated the effects of microcredit duration, a more direct measure of investigating the impacts of microcredit programmes on child schooling. In addition,, this study has investigated the impact of microcredit on health, education and income on rural households at a time using FGD for the first time.

This study proposes three main policy recommendations. Firstly, following the persistent trends of growth of MFIs in Bangladesh, the current poverty level can further be reduced through the combined efforts of the government bodies, MFIs, donor agencies and the member of the MFIs. Secondly, Microcredit Regulatory Authority (MRA) can put conditions on providing registration to newly applied MFIs and NGOs to include health and educational services with the microcredit programs. Thirdly, the promotion of experience sharing among the MFIs may be beneficial for the improvement of microfinance operations as a whole

## **CERTIFICATION OF THESIS**

This thesis is entirely the work of Mohammad Monzur Morshed Bhuiya except where otherwise acknowledged. The work is original and has not previously been submitted for any other award except where acknowledged.

Student and supervisors signatures of endorsement are held at USQ.

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## **DEDICATION**

To my parents who nurtured me all along and to whom great respect is due,

And

To my beloved wife and my lovely daughter who inspired me to pursue higher studies



## THESIS RELATED RESEARCH OUTCOMES

### Published Articles in Referred Journal

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## **ABBREVIATIONS**

BB	Bangladesh Bank
BRAC	Bangladesh Rural Advancement Committee
BRDB	Bangladesh Rural Development Board
BIDS	Bangladesh Institute of Development Studies
BRI	Bank Rakyat Indonesia
BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka, currency unit of Bangladesh (US\$1= BDT 78)
CDF	Credit and Development Forum
DISA	Development Initiative for Social Advancement
ESP	Essential Services Package
FGD	Focus Group Discussion
GB	Grameen bank
HHEP	Household Economic Portfolio Model
HAZ	Height-for-Age
IGA	Income Generating Activities
InM	Institute of Microfinance
ISP	Integrated Service Packages
IV	Instrumental Variable
LMIC	Low and Middle Income Country
LIC	Low Income Country
LGD	Local Government Department
MOF	Ministry of Finance
MFI	Microfinance Institution
MF	Microfinance



MO	Microcredit Organisation
MRA	Microcredit Regulatory Authority
MDG	Millennium Development Goals
MIX	Microfinance Information Exchange
MHI	Micro Health Insurance
NGO	Non-governmental Organisation
NCHS	National Centre for Health Statistics
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
OR	Odds Ratio
PKSF	Palli KarmaSahayakFoundation (Rural Activities Support Foundation)
PO	Partner Organisation
PSU	Primary Sampling Units
PSM	Propensity Score Matching
QES	Quasi-Experimental Survey
RCT	Randomised Control Trials
UN	United Nations
UNDP	United Nations Development Program
VL	Village Leader
WHO	World Health Organization
WAZ	Weight-for-Age
WB	World Bank

# 1 CHAPTER 1: INTRODUCTION

## 1.1 INTRODUCTION

Microfinance has been considered to be a key factor to make a significant contribution in the development of rural areas of Bangladesh. After the achievement of independence in 1971, Bangladesh has been experiencing a significant contribution through microfinance through the activities of Bangladesh Rural Advancement Committee (BRAC) in 1972 founded by the 2015 World Food Prize Laureate, Sir Fazle Hasan Abed. Soon after, Dr Muhammad Yunus, Nobel Peace Prize Laureate in 2006, founder of the Grameen Bank, started operating in 1976 with a project in *Jobra* Village in Chittagong district of Bangladesh. Later, in 1983, the Government of Bangladesh endorsed Grameen Bank to begin work as a fully-fledged bank. Afterwards, many Non-Government Organisations (NGOs), including Association for Social Advancement (ASA), Proshika, Basic Unit for Resources and Opportunities of Bangladesh (BURO Bangladesh) and other NGOs started their operation in the microfinance sector to a greater extent. Since the inception of microfinance activities in Bangladesh, those Micro Finance Institutions (MFIs) had been involved particularly in microcredit activities and paid little attention to social issues like health and education. Despite the limitations, microfinance has significantly helped synergise rural Bangladesh and facilitated entrepreneurship at the ‘bottom of the pyramid’. The microfinance industry of Bangladesh is regarded as the largest and most efficient in the world. According to the Microfinance Information Exchange (MIX) analysis report on Asia, Bangladesh caters for close to 25 million borrowers, when compared to 17 million in India and 60 million in the entirety of Asia. Bangladesh also boasts a gross loan portfolio of \$3 billion compared to \$5 billion for South Asia (MIX, 2014). With a population of 160 million and more than 24 percent of them living below the poverty line, and 17 percent being ultra-poor, there is still a large opportunity and capacity for the growth of microcredit in Bangladesh. It is compensating for the otherwise admirable social safety net program by the government (Rashid, 2015).

## 1.2 STATEMENT OF THE PROBLEM

Poverty, health and education are some of the main issues that are high priority areas for the overall economic development of a country Khan (2000). Lack of employment opportunities due to unavailability of funds is one of the major causes of poverty which in turn lead to reduced healthcare services and increased illiteracy. This research is designed to explore the impacts of microfinance operations on health and education for the participants in rural areas, and to examine the impact of microfinance on the poorest people in alleviating their poverty.

The importance of addressing both economic (income/consumption) and social issues (health and education) is very crucial. The growth in economic development that is indicated by GDP per capita does not ensure social development, which may be assured through other aspects of life such as life expectancy and literacy rate (Habib & Jubb). Therefore, simply focusing on economic development will not address social issues and thus it is essential for microfinance programmes to focus on both economic and social development.

Microfinance is by no means a panacea, but it is considered as a powerful poverty reduction tool and its impact on the MDGs is far reaching (Amin, 2008). Li, Gan and Hu (2011) revealed that a microcredit program is not suitable for those in extreme poverty who cannot access credit effectively. The author argued that extremely poor people should be provided with small grants, infrastructure development, health care and education training through which they can form capital and thereby enhance their ability to borrow. In another study in a village in Bangladesh, Nawaz (2010) found that microfinance has the ability to bring about a moderate reduction in the level of poverty for the clients. But to ensure microfinance as a more effective mechanism of poverty reduction, other non-financial services such as education and health should be incorporated with microfinance. Similarly, Leatherman and Dunford (2010) showed the linkage of health to microfinance in successfully reducing poverty. They argued that MFIs should include health-related services as an expansion of their services because health services indicate financial security and the social protection of the client. Healthier clients better ensure that the goals of growth and long-term viability of Micro Finance Institutions (MFIs) can be met.

### **1.3 MOTIVATION OF THE STUDY**

“Microfinance” is a word commonly used as an alternative to “microcredit” which refers to a financial scheme for providing financial services to the poor (ILORI & PLC). Notable research on microfinance by McGuire and Conroy (2000), Schreiner and Colombet (2001) and Khandakar and Danopoulos (2004) view microfinance as the effort to develop access to small deposits and small loans for underprivileged households whose requests for credit are normally ignored by the banks. Microcredit, on the contrary, is considered as a development tool, essentially the distribution of loans without collateral to borrowers in a group with a view to generating more income and reducing poverty by creating opportunities for self-employment and healthcare (Chowdhury, Ghosh & Wright 2005; Hasan & Ahmed 2009) .

Microfinance has received enormous attention from the global development community as it is considered to be a powerful tool for poverty alleviation strategies in developing countries (Microcredit Summit, 2004). Armendáriz and Morduch (2010) and Maldonado and González-Vega (2008) argued that microfinance may keep household production stable and mitigate adverse shocks. Thereby, it may help to prevent school dropout rates for children and increase the family’s spending on healthcare. The effects on education and healthcare are critical to sustainable poverty reduction since they affect the quality of human capital formation and the productivity of future generations.

The year 2005 was declared as the International Year of Microcredit by the United Nations (UN), which accredited microfinance as an important technique to fulfill the Millennium Development Goals (MDGs), particularly to achieve the goal of making the world’s poverty rate halved by 2015 (Islam & Choe 2013). In terms of fulfilling its development agenda, the focus of the MDGs is on the reduction of extreme poverty and the improvement of health and education by 2015 (Leatherman & Dunford 2010).

Microfinance is a mechanism which gives the poor access to capital that enables them to develop their own business which may, consequently, boost their personal income as well as their expenditure on their children’s education, family healthcare and nutrition (Chowdhury & Mukhopadhaya 2012). In 2006, Professor Muhammad Yunus and the Grameen Bank of Bangladesh were awarded the Nobel

Peace Prize for their significant role in alleviating world poverty through microfinance (Rahman & Nie 2011).

Although the microfinance movement has developed rapidly in Bangladesh over the last four decades, there has been little research on the wider contribution of microfinance to the livelihood of its clients in Bangladesh. Most studies in the empirical literature on microfinance impacts did not fully address the self-selection issue that can bias the results. Moreover, there is no consensus in the microfinance literature that has attempted to control for selection bias; for example Pitt and Khandker (1998), Coleman (1999), Khandker (2005), Chemin (2008), and Morduch and Roodman (2009). A very few studies, including Imai and Azam (2012); Nawaz (2010); Amin, Shah and Becker (2010), have examined the contribution of microfinance in Bangladesh to show the extent of the impact of microfinance on economic condition based on secondary data, rather than putting emphasis on the extent of the consequences of microfinance on the households. To fill the gaps in the literature, this study examines the impacts of microfinance on health, education and economic well-being (proxied by income and consumption) in Bangladesh.

#### **1.4 RESEARCH OBJECTIVES**

The main objective of the study is to evaluate the impact of microfinance operations on the socio-economic well-being of microfinance participants in Bangladesh.

Specifically, this study aims to:

1. Examine the present status of microfinance in Bangladesh including its performance and past impact studies.
2. Examine the impact of microcredit participation on economic wellbeing proxied by income and consumption on rural households in Bangladesh.
3. Evaluate the impact of microcredit participation on health-seeking behaviour of adult households and child nutrition of rural households in Bangladesh.
4. Evaluate the impact of microcredit participation on children's schooling outcomes for its participants.

## **1.5 RESEARCH QUESTIONS**

The following specific research questions are addressed in this thesis:

- I. Has the growth of microfinance operations been substantial enough throughout the years?
- II. Has microfinance had any impact on income/consumption on rural households in Bangladesh?
- III. Has participation in microcredit had any impact on health-seeking behaviour and health services on the microcredit participants of rural households in Bangladesh?
- IV. Has there been any impact of microcredit participation on child nutrition for rural households in Bangladesh?
- V. Has microcredit participation had any impact on rates of child schooling in rural households in Bangladesh?
- VI. Has microcredit participation had any overall effect on the socio-economic well-being on rural households in Bangladesh?

## **1.6 SIGNIFICANCE OF THE STUDY**

This study is very significant from different points of view. Firstly, microfinance has evolved as a potent driver of financial inclusion in Bangladesh with a profoundly positive impact on poverty alleviation and socio-economic indicators. Despite massive success regarding outreach, employment generation and empowerment of millions of poor, a large number of low-income poor people have remained excluded from the network of the financial services including the health and educational facilities. Considering the impact of microfinance on income, this study seeks to analyse the impact of microfinance on health and education of the participants of rural households. Secondly, this study hopes to develop future guidelines for the government and for policy makers who are connected to microfinance operations. In order to create an effective poverty reduction process, there need to be a concentrated effort from Government, donors and the social sector that include maintaining sustainable improvement in health and education.

## **1.7 SCOPE OF THE STUDY**

This study examines the impact of microfinance schemes on child nutrition, child schooling and income and consumption by some large and medium type microfinance institutions on their clients in Bangladesh. This study has used cross-sectional data collected from selected respondents from twenty villages of four selected districts of Bangladesh. The study highlighted the participation of microfinance and its impact on child nutrition, child schooling, health-seeking behaviour and health services of rural households, and income/consumption of the members of participants in microfinance in Bangladesh.

The cross-sectional data obtained from the survey questionnaire developed by the author has enabled this study to analyse the impact of microfinance-related operations on the socio-economic wellbeing of the participants. The study targets the members of two large and one medium type MFI in Bangladesh. Therefore, this study examined the impact of microfinance on members and non-members of microfinance schemes particularly. In Indonesia, for example, women customers of Bank of Rakyat Indonesia (Microfinance) participate more in family decisions on children education, use of contraception, and other important family decisions than women with little or no access to finance.

Thereby, this study is not ignoring the contribution of donor countries and international donor agencies that have assisted a great deal in fostering the domestic growth of the economy. However, this study is limited to local MFIs and how they create positive or negative impacts on the socio-economic conditions of the participants and nonparticipants of microfinance programmes.

## **1.8 METHODS OF DATA COLLECTION AND ANALYSIS**

This section of the study states the various methods of data collection and the ways in which the data is analysed. This study relied on the use of primary data collected directly from respondents to the structured survey questionnaires and Focus Group Discussion (FGD). The questionnaire method was used in this study and administered by expert research assistants in the study area which were Narsingdhi, Narayangonj, Comilla and Chandpur districts of Bangladesh. The data analysis of the study was done based on descriptive statistics such as frequency distributions, cross tabulations among the variables. The multiple regression analysis is used to predict the outcome of the

variables. The output of the analysis is presented in different tables and figures. The Statistical Package for the Social Sciences (SPSS, Version 22) and STATA 13 have been used as a statistical tool for the analysis of the data. Moreover, document analysis has been followed in case of overview chapter (Chapter 2) and thematic analysis has been conducted for the data analysis with respect to focus group discussions (Chapter 8).

## **1.9 OVERVIEW OF THE DEVELOPMENT OF RESEARCH PHASES/ FLOW DIAGRAM**

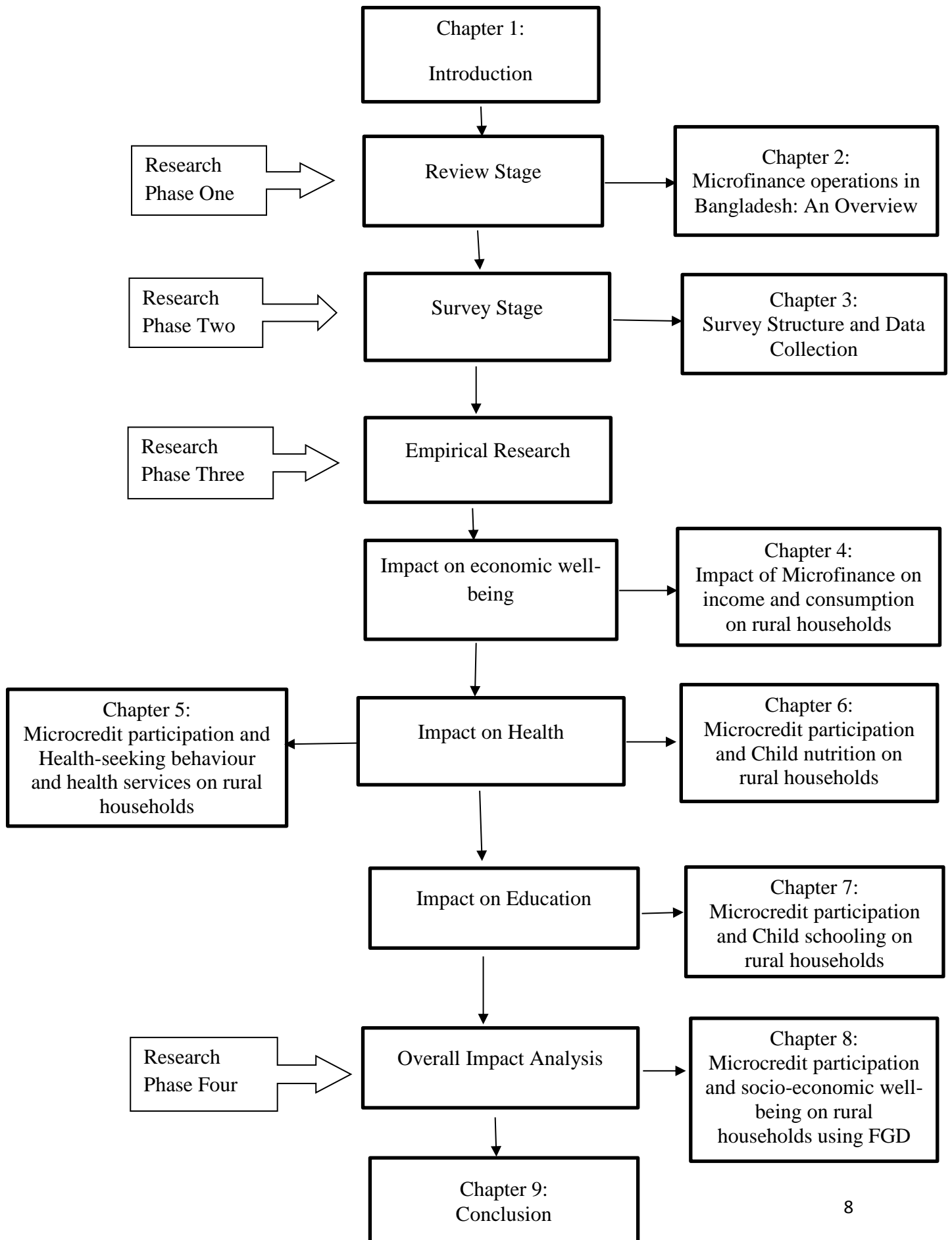
This study examines the research objectives in four phases. Figure 1.1 below presents these four phases, illustrating the steps to meet each research objective and the research methods by which each phase of the investigation was conducted. Prior to starting the discussion of the four phases of research, an introduction of the thesis is provided. Then, the four research phases are discussed in the following four sub-sections.

### **1.9.1 Research Phase One**

The first phase of the study is a review (Chapter 2) of microfinance operations in Bangladesh. This Chapter reviews the evolution, current status of microfinance in Bangladesh including its performance and past impact studies. It is based on the documentary data downloaded from different sources. In addition, review of literature related to different chapters has been done at this phase.



Figure 1-1 Flow Diagram of Thesis



### **1.9.2 Research Phase Two**

The second phase of the study discusses the survey structure and data collection procedure (Chapter 3) of the entire research. This Chapter provides insights into how best to frame a household survey to collect data on socio-economic issues on rural households of Bangladesh to successfully conduct an impact analysis of microfinance. The survey was completed successfully on 439 households covering 20 villages of four districts of Bangladesh.

### **1.9.3 Research Phase Three**

In the third phase, four empirical studies were conducted. The first study (Chapter 4) investigated the effects of microfinance on the economic welfare of member and non-member microfinance participants of rural households in Bangladesh using a quasi-experimental survey pioneered by Coleman (1999). To the best of our knowledge, no previous studies in Bangladesh have researched the impact of microfinance on the member and non-member households' income and consumption using a quasi-experimental survey except one, Pitt and Khandker (1998), who only considered the consumption of the households in their study. Therefore, to fill up this gap in the literature, this study examines the impacts of microfinance on income and consumption that lead to poverty alleviation in Bangladesh.

In the second empirical study (Chapter 5) under this phase, basically, a cross-sectional survey is undertaken to investigate whether participation in microfinance programme improves health-seeking behaviour and health knowledge of the microcredit participants in rural households. A small number of papers investigated the impacts of microfinance on child health and women health in Indonesia, Latin America, Africa (Collier et al. 2014; DeLoach & Lamanna 2011; Geissler & Leatherman 2015). However, the issue of whether and to what extent microfinance activities improve health-seeking behaviours and health services in developing countries has got very little attention from researchers and policymakers. This study attempts to fill up this gap in the literature. Moreover, to the best of the author's knowledge, none of the previous studies used primary data to examine health effects of participation in microfinance. Therefore, this study will be an important addition to the literature too. Previous literature focused on health knowledge or awareness and health improvement and outcomes rather than examining health-seeking behaviour and access to health

service and health input in particular. Most of the previous studies did not examine the some important aspects of health such as health-seeking behaviour and access to health services and health inputs which are the focus of this study.

In the third empirical study (Chapter 6) under this phase, the study investigates the impact of microfinance programmes on the nutrition (health) status of the children of microcredit participants of rural households in Bangladesh using a cross-sectional survey on 439 households across 20 villages. A large body of literature has discussed the impact of microfinance on adult health, women health, antenatal care, maternal health, HIV/AIDS prevention practices and diarrheal diseases. On the other hand, very few studies have been conducted to show the impact of microfinance on child health outcomes, particularly in Bangladesh. The paucity of comprehensive studies on child health due to the involvement of microcredit in Bangladesh makes this study an important contribution to the existing literature.

The fourth empirical study under third phase of the research (Chapter 7) investigates the impact of microfinance programmes on the schooling outcomes (measured by school attendance, school enrolment, and grade attainment) of children of the households in Bangladesh using a cross-sectional survey on 439 households across 20 villages. Despite the numerous studies on schooling, a few or almost none has investigated the effects of microcredit duration, a more direct measure of investigating the impacts of microcredit programmes on child schooling. Thus, this study will contribute to the line of literature by examining the effects of microfinance participation, particularly duration, on child schooling.

#### **1.9.4 Research Phase Four**

The fourth and final phase of the study (Chapter 8) conducts focus group discussions (FGD) with microfinance officials, village leaders and members from MFIs (GB, BRAC, DISA) to examine the overall impact of microcredit on the participants of microcredit in Bangladesh. The FGD revealed that the utilisation of credit appears to be a major factor for microcredit recipients raising their income and reducing poverty, and microcredit recipients tend to be health conscious and education fascinated due to the motivation of MFIs. Most of the previous studies conducted in different parts of the world discussed the impact of microfinance on health-seeking behaviour among tribal people, health behaviour enabled by microcredit or providing primary health

care through integrated microfinance following focus group discussion (Geissler & Leatherman 2015; Hennink & McFarland 2013; Rahman et al. 2012). However, there is no evidence of evaluating the impact of microfinance simultaneously on health, education and economic wellbeing of the microcredit recipients using FGD at a time. So, the author proposes that this study will add a new contribution to the existing literature of impact study of microfinance following FGD.

## **1.10 OUTLINE OF THE THESIS**

The thesis follows a research paper arrangement consisting of seven analytical chapters. The chapters are linked to each other under the broad category of microcredit impact on health, education and economic wellbeing, but separable in the context of identifying literature and addressing specific research issue(s). Following the introduction, Chapter 2 provides an overview of microfinance operations in Bangladesh. In particular, the coverage area of MFIs and trends and growth of microfinance programs will be highlighted with a particular focus on Bangladesh. This Chapter then discusses the various operations of microfinance programme conducted by the surveyed MFIs (GB, BRAC, and DISA) within this research in Bangladesh. The discussion of this chapter leads to investigate whether and how the issue of microcredit participation put impact on health, education and economic aspects of rural households in Bangladesh. Finally, the Chapter demonstrates some significant impact studies on microcredit so far conducted in Bangladesh.

Chapter 3 discusses the techniques of survey design and data collection. This Chapter presents the survey structure used to collect and analyse data on the impact analysis of microfinance on health, education and income on rural households in Bangladesh. The household survey was conducted to collect data for the impact analysis on the above-mentioned issues. In addition, village level survey was conducted with the assistance of union council officials, MFIs' managers, and village leaders to obtain perceptual information, as well as data on basic information about socio-economic conditions of the villages.

Chapter 4 analyses the impact of microfinance programmes on income and consumption of rural households in Bangladesh. This Chapter then provides evidence of prior research in microfinance impact studies related to self-selection bias and, followed by a review of prior literature in impact of microfinance and methodology

used to investigate the impact. The Chapter specifically shows that there is a lack that no previous studies in Bangladesh have researched the impact of microfinance on the member and non-member households' income and consumption using a quasi-experimental survey except one, Pitt and Khandker (1998), who only considered the consumption of the households in their study. Therefore, to fill this gap in the literature, this study examines the impacts of microfinance on income and consumption that lead to poverty alleviation in Bangladesh.

Chapter 5 discusses the microcredit participation and health-seeking behaviour and health services of rural households in Bangladesh. It specifically shows that most of the previous studies did not examine some important aspects of health such as health-seeking behaviour and access to health services and health inputs which are the focus of this study. The Chapter then proposes that microfinance participants' health-related issues as indicated by antenatal care, maternal care, family planning, diarrhoea remedial, immunisation provided, malaria/TB treatment, and medicines accessibility have been discussed properly.

Chapter 6 discusses microcredit participation and child nutrition on rural households in Bangladesh. The chapter attempts to identify the impact of microfinance embedded with the socioeconomic factors such as household characteristics, child characteristics, village characteristics on the health (measured by height-for-age and weight-for-age) of children. Furthermore, the Chapter then suggests investigating whether or not microfinance increases the health knowledge and health awareness of the participating households and whether it has spill-over effects on child and adult health outcome.

Chapter 7 will discuss the microcredit participation and its impact on rates of child schooling in Bangladesh. It focuses on the duration effect of microfinance participation by the member households of MFIs on schooling outcomes (as measured by school attendance, school enrolment, and grade attainment) of their children. Furthermore, the Chapter suggests to investigate and compare between member and non-member households of microfinance related to the impact of microcredit on the schooling outcomes of their children.

Chapter 8 will discuss the microcredit participation and impact on socio-economic wellbeing of rural households in Bangladesh. The Chapter uses qualitative data from Bangladesh on the processes by which participation in microfinance enables

changes in child health and schooling and improves Income Generating Activities (IGA). The Chapter also highlights that the income-generating activities of women played a very vital role in women's economic empowerment and sense of self-confidence, as it helps to untie the cycle of poverty and provides them with more flexibility in handling their economic decisions.

Chapter 9 provides a conclusion to the study by revisiting the research findings under the heading of each research question. The key contribution to the literature will be discussed as a whole. Moreover, the policy implications of the research will also be discussed. Research limitations will then be presented, followed by an examination of further potential research within this area.

## **2 CHAPTER 2: MICROFINANCE OPERATIONS IN BANGLADESH- AN OVERVIEW**

*Summary: This chapter reviews the evolution, current status of microfinance in Bangladesh including its performance and past impact studies. The chapter is based on the documentary data downloaded from different sources. The review of document analysis revealed that a significant growth was achieved in most of the indicators including loan disbursement, size of loan per borrower, net savings per microfinance institutions (MFI), and loan outstanding per MFI in Bangladesh. Also, the study found that the review of impact study on microcredit has so far focused on rural households in respect to income, consumption, asset building, health and education issues.*

### **2.1 INTRODUCTION**

Microfinance operations have been in place in Bangladesh since the 1970s. The progress of the microfinance operations has been continuous since their inception with the implementation of a project in “Jobra” village under Chittagong district in Bangladesh. Afterwards, from 1990, the country experienced a huge expansion of microfinance operations, thereby drawing the attention of all important players including donors, development partners and policy makers from all over the world. Sensing these significant developments in the area of microfinance and the importance of re-lending the funds received from donor countries, the government of Bangladesh established the “Palli Karma-Sahayak Foundation”, PKSf (in English it is called “Rural Activities Support Foundation”) in late 1990 (Hasan & Ahmed 2009). The prime mandate of PKSf is to alleviate poverty through creating employment by providing subsidised funds to Micro Finance Institutions (MFIs). PKSf provides fund to those MFIs which are its Partner Organisations (PO) to implement development programs designed for the poor. Until October 2015, PKSf provided financial assistance amounting to BDT 1906.95 billion to 11.11 million households through 7061 branches of 273 PO in 64 districts (PKSf 2015).

Over the last four decades, Microfinance activities have become a very crucial component in the economy for alleviating poverty in developing countries and less developed countries (Hasan & Ahmed 2009). There are few poor countries and development donor agencies which are not involved in microcredit programmes. Many

achievements are claimed about the impact of microfinance programmes, and an outside observer cannot but wonder at the range of diversity of benefits claimed. The poor cannot access to formal banking to get small loans due to policy constraints. Because of this situation, MFIs come forward to provide collateral-free loans to poor people which allow them to be involved in various income generating activities. Thus, the study describes the performance and growth of microfinance, emphasising the delivery of various financial and nonfinancial services to the poor households all over the country.

The rest of the chapter is organised as follows: Section Two introduces the MFIs in Bangladesh and their coverage. Section Three describes the methodology and data. Section Four presents the findings, and Section Five concludes the Chapter with a discussion of the possible implications of this research on the field.

## **2.2 MICROFINANCE INSTITUTIONS IN BANGLADESH AND ITS COVERAGE**

Bangladesh has played a pivotal role in the movement of microcredit and has shown the world that the poor are creditworthy enough to repay the debt (Faruquee & Badruddoza 2011). Thus, microfinance has so far reached numerous people across the world. In this regard, MFIs have become dominant financial institutions for the poor who cannot access to formal financial institutions in some parts of the world. There are about 1000 listed micro finance institutions (MFIs) now operating in Bangladesh (InM 2015). Beyond the MFIs, Non-government organisations (NGOs) are also actively involved in delivering microfinance activities in Bangladesh. The total amount of credit so far disbursed till 2013 by all the MFIs is BDT 515,364.60 million (CDF 2013).

The overall scenario and performance of MFIs in Bangladesh can be found at a glance from the following Table 2.1. The table shows the name of the MFIs, numbers of active members, outstanding borrowers, disbursement amount and outstanding amount of loan and number of branches until 2013 in Bangladesh.

Among the top fifty MFIs as reported by Credit and Development Forum (CDF), the author has provided key information about the top eight MFIs in Bangladesh. The Table 1 shows that the total number of active members of Grameen



Bank was 8,543,977 while the number of outstanding borrowers is 6,738,588. The next position is held by BRAC, which has 5,640,684 active members and 4,528,600 outstanding borrowers. As the most promising MFI, DISA has been performing very well, having 45,429 active members while the number of outstanding borrowers stands at 36,161. The amount of disbursement of loan of DISA for the year 2013 is BDT 921.15 million.

Table 2-1 Microfinance operations in Bangladesh

<b>Name of the Organisation</b>	<b>Active Members (Numbers)</b>	<b>Disbursement of Loan (in Million BDT)</b>	<b>Outstanding Loan (in Million BDT)</b>	<b>Outstanding Borrowers (Numbers)</b>
Grameen Bank	8543977	126026.3	84385	6738588
BRAC	5640684	121148.9	71889.57	4528600
ASA	4859588	99964.15	59214.94	4339877
Proshika	1219663	2256.79	1948.47	729583
BURO BD	1067219	25242.24	16584.22	934237
TMSS	856744	16177.22	9950.26	713846
SSS	461119	12490.59	6429.68	367817
DISA	45429	921.15		36161

Source: Credit and Development Forum statistics, 2013 and DISA Annual Report, 2014.

Grameen Bank, as a single institution, dominates as the leader of MFIs by disbursing loans totalling BDT 126,026 million with an outstanding loan amount of BDT 84,385 million. BRAC is also considered to be the next best performer with the disbursement of loan by BDT 12,1148.9 million with loan outstanding at BDT 71,889.57 million. Among other leading MFIs, noteworthy are ASA, Proshika, BURO BD, TMSS, and SSS which have been doing extremely well since their inception.

### **2.3 METHODOLOGY AND DATA**

In undertaking the research, this study makes reference to some documents released by various MFIs, NGOs and research institutions. Online research databases have been used to look for the documents related to microfinance growth and trends over the years. The selected organisations are: Credit and Development Forum (CDF), Institute of Microfinance (InM), Palli Karma-Sahayak Foundation (PKSF), Microcredit

Regulatory Authority (MRA), Grameen Bank (GB), Bangladesh Rural Advancement Committee (BRAC), Development Initiative for Social Advancement (DISA), Bangladesh Institute of Development Studies (BIDS). The rationale for selecting these organisations was that their organisational background makes them widely acknowledged and accepted as prominent in issues to know about microfinance related information in Bangladesh. Afterwards, the quantitative and qualitative information are presented through trend analysis and in tabular format.

## **2.4 FINDINGS AND DISCUSSION**

This section presents the trends and growth of different indicators of MFIs along with the different programmes run by the major MFIs (GB, BRAC) along with one most promising MFI (DISA) surveyed by the researcher in Bangladesh. Beyond that the licensing status of NGO-MFIs and most significant impact studies on microfinance in Bangladesh have been discussed briefly.

### **2.4.1 Trends and Growth of Microfinance Programme**

The overall scenario focusing on the trends and growth of different indicators of the overall MFIs in Bangladesh is depicted in Table 2.2. The yearly data of 2009 and 2013 of all the reporting MFIs (745 MFIs in 2009 and 550 MFIs in 2013) have been used and average figure per MFI and growth in 2013 over 2009 have been calculated carefully.

On an average, staff strength per MFI has increased by 27.02% over a period of five years since 2009. The number of members per MFI has also been improved. Members per MFI were 58,198 in 2013 compared to 47,930 in 2009 which shows a 21.42% increase over the last five years since 2009. In the MFIs, all the borrowers are members but all the members may not be the borrowers. A deeper analysis of the data shows that the growth of borrowers per MFI compared to the growth of member per MFI is higher since 2009. A 28.54% growth in 2013 over 2009 has been observed in regards of growth of borrowers per MFI over a period of five years since 2009. Now, it is high time for the MFIs to put concentration on the issue how to maintain the borrower-member ratio at ideal stage.

Table 2-2 Trends and Growth of different indicators of MFIs

Indicators	Year 2009			Year 2013			Growth in 2013 over 2009 (%) Per MFI
	MFIs Reported	Figure	Per MFI	MFIs Reported	Figure	Per MFI	
Employment generation (in numbers)	745	242,469	325	550	227,806	414	27.02
Members (in numbers)	745	35,707,896	47,930	550	32,008,923	58,198	21.42
Borrowers (in numbers)	745	27,053,930	36,314	550	25,672,350	46,677	28.54
Members Net Savings (in million BDT)	745	131,306	176	550	192,810	351	99.45
Loan Disburse (in million BDT)	745	370,796.14	497.71	550	566,841.57	1030.6	107.07
Outstanding Loan (in million BDT)	745	189,267.20	254.05	550	348,053.22	632.82	149.07
Outstanding Borrower (in numbers)	745	27,053,663	6,996	550	25,672,383	13,557	93.78
Loan Recovery (in million BDT)	745	71,683.90	96.22	550	52,206	94.92	-1.35
Overdue Loan (in million BDT)	745	6,016.52	8.08	550	12,225.53	22.23	175.12

Source: Author's own calculations based on CDF statistics (2013); BDT= Bangladeshi Taka

Generally, the MFIs mobilise savings from the members through a mechanism of mandatory and flexible savings. The more the amount of net savings, the higher the retention rate of the members in the program. The average net savings per MFI is found to be BDT 351 million which is double compared to the net savings per MFI in 2009. The indicator having such growth shows strong footing of MFIs in the community day by day. The review of data shows that loan disbursement per MFI increased to BDT 1030.62 million compared to BDT 497.71 million in 2009 recording a tremendous growth of 26.77% over the last five years since 2009. Outstanding loan refers to the amount of money in the borrowers' hand for their use for business purpose. The Table shows that the amount of outstanding loan has increased to BDT 348,053.22 million

in 2013 which was BDT 189,267.20 million in 2009. It indicates a growth of 149.07% in 2013 over 2009 considering per MFI outstanding loan portfolio. Now, if we analyse the average outstanding loan, the figure shows that the average outstanding loan was only BDT 6,996 in 2009, which has increased to BDT 13,557 in 2013 with a growth of 93.78% over the five years.

Loan recovery is a vital issue for MFIs just like a loan disbursement. A good recovery rate indicates a good sign of overall operational efficiency of the program and continuous supply of loan fund for institutional sustainability. During the review period, in 2013, loan recovery rate was found to be 94.92% which is shown to be less than the recovery rate of 2009 as recorded 96.22%. Concurrently, the overdue loan stood at BDT 12,225.83 million in 2013 from BDT 6,016.52 million in 2009. Table 2 shows that the overdue loan per MFI was BDT 8.08 million in 2009 which has increased to BDT 22.23 million in 2013 reflecting an overall growth of overdue loan by 175.12% over the years since 2009. It is further appeared from the table that overdue loan situation improved against the outstanding loan amount in 2013, which was 3.51% and the rate was 3.18% in 2009.

#### **2.4.2 Leading (Surveyed) MFIs in Bangladesh**

Among the major MFIs that have been operating in Bangladesh over the last three decades, namely the Grameen Bank (GB), Bangladesh Rural Advancement Committee (BRAC) are worthy of a mention. Besides these, among the most promising MFIs, the Development Initiative for Social Advancement (DISA) is also noteworthy.

##### *2.4.2.1 Grameen Bank (GB)*

Grameen Bank (GB), Bangladesh's first MFI, was established as a project in the village *Jobra* of Chittagong district, in 1976 by Dr Muhammad Yunus. Later, GB was established as an independent bank in October 2, 1983 by the ordinance of the Bangladesh Government. In 2006, Grameen Bank along with its founder Muhammad Yunus were jointly awarded the Nobel Peace Prize (Nobelprize.org 2006). The clients (and owners) of the bank are poor borrowers who are mostly women and the bank works for them exclusively. At present, 94 per cent of the total equity of GB is owned by the borrowers of the bank and the remaining 6 percent is owned by the government. Total number of borrowers is 7.06 million, 97 per cent of them are women. Grameen

Bank has 2,422 branches working in 78,101 villages. Total staff compliment is 22,924. Total amount of loan disbursed by Grameen Bank, since its inception, is BDT 326.96 billion (US\$ 6.25 billion). Out of this, BDT 293.26 billion (US\$ 5.58 billion) has been repaid. Loan recovery rate is 98.28 per cent (GB, 2015). Grameen Bank was established having some distinct features such as (i) Collateral free loan; (ii) small size of loan (usually USD 100-150); (iii) group based consist of five members; (iv) weekly attendance of the borrowers in the meeting; (v) participatory approach.

The Bank continues to expand across the nation. By 2014, the number of branches of Grameen Bank reached over 2,100. The success of GB has inspired more than 40 countries around the world to adopt similar projects, including a World Bank initiative to finance Grameen-type schemes. The simplicity of methodology developed by GB inspired many NGOs to replicate the model. The main incentives for NGOs, which were involved in many social programmes such as education, health, relief and rehabilitation to move quickly into microcredit, were demand from the members and the opportunity to become self-reliant (Faruqee & Badruddoza 2011).

### **Major operations of GB**

GB has been operating different programmes in different areas of development since last three decades. The most important programmes can be described as follows.

#### *Microfinance programme*

GB has been operating microcredit programmes over last three decades in order to improve the living standards of the poor through various operations such as crop cultivation, poultry farming, animal husbandry, fisheries, small business operations, social forestry and handicrafts. GB mainly provides loans to the women borrowers for various purposes as listed above. Moreover, GB provides housing loans for the poor, microenterprise loans for its fast moving members, struggling member loans without interest for beggars, as well as village phone programmes for women entrepreneurs.

#### *Health Programme*

Beyond the microfinance operations, GB also added a Micro Health Insurance (MHI) scheme in the late 1990s, with a view to protect its clients from health risks related to their economic breakdown (Hamid, Roberts & Mosley 2011). GB introduced annually

renewable prepaid MHI card to sell it to its clients and offers primary health care directly from health centres operated by them. The service package contains curative care and maternity and child healthcare.

#### *Education Programme*

GB offers scholarships that are given to the high performing children of GB members. Also, education loans are given to the children of the members who reached the tertiary level of education (GB 2015). These attempts by GB are appreciated by the people as these programmes have opened up new avenues for the distressed people who could not send their children for higher education earlier because of financial constraints.

#### *2.4.2.2 Bangladesh Rural Advancement Committee (BRAC)*

BRAC was established in 1972 by Sir Fazle Hasan Abed with the mission to empower people and communities in the situation of poverty, illiteracy, diseases and social injustice. Although BRAC was established immediately after the independence of Bangladesh was declared, this is the second largest MFI in Bangladesh operating successfully since its inception. To achieve the objective of reducing poverty for the poor, BRAC has developed support services in the areas of human rights and social empowerment, education and health, economic empowerment and enterprise development, livelihood training, environmental sustainability and disaster preparedness (BRAC 2015). As a reward for ensuring food security and a pathway out of poverty, the founder of BRAC Sir Fazle Hasan Abed has been honoured as the 2015 World Food Prize Laureate (BRAC 2015).

#### **Major operations of BRAC**

BRAC has been operating different programs in different areas of development since the last 40 years of expert operations in different parts of the world. BRAC has made significant contributions in attaining MDGs that have been set to achieve by 2015. Bangladesh is on track in achieving the 5 of the 8 MDGs. The country has made amazing progress in the areas of poverty alleviation, school enrolment and gender parity in primary education, lowering the infant and under-five mortality rate and maternal mortality ratio. Among the various operations of BRAC, the most noteworthy

operations have been mentioned below. Beyond the local boundary, BRAC is also providing services in seven countries in the world.

### *Microcredit Programme*

BRAC has reached to be one of the world's largest financial services providers for the poor since launching its microfinance operations in 1974. With 40 years of expertise, BRAC has designed, tested and adapted microfinance related products to satisfy the exclusive needs of the poor living in the society. BRAC's microfinance operations are seen as a part of its broader and holistic approach to development through access to socio-economic services. BRAC has been operating microfinance programs in seven countries comprises Bangladesh, Pakistan, Sierra Leone, Uganda, Liberia, Tanzania and Myanmar. BRAC provides microfinance to women and the main forms of microcredit include '*Dabi*' for small enterprises for rearing poultry and livestock, growing vegetables, making handicrafts; '*Progoti*' for working capital for shops, agricultural business, small manufacturers; '*Migration*' for financing to meet up outgoing migration costs, immediate well beings of household after migrant's departure. In addition, BRAC has three special projects related to agricultural microfinance which reached to 660,000 farmers and has disbursed US\$ 280 million over the last 12 years. The agricultural microfinance comprises '*Borgachasi Unnayon*' Project (BCUP), North-west Crop Diversification Project (NCDP) and Second Crop Diversification Project (SCDP). Significant improvements have been made by BRAC in alleviating 'ultra poverty'. Since 2002 BRAC's 'ultra-poor' programme covered 1.6 million people and 95% of this population have been able to come out of 'ultra poverty' (BRAC Annual Report, 2014).

### *Health Programme*

Despite the efforts of the government to provide health services to the citizens, still the people suffer a high burden of death and diseases. Sensing the problems, BRAC has introduced some important health service related programmes since 1991. BRAC started with the introduction of Essential Health Care (EHC) service. Subsequently, it introduced maternal, neonatal and child health (MNCH) programme, Tuberculosis (TB) control programme in collaboration with the government, Malaria Control Programme (MCP) with the consortium of 21 NGOs. Further to mention that BRAC

also started Maternal, infant and young children nutrition (MIYCN) home fortification programme to mitigate the problem of malnutrition. Among other health-oriented programmes, Eye care Intervention (ECI), Non-communicable disease (NCD) are remarkable.

In line with the global concern of achieving the Millennium Development Goals (MDGs) by 2015, BRAC has introduced and implemented several health-related programs in different parts of the world. BRAC has reached the under-privileged and deprived community through its Community Health Workers (CHW) adopting service delivery at door steps. BRAC initially introduced water, sanitation and hygiene (WASH) programme with the aim of achieving the seventh MDG of reducing the proportion of people without access to safe drinking water and basic sanitation by half. Now, the programme confirms the sustainability of intervention of WASH through community ownership, and developing linkages with Local Government Department (LGD). In health sector, BRAC has achieved 91 per cent immunisation coverage in its working areas across 64 districts. The TB treatment success rate is 95 per cent (BRAC Annual Report, 2014).

#### *Education Programme*

BRAC has established the largest secular, private education system in the world having enrolled 900,000 students in its primary schools in six countries. BRAC runs primary schools in communities where formal education system has not yet reached through complementing mainstream school systems with innovative teaching methods and materials (BRAC 2015). Also, at the pre-primary level, it targets underprivileged children to get them ready for primary school entry. Moreover, BRAC provides need-based training, student monitoring activities and e-learning materials to improve the mainstream secondary education system. In addition, it also provides adolescents and youth development programs offering livelihood and skills development training. 99.97 % out of 43,843 BRAC primary school students passed the PSC exam in 2014. Around 61.17 per cent of these students are girls and their pass rate is 99.9 per cent (BRAC Annual Report, 2014).



### *2.4.2.3 Development Initiative for Social Advancement (DISA)*

Development Initiative for Social Advancement (DISA) was established in 1993 as a socio-economic development organisation by some social workers. Under the leadership of its founder, Md Shahid Ullah, DISA has been working for the rural households, especially for the poor women and children with the objectives of poverty alleviation, awareness building, violence reduction and empowerment of women to uplift their socio-economic status (DISA 2015). The principal mission of DISA is to encourage participatory, self-sufficient and sustainable development of the poor and assist them to accomplish their potential through social and economic empowerment.

#### **Major operations of DISA**

DISA has been operating different programs covering different aspects of development in Bangladesh over the last sixteen years. The following programmes are among those run by DISA in Bangladesh.

##### *Microcredit Programme*

DISA has introduced microfinance programme with the objective of reducing poverty of the rural households including the alleviation of invisible hunger of adolescents and children. The main purpose of microfinance programmes is to render financial services to rural women through the mechanism of generating savings as well as delivering microcredit. DISA operates the microcredit activities in 8 districts of Bangladesh covering 1699 village organisations (VO) under 37 branches. The number of group members of VO now is 58050 and total borrowers are 43611 up to June 2015. To run the microcredit programme, the most of the fund of the programme has been collected from Palli Karma-Sahayak Foundation (PKSF), Stromme Foundation and various private commercial banks in Bangladesh (DISA Annual Report, 2014).

Microfinance programmes of DISA run different components of economic development programme to fulfil the need of the target people in a coordinated and coherent manner. The major components include *Jagoron/Rural Micro-credit (RMC)*, *Agrosor/ Micro Enterprise (ME)*, *Buniad/Ultra Poor Programme (UPP)*, *Sufolon/Seasonal Loan (SL)*, *Innovative Loan Fund (ILF)*, *Income Generating Activities (IGA)* and Group members' savings of microfinance programme.

### *Education Programme*

Beyond the services relate to microcredit, DISA also run different kinds of educational programmes for the betterment of its members or family members of members. Those educational programmes consist of Education Support Programme (ESP), DISA Technical Training Institute (DTTI), *ALOGHAR* Library, Scholarship Programme under MFP, *Aloghar* Scholarship, *Onuron* Scholarship for Disadvantaged Students and Social Advancement through Knowledge and Technical Interventions (SAKTI) project.

### *Health Programme*

The rural poor in the areas where DISA runs its operations are not financially solvent to get emergency treatment during sudden sickness. DISA come forward in this regard to provide the emergency health care support to the sick people in the areas where they operate. As a process of rendering health related services, DISA adopted different mechanisms that include Health Services for MFP Group Members, Health, Nutrition and Sanitation Programme under MFP. DISA has introduced an ongoing health and nutrition education to make the rural people more aware and careful to the health and nutrition needs, particularly for the women and their children. Consequently, the group members have become aware about their health, nutrition and sanitation situation. Throughout the previous years, the issues that have been given preferences under the health and nutrition related education include: breast feeding for babies, complementary food for growing babies, the need for intake of protein and micronutrients, care for adolescent girls, caring for the special needs of the pregnant mothers, hygienic food preparation, safe child-birth, access to safe drugs and behavioural change communication.

### *Agricultural Programme*

DISA has been actively involved with the agro-based programmes as the performance of this sector has an overwhelming impact on major macroeconomic objectives. The major agricultural programmes so far operated by DISA include Community Based Dairy (CBD) and Livestock Development Project (DLDP), Farmers Organization (*Sada Dal*), Livestock Treatment Under MFP, Local Agri-Business Network (LAN) project, Climate Change and Agricultural Development (CCAD).

## **2.5 LICENSING STATUS OF NGO-MFIS IN BANGLADESH**

The Microcredit Regulatory Authority (MRA), established in August 2006 by the Government of Bangladesh, is the sole licencing authority to provide license to NGO-MFIs in Bangladesh. MRA had approved licenses in favour of 697 NGOs and cancelled licenses of 60 NGOs till October 2015 (MRA, 2015). As of May 2015, MRA rejected 3456 applications. Recently, MRA has invited new applications for obtaining license to conduct microcredit activities among which 202 institutions have been given temporary approval.

## **2.6 IMPACT STUDY ON MICROFINANCE IN BANGLADESH**

Many impact studies have been conducted on microcredit programmes since the 1980s. The aims of the studies were to evidently and verifiably prove the economic impact of microcredit programmes on the livelihood of poor households. Actually, the microcredit programmes have been granted so that the poor people can be accessed to financial services. Consequently, they will prudently utilise the funds for investments and other purposes to reduce their poverty level. The author has found major disparities in methodological approach and scope of studies conducted over more than two decades. The studies can be grouped into different categories: (a) impact or evaluation of microcredit; (b) comparative evaluation of more than one microfinance programmes; (c) impact of microfinance programmes on poverty; (d) Sustainability analysis; (e) evaluation of performance of different MFIs, and (f) studies on human resources and management systems of organisations.

Table 2.3 depicts the summary of major quantitative impact studies up to 2013. The table reproduces Rahman (2000) and it is extended beyond 2000 covering recent impact studies. The Table shows that microcredit has usually assisted the poor households by raising income and consumption as indicated by the positive (+) changes marked, and empowering women borrowers. Most of the studies show that microcredit has facilitated in smoothing income or consumption. The study on GB conducted by Hossain (1988) was the first microcredit impact study which dealt with statistically valid sample comparing treatment and control groups. The study found significant positive changes in income of the GB members compare to control group. The study by Zohir et. Al (2001) found significant positive effect on wage income due

to the participation in microcredit programme. Subsequently, in a follow up study by Atiur Rahman (2005) to assess PKSF's microfinance programme, the participants' income was found to be declining.

A joint research project of the Bangladesh Institute of Development Studies (BIDS) and the World Bank (WB) conducted the most comprehensive impact study of microfinance, which finds strong evidence that participation in microcredit programmes help the poor through consumption smoothing and asset building (Khandker 1998; Pitt & Khandker 1998). The findings support the claims that microfinance programmes promote investment in human capital (such as schooling) and raise awareness of reproductive health issues (such as contraceptives) among the poor households. The studies also shed light on the role of gender-based targeting and its impact on household and individual welfare, finding that microfinance helps women acquire assets of their own and exercise power in household decision making.

Subsequently, using the same BIDS-World Bank (1991/92) survey data, Morduch (1998) found either small or non-existent program effects. However, this study applied the difference-in-difference technique, which is suitable only for a randomised experimental study, whereas the BIDS-World Bank survey is of the quasi-experimental type and hence endogeneity of program participation is a serious issue. Another important study by Pitt et al. (2003) investigated the impacts of microfinance using household panel data from Bangladesh. They found a declining long-term effect of microfinance as well as the possibility of village saturation from microfinance loans. Microfinance continues to reduce poverty among poor borrowers and within the local economy, although at a lower rate. The study also found that microfinance raise per capita household expenditure for both participants and nonparticipants. The review of impact study has so far focused on the impact of microcredit on households in respect to income, consumption, asset building and health and schooling issues. The impact could also be assessed by examining some selected aspects of the impact.

Table 2-3 Impact of Microfinance on Household Income/Expenditure

Study Source	Studied organization	Income/ Expenditure per annum (BDT)	Type of Change	Participants (Treatment group)	Non-participant (Control group)	% difference between treatment and control group
Hossain 1984*	GB	Income per capita	+	1762	1346	30.9
Hossain 1988	GB	Income per capita	+	3524	2523	39.7
BIDS 1990*	BRDB	Income per household	+	6204	4260	45.6
BIDS 1990*	BRAC-RDP	Income per household	+	2844	1560	82.3
IMEC 1995*	Proshika	Income per household	+	22,244	17,482	27.2
Rahman 1996*	PKSF	Expenditure per household	+	26,390	23,802	10.9
Khandker 1998	BRAC	Expenditure per capita	+	5180	4202	23.8
Khandker 1998	GB	Expenditure per capita	+	5050	4335	16.5
Khandker 1998	RD-12	Expenditure per capita	+	4931	4279	15.2
Halder 1998*	BRAC	Expenditure per capita	+	8244	6480	27.2
BIDS 1999*	PKSF	Expenditure per capita	+	36,528	33,732	8.3
IMEC 1999*	Proshika	Income per household	-	48,635	43,584	11.6
Zohir 2001	PKSF	Wage income per capita	+	5858	5559	5.3
Hossain 2002*	GB	Income per household	-	18,134	14,204	27.7
Khandker 2003	GB, BRAC, RD-12	Expenditure per capita	+	3923	3838	2.2
Rahman, Atiur 2005	PKSF	Annual income per household	-	58,109	38,968	49.1
Khalily 2010*	PRIME-2 of PKSF	Annual income per household	+	53,394	48,505	10.1
Rabbani 2011*	PRIME-3 of PKSF	Annual income per household	+	61,530	45,680	34.7
Khalily 2011*	FSVGD & UP of PKSF	Monthly income per household	+	5224	4463	17.0

**Note:** BDT= Bangladeshi taka; BIDS= Bangladesh Institute of Development Studies; BRAC-RDP= BRAC Rural Development Program; BRDB= Bangladesh Rural Development Program; FSVGD= Food Security for Vulnerable Group Development; IMEC= Impact Monitoring & Evaluation Cell; PRIME= Programmed Initiatives for Monga Eradication; UP= Ultra Poor.

Source: Rahman (2000)\* and author's review

## **2.7 CONCLUSION**

Since the late 1970s, microfinance in Bangladesh has achieved significant reputation because of playing a vital role in alleviating poverty for the rural poor. So, Bangladesh is rightly considered the pioneer of an innovative microcredit programme, introduced by Nobel Laureate Professor Dr Muhammad Yunus, through Grameen Bank. This Chapter has depicted a clear picture of the performance of microfinance and the operations of leading MFIs in Bangladesh in brief. Available data of the year 2009 and 2013 on different indicators provided a clear idea of trend and growth of this sector. It has been evident that significant growth has been achieved in most of the indicators including loan disbursement, size of loan per borrower, net savings per MFI, and loan outstanding per MFI while some other indicators like employment generation and recovery rate experienced a slow decline over the year 2013. Therefore, we can hope that the expansion of microfinance in newer sectors and members engagement in income generating activities (IGA) through MFIs' financial support will attract more and more community members to the arena of microfinance in coming days ahead. Further, there are different regulatory, e.g., MRA, and financial support assistance organisations, e.g., PKSF, have been doing extremely well to smooth the operations of the MFIs in Bangladesh. Moreover, BIDS and InM have been working as a core research organisation in the field of microfinance. The policy makers have recognised the importance of microfinance in Bangladesh and also the government has an interest in boosting the sector in its policy agenda. Therefore, following the persistent trends of growth of MFIs in Bangladesh, the current poverty level can further be reduced through the combined efforts of the government bodies, MFIs, donor agencies and the member of the MFIs. The subsequent chapters will discuss about the impact of microfinance on income/consumption, health-seeking behaviour, child nutrition, child schooling and overall impact of microfinance on health, education and income. More specifically, the survey structure and data collection is going to be discussed in the next chapter.

### **3 CHAPTER 3: SURVEY STRUCTURE AND DATA COLLECTION**

*Summary: This Chapter describes the survey used in this thesis. The survey consists of two questionnaires related to village leaders and households respectively. The survey collected the socio-economic and demographic information of 439 households covering 20 villages of four districts of Bangladesh. At the end of this Chapter, some salient features of the household survey are discussed briefly.*

#### **3.1 INTRODUCTION**

This Chapter presents the survey structure used to collect and analyse data on the impact analysis of microfinance on health, education and income on rural households in Bangladesh. The household survey was conducted to collect data for the impact analysis on the above mentioned issues. In addition, village level survey was conducted with the assistance of union council officials, MFI managers, and village leaders to obtain perceptual information, as well as data on basic information about socio-economic conditions of the villages.

Due to lack of time and resources, the survey was conducted on three selective MFIs in four districts of Bangladesh, where most microfinance related programmes, including health and educational programmes, operate. The household survey was aimed at collecting data on household composition, income, consumption, assets, financial flows, health-seeking behaviour and child nutrition, and child schooling related information of rural households.

The sampling process of household survey could reach only a small proportion of microfinance clients. Choice-based sampling is one approach that can generate reliable estimates at a low cost and in quick time.

This Chapter has four sections. Following the introduction, Section 3.2 presents the household survey, including the discussions about the survey design, the questionnaire design, and the salient features of the data. After that the conclusion is presented in Section 3.3.

## 3.2 HOUSEHOLD SURVEY

The household survey was designed to collect information to analyse the impact of microfinance, focusing particularly on exploring the impact on socio-economic well-being of the clients of microfinance. This section presents the survey design, implementation, data collection, and salient features of the survey.

### 3.2.1 General consideration

The household survey in this study has been conducted using a quasi-experimental approach, in which the author sampled both eligible and ineligible groups of households from member villages that meet the selection criteria of microfinance programs. In order to make relevant control-treatment groups, villages and households were selected according to eligibility criteria, which are a set of observable characteristics.

The survey consists of two steps: In the first step, the pool of member villages will be identified by asking MFIs that are planning to expand their operations and have been in operation for at least five years. Therefore, the Primary Sampling Units (PSUs) are villages with microfinance and those eligible but have not yet received microfinance services. In the second stage, the author has constructed lists of eligible and ineligible households (i.e., strata) in each village, and then households were sampled randomly from those lists (Table 3.1).

Table 3-1 Sampling frame for the household survey

Villages that meet the selection criteria for microfinance programs (poor villages and those with a lack of access to financial services)			
<b>Have received</b> microfinance services (member or treatment villages)		<b>Have not received</b> microfinance (non-member or control villages)	
<b>Eligible Households</b> (Group 1)	<b>Ineligible Households</b> (Group 2)	<b>Eligible Households</b> (Group 3)	<b>Ineligible Households</b> (Group 4)



### 3.2.2 Survey Design and Data Collection

This study is based on a household survey conducted by the researcher from April to July 2014 in the four districts of Bangladesh. These districts were selected for the field survey using the main criterion that there must be an MFI with clear eligibility criteria that operates in the district. The household survey followed Coleman (1999), whereby the control group consists of those eligible households who would be able to receive the microcredit related services when the program expanded. The author used these eligibility criteria to sample control households (those with similar characteristics but that have not received microfinance services). The sample has been designed in such a way so that member households of microfinance programs can be compared to non-member households with similar characteristics. In particular, the author consulted village leaders and programme officers to select key characteristics that were similar in both groups: particularly land ownership and wealth ranking. The survey collected detailed information on different factors. The information related to demography and socio-economic issues for all household members was collected from four districts: namely Comilla, Chandpur, Narayanganj and Narshingdi in Bangladesh. Village-level information was also been gathered in detail. Examples of such information sets include distance to the nearest educational institutions, district council, health complex and market. It is noteworthy to mention that although the majority of the household heads are male, the respondents of the survey were primarily women who were engaged with microfinance. The necessary information regarding the amount of credit disbursement, the date of joining and the nature of membership of the participants were supplied by the member/s (generally women) of the selected microfinance institutions.

Although there are various providers of microfinance services in Bangladesh, this study focussed on examining the effects of three most popular programs: Grameen Bank, BRAC and DISA. These three MFIs were selected by applying a purposive sampling technique. The Development Initiative for Social Advancement (DISA) was chosen because the organisation received the first national promising MFIs award in the year 2009 from the *Palli Karma-Sahayak Foundation* (PKSF). The Grameen Bank (GB) and the Bangladesh Rural Advancement Committee (BRAC) were selected as they were the largest and most renowned MFIs in Bangladesh.

In the survey, member-households were sampled from a list of microfinance members in each village. For non-member households, the sample frame consisted of households that owned less than half an acre of land and were ranked as 'poor' by the village leaders. The author selected 25 households per village. However, some households could not be found or had no adult at home and hence could not be interviewed. Thus, the total number of households interviewed was 439, or about 22 households per village (Appendix-6).

In order to increase the efficiency of sampling, the choice-based sampling technique was applied (i.e., eligible households were over-sampled in both member and non-member villages). This sampling approach allows us to obtain a representative sample with least cost associated with data collection (Lancaster & Imbens 1991). In each village, 3 to 4 non-member households were selected and the remaining 18 to 19 households were members. A sampling weight, which equalled the inverse of the proportion of eligible or ineligible households in the population, was applied. For example, in a village of 230 MF households, the sample included 19 out of 22 eligible households, and 3 out of 480 Non-MF ineligible households, the sampling weight for MF eligible households is  $(19/230)^{-1} = 12.11$  while the weight for the ineligible Non-MF households is  $(3/480)^{-1} = 160$  (Appendix- 6).

The sample rate varied in accordance with the number of eligible households in each village. Specifically, in 10 villages with 361 to 535 eligible households, the sampling ratio was 20 to 30 percent. In the remaining eight villages, where the number of eligible households were only from 41 to 230, then the sampling rate was adjusted so that at least 18 households were surveyed in order to make the number comparable with other villages and to have a large enough sample for an efficient estimation with the village-fixed effects approach.

Two sets of pre-tested structured questionnaires were administered to the sample households. The first questionnaire was related to selected villages that gathered data on the profile of the villages regarding its location, resources, and infrastructure using key informant interviews with village leaders, union officials, community leaders and microfinance officials (Appendix-1). The second questionnaire involved the information on household demographic and socioeconomic characteristics (Appendix-1). Specific information on recent household illnesses and

related child health related issues was provided by the spouse of the household head (usually the women who were members of a microfinance scheme) or any knowledgeable adult household member present at the time of the survey. Of relevance to this analysis are data on sex (male or female), literacy (primary, secondary, higher or no education), dependency ratio, and occupation of the household head including spouse and household's land holding status. The dependency ratio is calculated as the number of people outside the working age range divided by the number of people aged within working age of 14-60 years old (Nghiem, Coelli & Rao 2012). The author also examined whether or not the households encountered any shocks, which referred to whether or not the household suffered from any financial shock because of severe illness, robbery, death, fire, drought, flood, crop loss, loss of employment or business failure, in the last 12 months. Occupation was defined as the activity in which the head of the household spent the major part of their working day, and is categorised as a labour-selling or non-labour-selling activity depending on whether or not the household was dependent on selling manual labour for at least 100 days a year for survival. Labour selling households tended to be of lower socioeconomic status given their dependence on variable seasonal employment. Land ownership was determined by asking the household to identify all land in their possession for which 'no one except the Government could take away their rights to usage'.

The questionnaire was prepared in English to submit for the approval of the Research Ethics Committee at the University of Southern Queensland, Australia. The Bengali version of the questionnaire was used in a pilot survey conducted in one district of Bangladesh and was subsequently modified after discussions with the interviewers (research assistants). During the pilot survey, there were some difficulties in getting some answers of the questions. For example, when the households were asked about the valuation of their assets or about the cost of production inputs and outputs, they could not answer accurately (because some households did not remember the prices). Therefore, those kinds of price related details were collected from the village heads, assuming that the prices were relatively fixed within a village. However, the information was crosschecked with households and officials of MFIs interviewed by the researcher and no major anomalies were found.

To ensure the credibility of the data, interviewers were asked to double-check information by randomly repeating a question using different phrases to see if the

answer was consistent. The households were also asked by the interviewers to show some loan or savings related documents, when possible. Moreover, at the end of each week, a meeting was conducted with all the interviewers to review their completed questionnaires so that missing or unclear information was recollected before the lead researcher moved to new villages. In each of the stages of the survey, the lead researcher himself visited the place to get an overview of the nature of the survey respondents to highlight the importance of being a part of the survey participant (Appendix-3).

Table 3-2 Timeline of Survey Process

<b>Timeframe</b>	<b>Activities</b>	<b>Main Outputs</b>
January-14	Draft Questionnaire	Questionnaire and consent forms
February-14	Contact NGOs to introduce the research and to seek funding opportunities for data collection	Commitment of funding from MFI (DISA) in Bangladesh
March-14	Prepare and submit research ethical clearance documents	Ethical clearance under review process
April-14	Select sample Train numerators Conduct a pilot survey	Questionnaires finalised Surveyors training Administrative and logistical issues organised.
May to July-14	Conduct surveys with 3 MFIs, 439 households in 20 villages of 4 districts  Organise a workshop at DISA to highlight the success of survey	Approval for ethical clearance from the ethics office, University of Southern Queensland.  Household survey completes  Data input in SPSS data field
August-14	Conduct a preliminary analysis	Data Cleaning

The household survey was conducted during four months (from April to July 2004) but the process from survey questionnaire preparation to data cleaning took almost eight months (January to August 2014), involving many other activities (Table

3.2). It is seen from the data collection process that the survey activities were jointly conducted with the assistance from the sponsor organisation (DISA), which provided technical and logistic support during the process of data collection. Moreover, a workshop was conducted in the head office of DISA as a proof of successful completion of the survey.

### **3.2.3 Sampling Strategy**

Step 1. Selection criteria of districts: The four districts are selected based on the investigation that microfinance is most concentrated in the region, and hence if microfinance has any impact to the improvement of wellbeing of clients, it should be found in these microfinance-intensive districts. The four districts of Bangladesh were selected based on the following criteria.

1. Considering the density of Micro Finance Institutions (MFI) on the particular district.
2. No exclusive study on that selected criteria.
3. Enough sample population of member and non-member with similar characteristics.

Step 2. Selection criteria of Micro Finance Institutions (MFIs): The three MFIs were selected based on the following criteria.

1. MFIs that have been operating more than five years.
2. MFI that has expansion plan to their operation to select non-member villages more.
3. Selection criteria of the operation area.

Step 3. Selection criteria of villages: The village were selected randomly from the pool of eligible villages provided by the MFIs. The twenty villages were selected based on the following criteria.

1. Member and non-member village with similar characteristics.
2. To ask the MFI to make the selection criteria.

Step 4. Selection criteria of households: The households were selected based on the following criteria.

1. Member based on selection criteria of MFI.

2. Select non-member household that also meet the selection criteria but not entered into MFI but comparable each other.

After a series of communications with the potential respondent MFIs, successful negotiation has been made with the Development Initiative for Social Advancement (DISA). In this process of selecting the specific locations for interview, a choice-based sampling technique has been used and four districts, namely Comilla, Chandpur, Narayanganj and Narsingdhi, out of 64 districts were selected. Another important factor that is important to mention is that all the three selected MFIs, namely GB, BRAC, and DISA; are fully operational in those four districts and are also planning to expand their operations in the near future.

### **3.2.4 Salient features of the household survey**

This section contains the narrative presentation of the key findings from the household survey, based on data obtained from descriptive questions. It demonstrates whether microfinance programmes reach their target clients and contribute to the improvement of socio-economic well-being. In addition, various issues related to health-seeking behaviour, child nutrition and child schooling issues emerged during the survey.

#### *3.2.4.1 Target Clients*

The member-households were sampled from a list of microfinance members in each village. For non-member households, the sample frame consisted of households that owned less than half an acre of land and were ranked as 'poor' by village heads. Another important factor was that although the members of microfinance schemes were women, 98% of the household heads of the surveyed respondents were male. On average, households of ethnic minority groups accounted for 11 percent of the total households surveyed.

The household survey also revealed that some rural households used credit from multiple MFIs. It was observed that they accessed credit from one MFI to repay the credit of another MFI.

#### *3.2.4.2 Income and Consumption Issues*

When asked about the flow of income and the consumption pattern of the households, they responded based on the structured questions raised during the survey. The respondents' answers showed that majority of the households involved in farming

activities had their main sources of income as being derived from the production of agricultural products. In this regard, it was also found that from the households, one of the main channels through which microfinance programs contributed to the improvement of income was an increased ability among the households to involve in investment opportunities. The most common type of investment made from microcredit included animal husbandry, agricultural production, poultry business, and off-firm activities.

Although the microfinance loans were provided for production or investment purposes, the members of MFIs realised that they needed loans for meeting their common consumption needs, such as food, education, and health. The major components of consumption were food, clothes, education, health and social events.

Subsequently, follow-up questions were asked with the aim of determining what exactly it was about the services provided by MFIs that lead to the creation of a positive perception about MFIs. Most of the respondents' responses were simply that MFIs created the opportunities for them to access to financial services. The members were also asked what would have happened if they had not been able to access to microcredit. Some of the members' responses were that they would have borrowed from an informal source, such as a moneylender, if they had not received a loan from microfinance.

Non-members of microfinance schemes were asked why they were not the members of microfinance system. Moreover, they were asked if they would be interested in joining a microfinance program if they were deemed to be eligible. Respondents were also asked how they filled up their financing needs in the absence of MFIs; and most of them provided information about other sources of government funds and private sources, like moneylenders. Moreover, the non-members were asked about the most appreciated and disliked matters relating to microfinance services.

#### *3.2.4.3 Health Issues*

The member households were asked about various issues related to health-seeking behaviour and health services. Particularly, the interviewers categorically asked the respondents questions related to health services they had received before and after joining the microfinance program. In addition, the households were also asked about

various issues related to child nutrition and the involvement of microcredit in these aspects of life. The questions also explored possible factors that contribute to changes in the living conditions of the surveyed households.

#### *3.2.4.4 Education Issues*

Several questions were asked relating to the schooling of the children of the member households. Particularly, questions were asked relating to school attendance, school enrolment and the achievement of grades. Moreover, interviewers raised the questions related to the type of educational institutions available in the village and also to provide the distance from the village for those which are not available in the village. Basically, this set of questions was designed to examine the schooling conditions of client households in order to identify impacts of microfinance on child schooling. The questions assess the overall performance of households in terms of different parameters of schooling. The questions also explore possible factors that contribute to changes in their living conditions.

#### *3.2.4.5 Village Related Issues*

The households of the surveyed villages were asked about the accessibility to different facilities, such as, shops, bazar, union council, police station, post office, bus stop, playground etc. in the village. They were specifically asked about the infrastructure facilities, the most commonly used sources of drinking water facilities, sanitary conditions, and availability of tube well in the surveyed villages.

#### *3.2.4.6 Time and cost to members*

There is an investment of both time and cost for the members of microfinance to attend regular meetings with the officials of MFI. Most of the MFIs surveyed conduct meetings on bi-weekly basis but some organised weekly meetings. The average duration of each meeting was three hours, including travel time. Most of the member households confirmed that the timing of such meetings is very flexible, though the time spent for frequent group meetings among the members was considerable. The members usually attended such meetings at lunchtime or in the evening in order to avoid clashes with their income generating activities. As a result, the opportunity cost for attending group meetings may be not so large.



There was a mixed response regarding the compulsory saving requirement of the MFIs. Some of the households considered the compulsory savings element as a cost to them because, sometimes, they would have to borrow money from friends or sell farm products to meet the compulsory savings requirement.

#### *3.2.4.7 Comments on MFIs*

As credits and savings are the major products of MFIs, the researcher asked the member households what they liked the most from MF services. The responses received were that member households liked the simple and quick procedure of getting credit from MFIs compared to commercial banks. The other answers were also related to reasonable interest rate and easy repayment system in equal instalments compared to moneylenders. Moreover, there were other miscellaneous reasons responded.

Subsequently, when they were asked what they disliked the most from MF services, there were different and multiple responses from the member households. Most of the households mentioned about the small loan size and compulsory savings requirement of MFIs. Some of the households also mentioned about the high-interest rate compared to commercial banks and the co-responsibilities among group members. Then they were also asked their opinion how to improve the MF services.

### **3.3 CONCLUSION**

This Chapter presented the structure of the household survey, examining the way in which data collection was done in order to conduct an impact analysis of microfinance. The household survey applied a quasi-experimental survey approach in order to control self-selection and non-random program placement issues. The survey covered 439 households of 20 villages from four districts. The choice-based sampling technique was applied to select the survey respondents from the eligible households. The study only considers that we only considered program village purposively. We acknowledge that it is now too late to address the issue that RCTs offer better solution such as problems due to non-random program placement and self-selection into the program. We also acknowledge that without a panel data and proper instrumental variable, our solution is only the second best option. Regarding using instrumental variable to tackle the problem of self-selection in cross sectional dataset, we did not find any suitable instrument. Therefore, we acknowledge that this is the limitation of

the thesis where we could not collect information of the non-members regarding the issue of health-seeking behaviour, child nutrition, child schooling.

The survey was conducted from April to July 2014 but the process started in January 2014. Two sets of pre-tested questionnaires comprising village level and household level questionnaires were developed to collect the data. Apart from the survey, four focus group discussions were organised by the researcher in the four districts of Bangladesh during June to July 2014, which have been discussed in Chapter 8 in detail.

Detail information about the household survey comprising village level and household level information suggest that MFIs in Bangladesh are now doing very well and are looking for new outreach in order to sustain their operations. Overall, the Chapter articulates the whole scenario of the data input to accomplish research successfully. The impact of microfinance on the income and consumption of rural households will be discussed in the next chapter.

## **4 CHAPTER 4: IMPACT OF MICROFINANCE ON HOUSEHOLD INCOME AND CONSUMPTION**

*Summary: Although the microfinance movement has developed rapidly in Bangladesh over the last three decades, there has been little research on the wider contributions of microfinance to the livelihood of its clients. Moreover, there is no consensus in the microfinance literature that has attempted to control for selection bias. Therefore, to fill up this gap in the literature, this Chapter examines the impacts of microfinance on income and consumption of rural households in Bangladesh. The main objective of this Chapter is to examine the effects of microfinance on the economic welfare of member households using a quasi-experimental survey pioneered by Coleman (1999). The data were collected from 439 households across 20 villages in four districts of Bangladesh using a quasi-experimental survey approach. The empirical results show that participation in microfinance has positive impacts on income and consumption although the poverty effects on microfinance members is higher than non-members. Also, an additional month of participation in microfinance is associated with the lower probability of being poor (using \$1.25 PPP per person per day) by 7 percentage points. This study's results suggest that the overall impact of microfinance operations on the economic well-being of the microfinance participants is positive. Microfinance participants' economic well-being, as proxied by income and consumption, improved significantly after joining the microfinance programme. The policy implications from the obtained results are that (i) the government should take steps to improve favourable environments for petty business (e.g., better infrastructure, and training of business knowledge) to enhance the effectiveness of microfinance on income-generating activities; (ii) microfinance institutions should adopt policy to reduce the interest rate and to introduce diversified products.*

### **4.1 INTRODUCTION**

Microfinance includes the delivery of financial services to the poor. The core principle guiding the operation of microfinance is to provide loans to group of borrowers with peer monitoring to secure the loan instead of relying on physical collateral like that used in traditional financing (Nghiem, Coelli & Rao 2012). Rahman and Khan (2013), among many other studies, found significant effects of microfinance on socio-

economic indicators of households in Bangladesh. Microfinance was also associated with the development of small businesses, which in turn, increased income and consumption of the beneficiaries (Chowdhury & Mukhopadhaya 2012).

Microfinance in Bangladesh has captured the attention of researchers throughout the world. Among the major microfinance institutions (MFIs) in Bangladesh-the Grameen Bank, and the Bangladesh Rural Advancement Committee (BRAC) are the pioneers of microfinance service providers (Rahman 2010). Although the microfinance movement has developed rapidly in Bangladesh over the last three decades, there has been little research on the wider contribution of microfinance to the livelihood of its clients in Bangladesh. Moreover, there is no consensus in the microfinance literature that has attempted to control for selection bias; for example Pitt and Khandker (1998), Coleman (1999), Khandker (2005), Chemin (2008), and Morduch and Roodman (2009). A very few studies, including Imai and Azam (2012); Nawaz (2010); Amin, Shah and Becker (2010), have examined the contribution of microfinance in Bangladesh to show the extent of its impact on economic conditions based on secondary data, rather than putting emphasis on the extent of consequences of microfinance on the households. To the best of the author's knowledge, no previous studies in Bangladesh have researched the impact of microfinance on the member and non-member households' income and consumption using a quasi-experimental survey except one, Pitt and Khandker (1998), who only considered the consumption of the households in their study. Therefore, to fill this gap in the literature, this study examines the impacts of microfinance on income and consumption that have led to poverty alleviation in Bangladesh. The main objective of this chapter is to examine the effects of microfinance on the economic welfare of member households using a quasi-experimental survey pioneered by Coleman (1999). This approach offers a reliable estimation of microfinance effects while it is less time and resource consuming than a randomised control survey.

The remainder of the Chapter is structured as follows: Section Two presents a brief review of the literature. Section Three describes the conceptual framework, survey design, data sources and descriptive statistics. Section Four specifies the econometric models, Section Five discusses results and Section Six concludes.

## 4.2 BRIEF REVIEW OF THE LITERATURE

One of the major challenges in the study of microfinance is self-selection bias, which occurs due to two reasons: self-selection (voluntary participation in programme) and non-random placement (selective placement in programmes). Self-selection bias might arise frequently when participants of social interventions programmes decide whether or not to participate on a voluntary basis. In most of the cases, self-selection will lead to biased results, as the respondents who choose to participate may have some unobserved characteristics that also affect the programme outcomes. Existing literature has adopted different strategies to deal with self-selection bias. For example, one of the most widely cited microfinance studies by Pitt and Khandker (1998) examined effects of the Grameen bank microfinance programmes in Bangladesh. They used an exogenous eligibility criterion for microfinance participation (i.e., households own a half an acre or less) as an instrumental variable (IV) to address the self-selection issue. The remaining unobserved heterogeneity was addressed by using a village fixed-effects estimator. The authors revealed that the consumption of microfinance members increased by 18 Bangladeshi Taka (BDT) for every 100 BDT of loans. Morduch and Roodman (2009) found that their choice of instrumental variable (own half an acre of land) was not strictly followed in practice. As a result, significant effects found by Pitt and Khandker (1998) was affected by this eligibility criterion. Subsequently, Islam and Choe (2013) and Khalily and Khaleque (2013) also used IV method to control for selection bias. But they used Generalised Method of Moments (GMM) estimator which would be better as it can control for unknown heteroskedasticity.

Coleman (1999)'s study was the first to apply quasi-experimental survey in microfinance study to control for self-selection and programme placement bias. Quasi-experimental surveys are designed to ensure that the characteristics of control (non-member) and treatment (member) groups are similar. Coleman (1999) compared outcomes of households included in the program with those who were on the waiting list. Quasi-experimental surveys offer several advantages. First, they can control for endogeneity without imposing the large research costs associated with Randomised Control Trials (RCTs). Second, the use of structural models can explain how microfinance affects the livelihoods of clients. Third, one can apply econometric methods such as fixed effects to control for any residual endogeneity. Finally, a quasi-

experimental survey has the ability to address spillover effects, even in cross-section setting. Subsequently, Tedeschi (2008), Kaboski and Townsend (2011) and Nghiem, Coelli and Rao (2012) also used quasi-experimental survey methodology to overcome the selection bias in their study. Nghiem, Coelli and Rao (2012) confounded problems of selection bias and non-random placement in assessing the impact of microfinance in Vietnam. They tried to control the bias at the survey stage by using quasi-experimental survey and the residual unobserved heterogeneity was controlled by using village fixed effect model. Their results showed that participation in microfinance has a positive effect upon household welfare (proxied by income and consumption).

Another approach to address the self-selection bias is analysing panel data. One recent study in Bangladesh based on new household panel data by Imai and Azam (2012), who applied fixed-effects estimator and found a positive and significant impacts on both household income and consumption. This study argues that in a relatively long panel data study, (1991/92 and 1998/99) effects of small loans from microfinance (if any) may be diluted. Similarly, the panel data study by Khandker and Samad (2014) found that microcredit programmes have significant positive effects in raising the per capita income and consumption, household non-land assets and net worth.

By exploiting repeated cross-sectional study was available, Duong and Nghiem (2013) applied a quasi-panel data approach and revealed that microfinance contributes significantly to household consumption, income and poverty reduction. On the other hand, Morduch (1998) used the difference in difference (DID) technique. Imai and Azam (2012) used household fixed effects models and difference in difference and propensity score matching (DID-PSM) to control for sample selection or endogeneity in relation to participation in microfinance. Chemin (2008) also attempted to address the selection bias using propensity score matching (PSM).

The most recent approach to overcome the selection problem is the application of randomised control survey. Banerjee et al. (2013) applied this approach to slum dwellers in Hyderabad, India and found that access to microfinance create no significant effects to any development outcomes, including “health, education, and women’s empowerment”.

Islam (2011) found that, in Bangladesh, the long-term borrowers are benefitted the most by microcredit while the benefits are not being significant for short-term borrowers. According to Islam and Maitra (2012) microcredit can act as a form of insurance against health shocks. Islam, Nguyen and Smyth (2015) found that less poor households benefit more in terms of reducing their reliance on informal borrowing and that the benefit accrues over time. In another recent study Islam (2015) used village fixed effects and instrumental variable strategies and revealed that the effects of microcredit on consumption vary across different groups of poor household borrowers. Kaboski and Townsend (2005) estimated the effect of a village fund in Thailand and found that the results vary depending on the type of lending institution. Institutions with good policies can promote asset growth and consumption smoothing, and decrease the reliance on moneylenders. However, they found no measurable effects on joint liability or repayment frequency. Karlan and Zinman (2010) examined the effect on consumer credit using an individual randomization of marginal clients in South Africa and found significant and positive effects for food consumption.

Zinman and Karlan (2009) results also suggest some evidence of a decline in well-being for some groups of borrowers. Kaboski and Townsend (2012) showed evidence of positive effects on consumption and income growth in the short run. They found that both consumption and income increased when the program is started, but asset growth initially showed down and then returned to trend.

In short, the literature of microfinance is vast and we focus on reviewing key approaches to overcome the self-selection issues: instrumental variable, panel data, quasi-experimental survey and randomised control surveys. The findings of results varied in study and seem sensitive to choice of methods. Given the relative size of microfinance loans, we expect the effect of microfinance loans would be negligible.

After considering the relative strengths and weaknesses of each approach, we decide to apply a quasi-experimental survey approach in this study. In particular, we mitigate individual unobserved heterogeneity (self-selection) by selecting control (member) and treatment (non-member) households that have similar characteristics. We also used fixed effect model to control for unobserved heterogeneity at village level.

## **4.3 METHODOLOGY**

### **4.3.1 Conceptual Framework**

In this study, the conceptual framework is constructed mainly on models developed by Nghiem (2009), Zeller (1995), Scoones (1998), and AIMS (2001). Furthermore, the study uses the model of Marr (2002) and Schreiner (1997) to investigate the range, domains and cause and effect relationship. Particularly, the extent of analysis concentrates on personal and household levels assuming collective income. This study classifies household resources into three categories namely financial, physical and human capital. This pool of resource comprises the household benefit and gifts which will be mobilised from external sources like social networks and microfinance. Households utilise their pool of resources for three kinds of activities such as production, consumption and investment (Figure 4-1). Production activities are categorised into activities generating income and activities generating goods and services for consumption of households. Consumption comprises activities to fulfil needs and requirements of food, healthcare, education etc. Investment related items may be classified as real properties, physical stores of wealth, financial stocks and productive assets.

It can be seen from this model that, impacts of microfinance-access can be measured through the changes in livelihood strategies, resources, activities, and outcomes of member households. Key relationships in the conceptual framework (e.g. social networking and access to microfinance) are presented by two arrows, reflecting the self-selection of microfinance. One mechanism for self-selection is that unobserved characteristics such as business ability and risk attitude affect both the decision to participate in microfinance and outcomes of participation. This study aims to mitigate the effects of the self-selection bias by using a quasi-experimental survey approach.



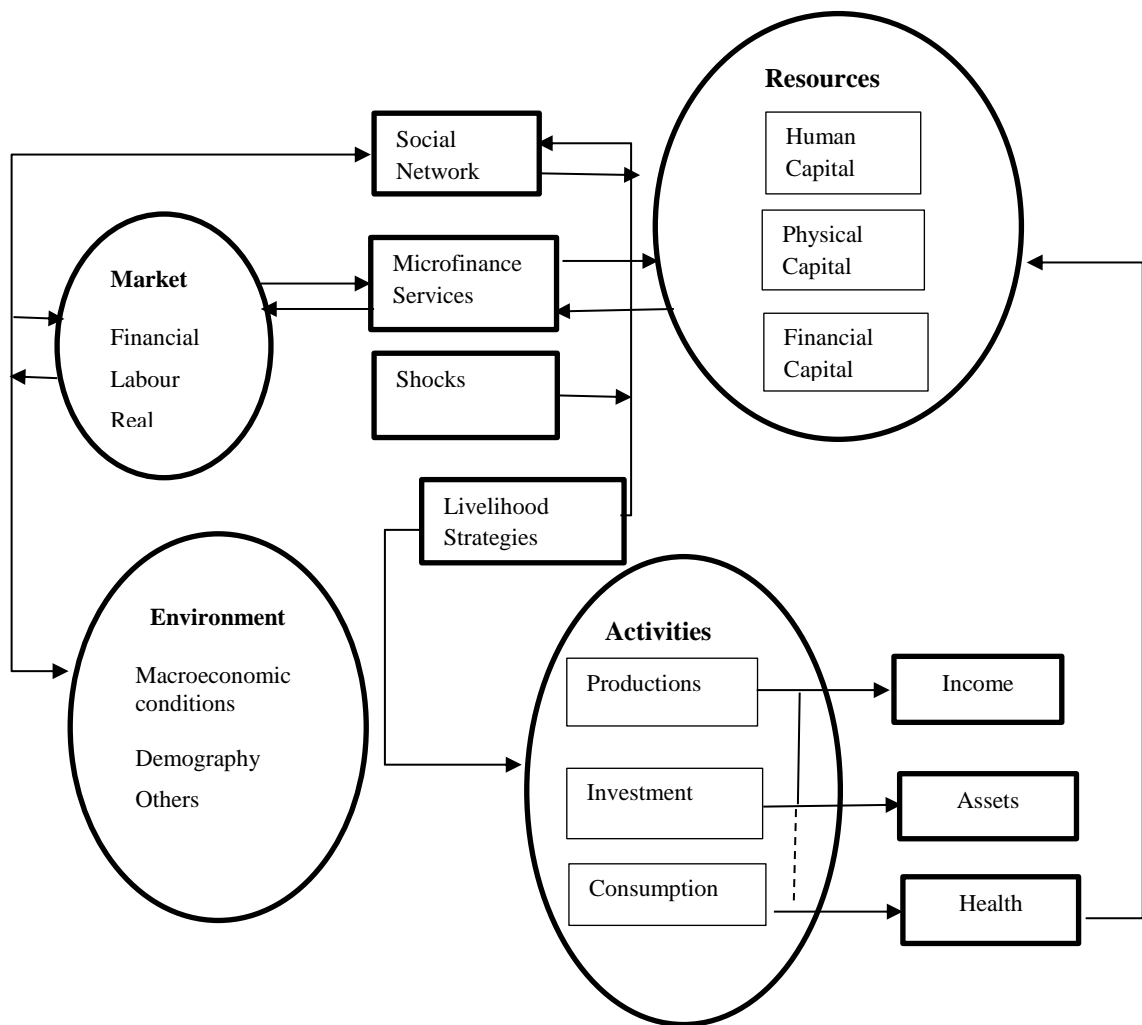


Figure 4-1 Microfinance Impact Framework

Source: Nghiem, (2009), Zeller (1995), Scoones (1998), and AIMS (2001)

### 4.3.2 Survey Design and data

The survey design followed in this study and the data that were collected for the study have been discussed in Chapter 3. .

#### 4.3.2.1 Choice of Variables

The impact of microfinance on household income and consumption will be identified by examining the relationship between the duration in microfinance and amount of loans received, after controlling for characteristics of households and villages.

Since the ultimate goal of microfinance is to improve the economic condition of the economically active poor, the impacts of microfinance should be measured by changes in the economic welfare of clients. The study measures economic wellbeing

of the household by income and consumption. To take into account differences in the contribution to income and consumption across age and gender, we apply the OECD adult-equivalent scale, which measured as the total income/consumption of households divided by the square root of household size (OECD, 2015).

Household characteristics include household size, ownership of land, dependency ratio, age, sex, religion, education, and occupation of the household head. The dependency ratio is calculated as the number of people outside the working age range divided by the number of people aged within working age of 14-60 years old (Nghiem, Coelli & Rao 2012). The households with high dependency ratio would have difficulties in improving their living standard. In addition, it is expected that households with more available labour would be able to generate more income, if other things remain the same. This study also examined whether or not households encountered any shocks, which refers to whether or not the household suffered from any financial shock because of severe illness, robbery, death, fire, drought, flood, crop loss, lost job and business failure, in the last 12 months. Predominantly, shocks can reduce current income which forces the household to go for modest consumption, which may reduce the productivity, and hence, reduced future income (Tedeschi 2008). Thus, a shock dummy variable is recorded by asking households if they have experienced any kind of shock within the 12 months prior to the survey period.

It is assumed that households with more educated labour force have the ability to generate more income. In addition to taking the education level of household head, we also take the education level of other members in labour age which may affect household production.

Another variable is the ownership of land by the household head, which indicates the capacity of household as most of the households surveyed were farmers. This is expected that household with more ownership of production land would generate higher output that ensure higher income.

The age, sex, occupation of the household head is selected as other important household characteristics that may affect welfare of the household. This study reflects the life-cycle theory of income by adding a quadratic term of the age of the household head.

The choice of possible treatment variables includes a number of loans received and the number of months of membership in microfinance. One may argue that households also receive credit from other sources but money is fungible (i.e., one cannot recognise the contribution from microfinance loans and loans from other sources to household welfare), so total household loans should be used. This is a reasonable argument but apart from credit MFIs provide other financial services such as savings and other development activities such as educational and healthcare, hence, using total loans will implicitly assume that there is no other effect from other integrated services. In addition, there are some practical difficulties in using loan volume. The outstanding loan does not reflect the progressive lending policy of MFIs (i.e., due to high demand for fund and limited resources of donors and/or governments). Meanwhile, the cumulative volume of loans was difficult to obtain because rural households often did not keep neat financial records of previous years.

Therefore, this study used the duration (i.e., number of months) that the member households belong to microfinance as a treatment variable since it is easier to collect and reflect the progressive nature of microfinance effects.

### **4.3.3 Descriptive Statistics**

The descriptive statistics of the main variables, as presented in Table 4.1, shows that the average age of the household head is 40 years and that 26 per cent of household heads have secondary or higher level of education. The average household size is about 5 and the average number of working age household member is about 3.

Table 4.1 also shows that 98% of the households are headed by male and 12% households are from ethnic minority. Note that despite most of the household heads being male, members of microfinance schemes in Bangladesh are exclusively female. It is also revealed from the analysis that 29% of households faced shocks in the last 12 months. The total number of microfinance members was 83% with an average 31 months of membership duration. The average total amount of loans received by the microfinance members is found to be BDT 52,387 while the outstanding loans stand at BDT 9,726.

Table 4-1 Means and standard deviations of main variables from the household survey (comparison)

Variables	Unit/ Description	Members N = 364		Non-members N = 75		t-test (p-value)
		Mean	Std.	Mean	Std.	
Age of household head	Years	40.21	7.87	39.83	9.19	0.00
Gender of household head	Male=1	0.98	0.13	0.97	0.16	0.00
Ethnic minority	Yes=1	0.12	0.33	0.13	0.34	0.00
Education level	Secondary or above=1	0.26	0.44	0.29	0.46	0.00
Occupation	Farmers or low skills=1	0.43	0.50	0.56	0.50	0.00
Type of employment	Full Time = 1	0.77	0.42	0.76	0.43	0.00
Household size	Persons	4.79	1.29	4.40	1.17	0.00
People in labour age	Persons	2.84	1.17	2.67	0.98	0.00
Shocks encountered	Yes=1	0.32	0.47	0.15	0.36	0.00
Ever borrowed loans	Yes=1	0.93	0.25	N/A	N/A	N/A
MF members	Yes =1	1.00	0.00	N/A	N/A	N/A
Duration in microfinance	Months	31.66	28.28	N/A	N/A	N/A
Total loans received	BDT	52,387	56,917	N/A	N/A	N/A
Received training	Yes=1	0.31	0.46	N/A	N/A	N/A
Outstanding loans	BDT	9,726	27,291	N/A	N/A	N/A
Total Household income	BDT/year	210,424	112,328	200,696	106,422	0.49
Income per adult equivalent	BDT/year	97,978	55,285	96,826	50,141	0.87
Total Household consumption	BDT/year	103,189	49,264	87,043	36,410	0.01
Consumption per adult equivalent	BDT/year	47,768	22,290	42,173	17,910	0.04
Poverty status	Income less than \$1.25 PP/person/day)	0.30	0.46	0.28	0.45	0.77

Source: Author's own calculations based on field survey 2014, BDT= Bangladeshi Taka  
Note: The t-test is used for continuous variable otherwise Kruskal-Wallis test is used for binary and categorical variables

The mean values of selected welfare indicators such as household income and household consumption are found to be BDT 208,762 and BDT 100,430 respectively. The figure related to poverty shows that the average poverty incidence is 29% based on international poverty indicator. The member of microfinance receive training from the MFIs is found to be 31%.

The sample means from Table 4.1 show that between the two groups (member and non-member) many household characteristics are significantly different but the magnitude of the differences are negligible. For example, the household heads surveyed are all approximately 40 years of age and live in a family of five with two people employed in the labour force.

Mean income and consumption suggests that non-member households are not significantly different from members regarding income but they enjoyed significantly higher consumption bundles. One possible explanation is that microfinance loans were used to smooth-out consumption in critical periods (e.g., facing financial shocks).

The means of the main household welfare indicators also suggests that, despite our survey design effort, most characteristics of members are significantly different from that of non-members but the magnitude of the different is negligible. For example, 98% of member households are headed by males whilst the respective number of non-member households is 97%. The most significant different is that 32% of member households encountered shocks in the past 12 months, which is more than double the 15% figure of non-members.

#### 4.4 ECONOMETRIC SPECIFICATION

Based on Nghiem, Coelli and Rao (2012), the effect of microfinance on household income and consumption is specified as:

$$\ln Y_{ij} = \beta_0 + \beta_1 D_{ij} + \beta_2 \ln T_{ij} + \beta_3 X_{ij} + \beta_4 V_j + \mu_{ij} \dots\dots\dots (1)$$

Where:

$\ln Y_{ij}$  is the log of income or consumption of household  $i$  in village  $j$ ;

$D_{ij}$  is the dummy variable that takes the value of one for members, zero otherwise;

$T_{ij}$  is the duration (months) that household participated in MFIs;

$X_{ij}$  is the vector of household characteristics;

$V_j$  is the vector of village characteristics ;

$\mu_{ij}$  is the idiosyncratic error term; and

$\beta_1, \beta_2, \beta_3$  and  $\beta_4$  are parameters to be estimated.

$\beta_1$  measures differences between members and non-members. Parameter  $\beta_2$  measures the effects of microfinance upon its members while parameters  $\beta_3$  and  $\beta_4$  represent the relationship between selected households and village characteristics and the selected economic welfare indicator.

With the design of quasi-experimental survey, the member dummy variable can mitigate the self-selection issue because the characteristics between member and non-member households are similar. But it is possible that some unobserved characteristics at the village level still affect household outcomes. In particular, microfinance institutions may select operational site in a non-random member, and hence unobservable village characteristics (e.g., social cohesion or capital) that lead a village was selected to microfinance programs and have better outcomes than others. One way to address this issue is to apply a village fixed effects estimator (in cross-sectional setting, this can be done by using village dummies). The main disadvantage of this estimator is that any time-invariant characteristics of the villages (e.g., geographical location) will also be eliminated in the estimation. Thus, if microfinance programs in fact selected villages randomly then the village fixed-effect estimator will not be efficient despite it remain a consistent estimator. One way to determine the relevant estimator is the application of a Hausman specification test. Under the null hypothesis that villages were selected randomly, the village fixed-effects estimator and the ordinary least squares (OLS) estimator with time-invariant village characteristics will produce similar point estimates but the standard errors of OLS estimator will be smaller, and hence it is preferred (Appendix- 7). If the null hypothesis is rejected, the OLS estimator is not consistent and village fixed-effect estimator is preferred. The self-selection problem at individual level has been mitigated first by applying selection criteria at the time of data collection and the residual heterogeneity problem has been overcome using village fixed effect model. We acknowledge that without a panel data and proper instrumental variable, our solution is only the second best option.

## 4.5 RESULTS AND DISCUSSION

The Hausman test results rejected the null hypothesis that there is no unobserved heterogeneity (the p-value of the test was 0.00 for income and consumption and 0.01 for the poverty equation), and thus, the fixed-effect estimator was preferred.

Table 4.2 shows that, after controlling for household characteristics and village fixed-effects, a member household is significantly more likely to be poorer. In particular, income per adult-equivalent of member households was lower by 45.6% ( $e^{0.61}-1$ ) while the figure for consumption is 36.2%. The probability of being poor, according to international poverty line of \$1.25 PPP/person/day of member households is also higher than that of non-member households by 23 percentage points. This result confirms that, after controlling for exogenous characteristics, microfinance institutions give more priority to serve the poor. Thus, this result confirms that the selection of member villages was less likely to be random and application of OLS would lead to bias estimates.

However, participation in microfinance programs creates significant improvement to the livelihoods of the poor. In particular, the parameter of duration revealed that a one percent increase in duration in microfinance was associated with 0.19 percent increase in income; 0.16 percent increase in consumption; and reduce the probability of being poor by 7 percentage points. The significance of consumption elasticity was at 1% while income effect was only significant at 10% level. This finding seems to confirm that microfinance loans could be used mainly to smooth out consumption rather than investment to increase income. Nevertheless, the consumption smoothing could prevent households from falling to poverty during difficult periods. The result of poverty effects was significant at 5% level.

As expected, households with male heads are more likely to have higher levels of income and consumption when compared to female-headed households, as the latter are more likely to face adverse events such as death of spouse, divorce or separation. The education of the households indicates that higher education level was associated with significantly higher consumption bundle as expected. The sign of dependency ratio was also as expected but significant result was only found for consumption. The shocks encountered in the last twelve months have been considered as lower income

and consumption but significant effects were found only for the probability of being poor.

Table 4-2 Effects of Microfinance on Income and Consumption

Independent Variables	Log of income per adult-equivalent		Log of consumption per adult-equivalent		Poverty (\$1.25 PPP/person/day)	
	Coef.	SE	Coef.	SE	Coef.	SE
Member of MF (Yes =1)	-0.61**	0.30	-0.46***	0.13	0.23*	0.13
Log of MF duration	0.19*	0.10	0.16***	0.03	-0.07**	0.04
Sex of HH heads	0.69***	0.16	0.32**	0.13	-0.14	0.12
Log of age	0.23	0.25	0.13	0.15	-0.04	0.23
Minority Ethnics	-0.12	0.20	-0.02	0.08	-0.04	0.04
Education	-0.06	0.15	0.25***	0.07	0.05	0.09
Occupation	-0.09	0.11	0.00	0.08	-0.03	0.09
Type of Employment	0.13	0.12	0.04	0.04	-0.02	0.06
Dependency ratio	-0.35	0.28	-0.26**	0.13	0.32	0.23
Shocks in past 12 months (yes =1)	-0.15	0.22	-0.02	0.08	0.23**	0.09
Constant	9.64***	1.00	9.57***	0.60	0.43	0.98
R2	0.364		0.491		0.272	
N	439		439		439	

Note: The significance level of the estimates are: \*\*\*, \*\*, and \* represent 1, 5 and 10 per cent significant level, respectively. Here Majhipara is the reference village.

#### 4.6 CONCLUSION

This study provides an empirical analysis of the impacts of microfinance on members of three microfinance programs in Bangladesh using a quasi-experimental survey. The author found that member households are more likely to be poor than non-member households, reflecting the fact that microfinance institutions give more priority to serve the poor. Thus, if this non-random selection of program villages is ignored that could lead to bias estimates. It was also found that access to microfinance was significantly associated with improvement in consumption, income and poverty status. But the effects on consumption were most significant, which could indicate that microfinance members use loans to smooth consumption rather than investing in petty business. It is recommended that the government should take steps to improve favourable environments for petty business (e.g., better infrastructure, and training of business knowledge) to enhance the effectiveness of microfinance on income-generating activities.



The author suggests a number of policies to be adopted by the concerned authority so that the existing and future generations can be benefit from microcredit. First, the MFIs should adopt cost-effective channels to enrich the domain in remote area and provide fast services to the existing customers. In this regard, MFIs may establish strategic partnership with mobile phone operators and banks to reach the low income people, who have no accessibility to bank. Second, the interest rate charged by the MFIs should be rational as application of rational interest rate is a vital factor to break the vicious circle of poverty. The MFIs in Bangladesh charge between 20 to 25 percent interest rate which is much higher than that of commercial banks because transactions costs are higher in dealing with microcredit and taking financial intermediary to the poor's doorstep. In this case, the government should take policy to inject fund into the microfinance industry so as to extend microcredit among the rural hard core poor at a reasonable interest rate.

Finally, the MFIs should introduce programs for hard core poor who need supports beyond subsidised funds which include food relief, training, and health facilities. Grameen bank and the large MFIs have already taken special programs to address the problems of hard-core poor. But well-coordinated area based sufficient programs are required by each large MFI, which can play the leading role in particularly economically backward areas avoiding overlapping. Different Government ministries/departments and social safety nets must continue to provide appropriate support for hard core poor through enhanced investment in physical and social infrastructures. The subsequent chapter will address the impact of microfinance on health-seeking behaviour of rural households.

## **5 CHAPTER 5: THE IMPACT OF MICROFINANCE ON HEALTH-SEEKING BEHAVIOUR AND HEALTH SERVICES OF RURAL HOUSEHOLDS**

*Summary: This Chapter examines whether or not participation in microfinance programmes improve health-seeking behaviour and health knowledge of the participants. The study is based on the primary data of 439 households across 20 villages from four different districts in Bangladesh. The data was collected during a field survey. The results suggest that the overall impact of microfinance operations on the health services and health seeking behaviour of the participants is mostly positive. Microfinance participants' health-related issues as indicated by antenatal care, maternal care, family planning, diarrhoea remediation, immunisation programmes, malaria/TB treatment, and access to medicines have improved significantly after joining the microfinance. Further research should discover whether or not there is any substantial difference in the health seeking behaviour of the members (treatment) and non-members (control) of Micro Finance Institutions (MFIs).*

### **5.1 INTRODUCTION**

As per the constitutional commitment of the Government of Bangladesh to provide medical facilities to all citizens, the government has been developing health infrastructure as well as strengthening health and family planning services with special attention to the rural people (Hamid, Roberts & Mosley 2011). Despite the infrastructure for healthcare delivery, the government has failed to fulfil the desired healthcare needs of the rural people, for various reasons. Firstly, doctors are reluctant to stay at the *upazilla* (sub-district) health complex; secondly, there is lack of input and skill mix due to recruitment problems; and finally, improper behaviour has been reported about service providers about their treatment of rural people (BBS, 2010). In this regard, there are few microfinance institutions that have come forward to provide healthcare services in addition to disbursing credit to the participants. There is a strong need from rural people to support them by providing healthcare services associated with the credit disbursement by the Micro Finance Institutions (MFIs). The question is, why should MFIs expand their services to include health? There are two basic reasons: health services are a natural extension of the mission of the MFIs to provide

financial security and social protection of the client, as healthier clients better serve the microfinance institutions' goals of growth and long-term viability (Leatherman & Dunford 2010).

Providing quality health care services is a challenge to policy makers especially in developing countries. The poor in developing countries experience poor sanitation conditions, undesirable shelter, water quality and lack of contraceptive facilities, which makes them more vulnerable to poor health. Therefore, the Millennium Development Goals rightly include the target of reducing the population without sustainable access to drinking water and basic sanitation by 50 percent by 2015 (World Health Organization, 2005). Particularly, the poor in Bangladesh are underprivileged regarding their ability to access quality health care due to a lack of health-seeking behaviour<sup>1</sup> and health services in the country. Therefore, services relating to health-seeking behaviour are needed to make the existing health-care delivery system more effective.

A small number of studies have investigated the impacts of microfinance on child health and women health in Indonesia, Latin America, Africa (Collier et al. 2014; DeLoach & Lamanna 2011; Geissler & Leatherman 2015). However, whether and to what extent microfinance activities have improved health seeking behaviours and health services in developing countries has given very little attention from researchers and policy makers. This study attempts to fill up this gap in the literature. Moreover, to the best of our knowledge, none of the previous studies used primary data to examine health effects of participation in microfinance. Therefore, this study will be an important addition to the literature too.

The remainder of this Chapter is structured as follows: Section two presents a brief review of the literature; Section three describes the conceptual framework, research design, study area, sample selection, data sources and descriptive statistics; Section four displays the econometric specifications; Section five discusses results, and Section six concludes the Chapter.

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<sup>1</sup> Health seeking behaviour is any activity undertaken by individuals who perceive themselves to have a health problem or to be ill, for the purpose of finding an appropriate remedy (Chrisman, 1977).

## 5.2 BRIEF REVIEW OF THE LITERATURE

Microfinance has been operational in Bangladesh and other parts of the world since the late-1970s, but the impacts of microfinance on health-seeking behaviour, access to health service and health inputs in particular have rarely been investigated in previous literature. Microfinance is expected to influence health-seeking behaviours and health outcomes directly through its ability to pay for health-related services, or indirectly by improving people's economic status and thereby increasing health inputs (e.g., nutritious food and leisure time). In Bangladesh, only a few studies have focused on the impacts of microfinance on health-seeking behaviour and access to health services of the participants of MFIs. Among those (Ahmed et al. 2000, 2003; Ahmed et al. 2006; Amin et al. 2001); Amin, Shah and Becker (2010) are notable. Some of these studies focused only on the microcredit participation considering socioeconomic differentials and health-seeking behaviour and found mixed results (Ahmed et al. 2006; Ahmed et al. 2005; Amin, Shah & Becker 2010). A few studies only focused on family planning services, antenatal care and maternal care and confirmed improvement on those issues due to the participation of MFIs with exclusive health or social consciousness programmes but not necessarily the intervention of microfinance activities in the community (Amin et al. 2001; Koenig et al. 2007; Norwood 2011; Quayyum et al. 2013; Rahman et al. 2008). Moreover, gender difference and age may also be sometimes decisive factors behind the improvement of health seeking behaviour due to the intervention of microcredit programme, which is evident from few studies (Ahmed et al. 2000; Ahmed et al. 2005). One of the key studies conducted by Ahmed et al. (2003) found that health needs of the poor need to be integrated with development interventions that improve socioeconomic status. On the other hand, some of the studies only discussed the issues related to health seeking behaviour of the rural households (Ahmed 2001; Ahmed et al. 2005; Rahman et al. 2012). Among them, an exclusive study carried by Ahmed (2001) explored the morbidity prevalence, illness profiles and health-seeking behaviour of different ethnic groups of Chittagong hill tracks in Bangladesh and found differences among the ethnic groups.

Despite the limited studies on microcredit and health-seeking behaviours in particular, however, there is a considerable number of studies on other aspects of health-related issues and microfinance participation. The available evidence from the

existing studies (Hadi 2001; Strobach & Zaumseil 2007) suggested that microfinance generally has a positive impact on promoting health knowledge among the participants. There exists a positive relationship between the duration of membership of microfinance and health knowledge. Similar studies in Bangladesh also showed high magnitude of association between microcredit participation and health outcomes (Amin, Shah & Becker 2010; Leatherman & Dunford 2010). These studies found that microfinance could improve the health outcomes of the participants by providing them with proper health knowledge, and inform the participants about available health services and how to access those services. Leatherman and Dunford (2010) also found that MFIs was associated with improvement in the treatment of diarrheal diseases in the Dominican Republic. MckNelly and Dunford (1999) found that microfinance is related to better maternal health and nutrition practices in Bolivia and Ghana. Some of the studies carried out in African countries revealed that microfinance was positively associated with preventing HIV/AIDS along with reducing the risk of physical or sexual abuse (Barnes, Gaile & Kimbombo 2001; Pronyk et al. 2006). In a qualitative study, conducted in Burkina Faso by Hennink and McFarland (2013) showed that microfinance enhances the health behaviour and health expenditure choices of women. In Ghana, De La Cruz et al. (2009) found that microfinance institutions can effectively contribute to community and national malaria initiatives by increasing knowledge, leading to increased insecticide-treated bed net ownership and use by vulnerable members of the household (particularly pregnant women). Littlefield, Morduch and Hashemi (2003) also provided specific evidence for the impact of microfinance on health and concluded: “households of microfinance clients appear to have better nutrition, health practices and health outcomes than comparable non-client households” (p.4). The study conducted by Hamid, Roberts and Mosley (2011) investigated on Grameen Bank (GB), the largest MFI in Bangladesh, whether adding micro health insurance (MHI) to microcredit schemes can contribute to improving health awareness, health-seeking behaviour, and health status. Their results were statistically significant to show a positive relationship between MHI placement and all of the health outcome measures. Another study was conducted based on quasi-experimental survey in Ecuador and Honduras and found interesting result. In both countries, health bank participation significantly raised subsequent healthcare over credit-only participation, and at least reduced the tendency to switch from breastfeeding to bottle-feeding as income rises (Smith 2002).

Rather than focusing on the effects of specific health schemes incorporated into microfinance programmes, some literature emphasise more on the indirect impacts of microcredit on health. For example, according to Butcher (2010), even without an additional health component, microfinance resulted in health improvements for its clients due to their enhanced economic status. Increased economic status allowed poor people to have better access to nutritious food, to have better sanitation infrastructure installed at their homes, and to have medical care when they are sick. However, Butcher (2010) also admitted that the relationship between microfinance participation and health is not likely to be as direct and simple as expected.

Furthermore, some of the studies showed their doubt on the conclusion that microfinance can improve the health outcomes of its clients either directly or indirectly. For example, Dohn et al. (2004) failed to show that participants in a microcredit programme experienced any significant improvement for the eleven health indicators that they identify. Similarly, Mohindra, Haddad and Narayana (2008) found no relationship between participation in microfinance programme and self-assessed health or management of health risk in Kerala, India. The microcredit programme in Hyderabad, India also failed to show that the treatment group has better health outcomes than the control group (Banerjee et al. 2013).

Overall, previous literature focused on health knowledge or awareness and health improvement and outcomes rather than examining health-seeking behaviour and access to health service and health input in particular. Most of the previous studies did not examine the some important aspects of health such as health-seeking behaviour and access to health services and health inputs which are the focus of this study.

## **5.3 METHODOLOGY**

### **5.3.1 Conceptual Framework and Hypothesis**

The relationship between microcredit and health-related behaviour can be explained by employing household economic portfolio model (HHEP) originally developed by (Cohen, Chen & Dunn 1996), where researchers only explained the effect of credit on household resources and household activities. This study, however, only measures one of the implications of household economic portfolio model; which is hypothesised as (H<sub>0</sub>): there is no significant difference on the health-seeking-behaviour and access to

health services and health input of rural households of Bangladesh in the context of before and after joining the microfinance programme among member households.

### **5.3.2 Survey design and data**

The study design and the data related to this study have been discussed in Chapter 3. More details about the survey and sampling process are presented in Chapter 3.

In addition, specific information on recent household illness and related health-seeking behaviour was provided by the spouse of the household head or any knowledgeable adult family member of the family. Data on the types of health care sought were obtained by asking the respondent about the situation of getting treatment which was subsequently grouped into six categories. The category ‘antenatal care facilities’ comprise the treatment or medicines provide for the care of babies. The category ‘immunisation’ refers to whether or not the mother is immunised. The category ‘diarrhoeal remedies’ refers to any actions taken for the cure of diarrhoea of the child. The category ‘family planning services’ indicates whether the female respondents have been provided with materials and advices related to family planning. The category ‘maternal care services’ comprises the facilities provided during the tenure of maternity. The category ‘malaria/TB treatment’ indicates the provision of medicines or mosquito nets at the time of malaria sufferings. Finally, the category ‘medicines accessibility’ indicates the rendering of medicines or access to receive financial assistance at the time of illness.

### **5.3.3 Measurement of Variables**

#### *5.3.3.1 Dependent Variables*

The dependent variables used in this study are health inputs, access to health service and health seeking behaviour of the households. This study has measured ‘health seeking-behaviour’ and ‘health input and service’ by antenatal care facilities, immunisation, diarrhoea remedies for children, family planning services, maternal care services and malaria/TB treatment. The study has used sources of drinking water and toilet condition as measure of health input, as evidence (Al Mamun & Adaikalam 2011; Esmat Ara & Seddiky 2014) suggest that these two factors are very important determinants of health status in low-income countries, such as Bangladesh. Changes

in health-seeking behaviour and health inputs are measured on the basis of the extent of change occurred in nine selected dimensions of health behaviour, health services and health input of the households as a result of their involvement with the microcredit program of the selected MFIs. The measurement of selected dimensions is as follows:

The sources of drinking water status of the households comprise three items namely 'deep tube well', 'shallow tube well', and 'river water'. The change of sources of drinking water of a respondent has been determined by the difference before and after joining microcredit program.

The toilet condition of the respondents comprises three items namely, 'full sanitary', 'half sanitary', and 'open'. The change in toilet condition is also determined by considering the difference before and after joining microfinance.

The health-seeking behaviour and health service, namely 'antenatal care facilities provided', 'immunisation provided', 'diarrhoeal remedies', 'family planning services', 'maternal care services', 'malaria/TB treatment' and 'medicines accessibility' of the respondents comprise from two 'yes' and 'no' answers. Respondents have been asked about their status before involvement and after involvement with microfinance programme against the above-mentioned issues.

#### *5.3.3.2 Independent Variables*

In this study, our main independent variable of interest is microcredit programme of Grameen Bank, BRAC and DISA which is measured by the duration of involvement with microcredit programme. This variable reflects the potential cumulative effects of participating in microfinance. It was expected that households which participated in microfinance programme longer might experience more positive effects. Other independent variables included in the analysis are log of household income per adult equivalent, age of the household head, ethnic minority status, education of household head, education of spouse, occupation, types of employment of the household head and spouse, number of household member and dependency ratio. In relation to village characteristics, the variables considered are illiteracy rate, distance to health centre, wheat prices and casual labour rate.



### 5.3.4 Descriptive statistics

Table 5.1 presents health inputs, service and health-seeking behaviour of the sample respondents and the percentage distribution of these dependent variables in the context of before and after joining microfinance operations. Table 5.1 shows that 43% of the households use shallow tube-well as sources of drinking water before joining microfinance programmes. The number has reduced by 10% and the proportion of households using deep tube-wells has increased by 12% after joining microfinance programmes. On the other hand, 30% of respondents used full sanitary latrines before joining microfinance schemes, while this figure went up by 99% after the households joined the microfinance programme which could refer to an outstanding result in terms of development. Similarly, in case of providing antenatal care facilities, 25% respondents were provided this services before joining microfinance programmes while the number increased by 145% after joining the microfinance which showed tremendous improvement. The rates of immunisation per household were much improved after the households took part in microfinance schemes. Table 5.1 shows a 28% improvement on that health measure. A high increase (67%) on any kind of diarrhoea remedies for children has been revealed after joining the microfinance. Table 5.1 also shows that after joining a microfinance programme, almost 60% of participants received maternal care services that were 106% higher than before. Similarly, the number of participants who received family planning services had also increased by 87% after joining the microfinance scheme. The contribution of microfinance towards malaria/TB treatment was found to be 108% more than before joining microfinance. A very significant portion of improvement has been made in case of medicines accessibility/affordability to cure diseases (77.7%) after joining microfinance which is 150% more than before which can be thought for a positive transition of their lives.

Respondents' health status were assessed on the basis of sources of drinking water, toilet condition, antenatal care, immunisation status, diarrhoea remedies, family planning facilities, maternal care services, malaria treatment and access to affordable medicines. Since all variables of interest were categorical, the author used the Wilcoxon test to examine the differences in their median before and after joining the microfinance scheme. The test result showed that microfinance participation was associated with significant changes in all variables of interests. In particular, Table 5.1

shows that after joining microfinance schemes, there was a significant change in the situation of access to sources of drinking water despite the fact that the magnitude of changes overall were small. But participation in microfinance programmes was associated with substantial improvement in toilet conditions (the rate of access to a fully sanitary toilet was doubled more or less).

Table 5-1 Descriptive Statistics of Dependent Variables

Variable	Range	Before MF	Joining MF	After MF	Joining MF	Wilcoxon test (p-value)
		N	%	N	%	
<i>Health Input</i>						
Sources of drinking water	Deep Tube=1	194	53.3	218	59.9	0.000
	Shallow=2	156	42.9	140	38.5	
	River=3	14	3.8	6	1.6	
Toilet condition	Full sanitary=1	110	30.2	219	60.2	0.000
	Half sanitary=2	185	50.8	135	37.1	
	Open=3	69	19.0	10	2.7	
<i>Health Seeking Behaviour and Health Service</i>						
Any antenatal care facilities provided	Yes=1	92	25.3	225	61.8	0.000
	No=0	272	74.7	139	38.2	
Any immunisation provided	Yes=1	249	68.4	318	87.4	0.000
	No=0	115	31.6	46	12.6	
Any kind of diarrhoea remedies for children	Yes=1	178	48.9	297	81.6	0.000
	No=0	186	51.1	67	18.4	
Any kind of family planning services provided	Yes=1	151	41.5	283	77.7	0.000
	No=0	213	58.5	81	22.3	
Any kind of maternal care services received	Yes=1	104	28.6	214	58.8	0.000
	No=0	260	71.4	150	41.2	
Malaria/TB treatment	Yes=1	91	25.0	189	51.9	0.000
	No=0	273	75.0	175	48.1	
Medicines accessible/affordable for cure diseases	Yes=1	113	31.0	283	77.7	0.000
	No=0	251	69.0	81	22.3	

Source: Author's own calculations based on Field Survey, 2014.

**Note:** Wilcoxon tests reveal that median responses of all health and sanitation conditions before and after participating in microfinance were significant at 1% level.

With regard to the antenatal care facilities provided, 225 out of 364 respondents reported that the antenatal care facilities were better than prior to participation. The rate of immunisation was improved substantially, with almost 28%

more compliance when compared to the previous situation, due to participation in microfinance. There is also significant association between participation in microfinance and diarrhoeal remedies for children with the rate of treatment doubled.

Among other health-seeking behaviours and health service related variables, there is also a significant association between their participation in microfinance and family planning services, maternal care services, malaria/TB treatment and medicines accessibility. Findings from this study indicate that there has been a substantial improvement on the aforementioned issues after joining the microfinance.

The descriptive statistics of the independent variables, presented in Table 5.2, shows that the average age of the head of the household is 40 years; and 26 per cent of heads of households have achieved secondary or higher levels of education. The average household size is about 5 persons and the average number of working age household members is about 3.

Table 5-2 Descriptive Statistics of Independent Variables

Variables	Unit/ Description	Mean	SD
<b>Household characteristics</b>			
Age of household head	Years	40.21	7.87
Ethnic minority	Yes=1	0.12	0.33
Education level	Secondary or above=1	0.26	0.44
Occupation	Farmers or low skills =1	0.43	0.50
Type of employment	Full Time = 1	0.77	0.42
Household size	Persons	4.79	1.29
People in labour age	Persons	2.84	1.17
Duration in microfinance	Months	31.66	28.28
Income per adult equivalent	BDT/year	97,978	55,285
<b>Village characteristics</b>			
Illiteracy rate	Percentage	19.11	11.99
Distance to health centre	Kilometre	12.03	26.05
Wheat price	*BDT/kg	23.40	5.05
Casual labour	BDT/day	300	75

**Source:** Author's own calculations based on Field Survey, 2014.

\*BDT = Bangladesh Taka

Among the households surveyed, 12% of households were from an ethnic minority. Further it is worth noting that 43% of the households belong to an unskilled occupation (farmers or low skills) whereas 77% of the households possess full-time employment. It was also revealed in the analysis that the total number of microfinance scheme members participated for an average of 31 months in microfinance programmes. The mean values of selected welfare indicators such as income per adult equivalent is BDT 97,978 per year (equivalent to US\$ 1260).

Table 5.2 also shows that on average, the illiteracy rate in the villages is around 19%. The average distance to health centre from the village is 12%. Further to reveal that, the average wheat price is 23 BDT/kg, whereas the casual labour price is 300 BDT/day in the surveyed villages.

#### 5.4 ECONOMETRIC SPECIFICATION

Only the relevant aspects of health-seeking behaviour, health services and health inputs that the MFIs addressed in the credit forums were considered in selecting the outcome variables. The health status of the participants was considered both before and after joining the microfinance scheme by studying nine variables. In both situations, each woman was asked about the sources of drinking water that she accessed, the condition of her toilet facilities, antenatal care, maternal care, family planning services, immunisation, diarrhoea remedies, malaria/TB treatment, and access to medicines. The change of the status has been considered as outcome variable. The duration of involving in microfinance is selected as independent variable (Appendix- 9) due to its ability to represent the cumulative effects of microfinance and avoid the fungibility issue of money when using popular choices such as outstanding loans (i.e., we cannot differentiate effects of money from microfinance and other sources of credit).

The model being estimated is:

$$h_{ij} = \beta_0 + \beta_1 D_{ij} + \beta_2 l_n Y_{ij} + \beta_3 X_{ij} + \beta_4 V_j + \varepsilon_{ij} \dots\dots\dots (1)$$

where:

$h_{ij}$  Dummy variables representing changes in health-seeking behaviour of the household  $i$  in village  $j$  after joining microfinance, in which one presents improvement and zero otherwise;

$D_{ij}$  is the duration (years) that a household participated in microfinance;

$\ln Y_{ij}$  is the log of income per adult equivalent;

$X_{ij}$  is the household characteristics;

$V_j$  is the set of village characteristics ;

$\varepsilon_{ij}$  is the idiosyncratic error term; and

$\beta_1, \beta_2, \beta_3$  and  $\beta_4$  are parameters to be estimated.

Since the outcome variable as coded as binary (1 if household improve health and sanitation after participating microfinance and 0 otherwise), the author choose logistic regressions to estimate Equation 1. The main advantage of this regression is that the selected type of parameters (odd-ratio) is easy to interpret. The author also applied a robust estimation of standard errors to take into account the presence of unknown heteroskedasticity.

## **5.5 RESULTS AND DISCUSSIONS**

Detailed results of the logistic regressions are presented in Table 5.3.

### **5.5.1 Immunisation Provided**

Our results show that participation in microfinance programme significantly increases the odds of full immunisation. In particular, the duration effect of microfinance on immunisation is significant at 1% level, which suggests that the odds of improving immunisation are 4:1 for members who joined MF for 2 years, 3:1 for members who joined MF for 3 years and 4:1 for members who joined MF for 4 years and beyond compared to the reference group (member for 1 year or less). The study also reveals that heads of households who have a secondary school education are more likely to have improved immunisation levels for their children, whereas their spouses with educational attainment at secondary school level was negatively associated with the

improvements in immunisation. Particularly, household head and spouse with secondary schooling have the odds of improving immunisation by 2:1 and 0.5:1 respectively. Moreover, among village characteristic variables, village illiteracy rate, the distance to the nearest health centre and the price of wheat was significantly and negatively associated (as the odds ratios are less than 1) with improved immunisation rates. In particular, one percentage point increases in the village illiteracy were associated with the odds of improving immunisations by 0.94:1, whereas the marginal effects of distance to health centre and wheat price are associated with the odds of 0.96:1 and 0.86:1, respectively.

### **5.5.2 Diarrhoeal remedies**

Results from Table 5.3 show that participation in microfinance programme significantly improves the odds of remedial therapies to combat diarrhoea. The duration effect of microfinance on remedies for diarrhoea is significant at 1% and 10% level, respectively. It advises that the odds of improving diarrhoeal remedy is 3:1 for members who joined MF for 2 years, 2:1 for members who joined MF for 3 years and beyond compared to the reference group (member for 1 year or less). Among other variables, the age of the head of the household head and their type of employment were also found to be positively associated with improved diarrhoeal remedies; whereas their status as belonging to a minority ethnicity, the occupation of the respondent, and the number of people in the family were significantly and negatively associated with efforts to mitigate diarrhoea. In particular, those who belong to minority ethnic group have the odds of improving diarrhoeal remedy by 0.25:1 when compared with those in majority groups. Also, households with full-time employment have the odds of improving diarrhoeal remedy of 2.8:1 compared to households with part-time employment. Further, the occupation of the head of the household and the number of people in the family have the odds of improving diarrhoeal remedy by 0.59:1 and 0.84:1 respectively. Moreover, among village characteristic variables, village illiteracy rate was negatively associated with diarrhoeal remedy, which suggest that one percentage point increases in the village illiteracy is associated with the odds of improving diarrhoeal remedy by 0.94:1, however it was found to be significant at 5% level.

### **5.5.3 Antenatal Care**

This study's results show that participation in microcredit programmes have had a significantly positive effect on the antenatal care services provided. In particular, the duration effect of microfinance on antenatal care is significant at 1% level, which suggests that the odds of improving antenatal care are 2:1 for members who joined MF for 2 years, 3:1 for members who joined MF for 3 years and beyond compared to the reference group (being microfinance member for 1 year or less).

Other significant determinants of antenatal care include education of household head and spouse having secondary school and income per person. The results show that antenatal care improves significantly and positively if the head of the household has an education level of secondary school level, whereas the level of spousal education (secondary school) was negatively associated with improved antenatal care. In particular, the head of the household and the spouse of the head of the household who had completed secondary schooling had the odds of improving levels of antenatal care by 1.82:1 and 0.46:1 respectively. Moreover, income per person was found to be positively associated with receiving improved antenatal care services. The results show that income per person has the odds of improving antenatal care by 2:1, which is significant at the 1% level.

Table 5-3 Effects of Microfinance on health input, health-seeking behaviours and health services

Independent variables	Immunisation		Diarrhoea		Antenatal care		Maternal care		Family planning		Drinking water		Toilet use		Malaria/TB		Medici
	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR
Join MF for 2 years	4.04***	1.94	3.66***	1.42	2.72***	1.04	2.01*	0.76	2.03**	0.72	1.94	0.95	1.42	0.80	0.95	0.37	0.63
Join MF for 3 years	3.82***	1.86	2.14*	0.83	3.16***	1.18	2.00*	0.75	1.30	0.46	2.90**	1.55	2.07	1.30	1.90*	0.71	0.66
Join MF for 4 years or more	4.26***	2.25	2.11*	0.93	3.51***	1.48	1.15	0.51	1.38	0.56	0.78	0.39	1.51	1.01	2.37**	1.00	0.50*
Household characteristics																	
Age of household head (years)	1.00	0.02	1.03*	0.02	1.00	0.02	1.00	0.02	1.05***	0.02	1.02	0.03	0.96	0.03	1.00	0.02	1.01
Minority ethnics (minority=1)	0.62	0.28	0.25***	0.12	1.36	0.49	0.74	0.30	0.36**	0.15	1.92	1.11	2.79	2.20	0.36**	0.17	0.38***
HH head Secondary school	2.13**	0.75	1.64	0.54	1.82*	0.58	3.08***	1.06	1.80*	0.57	1.20	0.59	3.46	2.83	1.42	0.47	1.95**
HH head High School	1.74	1.45	0.84	0.71	0.22	0.25	4.11*	3.22	1.19	0.90	1.64	1.89	1.23	1.58	0.82	0.66	1.39
HH head College/University	1.60	2.02	1.35	1.58	0.61	0.78	1.24	1.61	0.88	1.03					0.80	1.00	0.58
Education of spouse Secondary	0.51*	0.19	0.61	0.20	0.46**	0.15	0.29***	0.11	0.68	0.21	1.33	0.62	1.76	1.17	0.81	0.26	0.49**
Education of spouse High school	0.71	0.50	1.30	0.87	0.45	0.33	0.40	0.27	1.73	1.10	1.80	2.09	0.66	0.85	1.03	0.67	0.53
Occupation (farmers/labourers=1)	0.74	0.20	0.59**	0.15	0.97	0.23	1.29	0.32	0.88	0.21	0.76	0.27	0.80	0.34	0.63*	0.16	1.11
Type of employment(full-time=1±)	1.40	0.48	2.80***	0.91	0.80	0.23	0.61*	0.18	1.26	0.37	1.40	0.55	1.69	0.81	0.96	0.29	1.14
Number of people in the family	0.83	0.10	0.84*	0.09	0.95	0.10	0.82*	0.09	0.83*	0.08	0.98	0.14	1.03	0.17	0.80**	0.09	0.92
Dependency ratio	0.49	0.41	1.46	1.12	0.98	0.72	1.43	1.12	4.08*	3.12	2.80	2.90	6.38	7.87	0.94	0.74	2.46
Log of income per person	0.88	0.23	1.13	0.27	2.23***	0.20	1.91**	0.49	1.44	0.34	0.74	0.24	0.65	0.27	1.00	0.24	1.14
Village characteristics																	
Illiteracy rate (%)	0.94***	0.02	0.94*	0.03	0.99	0.02	0.96*	0.02	0.99	0.02	0.97*	0.02	1.01	0.04	0.99	0.02	0.98
Distance to health centre (km)	0.96**	0.02	0.99	0.02	0.89	0.06	0.77	0.24	0.77	0.26	0.92***	0.02	0.91***	0.02	1.01	0.01	2.55**
Wheat prices (Taka/kg)	0.86**	0.05	1.06	0.09	0.95	0.06	0.90	0.07	0.90	0.07	0.81***	0.05	0.81**	0.07	1.06	0.06	0.60***
Casual labour (Taka/days)	1.01	0.01	0.99	0.01	0.99	0.01	0.99	0.01	0.99	0.01	1.01	0.01	0.99	0.01	0.98**	0.01	1.03***
MFI=DISA#	0.97	0.31	0.93	0.28	1.24	0.37	1.04	0.32	1.39	0.42	0.63	0.29	0.55	0.31	1.35	0.42	0.72
MFI=BRAC#	0.83	0.34	0.96	0.36	1.57	0.58	1.26	0.48	1.65	0.60	0.82	0.47	1.34	1.05	1.41	0.55	0.93
chi2	27.38		56.95		43.72		43.07		37.87		16.17		20.77		20.84		22.29
p	0.05		0.00		0.00		0.00		0.00		0.44		0.19		0.23		0.17
Pseudo R2	0.069		0.119		0.090		0.093		0.078		0.060		0.101		0.048		0.04

Note: The significance level of the estimates are: \*\*\*, \*\*, and \* represent 1, 5 and 10 per cent significant level, respectively; # Grameen Bank is used as reference category

± Full-time workers are mostly those who are involved with farming



#### **5.5.4 Maternal care**

Table 5.3 shows that being a member of MF for more than 2 years but less than 4 years is positively related with improved maternal care. However, being a participant in an MFI for 4 years or more was not found to be statistically significant because in all likelihood, the mother was no longer of child bearing age. Maternal care was likely to be improved for members with heads of the household who had completed secondary school and high school, whereas for households where the spouse had completed secondary school, there was a negatively association. In particular, heads of households who had secondary and high schooling levels had the odds of improving maternal care by 3:1 and 4:1 respectively, whereas spouses with secondary schooling having the odds of improving maternal care only by 0.29:1. Also, among other household characteristics, income per person was significantly and positively associated with receiving improved maternal care services, where income has the odds of improving maternal care by 2:1. However, type of employment and number of people in the family were significantly and negatively associated with improved maternal care, which indicates that the type of employment and number of people in the family had the odds of improving maternal care of 0.61:1 and 0.82:1 respectively. Moreover, among village characteristic variables, village illiteracy rate was significantly and negatively associated with maternal care, which suggests that the village illiteracy rate has only the odds of improving maternal care by 0.96:1.

#### **5.5.5 Family Planning services**

Table 5.3 shows that the length of the duration of participation with the MFI does not have any association with the improvement of family planning services. However, if the duration of membership of MF is higher than one year but less than three years, then it is more likely to improve the odds household leaders accessing family planning services by 2:1 (5% significant). The probable explanation of this result is that senior members of microfinance schemes may be beyond reproductive age (the average age is 40 years which is in the borderline of maximum reproductive ability), and hence less likely to require family planning. Although the odd-ratios for other years is also favourable (i.e. odds >1), but it is not statistically significant. Among other variables, the age of the head of the household, secondary schooling having been completed by the head of the household, and the dependency ratio were also found to be positively associated with better family planning services, whereas factors including minority

ethnicity, and the number of people in the family were significantly and negatively associated with improved family planning services. In particular, those who belonged to minority ethnic had the odds of improving family planning services by 0.36:1 compared to the majority groups. Also, households with the greatest number of people in the family had the odds of improving family planning services by 0.83:1, whereas the dependency ratio had odds of 4:1. Also, heads of households who had secondary schooling experienced a significant improvement in family planning services with the odds of 1.8:1.

### **5.5.6 Sources of drinking water**

Our results show that participation in the microfinance programmes significantly increases the probability of improved sources of drinking water. In particular, the duration effect of microfinance on sources of drinking water is significant at 5% level, which indicates that the odds of improving the condition of sources of drinking water is 2:1 for members who joined MF for 3 years compared to the reference group (became microfinance member for 1 year or less). Moreover, among village characteristic variables, village illiteracy rate, distance to health centre and wheat prices of village were significantly and negatively associated with condition of drinking water. In particular, the illiteracy rate has the odds of improving drinking water condition of about 0.97:1 but it is only significant at 10%. And the distance to health centre and wheat price have the odds of improving the drinking water condition is of about 0.92:1 and 0.81:1, respectively.

### **5.5.7 Toilet conditions**

Table 5.3 shows that the duration of microfinance membership had no significant effects on the improvement of toilet conditions, although the association was positive. The probable reason for this result is that the members had been enjoying improved toilet facilities before joining the microfinance scheme due to government and nongovernment initiatives that had already been implemented in those villages. Moreover, among village characteristics, the distance to health centres and the price of wheat in the village were significantly and negatively associated with toilet conditions. In particular, the distance to health centre has the odds of improving the toilet condition by 0.91:1, whereas the wheat price has the odd of about 0.81:1.

### **5.5.8 Malaria/TB treatment**

Microfinance programmes are significantly associated with the increased probability of improving malaria/TB treatments. In particular, the duration effect of microfinance on malaria/TB treatment was significant at the 5% level, which indicates that the odds of improving the condition of malaria/TB treatment are 2:1 for members who joined MF for 3 years and beyond compared to the reference group (being microfinance member for 1 year or less). The improvement in access to malaria/TB treatment is less likely to occur, if the household has more members and is from ethnic minority status. Those households who belong to ethnic minority have the odds of improving malaria/TB treatment of 0.36:1 compared to majority groups. Other significant determinants of malaria/TB treatment included the occupation of the head of the household and the number of people in the family, which were negatively associated with the improvement of malaria/TB treatment. In particular, the heads of households' occupations as farmers/labourers had the odds to improve malaria/TB treatment by about 0.63:1 compared to other groups, whereas the factor of the number of people in the family had the odds of improving malaria/TB treatments by about 0.80:1. Also, among the village characteristic variables, casual labour prices were significantly and negatively associated with malaria/TB treatments. Particularly, casual labour prices had the odds of improving malaria/TB treatment at about 0.98:1.

### **5.5.9 Medicines accessibility**

Our results show that participation in microcredit had a significant negative effect on the accessibility of medicines. In particular, the odds of improving accessibility of medicines after joining microfinance for 4 years and beyond is 0.50:1 compared to the reference group of those who joined for one year. Also, households from ethnic minority and levels of spousal education of the head of the household having had secondary schooling were less likely to have created better access to medicines, whereas heads of households with secondary schooling attainment were more likely to have had improved access to medicines. Those households who belonged to ethnic minority and employment had the odds of improving the accessibility to medicines by 0.38:1 when compared to majority groups. Household heads with secondary school levels of education have the odds of improving access to medicines by about 2:1, whereas the level of education of the spouse had the odds of improving accessibility to medicines of about 0.49:1. Moreover, among village characteristic variables,

distance to health centres and casual labour prices were found to be positively associated with accessibility to medicines, whilst wheat prices as a factor was found to have a negative association. In particular, households with casual labour profiles had the odds of improving access to medicines by about 1.03:1, whereas the distance to health centres have the odds of improving access to medicines by about 2.55:1.

## **5.6 CONCLUSION**

This study has examined the impact of microfinance activities on health-seeking behaviour and health services for rural households in Bangladesh. This study has found that the health-seeking behaviour and access to health services by the households has been improved significantly after they joined the microfinance program. This study recommends that the policymakers related to health issues in developing countries should enhance their cooperation to achieve MDGs and strengthen health systems through inter-sectoral programming that utilises a microfinance platform to reach poor and underserved populations. The preliminary results of this study, based on the beneficial health practices among the participants in microfinance can be used as a starting point for further research investigating the links between microfinance and health-seeking behaviour and access to health services by rural households. However, this study was not able to disentangle how much of this improvement in health care and health-seeking behaviour was the result of the activities of MF or it is a general process of development undertaken by the government and policy makers in broader terms. Furthermore, it is necessary for future research to explore whether or not there are substantial differences in the health-seeking behaviour between the treatment (member) and control (non-member) groups of microfinance institutions. The next chapter will address the association between microfinance participation and child nutrition.

## 6 CHAPTER 6: MICROCREDIT PARTICIPATION AND CHILD NUTRITION

*Summary: This Chapter investigates how participation in microcredit programmes affects child nutrition status of rural households in Bangladesh using a cross-sectional survey of 439 households across 20 villages in four districts of Bangladesh. The presence of self-selection issue in microcredit and choice of the estimator are examined using a Hausman test. Child nutrition is measured according to height-for-age, and weight-for-age measurements of children. The study found no significant associations between microcredit participation and anthropometric indicators of children. Therefore, policies should be adopted to safeguard children's nutrition or that help households to smooth consumption when faced with adverse financial shocks during gestation or the post-weaning period might have meaningful impacts.*

### 6.1 INTRODUCTION

Child health is reflected as a key indicator of both economic development and the quality of life in developing countries (Afzal 2013). Healthy children's educational outcomes would be improved and they would be more productive in the workforce which can increase the productivity of a nation. On the other hand, children who suffer from malnutrition have poor health, and hence are trapped in the cycle of poverty (Moseson, Hamad & Fernald 2014). Children from Low and Middle-Income Countries (LMIC) suffer from the consequences of malnutrition, which include death, impaired growth, and poor cognitive and language skills. In this regard, microcredit programmes, which offer small loans, financial literacy and social support to low-income individuals, can be stimulated as a way to the nutrition of the children of microcredit clients. So, this is a matter of great concern whether and how microcredit could contribute to the improvement of child malnutrition.

Child malnutrition is a global problem, but more so in developing countries including Bangladesh, where child malnutrition rates are very high (Karim, Khan & Akhtaruzzaman 2004). A study conducted by the Bangladesh Bureau of Statistics BBS (2012) found that 51% of children aged 6 to 71 months suffer from being underweight, 49% suffer from stunting, and 12% suffer from wasting. Moreover, 70% of children aged one year suffer from an iron deficiency (Karim, Khan & Akhtaruzzaman 2004).

In this context, meeting everyday dietary requirements is essential for maintaining good health and continuing productive livelihood activities.

Despite the necessity of improving child health in Bangladesh, there is a surprising dearth of empirical studies on Bangladesh that examine the impact of microcredit participation on child nutrition. Some exceptions are Amin and Li (1997), Amin et al. (2001), and Pitt et al. (2003), which are conducted quite a while ago. Amin and Li (1997) found that the credit members of Non-Governmental Organisation (NGO) are higher adopters of child immunisation than those of non-members and hence their infant and child mortality rate is lower. Amin et al. (2001) investigated the integration of an Essential Services Package (ESP) in child and reproductive health and family planning with microcredit programmes and found a positive association between microcredit and ESP in child and family planning. Similarly, Pitt et al. (2003) conducted a quasi-experimental survey in rural Bangladesh and revealed that giving credit to women has a large and significant impact on the status of their children's health but the impact on the health of children of the household from supplying credit to men was not significant. Although the recent literature (DeLoach & Lamanna 2011; Maldonado & González-Vega 2008) might provide valuable insights into the area of health, the importance of local conditions for developing social policies remains significant. The need for more rigorous analysis of child health in Bangladesh is critical, and considering the diversity that exists in the 64 districts, it is imperative to conduct research not just at the national level but also at the subregional level. The paucity of comprehensive studies on child health due to the involvement of microcredit in Bangladesh makes this study a significant input to the existing literature. Therefore, by conducting a cross-sectional survey of 20 villages of four selective districts in Bangladesh, this study attempts to identify the extent of the impact of microcredit associated with the socio-economic factors that affect child nutrition at the household level, and presents policy recommendations based on these findings.

Although there is a large volume of literature on the impact of microfinance on poverty alleviation, there have been very few studies on the impact of microfinance on health in Bangladesh and particularly on child health. Islam and Choe (2013) showed the impact of microcredit on child schooling, but they did not show any impact on child health. Therefore, this study will be a contribution to the existing knowledge

and will provide implications for policy makers in developing countries. Furthermore, the study will also benefit the participants of microcredit in Bangladesh.

The remaining of the Chapter is structured as follows: Section two presents a brief review of literature; Section three describes the conceptual framework, study area and sample selection, data sources and descriptive statistics; Section four specifies the econometric models; and Section Five discusses the results, and Section Six concludes.

## **6.2 BRIEF REVIEW OF THE LITERATURE**

In view of the above discussion, health is considered as a critical driver for growth in developing countries. Thus, various studies have tried to measure the effectiveness of microfinance in improving health outcomes. According to Narayan et al. (2000), poor health conditions and incapability to access to healthcare lead to poverty. Microfinance is expected to influence health outcomes directly by offering health-related services, or indirectly by improving people's economic status.

The available evidence from the existing studies suggests that microfinance has a positive impact on the health outcomes of the participants. A study from Indonesia conducted by DeLoach and Lamanna (2011) pointed out that the existence of MFIs has a significant and positive effect on the children's health of the participants. Similarly, another study in Peru revealed that longer participation in microcredit results in improved nutritional outcomes, as measured by clients' BMI and haemoglobin levels (Hamad & Fernald 2012). Moseson, Hamad and Fernald (2014) also showed that participating in microcredit for longer periods was associated with greater household food security and reduced likelihood of childhood anaemia. However, no significant associations were observed between microcredit participation and incidence of childhood illnesses or anthropometric indicators. In Ghana, De La Cruz et al. (2009) found that microfinance institutions can effectively contribute to community and national anti-malaria initiatives by increasing knowledge, leading to increased insecticide-treated bed net ownership and use by vulnerable members of the household (children under the age of five). A study conducted by You (2013) in China on older children aged 12-20 years revealed that taking formal microcredit improves parent-reported health status and weight, and alleviates anaemia and zinc deficiency.

A large body of literature, see for example, Amin, Shah and Becker (2010), Leatherman and Dunford (2010), MckNelly and Dunford (1999), Barnes, Gaile and Kimbombo (2001), and Hennink and McFarland (2013), discussed the impact of microfinance on adult health, women health, antenatal care, maternal health, HIV/AIDS prevention practices and diarrheal diseases. On the other hand, a very few studies have been conducted to show the impact of microfinance on child health outcomes, particularly in Bangladesh. For example, Foster (1995) speculated that small-size credit programs like microcredit may be able to affect positively child health outcomes in Bangladesh in the face of different types of macroeconomic shocks such as a flood. Pitt et al. (2003) showed that women's credit created a large and significant impact on measures of the healthiness of both boy and girl children.

Some of the previous studies emphasised the impact of other socio-economic factors (parental education) compared to microcredit on child nutrition. For example, according to Aslam and Kingdon (2012), the father's education level is positively associated with the immunisation of the children, while mother's education is associated with longer-term health outcomes of children. Similarly, Chen and Li (2009) also admitted that mother's education has a nurturing effect on child health. All effects nevertheless appear to exist in the short-term only. Similar type of study in Pakistan by Rehman (2014) also confirmed that socio-economic and demographic factors affect child health status in rural areas. However, they did not investigate the involvement of microcredit on anthropometric indicators of children.

Another line of literature showed that women empowerment engineered through microcredit is significantly associated with the nutritional status of children (Sarkar & Haider 2014). This study revealed that increasing women's empowerment through income and education leads to improvements in child health and survival. However, this assumption has not been tested in well-controlled intervention studies. In addition, some of the studies showed that the relationship between women empowerment and the children's nutritional status but did not explain whether microcredit is available to support women's empowerment. For example, women's empowerment is positively associated with children's nutritional status in South Asia (Cunningham et al. 2015). Another recent study conducted by Imai et al. (2014) also



confirmed that women’s empowerment and better nutritional status of children are strongly associated in the long run at the low end of its conditional distribution.

### 6.3 METHODOLOGY

#### 6.3.1 Conceptual framework and Hypothesis

The relationship between microcredit and child health can be explained by Becker (1965)’s model of household utility function where utility is derived both from purchased and home-produced goods. The theory asserts that households purchase goods and combine them with time into a household production function to produce commodities. The purpose of purchased goods and time is to serve as inputs to the acquisition of commodities, which, in turn, enter the household’s utility function. For example, if “good health of children” is a commodity, then related inputs might include food, vaccinations, health facilities, and mother’s health knowledge. Households get utility from the consumption of goods and services and the enjoyment of leisure activities. The income can be generated by households from productive activities either from waged employment or from work on the family farm. Thus, households aim to achieve the highest level of utility by allocating time to production, consumption and leisure (Khanam, Nghiem & Rahman 2011). The relationship can be expressed as

$$U = f(N, F, C, L; X, \xi) \dots\dots\dots (1)$$

where  $N$  is the aggregate nutritional status outcome of household members,  $F$  is food consumption,  $C$  is non-food consumption,  $L$  is leisure,  $X$  are exogenous household characteristics and  $\xi$  is a stochastic term representing unobservable heterogeneity in preferences. This study, however, only measures one of the implications of household utility model; which is hypothesised as (H<sub>0</sub>): there is no significant association between microfinance participation and children’s nutritional status of the rural households of Bangladesh in the context of microfinance programme among member households.

#### 6.3.2 Survey design and Data

As mentioned in Chapter 3, the data used in this study was collected from the survey of 439 households of 20 villages from four districts of Bangladesh. More details about the survey design are presented in Chapter 3.

### 6.3.3 Measurement of Variables

#### 6.3.3.1 Dependent Variables

The dependent variables in our model are anthropometric measures of height-for-age (HAZ) as an indicator of chronic malnutrition (stunting), and weight-for-age (WAZ) representing the overall measure of malnutrition (wasting). According to the previous literature (Strauss & Thomas 1998; Thomas, Strauss & Henriques 1991), our measurement of child health is height-for-age z-score (HAZ). Child anthropometric measurements, such as height-for-age, provide useful information for child health status, are easy to obtain, and are comparable across different ages and sexes. HAZ is particularly a good health indicator as it is a measure of both short-term and long-term health status (Strauss & Thomas 1998; Thomas, Strauss & Henriques 1991). Another important measurement of child health is weight-for-age z-score (WAZ). This study used the z-score values for height-for-age and weight-for-age to measure nutritional status of children up to five years of age. The Z-scores are age-standardised normalised growth curves used to compare children of all ages. They express the nutritional status of a child in standard deviations from a median. Typically, a US National Centre for Health Statistics (NCHS) standard reference population, which is recommended by the World Health Organization, has been used as a reference population in many studies (Marini & Gragnolati 2003; Maxwell, Levin & Csete 1998; Tharakan & Suchindran 1999). Children's height and weight are standardised according to the following formula:

$$Z \text{ score} = \frac{x_i - \mu}{\sigma}$$

where  $x$  is the raw score (height or weight) of child  $i$  in a particular group, where a group is defined according to the child's sex and age.  $\mu$  and  $\sigma$  is the median and standard deviation of the particular group of child, using WHO reference population, respectively (WHO 2007).

Each of the two anthropometric measures provides different information about growth and body composition of the child used to assess his/her nutritional status. Weight-for-age is considered as a good indicator of population nutritional status because it captures aspects covered in both height-for-age and weight-for-height measures. A child may be underweight for his age because he/she is wasted or stunted.

Thus, WAZ is a composite index of weight-for-height and height-for-age and thus does not distinguish between acute under-nutrition (wasting) and chronic under-nutrition (stunting) (Chirwa & Ngalawa 2008). Thus, when a child is more than two  $\sigma$  below the weight-for-age NCHS standard reference mean (i.e.  $WAZ < -2SD$ ), he/she is considered as underweight for his age. HAZ measures linear growth. When a child is more than two  $\sigma$  below the height-for-age NCHS reference population median (i.e.  $HAZ < -2SD$ ), he/she is described as stunted or too short for his age, a condition that reflects chronic malnutrition (NSO 2001).

#### *6.3.3.2 Independent Variables*

This study uses the duration of microfinance membership to examine the effect of microcredit on child nutrition. In addition, the independent variables that are mainly considered fall into child characteristics, household characteristics and village characteristics. The child-specific characteristics include the gender and age of the child.

The household characteristics include the age, education and occupation of household head, education of spouse of household head, ethnic minority status, type of employment, number of people in the family (household size), dependency ratio, shocks encountered by household and welfare index measured by log of income per adult equivalent.

The village characteristics include illiteracy rate, a distance of the nearest health centre, wheat price and casual labour price. Also, dummy for each microfinance membership is also included.

#### **6.3.4 Descriptive statistics**

Table 6.1 presents the descriptive statistics of the variables included in this study. It reports the means of HAZ and WAZ and their corresponding means and standard deviations. The mean Z-scores show that stunting is the greater of the malnutrition problems with a Z-score of -3.64 and a standard deviation of 3.14, followed by underweight with a Z-score of -1.37 and a standard deviation of 1.73. Thus, both HAZ and WAZ suggest that the children of Bangladesh on this sample are malnourished, on average.

The child characteristics show that at least 51% of children in the sample are male; the average age of children in the sample is 8.76 years. So, the sample in this study captures the male and female children almost evenly.

Table 6-1 Descriptive Statistics (Means and standard deviations of variables)

Variables	All		MF		Non-MF	
	Mean	SD	Mean	SD	Mean	SD
Weight-for-age z-score	-1.35	1.73	-1.37	1.73	-1.19	1.71
Height-for-age z-score	-3.70	3.19	-3.64	3.14	-4.04	3.45
Stunting (1 if HAZ<-2)	0.68	0.47	0.68	0.47	0.71	0.46
Wasting (1 if WAZ<-2)	0.21	0.41	0.22	0.41	0.20	0.41
Child Age (years)	8.76	3.72	8.80	3.68	8.55	3.92
Child Sex (male=1)	0.51	0.50	0.51	0.50	0.50	0.50
Sex of HH head (male=1)	0.99	0.11	0.99	0.10	0.98	0.15
Age of HH head (years)	39.45	7.57	39.58	7.39	38.69	8.49
Minority ethnicity	0.10	0.30	0.10	0.30	0.07	0.26
HH head has secondary school(Father)	0.21	0.41	0.21	0.41	0.21	0.41
HH head has high school (Father)	0.04	0.19	0.03	0.17	0.08	0.27
Spouse has secondary school (Mother)	0.25	0.43	0.25	0.43	0.24	0.43
Spouse has high school (Mother)	0.04	0.20	0.05	0.21	0.01	0.09
Occupation (farmer=1)	0.44	0.50	0.42	0.49	0.54	0.50
Type of employment(full=1)	0.76	0.43	0.76	0.43	0.76	0.43
Number of people in the family (persons)	5.04	1.29	5.10	1.29	4.69	1.24
People in labour age (persons)	2.76	1.08	2.84	1.17	2.67	0.98
Shocks encountered (yes =1)	0.24	0.42	0.32	0.47	0.15	0.36
Dependency ratio	0.47	0.15	0.48	0.14	0.46	0.15
Log of income per person (*BDT)	11.33	0.52	11.33	0.51	11.28	0.53
MF=2 years	0.23	0.42	0.23	0.42	-	-
MF=3 years	0.33	0.47	0.33	0.47	-	-
MF>3 years	0.20	0.40	0.20	0.40	-	-
Illiteracy rate (percentage)	19.11	11.99	-	-	-	-
Distance to nearest health centre (km)	12.03	26.05	-	-	-	-
Wheat price (*BDT/kg)	23.40	5.05	-	-	-	-
Casual Labour (*BDT/day)	300	75	-	-	-	-

Source: Author's own calculations based on Field Survey, 2014. \*BDT= Bangladesh Taka

Concerning household characteristics, 99% household heads are male (although the members of MFIs are women) and their average age is 40 years. The level of education of household head is low compared to their spouse education. At least 21% household heads have secondary schooling whereas household heads with high schooling are only 4%. The spouse with secondary schooling is 25% while spouse with high schooling stands at only 4%. The average household size is about 5 and the

average number of working age household member is about 3. Among the households surveyed, 10% households are from ethnic minority. It is also shown from the analysis that 32% member households face shocks in the last 12 months. Further to note that 44% of the households belong to unskilled occupation (farmers or low skills) whereas 76 % of the households possess full-time employment. It is also revealed from the analysis that the total number of microfinance member is having with an average 31 months in microfinance programmes. The mean values of selected welfare indicators such as log of income per person is 11 BDT.

Table 6.1 also shows the village characteristics which shows that on an average the illiteracy rate in the village is 19%. The average distance to the nearest health centre from the village is 12 km. Further to reveal that, the average wheat price is 23 BDT/kg, whereas the casual labour price is 300 BDT/day in the surveyed villages.

#### 6.4 SPECIFIED ECONOMETRIC MODEL

Child nutrition outcomes are commonly measured by anthropometrics like height or weight (or a combination of these). For this reason, this study follows the literature and uses HAZ and WAZ as our proxy for child nutrition. Thereby, the impact of participation in microfinance programs on child's nutrition can be estimated with the following equation:

$$H_{ijk} = \beta_0 + \beta_1 D_j + \beta_2 \ln I_j + \beta_3 X_{ij} + \beta_4 Y_j + \beta_5 V_k + \varepsilon_{ij} \quad \dots\dots\dots (2)$$

where:

$H_{ijk}$  is the nutrition status of a child, measured by dummy variable for stunting and wasting for child  $i$  of household  $j$  in village  $k$ ;

$D_j$  is dummy variable representing the duration (years) that a household participated in microfinance;

$\ln I_j$  is the log of income per person;

$X_i$  is the child characteristics;

$Y_j$  is the household characteristics;

$V_k$  is the set of village characteristics;  
 $\varepsilon_{ij}$  is the idiosyncratic error term; and  
 $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  are parameters to be estimated.

With the availability of only cross-sectional data, there is no capacity to control for individual level unobserved characteristics. There can be a mitigation of the self-selection issue at the village level. Assuming that unobserved village characteristics are time-invariant, the self-selection problem issue can be mitigated by using a village fixed-effect estimator. This estimator is consistent even if time-invariant unobserved village characteristics (e.g., culture and tradition) affect both the availability of microcredit and child nutritional outcomes. However, this estimator also eliminates the ability to control for observable village characteristics (e.g., infrastructure) and hence it is not efficient when self-selection is not an issue. This study has used Hausman specification test for the null hypothesis that parameters of fixed-effects (i.e., village dummies) and random-effects (i.e., village characteristics) are the same (Appendix- 8). If the null hypothesis is rejected, then self-selection is an issue and fixed-effects estimator is preferred. The test results show that we do not have evidence to reject the null hypothesis (p-value=0.39 and 0.63 for WAZ and HAZ, respectively), and hence self-selection at village level is not an issue and the random-effects estimator is preferred. One possible explanation is that Bangladesh is considered as capital of microcredit of the world and hence most villages will be covered by microfinance services, and hence, there is no room for self-selection.

## **6.5 RESULTS AND DISCUSSION**

Table 6.2 presents results from logistic regression analysis. The model statistics show that the pseudo  $R^2$  ranges from 13.4 % in the HAZ model to 22.5 % in the WAZ model. The  $\chi^2$  shows that all parameters are jointly significant.

The results show that participation (duration) in microcredit has no significant effects on the nutritional status of children. The parameter for stunting is negative as expected but there is not enough statistical evidence to support the contribution of microfinance. This result is similar to the findings of (Moseson, Hamad & Fernald 2014). The positive sign of microfinance parameter in wasting measure is counter intuitive. One possible reason is that stunting is often a more precise measure of

malnutrition (e.g., underweight children can catch-up with their peers but it is unlikely that short children due to poor malnutrition can do the same).

Table 6-2 Determinants of Child Nutrition: Logistic Regression

Variables	Stunting (HAZ<-2)		Wasting (WAZ<-2)	
	Coef	SE	Coef	SE
Child age	-0.15***	0.04	-0.26***	0.04
Child sex	0.13	0.23	-0.10	0.27
Age of HH head	-0.03	0.02	-0.02	0.03
Minority ethnicity	0.94*	0.54	-0.08	0.58
HH head has secondary school	0.52	0.37	-0.18	0.40
HH head has high school (Father)	-1.98***	0.74	-0.57	0.89
Spouse has secondary school	-0.32	0.31	0.48	0.36
Spouse has high school (Mother)	2.13**	0.90	-1.09	0.87
Occupation (Farmer=1)	-0.24	0.26	0.08	0.30
Type of employment (fulltime=1)	0.63**	0.31	0.13	0.37
Number of people in the family	-0.02	0.12	0.08	0.14
Dependency ratio	-3.13***	1.02	-2.84**	1.19
Log of income per person	-0.28	0.28	-0.88***	0.26
Shocks (In the last 12 months did you suffer from any financial shock)	-0.03	0.30	0.16	0.32
In MF for 2 years	-0.19	0.38	0.01	0.50
In MF for 3 years	-0.27	0.38	0.25	0.43
In MF for 4 years or more	-0.17	0.41	-0.15	0.47
Illiteracy rate (%) in villages	-0.03**	0.02	-0.05**	0.02
Distance to the nearest health complex?	-0.01*	0.01	-0.00	0.01
Wheat price (BDT)	-0.13***	0.04	0.03	0.04
Casual labour price (BDT)	0.02**	0.01	-0.02**	0.01
MFI=DISA	0.12	0.32	-0.83**	0.35
MFI=BRAC	0.87**	0.42	-0.93**	0.46
Constant	6.43*	3.54	17.80***	3.79
Chi <sup>2</sup>		50.89		57.20
p-value of the Chi <sup>2</sup> test		0.00		0.00
Pseudo R2		0.134		0.225

Note: The significance level of the estimates are: \*\*\*, \*\*, and \* represent 1, 5 and 10 per cent significant level, respectively. GB is used as reference category, BDT = Bangladeshi Taka

Among the main child characteristics, only the age of the child is found to be statistically significant: a child is less likely to be wasted or stunted as he gets older. The study has found that the female child is better nourished when compared with the

male child in one of the two measures (HAZ only) but this was not found to be statistically significant. However, child sex variable is found significant in other studies conducted in some African countries (Garrett & Ruel 1999; Glick & Sahn 1998; Maxwell, Levin & Csete 1998).

The household characteristics which are found statistically significant determinants of the nutritional status of children include education of father and mother, type of employment of father, dependency ratio, log of income per person and minority ethnicity. The results in Table 6.2 show that children from households of ethnic minority groups are more likely to be stunted.

Children from a father with high school education are less likely to be stunted. Surprisingly, the chance of being stunted increases significantly for the children with a mother who has a high school education. The explanation of this result is that secondary school education might create job opportunities for rural women, which might have a negative effect on child health. Some studies have attempted to explain why higher educated mothers have malnourished children. For example, Leslie (1988) argues that the time spent by women in activities such as food preparation, breastfeeding, collecting water, and seeking preventative and curative medical care is an important input into the production of child health. Women with high education levels tend to join labour market, therefore, they do not have adequate time for breastfeeding and preparing nutritious foods for their children, or making use of public services that would enhance the nutritious status of their children (Glick & Sahn 1998).

Presumably, the occupation of household heads is also an important determinant of child nutrition which is evident from another study (Chirwa & Ngalawa 2008). The aspects of economic empowerment of household heads are captured by the occupation variables. The negative sign of occupation variable shows that children from farming households are more likely to be well-nourished, however this result is not statistically significant. The results also show that children from full-time working fathers are more likely to be stunted. One explanation of this result could be that parental time is an input to the production of child health, which might be hampered when parents are working full-time.

Among the village characteristics, illiteracy rate, the distance of the nearest health complex, wheat price and casual labour price, have mixed effects on the child nutritional status. The results show that village illiteracy rate significantly reduces the probability of stunting and wasting, and the coefficients are statistically significant at



the 5% level. The explanation behind this interesting result is that, on average, only 19% people in the village are illiterate, which is minimal percentage to have any adverse effect on the stunting and wasting of children. The distance to the nearest health complex is found to be statistically significant at 10% level of stunting. It indicates that the shorter the distance to the nearest health complex, the children could be taken to doctors or health assistants time to time which reduces the possibility of being stunting. The wheat price has a significant effect on stunting at 1% level, which shows that children from villages with higher wheat price are less likely to be malnourished, which is consistent with our expectation. On the other hand, an interesting finding is that the casual labour price significantly reduces the chance of being wasting but increases the chance of being stunting for the children. The reason behind this could be that casual labour price rate is very low to buy nutritious food for children.

#### **Possible explanation of the findings**

The author hypothesised that longer participation in a microcredit programme would be associated with better nutrition outcomes among members' children. However, the actual results showed no association between microfinance participation and anthropometric health outcomes of children, which is consistent with some earlier studies, see for example, (McNelly & Dunford 1998; McNelly & Dunford 1999; Pitt & Khandker 1998). The reason may be because participation in microcredit leads to a different, but not necessarily better distribution of household resources. A household may feel more able to buy more food and thus improve food security, but these dietary changes may not be sufficient to improve their children's anthropometric measures (Moseson, Hamad & Fernald 2014). This scenario advises that socially conscious microfinance institutions and public health practitioners may need to concentrate on multi-sectoral infrastructural changes to address malnutrition and child health beyond an improvement in income/consumption pattern. Another reason may be explained by the fact that stunting represents chronic or long term under-nutrition, which is a consequence of prolonged food deprivation. This can be intergenerational, in which poor nutrition of the mother results in low height of the children via the effects of intrauterine growth delay (Victora et al. 2008). Similarly, stunting may also result from food deprivation in the first two years of child life (Steckel 2008). In regards of wasting, a possible explanation for why the impact of microcredit participation on

wasting is not as pronounced is that wasting represents short-term acute malnutrition which could be the result of some recent spell of disease or distress (Islam et al. 2015).

Our study has significant implications for public health activities to improve child nutrition and health. The health-related researchers have acknowledged since long that addressing social and economic factors is critical in overcoming health discrimination (Marmot et al. 2008), and some have suggested that microcredit may be an appropriate tool to address these factors to attain the Millennium Development Goals (Littlefield, Morduch & Hashemi 2003). Although economic interventions like microcredit target the more distal factors rather than those more proximal to a child's immediate environment, our study supports the idea that they should be integrated into other public health interventions to achieve these aims.

## **6.6 CONCLUSION**

In this study, we evaluate the participation in microfinance which may improve child nutrition. The results have found no association between microfinance participation and child nutrition. This research reveals that the father's level of education, household income (only for wasting), distance to the nearest health complex, and wheat price in the village (an indication of affluence) were the important determinants of child nutrition in rural Bangladesh.

The finding is that policies aimed at safeguarding children's nutrition or that help household to smooth consumption when faced with adverse financial shocks during gestation or the post-weaning period will have meaningful impacts. Public policy interventions in these particular periods of children's early life are therefore justifiable and likely to contribute effectively to the goals of long term human development and poverty reduction. This study could not include the non-members' responses on these selected variables due to resource and time constraints. Therefore, there is room for improvement by comparing child health outcomes of the treatment group and control group regarding the mechanisms through which microcredit participation may influence the child nutrition as well as health outcomes. Further research should also investigate whether microfinance increases health knowledge and health awareness of the participating households and whether it has spill-over effects on child and adult health outcome. The next chapter will discuss about the participation in microfinance and its effect on child schooling.

## **7 CHAPTER 7: MICROCREDIT PARTICIPATION AND CHILD SCHOOLING**

*Summary: This Chapter investigates the association between household's participation in microcredit programmes and child schooling using data from 439 households across 20 villages of four districts of Bangladesh. Child schooling achievement has been measured by three indicators: school attendance, school enrolment in due time, and right-grade for-age. This study's results reveal that participation in microcredit has had a significant positive effect on school enrolment and a negative effect on grade attainment, although it does not have significant effect on school attendance. Policies aimed at improving the children's educational achievement in rural households should consider enhancing or providing subsidised educational stationery and tiffin (meals) in addition to providing free universal education among the children of microcredit participants.*

### **7.1 INTRODUCTION**

Microfinance operations have expanded rapidly in recent decades in the developing world. They have reached more than 30 million borrowers in Bangladesh, which represents 60% of the country's poor households (World Bank 2012). Microfinance generated credit programmes deliver collateral free low-interest credit to people living in poverty and, when compared to moneylenders, such programmes encourage entrepreneurship and stimulate economic growth (Chepsat, Obara & Makindi 2014). Similarly, microfinance can be a powerful vehicle for giving the poor more economic options. However, those living in extreme poverty need something more than the financial assistance from microfinance to address the causes and conditions of their poverty. Preferably, the poor would have access to a coordinated blending of microcredit and other development services to improve education outcomes for their children and other developmental goals (Dunford & from Hunger 2002). The question is how to maintain a coordinated combination of development services in rural areas where multiple services are simply unavailable.

Microfinance experts are sometimes motivated to deliver non-financial services to their clients considering necessity and demand. However, the financial viability of Micro Finance Institutions (MFIs) as a business concern has made the experts very

cautious about the add-ons non-financial services, because the non-financial service organisations can provide these services to the same clients. Moreover, most of the MFIs feel comfortable or constrained to concentrate only on the financial need of their clients rather than attempting to meet their non-financial needs. On the other hand, some of the MFIs (for example BRAC) run primary schools in communities where the formal education system has not yet reached by complementing mainstream school systems with innovative teaching methods and materials (BRAC, 2015).

Education, particularly childhood education, is a crucial element in poverty alleviation and for economic growth at the macro level as well as at the household level (Quaeghebeur & Marthi 2005). However, despite the interest of poor households to send their children to school, they are unable to do so due to some constraints. Among the major constraints, financial affordability is one of the important factors as most of the clients do not have enough funds to pay for the costs involved with schooling. Although there are no tuition fees charged, other direct costs such as uniform, stationery, tiffin (meals), and transportation costs and indirect costs such as time dedicated for schooling (that could have been used in income generating activities) are involved in the process. In this situation, MFIs' initiatives can indirectly support child education by providing families with income stability, enabling them to afford schooling (Barnes, Gaile & Kimbombo 2001). Theoretically, income generated due to participation in microcredit program should result in higher spending on schooling (Brownstein et al. 2007). Although some studies have investigated the impact of microcredit on the affordability of education, not many studies (to the best of our knowledge) have been conducted on the effect of microcredit on child schooling. Considering this, the author was inspired to explore the effects of microfinance on childhood education to fill up the gap in literature. Thus, this study would make an important contribution to the existing literature as it considers the duration effect of microfinance participation by the members of MFIs.

The rest of the Chapter is organised as follows: Section Two presents a brief review of literature; Section Three describes the conceptual framework, study area and sample selection, data sources and descriptive statistics; Section Four specifies the econometric models; and Section Five discusses the results. After that, a conclusion is drawn in the final section.

## **7.2 BRIEF REVIEW OF THE LITERATURE**

A significant number of studies have examined the impacts of microfinance on education. The evidence from these studies is conflicting, signifying both positive and negative impacts. It is evident from some studies that participating in microcredit programmes contributes to the household's expenditure on children's education (Adjei et al. 2009; Lacalle Calderon et al. 2008). However, Brannen (2010) and Gubert and Roubaud (2011) found no such effect. Nanor (2008) found contradictory impacts on spending on education depending on the region, suggesting that the relationship between microcredit and education are influenced by other factors. Among the four studies conducted, two studies showed that microfinance is doing harm by dropping education among the participants of micro-credit. The reason is that microcredit members are generally from poor households, so their children are more likely to working rather than attending school, because opportunity cost of attending school is very high for these poor children. They can earn money or do some productive work rather than attending school. Another study conducted in Malawi showed that access to microcredit significantly decreased the primary school attendance among the children of the borrowers (Shimamura & Lasterria-Cornhiel 2010). Moreover, data suggested that the duration of time within the credit programme does not indicate positive impacts on spending on education and decreases children's enrolment (Adjei, Arun & Hossain 2009). One study in Bolivia based on two household survey conducted by Maldonado and González-Vega (2008) mentioned that microfinance has a significant impact on child schooling of the clients. As per the study, the schooling gap is less for old clients compared to new clients. On the other hand, a recent study conducted by Islam and Choe (2013) indicated that participation of household in microcredit programmes has adversely affected children's schooling, especially girls' schooling. However, their study was based on an old panel data. On the contrary, Littlefield, Morduch and Hashemi (2003) found that poor people use the income generated from microenterprise activities for the education purposes of their children. Most of the earlier studies showed that children of microfinance clients tend to go to school and continue school for long period than for children of non-clients.

Another line of literature investigated the trade-off between child labour and schooling or between child malnutrition and schooling by using household surveys in a specific country. Amin, Quayes and Rives (2006) investigated if both market work

and household work deter schooling in Bangladesh. Binder and Scrogin (1999) studied the relationship between labour force participation and household work in Mexico. Ravallion and Wodon (2000) examined whether child labour displaces schooling in Bangladesh. Furthermore, Nankhuni and Findeis (2004) investigated how natural resources collection work adversely affects children's schooling in Malawi. Similarly, Khanam, Nghiem and Rahman (2011) examined the impact of childhood malnutrition on schooling performance in rural Bangladesh and found that malnourished children are more likely to enrol school lately, and fall behind in grade achievement. Despite the numerous studies on schooling, a few or almost none has investigated the effects of microcredit duration, a more direct measure of investigating the impacts of microcredit programs on child schooling. Thus, our study will contribute to the line of literature by examining the effects of microfinance participation, particularly duration, on child schooling.

### **7.3 METHODOLOGY**

#### **7.3.1 Conceptual Framework and Hypothesis**

The relationship between microcredit and child schooling can be explained by employing the household production model previously used by Becker (1965), Becker and Lewis (1974) and Taylor and Adelman (2003). The model asserts that households are assumed to maximise their utility within their time and budget limit. Households get utility from the consumption of goods and services and the enjoyment of leisure activities. The income can be generated by households from productive activities either from waged employment or work on the family farm. Thus, households aim to achieve the highest level of utility by allocating a fixed time constraint among production, consumption and leisure (Khanam, Nghiem & Rahman 2011).

Education is one of the examples of services that households consume. Households get higher utility from good schooling performance of their children. With a view to achieve this outcome, they have to allocate some household resources towards education for their children (e.g., tiffin, school dress and stationery). Apart from common determinants such as budget limitation and other exogenous characteristics, the amount of resources that households allocate to the education of their children is decided by unobservable characteristics such as risk attitude, preferences, and entrepreneurship skills. Thus, the relationship can be expressed as

$$U = f(S, F, C, L; X, \xi) \dots\dots\dots (1)$$

where  $S$  is the schooling performance of the children of household members,  $F$  is food consumption,  $C$  is non-food consumption,  $L$  is leisure,  $X$  are exogenous household characteristics and  $\xi$  is a stochastic term representing unobservable heterogeneity in preferences. This study, however, only measures one of the implications of household production model; which is hypothesised as (H<sub>0</sub>): there is no significant association of microfinance participation on children’s school attendance of the rural households of Bangladesh in the context of microfinance programme among member households.

The relationship between microcredit and child schooling (education) may also be explained through human capital theory. Human capital theory proposes that individual income earning will increase through self-investment in education. The relationship between education and income is complex. If a high marginal value is placed on education of members of households, increases in income will be devoted to improvements in this area. Therefore, income is expected to influence the schooling decision for poor households. Concurrently, well-educated household members will be able to produce more, and this improved productivity will be rewarded in the labour market with higher incomes (Duryea 2002). By increasing the flow of household earnings, microcredit may allow greater investments in human capital. Moreover, loan funds may finance current educational expenses through the fungibles of borrowed funds. Actually, the innovations in lending technologies integrated with microcredit usually allow households without collateral to pledge their reputation fund. Therefore, their future ability to generate income flows from their human capital, as a guarantee on their loans. In this manner, microcredit enhances the deployable wealth of the households. Loans from MFIs increase the pool of current resources available, among other uses, for education, and may increase further income flows, thereby providing additional resources to fund education.

### **7.3.2 Survey design and Data**

As mentioned in Chapter 3, the data in this study was collected from the household survey of 439 households in 20 villages of four districts of Bangladesh. More details about the survey process are mentioned in Chapter 3.

Moreover, the study also asked some questions of the households surveyed regarding the performance measure of child in schooling. For example, parents were asked to answer a question, “When did the child start school?” “In which grade are they now?” “What is the performance of child according to their teacher?” Their responses were measured by five-point Likert scale, where 1=top 5%, 2= top 10%, 3= top 20%, 4= top 30% and 5=others. Moreover, to identify the regularity and drop out of the child, we raise the questions “whether their child has repeated class?” and “How many days did they miss class last year?”

### **7.3.3 Measurement of Variables**

#### *7.3.3.1 Dependent Variables*

Child schooling are examined by three binary measures: school attendance (equals one if the child is attending school), school enrolment (equals one if the child is enrolled at school at 6 years of age) and grade attainment (equals one if the child achieves the right grade for his/her age).

#### *7.3.3.2 Independent Variables*

This study used the duration of microfinance membership as a measure to examine the impact of microcredit on child schooling. In addition, three groups of exogenous variables: child characterises (age and sex of the child), household characterises (log of household income, household size, education level of parents, occupation and type of employment of household head, dependency ratio, shock, and minority ethnicity status) and community characterises are used to control for the relationship between microcredit and school performance. It is expected that children from wealthier households are more likely to have better child schooling due to the ability of their parents to afford it. The effect of household size is detrimental to child schooling as more people are coming for the household resource pool. The community variables selected represent basic infrastructure for education, such as, availability of NGO operated school, secondary schools for girls only, distance to nearest school, casual labour price, wheat price, illiteracy rate, and distance to nearest health complex.



### 7.3.4 Descriptive statistics

The descriptive statistics of the variables are presented in Table 7.1. It reports the means and standard deviations of school attendance, enrolment status and grade attainment of the children of households. Table 7.1 shows that 96% of the children in the sample are currently attending school but only 18% are enrolled by the due age. This is probably the main factor leading to 51% of the children in the sample not achieving the right grade for their age. The sample also shows that the average age of the children of the member households is 8.76 years while 51% of children are male in the sample. The low proportion of girls (49% in the sample) is found in the sample.

Concerning household characteristics, the level of education of household head is low compared to their spouse education. At least 21% household heads have secondary schooling whereas household heads with high schooling are only 4%. The spouse with secondary schooling is 25% while spouse with high schooling stands at only 4%. The average household size is about 5 and the average number of working age household member is about 3. Among the households surveyed, 10% households are from ethnic minority. It is also shown from the analysis that 32% member households face shocks in the last 12 months. Further to note that 44% of the households belong to unskilled occupation (farmers or low skills) whereas 76 % of the households possess full-time employment. The results also revealed from the analysis that the total number of microfinance member is having with an average 31 months in microfinance programs. The mean values of selected welfare indicators such as the log of income per person is BDT 11.

Table 7.1 also shows the characteristics for the village which show that on average the illiteracy rate in the village is 19%. The average distance to the nearest health complex and nearest school from the village is 12 km. and 1.34 km. respectively. In addition, the basic structure of the villages surveyed is rather poor. Only 29% of the villages have NGO operated school, whilst the availability of girls' secondary school only in the village is 24%. Further to reveal that, the average wheat price is 23 BDT/kg, whereas the casual labour price is 300 BDT/day in the surveyed villages.

Table 7-1 Descriptive Statistics (Means and standard deviations of variables)

Variables	All		MF		Non-MF	
	Mean	SD	Mean	SD	Mean	SD
<b>Dependent Variables</b>						
School attendance (1= currently attending school)	0.96	0.20	0.96	0.20	-	-
Enrolled in due time (1= enrolled in school at appropriate age)	0.18	0.38	0.18	0.38	-	-
Grade attainment (1= in right grade for age)	0.49	0.50	0.49	0.50	-	-
<b>Independent Variables</b>						
Child Age (years)	8.76	3.72	8.80	3.68	8.55	3.92
Child Sex (male=1)	0.51	0.50	0.51	0.50	0.50	0.50
Minority ethnics	0.10	0.30	0.10	0.30	0.07	0.26
HH head has secondary school (Father)	0.21	0.41	0.21	0.41	0.21	0.41
HH head has high school (Father)	0.04	0.19	0.03	0.17	0.08	0.27
Spouse has secondary school (Mother)	0.25	0.43	0.25	0.43	0.24	0.43
Spouse has High school (Mother)	0.04	0.20	0.05	0.21	0.01	0.09
Occupation (farmer=1)	0.44	0.50	0.42	0.49	0.54	0.50
Type of employment(full=1)	0.76	0.43	0.76	0.43	0.76	0.43
Number of people in the family (persons)	5.04	1.29	5.10	1.29	4.69	1.24
People in labour age (persons)	2.76	1.08	2.84	1.17	2.67	0.98
Shocks encountered (yes =1)	0.24	0.42	0.32	0.47	0.15	0.36
Dependency ratio	0.47	0.15	0.48	0.14	0.46	0.15
Log of income per person (*BDT)	11.33	0.52	11.33	0.51	11.28	0.53
MF=2 years	0.23	0.42	0.23	0.42	-	-
MF=3 years	0.33	0.47	0.33	0.47	-	-
MF>3 years	0.20	0.40	0.20	0.40	-	-
Illiteracy rate (percentage)	19.11	11.99	-	-	-	-
Distance to nearest health complex (km)	12.03	26.05	-	-	-	-
Wheat price (*BDT/kg)	23.40	5.05	-	-	-	-
Casual labour (*BDT/day)	300	75	-	-	-	-
Distance to nearest school (km)	1.34	1.06	-	-	-	-
NGO operated school (Yes=1)	0.29	0.46	-	-	-	-
Girls' secondary school only (yes=1)	0.24	0.43	-	-	-	-

Source: Author's calculations based on Field Survey, 2014.

\*BDT = Bangladesh Taka

## 7.4 SPECIFIED ECONOMETRIC MODELS

Based on Islam and Choe (2013); Edmonds (2006) and Ravallion and Wodon (2000), the impact of participation in microfinance programs on children's schooling can be estimated with the following equation:

$$S_{ijk} = \beta_0 + \beta_1 X_{ijk} + \beta_2 Y_j + \beta_3 V_k + \beta_4 D_j + \lambda_{ij} + \varepsilon_{ijk} \dots\dots\dots (2)$$

Where:

$S_{ijk}$  is the dummy variable representing the selected education outcomes (school attendance, school enrolment and grade attainment) of the child  $i$  in household  $j$  for village  $k$ , in which  $S_i=1$  if the child  $i$  attends school/enrols school; 0, otherwise;

$D_j$  is Dummy variable representing the duration (years) that a household participated in microfinance;

$X_i$  is the child characteristics;

$Y_j$  is the household characteristics;

$V_k$  is the set of village characteristics;

$\lambda_{ij}$  is unobserved individual/household effects (attitude toward risks, entrepreneurial skills);

$\varepsilon_{ijk}$  is the idiosyncratic error term; and

$\beta_1, \beta_2, \beta_3, \beta_4$  are parameters to be estimated.

To compute the most commonly used type of educational achievement, Patrinos and Psacharopoulos (1997) and Khanam, Nghiem and Rahman (2011) defined a grade-for-age dependent variable as follows:

$$\text{Grade-for-age} = 100 \times (\text{Education grade/Expected education})$$

Where:

Expected education

$$= \begin{cases} 0 & \text{if age} \leq 6, \\ \text{age} - 6 & \text{if } 7 \leq \text{age} \leq 16 \end{cases}$$

Education grade = the number of years a child completed in school. Denoting these variables by *Edu*, the estimating equation is as follows:

$$Edu_{ijk} = Y_0 + Y_1X_{ijk} + Y_2Y_j + Y_3V_j + Y_4D_j + \lambda_{ij} + \zeta_{ijk} \dots\dots\dots (3)$$

Where,  $Edu_{ijk} = 1$ , if the child achieves the right grade at his/her age i.e. ‘schooling for age’ (SAGE); 0, otherwise. All other variables are explained as before mentioned in equation (1).  $\zeta_{ijk}$  is the idiosyncratic error term is assumed to be independent and identically distributed (i.i.d.).  $Y_0, Y_1, Y_2, Y_3, Y_4$  are parameters to be estimated.

Schooling for age (SAGE), which measures schooling attainment relative to age (whether a child is in the right grade for his/her age), is a widely used measure of school attainment in the developing countries so far found in the literature (Khanam, Nghiem & Rahman 2011; Khanam & Ross 2011; Patrinos & Psacharopoulos 1997; Ray & Lancaster 2005). Patrinos and Psacharopoulos (1997), Khanam and Ross (2011) and Khanam, Nghiem and Rahman (2011) defined SAGE as follows:

$$SAGE = \{ \text{Current grade} / (\text{Age} - E) \} \times 100$$

Where E represents the country-specific usual school entry age, which is 6 years in Bangladesh. The SAGE might take values of greater or equal to 100 (the attainment of the highest possible grade attainment to date) to 0 (never attended school). A score of greater than 100 indicates that the child is ‘ahead of education’ compare to his/her age and less than 100 indicates that the child is “falling behind” in his/her education. Then SAGE was converted to binary variable, such as  $S_i$ , which takes the value of 1 if a child has normal progress (i.e.  $SAGE < 100$ ), and 0 otherwise.

Since the dependent variables are coded as binary: school attendance (equals 1 if the child *i* attends school, and 0 otherwise), school enrolment (equals 1 if the child *i* is enrolled at school at 6 years of age, and 0 otherwise), and grade attainment (equals 1 if the child *i* achieves the right grade for age, and 0 otherwise), we choose binary logit regressions to estimate equation 2 and equation 3. The main advantage of this regression is that the selected type of parameters (marginal effect) is easy to interpret.

## 7.5 RESULTS AND DISCUSSION

This section presents the estimates of equation (2), examining the relationship between participation in microcredit programs (duration) and the current school attendance, school enrolment, and grade attainment. Detailed results of the binary logistic regressions are presented in Table 7.2, Table 7.3, and Table 7.4 respectively.

### 7.5.1 School Attendance

The results from school attendance equation show that participation in microcredit program has no significant effect on child's school attendance (see, Table 7.2).

Table 7-2 The effects of microfinance participation on school attendance (binary logit)

Variables	Coeff.	Std. Err.	Marginal Effects
Child age	0.36***	0.13	0.0002***
Child sex (Male=1)	-0.83	0.82	-0.0004
Minority ethnicity	-1.90	1.26	-0.00
HH head has secondary school (Father)	0.69	1.22	0.0003
HH head has high school (Father)	-1.94	3.62	-0.0031
Spouse has secondary school (Mother)	2.49	1.83	0.0008
Spouse has high school (Mother)	-3.21*	1.73	-0.01*
Occupation (farmer= 1)	1.90	1.17	0.0009
Number of people in the family	0.69*	0.36	0.0004
Dependency ratio	13.01***	4.35	0.01***
Log of income per person	-0.90	1.06	-0.0005
Shocks (In the last 12 months suffer from any financial shock)	-2.67**	1.24	-0.00**
Duration in MF for 2 years	-0.45	1.90	-0.00
Duration in MF for 3 years	-2.99	2.05	-0.0041
Duration in MF for 4 years or more	-0.74	2.10	-0.0005
Illiteracy rate (%) in villages	-0.07	0.08	-0.00004
Distance to the nearest health complex	0.04	0.09	0.00002
Wheat price (*BDT)	-0.01	0.24	-0.00001
Casual labor price (*BDT)	-0.07	0.06	-0.00004
Distance to nearest school	-0.92	1.36	-0.00049
Access to NGO operated school	0.44	1.79	0.00020
Access to secondary school girls' only	-3.34	3.96	-0.01
Constant	29.45	20.96	
Chi <sup>2</sup>		74.97	
p-value of the Chi <sup>2</sup> test		0.00	
Pseudo R2		0.553	

Note: The significance level of the estimates are: \*\*\*, \*\*, and \* represent 1, 5 and 10 per cent significant level, respectively. \*BDT = Bangladeshi Taka

The factors that are significantly associated with school attendance are the age of the child, the mother's education at high school, the number of people in the

family (household size), dependency ratio, and financial shocks. The positive and significant (at 1 percent) effect of child age is surprising. The marginal effect reveals that a child who is older by one year has a higher probability of attending school compared to younger child by 0.02 percentage points. It is surprising to see that boys have a lower probability of attending school than girls, but this result is not significant. The possible reason could be that boys work outside in income-generating activities to support their families financially.

The results also suggest that a mother who has had a high school education is less likely to send their children to school. Particularly, children whose mother had high school education have a decreasing probability of attending school by one percentage point. By contrast to expectation, the log of income has no significant effect on school attendance. The Positive coefficient (significant at 1% level) on dependency ratio may reflect the fact that households with larger dependent ratio probably have more children at school age. A 0.4 percentage point increase in probability of attending school is associated with an increase of household size by 1 person. The negative and significant effects of financial shocks are not surprising in a country like Bangladesh, as even small financial shocks may affect the affordability of schooling costs.

Other household and village characteristics also have no observable effect on the probability of a child being able to attend school. The marginal effects show that the children in a village, where an NGO-operated school is available, have a higher probability of attending school than those without by 0.02 percentage points, however the result is not significant.

### **7.5.2 School Enrolment**

This study's results also show that the child's age has a significant effect on the probability of enrolment at the due time. This marginal effect reveals that if a child older by one year, he or she has a higher probability of attending school compared to younger children by one percentage point. The results in Table 7.3 show that participation in microcredit programmes (duration for two years or more) have significant effects on the probability of enrolment at the due time. The marginal effects show that participation in microcredit for two years and three years has a higher probability of school enrolment in due time by ten percentage points and seven percentage points, respectively. One of the explanations of this expected result could be that there is some initial expenditure, such as purchasing school dresses and

stationery, which are involved with school enrolment, could be managed from the credit amount disbursed by the MFIs. In addition, some MFIs also encourage their members through offering some motivational packages, such as sub-scholarship or educational loan, to send their children to school. Among other household characteristics, the minority ethnicity is proved to be a significant determinant of children's schooling outcome. The probability of being able to enrol in school at the correct age increased by 20.3 percentage points for those who came from minority groups.

Table 7-3 The effects of microfinance participation on school enrolment (binary logit)

Variables	Coeff.	Std. Err.	Marginal Effects
Child age	0.12**	0.05	0.01**
Child sex (Male=1)	-0.52	0.33	-0.04
Minority ethnics	1.57**	0.61	0.203*
HH head has secondary school (Father)	-0.41	0.49	-0.03
HH head has high School (Father)	0.94	0.97	0.10
Spouse has secondary school (Mother)	0.52	0.47	0.04
Spouse has high School (Mother)	-0.29	0.92	-0.02
Occupation (farmer= 1)	-0.08	0.38	-0.01
Number of people in the family	-0.16	0.16	-0.01
Dependency ratio	1.27	1.32	0.10
Log of income per person	0.28	0.44	0.02
Shocks (In the last 12 months suffer from any financial shock)	-0.67	0.46	-0.05
Duration in MF for 2 years	0.98*	0.53	0.10*
Duration in MF for 3 years	0.78*	0.52	0.07*
Duration in MF for 4 years or more	-1.01	0.66	-0.06
Illiteracy rate (%) in villages	-0.04	0.03	-0.003
Distance to the nearest health complex	0.05***	0.01	0.0001***
Wheat price (*BDT)	0.17***	0.06	0.01***
Casual labor price (*BDT)	-0.01	0.01	-0.001
Distance to nearest school	0.23	0.25	0.02
Access to NGO operated school	-0.67	0.58	-0.04
Access to secondary school girls' only	-0.22	0.58	-0.02
Constant	-7.16	6.32	
Chi <sup>2</sup>		51.44	
p-value of the Chi <sup>2</sup> test		0.00	
Pseudo R2		0.162	

Note: The significance level of the estimates are: \*\*\*, \*\*, and \* represent 1, 5 and 10 per cent significant level, respectively. \*BDT = Bangladeshi Taka

Among the village characteristics, including the distance to the nearest health complex, and the wheat price show a significant effect on the probability of school enrolment at the due time. The marginal effects show that the further the distance to

the nearest health complex by one km is associated with an increase in the probability of enrolment by 0.01 percentage point. Also, an increase in the wheat price in the village by one BDT is associated with an increase in the probability of due enrolment by one percentage point. It is expected that in the communities where better education infrastructure exists, parents will have a greater incentive to enrol their child on time because at least the indirect costs of sending children to school are lower.

### **7.5.3 Grade Attainment**

Table 7.4 shows that microcredit participation (duration for three years or more) has a significant but negative effect on grade attainment (achieving right grade at right age). The marginal effects show that participation in microcredit for three years and four years has a lower probability of achieving an age appropriate grade by 21 percentage points and 25 percentage points, respectively. One of the explanations for this surprising result could be that the children are involved in child labour to help their parents to run the household enterprises financed by the MFIs. Moreover, the income level of the poor households may not be sufficient enough to cover the educational expenses of the children. Thus, microcredit participation seems to lead to frequent grade repetition for the children.

Among the other child and household characteristics, the factors that are significantly associated with achieving the expected grades are: being a female child, parents having a secondary and high school education, the number of people in the family (household size), and financial shocks. The negative and significant (at 5 percent level) effect of child sex is surprising in a male dominating country like Bangladesh. One possible reason is that a male child can earn money from outside work or help their parents in cultivation, housework or income generating activities financed by microcredit organisations.

Other significant determinants have also important effect as in other schooling measures: children of fathers with secondary and high school education have a higher probability of achieving the expected grade. The marginal effects reveal that the probability of achieving an age appropriate grade increased by 35 percentage points and 46 percentage points, respectively, for those children whose fathers are secondary and high school educated. On the other hand, children whose mother has a secondary school education had a lower probability of achieving the expected grade, which was indicated by the reduction of 33 percentage points. The marginal effects show that



facing one financial shock significantly reduces the probability of a child attaining the right grade by 20 percentage points. The possible reason is that financial shocks affect family income, which may affect the nutrition or medical care received by the mother at a crucial stage of gestation. Nutrition and medical care for the mother would affect the cognitive development of the child, which influences the child's schooling outcome. Our result is in similar line with Thai and Falaris (2014), who showed that rainfall shocks affect years of schooling gap. Similarly, the marginal effects also show that an increase in the household size by one person is associated with a reduction in the probability of achieving right grade at right age by five percentage points. That means, the larger the household size, the less the possibility to achieve right grade at the right age.

Table 7-4 The effects of microfinance participation on grade attainment (right-grade for- age) (binary logit)

Variables	Coeff.	Std. Err.	Marginal Effects
Child age	0.03	0.03	0.01
Child sex (Male=1)	-0.48**	0.23	-0.12**
Minority ethnics	-0.72	0.44	-0.17
HH head has secondary school (Father)	1.49***	0.35	0.35***
HH head has High School (Father)	2.30***	0.71	0.46***
Spouse has Secondary school (Mother)	-1.53***	0.35	-0.33***
Spouse has High School (Mother)	-0.95	0.71	-0.21
Occupation (farmer= 1)	0.40	0.28	0.10
Number of people in the family	-0.22**	0.11	-0.05**
Dependency ratio	-1.37	0.93	-0.34
Log of income per person	0.04	0.24	0.01
Shocks (In the last 12 months suffer from any financial shock)	-0.83***	0.32	-0.20***
Duration in MF for 2 years	-0.21	0.37	-0.05
Duration in MF for 3 years	-0.90**	0.36	-0.21**
Duration in MF for 4 years or more	-1.09***	0.42	-0.25***
Illiteracy rate (%) in villages	0.01	0.02	0.00
Distance to the nearest health complex	-0.04***	0.01	-0.01***
Wheat price (*BDT)	-0.15***	0.04	-0.04***
Casual labour price (*BDT)	0.01	0.01	0.002
Distance to nearest school	0.14	0.19	0.03
Access to NGO operated school	-0.65	0.44	-0.15
Access to secondary school girls' only	1.06**	0.45	0.26**
Constant	5.41	3.77	
Chi <sup>2</sup>			136.30
p-value of the Chi <sup>2</sup> test			0.00
Pseudo R2			0.228

Note: The significance level of the estimates are: \*\*\*, \*\*, and \* represent 1, 5 and 10 per cent significant level, respectively. \*BDT = Bangladeshi Taka

The village characteristics that significantly associated with grade achievement at right age are the distance to nearest health complex, wheat price, and access to girls' secondary school only. The marginal effects show that children in a community, where a girls' secondary school is available, have a stronger effect on grade attainment than those without by 26 percentage points. Meanwhile, the distance to the nearest health complex increasing by one km is associated with a reduction in the probability of achievement of an age-appropriate grade by one percentage point. Similarly, the marginal effect of an increase in wheat price in the village by one BDT is associated with a reduction in the probability of achieving right grade at right age by four percentage points.

## **7.6 CONCLUSION**

In this study, the author has examined the effects of microcredit on the educational achievement of the children of microfinance participants in the four districts of Bangladesh. The study covers three measures of schooling: school attendance, school enrolment, and grade attainment. The results found that microcredit participation has significant positive impact on school enrolment while the impact is negative in case of grade attainment. On the other hand, the research did not find any significant association between household's participation in microcredit and school attendance of children. The possible explanation for the adverse effect of microcredit on their children's schooling outcomes (except school enrolment) is that microcredit increases demand for labour in household businesses set up with microcredit. As a result, the children's time is diverted away from school into household businesses. Overall, the results suggest that due care should be taken in assessing the effectiveness of microcredit programmes. Despite the fact that microcredit programmes can improve conditions for those living in poverty and contribute to the rural economy in the short run, they can also result in unintended consequences such as adverse effects on children's schooling, which could exacerbate poverty in the longer term. Our findings are partially in line with those of Cuong (2008) and Quach and Mullineux (2007), who have found that access to credit programs has a positive impact on household education in rural Vietnam. This study contributes to the literature in the sense that it demonstrates that microcredit participation does not unequivocally lead to more schooling for children. Expenditure on education affects the formation of human

capital, which becomes the most important asset for the poor in rural areas (Doan, Gibson & Holmes 2014).

The author can suggest that some policies need to be adopted to mitigate adverse effects on children's schooling so that the existing and future generations can benefit from microcredit programs. First, the gestation period between actual loan disbursement and the start of repayment can be extended. This finding will allow many participants to invest in suitable investment projects where they may find a greater balance between employing children in household businesses and sending them to school. Second, interest rate reductions and longer repayment periods can also help households to become less myopic. Third, the extension in the size of credit creating employment of external labour which can reduce the burden of child labour of households. These measures that are directed at microcredit organisations alone are by no means sufficient in reducing child labour and improving child schooling. Therefore, policies aiming at improving the educational achievement of the children of rural households should consider enhancing or providing subsidised educational stationery or tiffin in addition to providing free universal education among the children of microcredit participants. The next chapter will discuss about the participation in microfinance and its impact on socio-economic well-being of rural households.

## **8 CHAPTER 8: MICROFINANCE PARTICIPATION AND IMPACT ON SOCIO-ECONOMIC WELLBEING OF RURAL HOUSEHOLDS IN BANGLADESH: EVIDENCE FROM FOCUS GROUP DISCUSSION**

*Summary: Microfinance has become one of the most important mechanisms to enhance economic and social wellbeing among the rural households. This paper aims at testing the following hypothesis: microfinance programmes have positive impacts on income/consumption, the health status and schooling of child of the rural households in Bangladesh. This study was conducted based on four Focus Group Discussions (FGDs) in four districts of Bangladesh. The impact of microfinance on economic wellbeing is proxied by income and consumption whereas the impact on social wellbeing is proxied by health service and health seeking behaviour of the households and the health condition and schooling of the children of the households. The FGD revealed that utilisation of credit appears to be a major factor for microcredit recipients raising their income and reducing poverty, and microcredit recipients tend to be health-conscious and education-focussed due to the motivation provided by MFIs.*

### **8.1 INTRODUCTION**

Bangladesh is one of the most densely-populated countries in the world, having approximately 160 million people in a land area of 147,570 square kilometres (Rahman et al. 2012). According to the latest Household Income and Expenditure Survey (2010), about 31 percent of the population in Bangladesh are under the poverty line and the incidence of poverty is higher in rural areas compared to urban areas. The majority of the people live in rural areas which comprise almost 60% of the total population. But the majority of this vast population are still not getting adequate health and education facilities and also struggling to better their economic conditions. In Bangladesh, most of the rural poor have limited financial capacity to get involved in the economic activities although they have adequate skills to chase Income Generating Activities (IGA). Therefore, the government has taken policies to provide credit facilities to the poor through the traditional banking system to increase their economic participation (Debnath & Mahmud 2014). However, the traditional banking system could not fulfil the need of the poor due to bindings of collateral requirement (Mahmud

2010). In this regard, microcredit programmes come forward and gave a unique opportunity for the poor by providing collateral free credit to engage in IGAs (Mahmud 2010; Mahmud et al. 2007). Even, Islam, Nguyen and Smyth (2015) found that less poor households benefit more in terms of reducing their reliance on informal borrowing and that the benefit accrues over time.

Microfinance operates in many developing countries, with some in operation for several decades (e.g. Grameen Bank, BRAC), since long before the promulgation of the Millennium Development Goals (MDGs). The main goal of these microfinance operations is to eradicate poverty amongst the poorest communities by providing individuals to access to collateral free microcredit to invest in various sectors for income generation. Usually, credits are given to women and are used to sustain agro-industries such as livestock, handicrafts and transport businesses. The eligibility of getting credit and repayment of credits are generally controlled by solidarity groups of women loan recipients.

Although poverty eradication is the central focus of microfinance operations, health of rural households embodies a threat in achieving the target of improving poverty. The way to make a linkage between microfinance operations and health related issues may help to eliminate this threat. Another way to counter inadequate healthcare access to poor people is through the integration of health services into the existing system or network such as microfinance institutions (Geissler & Leatherman 2015). Micro Finance Institutions (MFIs) have an ongoing and essential interest to offer health-related services, as maintaining the work-related productivity of their members is in their business interest, to achieve their social objective.

Another important issue is education, particularly child education, which is vital issue for the microfinance participants. If the children of microfinance participants have not been guided with proper basic education, they might become a burden on the participants in the long run. As a result, the participants might suffer from financial as well as social loss out of that situation. A study carried in Cairo found a link between microcredit recipients and the increased schooling of their children (Nader 2008).

This study uses qualitative data from Bangladesh on the process by which participation in microfinance enables changes in child health and schooling and improving IGA. To demonstrate the acceptability of qualitative research, Pfeiffer (2003) noted that researchers from several disciplines have called for qualitative studies of intra-household decision making in diverse cultural settings. This study puts this call in the context of microfinance. Although a lot of discussion is available on the relationship between poverty and microfinance, Focus Group Discussion (FGD) to address the issue of health and education including the IGA of members with the microcredit has not been well investigated previously in the literature.

The remaining of this Chapter is structured as follows: Section Two presents a brief review of literature; Section Three describes the conceptual framework; Section Four shows methodology and data; Section Five discusses findings and results. Thereafter, a conclusion is drawn in the final section.

## **8.2 BRIEF REVIEW OF THE LITERATURE**

### **8.2.1 Microfinance and Health**

The available evidence from the existing studies suggests that microfinance generally has a positive impact on the health outcome of the participants. A study from Indonesia conducted by DeLoach and Lamanna (2011) pointed out that the presence of MFIs has a great and positive effect on the children's health of the participants. Amin, Shah and Becker (2010) carried out a study in Bangladesh where they showed that there was a positive relationship between microcredit participation and the use of trained providers of Ante Natal Care (ANC). Similarly, Leatherman and Dunford (2010) argued that MFIs had the capability to contribute towards improving health services and health outcomes through educating clients, accelerating access to private and public providers, giving health financing and delivering clinical care. McKnelly and Dunford (1999) found that microfinance is related to better maternal health and nutrition practices in Bolivia and Ghana. Pronyk et al. (2006) found that microfinance was associated with the reduced risk of physical or sexual abuse in South Africa. Similarly, Morris and Barnes (2005) found that microfinance is positively related to the increase of HIV/AIDS prevention practices. The health of the clients' children in terms of protective behaviours may also be improved through microcredit (Brannen 2010). In

a qualitative study, conducted in Burkina Faso, by Hennink and McFarland (2013) showed that microfinance enhances the health behaviour and health expenditure choices of women. The study conducted by Hamid, Roberts and Mosley (2011) investigated on Grameen Bank (GB), the largest MFI in Bangladesh, whether adding micro health insurance (MHI) to microcredit schemes can contribute to improving health awareness, health-seeking behaviour, and health status. Their results were statistically significant and showed a positive relationship between MHI placement and all of the health outcome measures.

Some of the studies raised doubts about the conclusion that microfinance can improve the health outcomes of its clients either directly or indirectly. For example, Dohn et al. (2004) failed to show that participants in a microcredit program experienced any significant improvement for the eleven health indicators that they identified. Similarly, Mohindra, Haddad and Narayana (2008) found no relationship between participation in microfinance programmes and self-assessed health or management of health risk in Kerala, India. The microcredit programme in Hyderabad, India also failed to show that the treatment group had better health outcomes than the control group (Banerjee et al.).

### **8.2.2 Microfinance and Education**

A significant number of studies examined the impacts of microfinance on education. The evidence from these studies is conflicting, identifying both positive and negative impacts. It is evident from some studies that participating in microcredit programs contributed to household's increased expenditure on children's education (Adjei et al. 2009; Lacalle Calderon et al. 2008). However, Brannen (2010) and Gubert and Roubaud (2011) found no such effect. Another study conducted in Malawi showed that access to microcredit significantly decreased the primary school attendance among the children of the borrowers (Shimamura & Lastarria-Cornhiel 2010). Moreover, data suggested that the duration of time within the credit programme does not indicate positive impacts on spending on education and decreases children's enrolment (Adjei, Arun & Hossain 2009). One study, in Bolivia based on two household survey conducted by Maldonado and González-Vega (2008), mentioned that microfinance has a significant impact on child schooling of the clients. The study showed that the schooling gap is less for the children of old clients compared to new clients. On the

other hand, a recent study conducted by Islam and Choe (2013) indicated that participation of household in microcredit programmes has adversely affected children's schooling, especially girls' schooling. They investigated the impact based on only old panel data and they did not do any field survey to get the most recent impact. Most of the earlier studies showed that children of microfinance clients tend to go to school and continue school for long period than for children of non-clients.

### **8.2.3 Microfinance and Income/Consumption**

Existing studies indicated that the impact of microcredit on the incomes of poor people is mixed. For instance, Littlefield, Morduch and Hashemi (2003) wrote: "various studies, both quantitative and qualitative, showed increases in income and assets, and decreases in vulnerability of microfinance clients" (p.2). With regard to household income, in a study conducted in four districts in Ghana, Nanor (2008) revealed inconsistent evidence of the impact of microcredit on household income. The study found that the household income of microcredit clients was significantly higher than the non-clients in two among the four districts they investigated and significantly lower in the other two districts. Another study revealed that the longer a client stayed in a credit scheme, their business profit was lower (Nanor 2008). A recent study conducted by Durrani et al. (2011) showed that microfinance is an efficient mechanism to overcome poverty and is very helpful to generate income and can also enhance the social standard of poor people. A study carried out in Bangladesh based on new household panel data by Imai and Azam (2012) confirmed a positive significant impact of MFI credit on reducing poverty in Bangladesh. In an interesting study in Bosnia and Herzegovina, Hartarska and Nadolnyak (2008) indicated that MFIs alleviated the financial constraints of micro businesses. Li, Gan and Hu (2011) conducted an empirical study on rural households in China and found that microcredit program helps in improving the welfare of household by increasing income and consumption. A study by Amin, Shah and Becker (2010) revealed that a great deal of microcredit program all over the rural areas in Bangladesh improved the economic condition of the poor. Nghiem, Coelli and Rao (2012) conducted an empirical investigation through a quasi-experimental survey for the first time in Vietnam showed that participation in microfinance has a positive effect upon household welfare (proxied by income and



consumption). According to Islam and Maitra (2012) microcredit can act as a form of insurance against health shocks.

Most of the previous studies conducted in different parts of the world discussed the impact of microfinance on health-seeking behaviour among tribal people; with an analysis of health behaviour enabled by microcredit or primary health care provided through integrated microfinance following Focus Group Discussions (Geissler & Leatherman 2015; Hennink & McFarland 2013; Rahman et al. 2012). However, there are no studies that have evaluated the impact of microfinance simultaneously on health, education and economic wellbeing of the microcredit recipients using FGD at the same time. So this study will add a new contribution to the existing literature on the impact of microfinance following FGD.

### 8.3 CONCEPTUAL FRAMEWORK

Based on the Microfinance and Household Economic Portfolio Model (HHEP) originally developed by (Cohen, Chen & Dunn 1996), an impact analysis model of microfinance has been developed in Figure 8.1, which shows a review of the impacts of microfinance, categorised by levels and types. The focal point of the impact analyses is at the household level and community level. At both levels, the effects are classified into economic and social. The economic effects comprise mostly the expansion and steadiness of income and consumption that lead to the reduction of poverty. The social effects mainly consider the human capital that ensures the better condition of health and education.

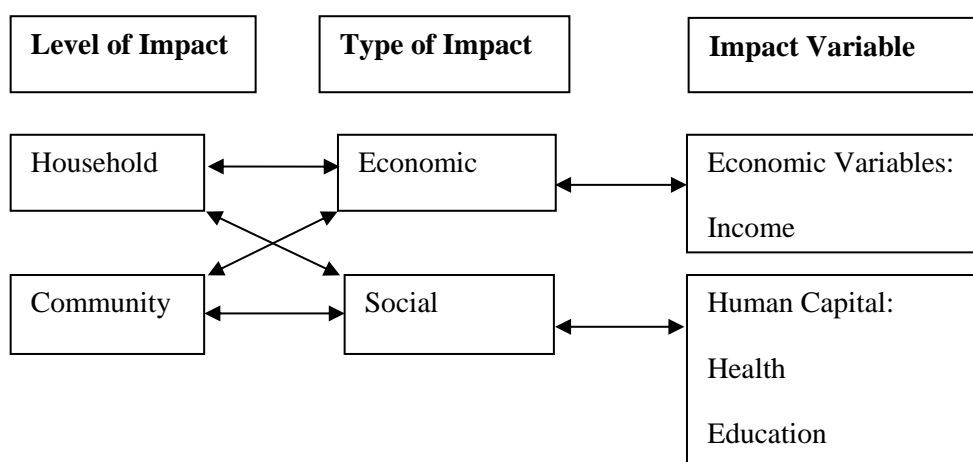


Figure 8-1 Potential impact of microfinance at household and community level

The conceptual framework reveals the possibility of bi-directional causal effects between microfinance and its impacts on health, education and income. This means that the direction of causations run either way. One of the reasons for the bi-directional causal effects is due to unobserved individual characteristics (e.g., risk attitudes, business ability) that affect both the decision to participate in microfinance and its impacts (e.g., income, health and education). Possible determinants of the microfinance impacts include the socio-demographic characteristics of the individuals/households/communities, the macroeconomic conditions (e.g., inflation, unemployment) and policies (e.g., health policy, education policy, poverty reduction policy). Regarding time and space of microfinance impacts, it is expected that the household-level impacts would be immediate whilst the impacts at community and wider level would require more time.

## **8.4 METHODOLOGY**

### **8.4.1 Study Design**

This study is based on a qualitative study conducted in June-July 2014 for exploring the effects of microfinance participation on health, education and income in 20 villages of four districts of Bangladesh. FGD was particularly used for getting, comparing information and filling any information gaps.

### **8.4.2 Study Area and Sample selection**

The four districts and three MFIs from Bangladesh were selected for the focus group discussion. Three NGOs were selected by applying purposive sampling technique. The Development Initiative for Social Advancement (DISA) was chosen purposively because the organisation received the first national promising microfinance institutions (MFIs) award in the year 2009 from the Palli Karma-Sahayak Foundation (PKSF). The Grameen Bank (GB) and the Bangladesh Rural Advancement Committee (BRAC) were selected as they were the largest and most renowned MFIs in Bangladesh.

In the discussion, four districts with microfinance participants were selected for the study. FGDs were held in 20 villages within 4 districts and covered the microfinance members of three MFIs (Table 8.1). The study included 28 participants- 4 MF personnel, 8 village leaders, and 16 MF members (4 from GB, 4 from BRAC, 8

from DISA). Villages were selected with the help of various stakeholders, such as village leaders, union administrators and microfinance officials. Microfinance members were selected with the consultation with the microfinance official and village leaders of the respective area.

Table 8-1 Number of Focus Group Discussion (FGD) by district, villages, location and type

FGD	District	Upazilla	Village	Participants
FGD 1	Narshinngdi	Narsingdi	Balusair	DISA Members - 2
			Algi	Grameen Bank - 1
			Kandapara	BRAC Member - 1
			Sagordi	Village Leaders - 2
			Balapur	MF official (AM) - 1
FGD 2	Narayangonj	Rupgonj Bandar(Narayangonj) Sonargoan Arhahazar	Majhipara	DISA Members - 2
			Vejergaon	Grameen Bank - 1
			East Behakor	BRAC Member - 1
			Jhaogara	Village Leaders - 2
			Tipurdi	MF official (AM) - 1
FGD 3	Chandpur	Matlab Uttar Hazigonj Kachua	Kalmakanda	DISA Members - 2
			Foilakandi	Grameen Bank - 1
			Rishipara	BRAC Member - 1
			BalaKhal	Village Leaders - 2
			Karaish	MF official (AM) - 1
FGD 4	Comilla	Chandina Daudkandi Barura Debiddar	Borkoit	DISA Members - 2
			Barera	Grameen Bank - 1
			Jinglatali	BRAC Member - 1
			Arjuntala	Village Leaders - 2
			Gorsar	MF official (AM) - 1

Note: MF = Microfinance; *Upazilla* = Subdistrict

### 8.4.3 Recruitment of Participants

The overall objective and plan of the study were initially discussed with the head of microfinance of DISA and eventually talked to the local village leaders and local administrators for suggestions in selecting FGD locations, identifying key informants for interview, and considering transportation and cost issues. The local branch manager of MFI (particularly DISA) met local village leaders to explain the purpose of the study and to identify participants, time and places of the FGDs. The local manager of MFI thus acted as the main recruiters of participants. As an incentive, each of the participants excluding the microfinance officials received BDT 250 (US\$3) to compensate for their time. Further to support the recruitment process (especially

female participants) and to overcome the local language barrier between the researcher and the participants, one official from MFI was selected and given basic training to assist the process. Participants from three MFIs were selected based on the duration of involvement with the specific MFI. Qualitative method was used to understand the context and decision-making process through which microfinance leads to changes in child health status and child education. Participant recruitment in qualitative research aims to collect detailed information from a limited number of participants with critical characteristics that will inform the research objectives. The participants in the focus group discussions were selected on the basis of three criteria. First, participants were women loan recipients from three microfinance institutions namely, GB, BRAC and DISA. Participants were selected based on their duration of membership in the microfinance programs, including women who were new members (> 12 months), short-term members (1-2 years) and matured members (>5 years). Third, participants from multi-disciplinary professions were recruited to capture diversity in loan-generating activities (e.g. agricultural vs. commercial service activities), proximity to health services and exposure to health promotion messages, which may impact their health seeking behaviour, child's health condition and child education.

#### **8.4.4 Focus-group discussions**

Four types of guidelines for FGD relating to issues surrounding access to health and health outcome and schooling of the children, income generating schemes for the participants, women empowerment issues of the female participant and role of microfinance schemes in Bangladesh were developed (Appendix-2). A pilot FGD, with three men (one MF official, two village leaders) and four women (one from GB, one from BRAC, two from DISA), was then conducted in Comilla district. Based on the findings of the pilot FGD, the guidelines were reviewed, standardised, and adapted.

Three main groups (MF members, village leaders, MF official) were selected for the discussion. The homogeneity of the participants ensured comfortability while discussing their knowledge on access to health and health outcomes of children, attitudes, facilities on child education and provided an insight into income generating activities as well as women empowerment through the process.

A worksheet was developed setting out the procedure for documentation of each of the FGDs and detailed field-notes were taken to fill up any gap in the overall

picture (Appendix-10). All FGDs were conducted at the central branch of DISA in each of the selected districts. The researcher along with the MF officials spent two days, on average, at every location. Primarily, the team met village leaders and officials of selected MFIs in the village and introduced the research team to the potential participants, discussing the objectives of the study, deciding on the most convenient times and places for the discussions (Appendix-4). Finally, the FGDs took place on the following day with an average 7 people participating in each FGD which lasted for 1-2 hours.

#### **8.4.5 Information management and analysis**

The related information from FGDs were recorded through audio-recording and note-taking by the researcher. The field-notes were then compared with the audio-recordings to identify any gaps and errors to triangulate the information. All the gathered information were then transcribed and translated into English (Appendix-10). Data analysis involved extensive screening to identify core inductive themes that were then used to code the entire data-set. “Thematic Analysis” (Table 8.2) were then developed of core issues and common phenomenon through which microcredit enabled changes in health issues, education and economic wellbeing were analysed.

#### **8.4.6 Ethical Issues**

Ethics is an important issue in research. The data collection activities were subject to the approval by the University of Southern Queensland (USQ) Ethics office (Appendix-5). Ethical clearance was sought and approval granted prior to data collection beginning. In the application to the Ethics office the application outlined the purpose and questions of the study. In the application it was also specified details of the sponsorship of our study in order to establish trust and verify the reliability of the study.

The application emphasised the ethical aspects of the data collection process. At the outset of each focus group discussion, a consent form was distributed to the participants and their consent was received in writing, signed by the participants (Appendix-4). In the participant consent form, the following things were included:

- Purpose of the research
- Their potential benefit

- Notation of risks to the participants
- Assurance the participant can withdraw anytime
- Provision of names of persons to contact if question arise

To analyse and interpret the data, we have given full attention to ethical issues undertaking the following steps:

- Anonymity of the respondents
- Privacy of the data
- Maintaining accurate account of the data

## **8.5 FINDINGS/RESULTS**

This study explored the effects of microcredit participation on health-seeking behaviour including the health and schooling of the children of rural households. Moreover, the improvement in income as well as reducing poverty is also been analysed throughout the findings.

### **8.5.1 Microfinance and Health**

#### *8.5.1.1 Child Health*

Child health services refer to the services related to healthcare or health access provided for the children of the microfinance participants. The vital question was raised as to whether or not any kind of child/adolescent health services or immunisation facilities had been provided by the MFIs. Most of the participants mentioned that the employees of the MFIs raised health-consciousness issues in the weekly meeting. The meeting discussed child health issues outside the parameters of their regular discussions. One of the MF officials admitted:

*“Parents should be conscious about their child’s health. Sometimes we arrange discussion on better health of child in our weekly meeting.”* (FGD-1)

Another participant from DISA-2 narrated:

*“The staff of our samity (DISA) advised us to take care of our children and to provide safe drinking water to our children and to use sanitary latrine.”* (FGD-2)

### *8.5.1.2 Maternal and Reproductive Health*

Sometimes, some of the established MFIs provide maternal and reproductive health services for their members. During our research on three MFIs, questions were raised regarding maternal health care services but did not receive any affirmative consent from the participants. Actually, during the weekly meeting conducted by the MFIs, sometimes the female microfinance officials discussed maternal health and give advice on this aspect. This is evident from the 25 percent of the participants in the focus group discussions. For example, MF official commented on this issue:

*“Usually our female staff sometimes advises the members to become health conscious. Particularly, they provide advice on maternal health and family planning services.”*  
(FGD-4)

Another participant from DISA-2 explained:

*“..... the samity (DISA) staff discussed about the health condition and also about eating nutritious food for better health.”*  
(FGD-4)

### *8.5.1.3 Adult Health*

There was a specific question as to whether or not any kind of health services or health expenditure provides cover for any sudden medical conditions of any members of the microfinance participant. The thematic analysis shows that 18 percent participants in the discussion mentioned the medical expenses provided by the MFIs in case of medical emergency. One of the MF officials and one DISA member reported:

*“We bear medical expenses of the members of DISA for any kind of critical diseases.”*  
(FGD-2) (FGD-3)

### *8.5.1.4 Health grant provided*

In some of the emergency medical cases, the MFIs, particularly DISA, come forward to help the members by sanctioning health grants for the member, or any of the family members. The record shows 29 percent of the participants confirmed this issue during the discussion. As for example, one of the MF officials and one DISA member commented:

*“As a MFI, DISA started to provide health grant for its members or for the family members of the microcredit recipient in case of extreme emergency.”*

(FGD-1) (FGD-4)

#### *8.5.1.5 Health issues related publications*

Some of the MFI publish books related to health issues and consciousness of health to provide better health knowledge for their members. This kind of initiative really considers the operations of MFIs as being more acceptable to the rural people as there are rarely any services or information like that. The thematic analysis shows that 11 percent participants in the discussion mentioned the publications provided by MFIs related to health issues. In particular, one of the microfinance officials of DISA mentioned:

*“Our organisation has published one small books in the name of “sastha konika” (health tips) on health knowledge. We distribute the books among the members of our NGO for a nominal fee. The objective is to make them understand about the health consciousness.”*

(FGD-1)

### **8.5.2 Microfinance and Education**

#### *8.5.2.1 Free Primary Schooling*

BRAC runs primary schools in communities where the formal education system has not yet reached through complementing mainstream school systems with innovative teaching methods and materials (BRAC 2015). Similarly, The DISA members confirmed that DISA also runs education program in collaboration with BRAC for their members with free of cost. Grameen Bank also provides free primary education for their members. The thematic analysis shows that 43 percent of the participants in the discussion showed a positive response to these initiatives. The members of BRAC described this as follows:

*“The officials of BRAC provided free primary schooling for my children. My children go to BRAC School regularly and learn properly from the school.”* (FGD-1)

Another participant from DISA-2 mentioned:



*“DISA provides pre-primary schooling facilities to our children.”* (FGD-3)

#### 8.5.2.2 Education Stipend

There was a specific question to members of all the selected MFIs as to whether or not they received any educational stipend from the MFIs for their children. The record shows that 21 percent of the participants responded positively in this regard. The member participants of BRAC and DISA acknowledged the receipt of education stipend for their children’s education whereas the members of Grameen Bank did not respond positively. The member of DISA-2 and another participant from Village Leader (VL) narrated:

*“The NGO, DISA, grants educational scholarship for the children of their members.”* (FGD-1)

The MF official from DISA mentioned:

*“DISA provided education stipend among the children and disabled child of the members.”* (FGD-2)

#### 8.5.2.3 Sub-Scholarship (Bursary)

Participants from BRAC and DISA admitted that their school-going children receive a sub-scholarship based on good results in the children’s final exam every year. It was found that 25 percent responded that they have been given a sub-scholarship for their children. On the other hand, although Grameen Bank is the leading MFI in Bangladesh, it has not yet started this type of scholarship for their members. One of the participants from BRAC and another participant from DISA-1 recognised:

*“Sub-scholarship are given to the students on the basis of results of the children.”* (FGD-3) (FGD-4)

#### 8.5.2.4 Free educational stationery

The author raised the specific questions to the microfinance officials as to whether or not any of the MFIs provided educational stationery free of charge to the school-going children of the microfinance members. Only 11 percent of participants acknowledged

this issue in the discussion. The microfinance official of BRAC admitted that BRAC provides stationery for the school-going children of their members. But there was no result from members of GB and DISA on this particular issue. The member of BRAC and one of the VLs mentioned:

*“I have got khata (paper), pencils, eraser for my school going son from my NGO (BRAC). This is really a great relief for me.”* (FGD-2) (FGD-3)

Another participant from DISA-1 commented:

*“Our NGO (DISA) has given me educational stationeries for my children at lower price.”* (FGD-4)

#### 8.5.2.5 Special Education program for youth

Out of the three MFIs on which the research has been carried out, DISA, run quality education programmes to provide special education for the young members of the member participants. Only 7 percent of the participants responded to this particular issue. The MF official of DISA deliberately announced:

*“We run Special education program for young girl (Songlap) and for young boys (Prottay). This is under the programme of our quality education program.”* (FGD-3)

#### 8.5.2.6 Grant/Loan for school admission

Women participants stated that they borrowed education grants/loans from the MFIs for the admission of their children into schools. The thematic analysis shows that it is only 11 percent of the participants who confirmed that they receive grants/loans for school admission. The parents took the loans, not for tuition fees, but rather for purchasing school stationery and other necessary items for their school-going children during the time of admission. One of the microfinance members of Grameen Bank explained:

*“I have got grant from Grameen Bank for the admission of my daughter to school.”* (FGD-1)

Another participant from DISA-2 also supported this issue:

*“I have taken loan from DISA to pay the salary of private tutor and to pay fees for the public exams.”* (FGD-3)

#### 8.5.2.7 Education loan for university going students

Particularly Grameen Bank provides education loan for the university going students of their members. The scenario of the thematic analysis provides the data that 7 percent of the participants mentioned that they have taken education loan from the MFI to admit their child in university to achieve the highest educational attainment. One of the members of Grameen Bank deliberately shared her experience in the discussion as follows:

*“My son has got chance to university but I did not have enough money to complete his admission procedure. At that time, I went to my samity (GB) to lend me money for my son’s university admission. After scrutinizing the admission documents, the MF official gave me BDT 100,000 as education loan for my son.”* (FGD-2)

### 8.5.3 Microfinance and economic wellbeing

#### 8.5.3.1 For capital formation

One of the most important reasons behind taking the microcredit is to form capital to start a new business or expansion of the existing business. Among the participants in the discussion, 25 percent participants confirmed that they actually took the credit for capital formation of their business. As there are no other tranquil options for the rural women to get the loan to form capital for their small business or entrepreneurship, this is the best way to generate capital for their business. One of the MF officials narrated:

*“Microfinance member can make capital formation with the amount of savings deposited by them with the samity (MFI) and the amount of microcredit sanctioned by the MFI.”* (FGD- 4)

Another participant from BRAC admitted:

*“I have taken the microcredit to create capital for my business without selling any of my household assets.”* (FGD-1)

### 8.5.3.2 Investment in Agri-business

Most of the participants mentioned that they used the microcredit for investing in different businesses related to agriculture. Particularly, the participants take the loan to buy seeds, fertiliser, pesticides etc. One of the participants from BRAC narrated:

*“I have got the credit from BRAC and gave the money to my husband so that he can buy insecticides, fertiliser for cultivation.”* (FGD-2)

### 8.5.3.3 Investment in Auto-rickshaw purchase

One of the major uses of the microcredit fund is to buy rickshaws and auto-rickshaws. Women participants took the microcredit from the MFI and handed over the money to their husbands to run the vehicles to generate income for the family. It is evident from the thematic analysis that 21 percent of the participants confessed that they took the microcredit with a view to purchasing rickshaws or auto rickshaws as a means of generating income. One of the participants from Grameen Bank mentioned:

*“I have taken BDT 200,000 from the NGO (GB) to purchase an auto-rickshaw for my husband. I told my husband to give me BDT 500 every day. After accumulating the money, I pay the weekly instalment of the NGO and the remaining is my benefit.”*

(FGD-2)

### 8.5.3.4 Investment in Grocery business

Some of the participants, 7 percent in thematic analysis, mentioned that they have taken the microcredit to open or run their grocery business. Thus, their shortage of funds to continue with the grocery business has become solved. Although this is a matter of question whether microcredit should be given for grocery business, still it is considered to be as a good sector of investment by the microfinance members. One of the participants from DISA-1 narrated:

*“I have taken the loan from the samity (DISA) to give it to my husband to purchase stuffs for our grocery shop. We have no option other than taking loan from*

*our samity as the interest rate is very high if we take loan from moneylenders.”*  
(FGD-1)

Another participant from BRAC mentioned:

*“We have taken 50,000 taka from the NGO (BRAC) to establish our own grocery shop in front of my home. As I am old member of BRAC, they gave me the loan within 7 days of the loan application.”*  
(FGD-3)

#### *8.5.3.5 Investment in small business*

One of the important sectors of investment by the microcredit recipient is on their small business. Eighteen percent participant admitted that they used the microcredit to run their small business. One of the MF officials and one GB member mentioned:

*“Our members take the microcredit to invest in agriculture and small business project.”*  
(FGD-2) (FGD-4)

#### *8.5.3.6 Investment in Animal Husbandry*

This is one of the most significant sectors for using the microcredit by the participants. Almost 29 participants admitted that they have used the microcredit received from various MFIs for the purpose of purchasing cattle and using the livestock to create a business. One of the participants from Grameen Bank described:

*“Our bank (GB) gave us money to purchase cattle so that we can nurture it and can sell it at higher price in the market.”*  
(FGD-1)

One of the participants from VL mentioned:

*“Most of the MFIs provide credit to their members to invest in animal husbandry. The members of the NGOs (MFIs) generate income from buying and selling of animals.”*  
(FGD-2)

#### *8.5.3.7 Investment in Cow fattening/nurturing project*

This is a specific project run by DISA in Comilla district. About 25 percent participants admitted that the MFI provided them microcredit for the purpose of cow fattening and

nurturing. As a result, the income level of the members enhanced dramatically. One of the participants from DISA 2 narrated:

*“One day in the weekly meeting with the officers of DISA, I am offered to take money to buy necessary medicines and food to make my cow fattening and proper nurturing. After getting training from DISA, I took the loan and did accordingly. Now I am happy because I could sell the cow in the market and earned commendable margin on that”* (FGD-4)

The MF official of DISA claimed:

*“The members of DISA took microcredit to invest in cow fattening project. After some days of nurturing the cow, they sell it in the market and earns good profit out of that.”* (FGD-3)

#### **8.5.4 Challenges of microcredit for socio-economic improvement**

Despite the fact that microcredit facilities contribute a lot towards improvements in health-related issues, and the education and economic status of participants, still participants complained that some situations hampered these changes.

##### *8.5.4.1 Obstacles from husband*

Many women participants stated that their husbands valued their participation in microcredit and the financial contributions that the women made to the household. However, some women complained that some husbands were reluctant to give permission to their wife to attend or participate in meetings with male officials of MFIs. The probable reason may be husband feels discomfort when other community people make false allegations of impropriety by the wife because she was meeting with male persons from NGOs. The thematic analysis reveals that the restriction due to the influence of husband was 14 percent. For example, one of the participants from GB mentioned:

*“My husband does not like or allow me to meet male person during the weekly meeting of the microfinance samity. He thinks that it is violation of the parda (violation of religious binding) and I should not violate that.”* (FGD-1)

One of the VL-2 stated his experience as follows:

*“We have observed that previously some of the husbands of MF members put restrictions on their wife to meet the MF officials. But now the situation has changed a lot.”* (FGD-4)

#### 8.5.4.2 Obstacles from moneylenders

Microcredit participants described that moneylenders put obstacles in taking microcredit from MFIs in numerous ways. The thematic analysis revealed that the 14 percent reported restrictions in place due to the influence of moneylenders. In almost all of the FGDs, this issue is common as complained by the participants. One of the possible explanations for being prevented from using moneylenders was that they provide credit to the poor by taking collateral as well as charging a high rate of interest compared to MFIs. For example, one of the MF officials mentioned:

*“Earlier the poor used to borrow money from the dadan businessman (moneylenders). But when they have become the member of DISA, they left the dadan businessman and started to take credit from DISA. Seeing that the dadan businessman become very angry and managed to convince the local village leaders that this is against the sharia (Islamic law) to meet male person in the samity.”* (FGD-2)

#### 8.5.4.3 Obstacles from religious leaders

Women participants also mentioned obstacles created by religious leaders of the community under the logic of religious ‘binding’. From the thematic analysis, this issue shows the maximum percentage of obstacles, 36 percent, which is really higher compared to other obstacles. For example, one of the participants from BRAC and VL-2 mentioned:

*“The Islamic leaders of our village instructs us not to meet the NGO people as this is the clear violation of parda (violation of religious binding).”* (FGD-1) (FGD-3)

The MF official of DISA explained:

*“Due to religious superstition, the religious leaders put restrictions on the poor women to take loan from NGOs. The Islamic leaders tried to convince them that taking loan from NGOs is haram (prohibited) in Islam.”* (FGD-4)

### **8.5.5 Recommendation to improve MF operations**

#### *8.5.5.1 More than once credit facilities*

The MFIs can take initiatives to provide credit facilities to their members on more than one occasion. The participants in the FGD also confirmed this issue, as represented in the findings by 7 percent of responses. One of the participants from DISA-2 argued:

*“It would be better if the credit facilities provided to us more than once.”* (FGD-2)

#### *8.5.5.2 Microcredit ceiling to be enhanced*

Another most important issue was to enhance the range of microcredit. Some of the participants, which accounted for 18 percent, suggested that the MFIs should enhance the ceiling of the credit provided; otherwise it would not meet up the required need of the members. One of the participants from GB and VL-1 desperately argued:

*“Microcredit ceiling should be enhanced, otherwise the amount of credit provided by the MFI may be diverted to other uses.”* (FGD-1) (FGD-2)

#### *8.5.5.3 Training/motivation to disburse microcredit*

One of the key strategies could be training facilities to be delivered among the MF members before disbursing the credit. This will motivate the members for proper use of the credit in more productive and efficient way. One of the MF officials from DISA mentioned:

*“Microcredit should be provided after providing due training to related project where the microcredit will be given to the members to invest in those projects.”* (FGD-1)

## **8.6 CONCLUSION**

It is expected that microcredit operations make a significant contribution towards the socio-economic development of the rural households in Bangladesh. In view of this,



the microcredit programmes operating in different areas of the country under the leadership of different MFIs showed the positive impact on different dimensions of the participant's socio-economic wellbeing. As a consequence, credit participation enhanced the income of the microcredit participants and also showed significant improvement in the health and education situation of the participants. This implies that access to microcredit does not only signify the income generation through proper and time worthy uses of microcredit but also develop the concept of employing health and educational programmes by the existing MFIs operating their microfinance programmes in the country. As the rural women cannot access formal financial institutions to take credit due to their loan criteria not being satisfied, there is a good possibility on part of the MFIs to come up with Integrated Service Packages (ISP) which provide a combination of credit facilities along with health facilities and educational facilities for their members. When the ISP can be implemented successfully, there is little possibility of the funds being diverted to other non-productive sectors rather than investing in the income-generating activities.

The results revealed very important policy implications. It is very interesting to observe that the increase in women's income generating activities played a very vital role in women's economic empowerment and sense of self-confidence. It helped to untie the cycle of poverty and provided them more flexibility in handling their economic decisions. However, the discussion with the microcredit recipients and the MF officials showed that the amount of credit provided to members was not substantial enough for broad investment. Therefore, one very important policy recommendation arising from this study is the necessity for reviewing the existing microcredit programmes. Also, another policy implication could be that GB, like BRAC and DISA, should provide health and education programmes through scholarships, stipends and by other means.

Table 8-2 Thematic Analysis

Experience	Focus Group Discussion 1							Focus Group Discussion 2							Focus Group Discussion 3							Focus Group Discussion 4							
	P1	P2	P3	P4	P5	P6	P7	P1	P2	P3	P4	P5	P6	P7	P1	P2	P3	P4	P5	P6	P7	P1	P2	P3	P4	P5	P6	P7	
Education Stipend	x			x		x		x	x														x						
Sub-scholarship(bursary)											x					x		x						x	x	x	x		
Advice on Child schooling	x	x								x																			
Free primary school			x	x		x				x					x		x	x	x	x					x	x	x		
Grant/Loan for school admission		x							x										x										
Free educational stationaries for children										x										x						x			
No free schooling																x								x					
Publication books related to health issues	x							x															x						
Special education programme for young															x											x			
Signature literacy for women															x														









## **9 CHAPTER 9: CONCLUSION**

### **9.1 INTRODUCTION**

The objectives of this research have been to revisit the microfinance operations in Bangladesh (Chapter 2), to analyse the impact of microfinance on income and consumption on rural households in Bangladesh (Chapter 4), to analyse microcredit participation on health-seeking behaviour on rural households (Chapter 5), to investigate the impact of microcredit participation on child nutrition on rural households (Chapter 6), and also to analyse the impact of microcredit participation on children's education on rural households in Bangladesh (Chapter 7). It has also investigated the impact of microfinance on the socio-economic wellbeing of rural households using FGD (Chapter 8). Thereby, this Chapter provides a summary of the research findings for each research phase of the study. Then the key contribution to the literature will be mentioned and outline of the policy implications of the findings will be presented. Research limitations will then be presented, followed by further potential directions within this area of research.

### **9.2 RESEARCH FINDINGS**

Based on the research questions articulated in Chapter 1, the key findings as evidenced from empirical results from the research are summarised below.

Research question:

- I. Has the growth of microfinance operations been substantial enough throughout the years?

Findings:

The evidence presented in Chapter 2 suggests that the growth of microfinance indicators has been found to be an increasing trend as recorded from the data from 2009 to 2013. Available data of the year 2009 and 2013 on different indicators provided a clear idea of trend and growth of this sector. It has been evident that significant growth has been achieved in most of the indicators including loan disbursement, size of loan per borrower, net savings per MFI, and loans outstanding

per MFI while some other indicators like employment generation and recovery rates experienced a slow decline over the year 2013. Therefore, it can be hoped that the expansion of microfinance in newer sectors and members' engagement in Income Generating Activities (IGA) through MFIs' financial support will attract more and more community members to the arena of microfinance in coming days ahead.

Research question:

- II. Has microfinance had any impact on income/consumption on rural households in Bangladesh?

Findings:

The study in Chapter 4 provides an empirical analysis of the impact of microfinance on members of three microfinance programmes in Bangladesh using a quasi-experimental survey. It was found that member households were more likely to be poorer than non-member households, reflecting the fact that microfinance institutions gave a priority to serving the poor. Thus, if this non-random selection of programme villages is ignored that could lead to bias estimates. It was also found that access to microfinance was significantly associated with improvement in consumption, income and poverty status. But the effects on consumption were most significant, which could indicate that microfinance members used loans to smooth consumption rather than investing in petty business.

Research question:

- III. Has participation in microcredit had any impact on health-seeking behaviour and health services on the microcredit participants of rural households in Bangladesh?

Findings:

The research examined the microcredit participation on health-seeking behaviour on rural households in Bangladesh using a cross-sectional survey and found positive effects on HSB (Chapter 5). This study has examined the impact of microfinance activities on health-seeking behaviour and health services of rural households in Bangladesh. It was found that the health-seeking behaviour and health services of the



households has been improved significantly after joining the microfinance programme. Our preliminary results on the beneficial health practices among the participants in microfinance can be used as a starting point for further studies investigating the links between microfinance and health-seeking behaviour and health service of rural household. However, this research was not able to disentangle how much of this improvement in health care and health-seeking behaviour was the direct result of the activities of MF, or it was a general process of development undertaken by the government and policy makers.

Research question:

- IV. Has there been any impact of microcredit participation on child nutrition for rural households in Bangladesh?

Findings:

The research provides an empirical estimation of the impact of microcredit participation on child nutrition on rural households in Bangladesh (Chapter 6). In this study, an evaluation was done into the participation in microfinance as a cause of improvements in children's nutrition. The study's results found no association between microfinance participation and child nutrition. The study also revealed that the level of the father's education, the household income (only for wasting), distance to the nearest health complex, and the wheat price in the village (an indication for affluence) were the important determinants of child nutrition in rural Bangladesh.

There is room for expansion in these findings by comparing the child health outcomes of the treatment group and the control group in terms of the mechanisms through which microcredit participation may influence child nutrition as well as health outcomes.

Research question:

- V. Has microcredit participation had any impact on rates of child schooling in rural households in Bangladesh?

Findings:

The empirical evidence presented in Chapter 7 measures the association between microcredit participation and child schooling. The impact of microfinance on child

schooling achievement per household has been measured by school attendance, school enrolment in due, and right-grade-for-age. The results reveal that participation in microcredit has a significant positive effect on school enrolment and a negative effect on grade attainment, although it does not have a significant effect on school attendance. Policies aiming at improving the children's educational achievement of rural households should consider enhancing or providing subsidised or free universal education among the participants.

Research question:

VI. Has microcredit participation had any overall effect on the socio-economic well-being on rural households in Bangladesh?

Findings:

This research provides a qualitative approach using focus group discussion to reveal the effect of microcredit participation on health, education and income status of rural households (Chapter 8). It is presumably expected that microcredit operations make a significant contribution towards the socio-economic development of the rural households in Bangladesh. In view of that the microcredit programmes operating in different areas of the country under the shed of different MFIs showed the positive impact on different dimensions of the participant's socio-economic wellbeing. As a consequence, credit participation enhanced the income of the microcredit participants and also showed significant improvement in health and education situation of the participants. This implies that access to microcredit does not only signify the income generation through proper and time worthy uses of microcredit but also develop the concept of employing health and educational programmes by the existing MFIs operating their microfinance programmes in the country. As the rural women cannot access formal financial intuitions to take credit due to their loan criteria not being satisfied, there is a good possibility on the part of the MFIs to come up with Integrated Service Packages (ISP) that is the combination of credit facilities along with health facilities and education facilities for their members. When the ISP can be implemented successfully, there is little possibility of the funds being diverted to other non-productive sectors rather than investing in income generating activities.

### **9.3 KEY CONTRIBUTION TO THE LITERATURE**

This thesis contributes to the literature by doing the research to show the impact of microfinance on the member and non-member households' income and consumption in Bangladesh using a quasi-experimental survey. There is only one exception, Pitt and Khandker (1998), who only considered the consumption of the households in their study.

Regarding the health and education aspects, this study uses cross-sectional survey to examine the impact of microfinance on health-seeking behaviour, child nutrition and child schooling of rural households. Most of the previous studies did not examine some important aspects of health such as health-seeking behaviour and access to health services and health inputs which are the contribution of this study. Although there are few studies on child health in other countries, there have been very few studies on the impact of microfinance on child nutrition in Bangladesh. Therefore, this study will be a contribution to the existing knowledge and will provide implications for policy makers in developing countries. Despite the numerous studies on schooling, a few or almost none has investigated the effects of microcredit duration, a more direct measure of investigating the impacts of microcredit programmes on child schooling. Thus, this study would make an important contribution to the existing literature as it considers the duration effect of microfinance participation by the member households of MFIs.

In addition, this study has investigated the impact of microcredit on health, education and income using FGD for the first time so far we know. There is no evidence of evaluating the impact of microfinance simultaneously on health, education and economic wellbeing of the microcredit recipients using FGD at a time. For these reasons, this study will add a new contribution to the existing literature of impact study of microfinance following FGD.

### **9.4 POLICY IMPLICATIONS**

In Chapter 2, the policy makers recognised the importance of microfinance in Bangladesh and also the government has an interest in boosting the sector through specific policies. Therefore, following the persistent trends of growth of MFIs in Bangladesh, current poverty levels can further be reduced through the combined efforts of the government bodies, MFIs, donor agencies and the member of the MFIs.

In Chapter 4, it was recommended that the government should take steps to improve favourable environments for small businesses (e.g., better infrastructure, and training of business knowledge) to enhance the effectiveness of microfinance on income-generating activities. Moreover, supervised credit facilities may be provided by different organisations to support rural households so that they might get more involved in income generating activities. This may improve the overall economic condition of the households a great deal.

In Chapter 5, it was recommended that policymakers dealing with health issues in developing countries should enhance their cooperation to achieve MDGs and strengthening of health system through inter-sectoral programming that utilises a microfinance platform to reach poor and underserved populations. In that case, the government should take better policies to make alignment between public and MFI delivered health services. For example, BRAC has been doing tremendous work in collaboration with the government for many years. Furthermore, MRA can put conditions on providing registration to newly-applied MFI and NGOs to include health services with the microcredit programmes.

In Chapter 6, microcredit participation and child nutrition decisions have significant implications on the country as well as on the members themselves. As is evident from the findings; the level of the father's education, household income, proximity to the nearest health complex and the wheat price in the village (as a measure of affluence) are important determinants of child nutrition in Bangladesh; policy makers should come forward to encourage adult education for poorer households and also help to foster innovation in income-generating activities for the rural households. Thus, policies aiming to improve child nutrition should not take the place of nutrition policies but rather should be seen as complementary to the existing policies.

In Chapter 7, the household's participation in microfinance and child schooling decisions have several implications on the society as well as on the households themselves. By not enrolling children in school, a household prevents its children from benefitting from higher earnings (associated with educational attainment) in the future. Moreover, not enrolling children in school inhibits a household and its children from enjoying the non-pecuniary benefits of schooling, such as improvements in patience, risk management skills, and health.

In Chapter 8, the results revealed very important policy implications. It is very interesting to observe how the increase in women's income generating activities played a very vital role in women's economic empowerment and sense of self-confidence. It helped to untie the cycle of poverty and provided them more flexibility in handling their economic decisions. However, the discussion with the microcredit recipients and the MF officials showed that the amount of credit provided to members was not substantial enough for broad investment. Therefore, one very important policy recommendation is the necessity of reviewing the existing microcredit programmes. Another policy implication could be that GB, like BRAC and DISA, should provide health and education programmes with scholarships, stipends and by other means.

## **9.5 LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH**

While this study has certain implications through the research findings, there are some limitations that should be addressed. The following limitations to this study need to be noted as well as future directions of research will also be mentioned.

In Chapter 2, the overview of microfinance operations in Bangladesh has not covered the entire industry rather concentrated on two major and one mid-level MFI in Bangladesh. Moreover, it could not be possible to describe all the impact studies elaborately. Further research is needed to assess the growth and innovation of microfinance products beyond microcredit which could ensure the economic as well as social wellbeing of the microfinance participants. Many researchers and practitioners suggest an integrated service packages (a credit-plus approach) rather than just providing credit to microfinance members. When the members have the access to credit combined with other services, such as additional financial services (voluntary savings facilities, non-productive loan facilities, insurance), enterprise development (production-oriented and management training, marketing support), and socio-welfare related services (education and health services, and social awareness training), the adverse effects on microfinance will be reduced.

In Chapter 3, the study only considers that we only considered program village purposively. We acknowledge that it is now too late to address the issue that RCTs offer better solution such as problems due to non-random program placement and self-

selection into the program. We also acknowledge that without a panel data and proper instrumental variable, our solution is only the second best option. Regarding using instrumental variable to tackle the problem of self-selection in cross sectional dataset, we did not find any suitable instrument. Therefore, we acknowledge that this is the limitation of the thesis where we could not collect information of the non-members regarding the issue of health-seeking behaviour, child malnutrition, child schooling.

In Chapter 4, while every effort has been made to conduct the quasi-experimental survey, still endogeneity prevails in the study. Also the number of non-member households was small compared to the number of member households. So, the future researchers can take initiative to include more representative sample size of non-member households as proportion of member households. Furthermore, future researchers should also figure out the exact impact of microfinance leaving the involvement of other sources of credit.

In Chapter 5, the study only considers the impact of microcredit on health-seeking behaviour and health services of adult households in the context of before and after joining microfinance but did not compare between the member and non-member groups of microfinance. Therefore, it was necessary for future research to explore whether there are substantial difference in the health-seeking behaviour and health services between the treatment (member) and control (non-member) groups of microfinance institutions.

In Chapter 6, the study only considers the impact of microcredit on child nutrition and there are some limitations to this study. One of the important limitations is that the author conducted the study on the member (treatment) groups, rather than considering both the treatment (member) and control (non-member) groups because of time and resource constraints. A final limitation is that microcredit programmes are known to differ substantially from one another in terms of structure and content. These differences complicate the efforts to make valid comparisons across programmes, which limits the generalisability of the findings to those programmes with similar structures. Moreover, given that microfinance institutions differ in terms of social contexts in which they operate, the results should be applied with caution to programmes operating in other international settings. For example, added income may not be as beneficial for child nutrition in a community in which the individuals still

lack access to healthcare, nutritious foods and other resources. Although the child related information of both the member and non-member households has been gathered but health knowledge and health awareness information related to member households have only been taken. Further research should also investigate whether or not microfinance increases health knowledge and health awareness of the participating households and whether it has spill-over effects on child and adult health outcome. Moreover, a comparison between the member (treatment) and non-member (control) households' children nutritional status need to be addressed properly in future research. Thereby, future research can suggest reshuffling the microcredit operations in such a way so that microcredit could contribute a lot to the improvement of child nutrition and child health of the rural households in Bangladesh.

In Chapter 7, the study investigates the impact of microcredit on child schooling based on cross-sectional data which does not reflect the comparable characteristics between treatment (member) group and control (non-member) groups. As a result, this study could not actually identify the extent of microcredit involvement or influence of other factors on schooling outcome. Therefore, the future research can be conducted to compare between schooling outcome of the children of the member and non-member households of microfinance because of participating in microcredit programmes.

In Chapter 8, while useful for soliciting detailed information, Focus Group Discussions (FGDs) do have associated limitations. Inherent in all research using FGDs is the issue of reliability. Adopting FGDs as the method of inquiry enabled stage three of this study to collect data that would not otherwise available, and to get an insight into the impact of microcredit on the socio-economic well-being of the participants of microcredit. However, the FGD responses could potentially be influenced by various factors: from the respondent, in the form of their providing a 'socially desirable' responses, through faulty memories; or attempts at hiding reality; or because of the nature of the task, for instance in administering the questionnaire, or the sequence or wording of the questions (Fontana & Frey 2000). In this regard, further research can be conducted to investigate the impact of microfinance on physical products and psychological issues beyond the socio-economic wellbeing issues. Also, future research can be carried out to compare between the member and non-member of microfinance institutions to disentangle the impact of different organisations on socio-economic well-being of rural households.

Finally, although the research has provided some new insights into the impact analysis of microfinance in developing countries, and in particular into the trajectory between microcredit and socio-economic well-being, this clearly still remains very much an evolving research issue. New programme developments and policy reforms are taking place quite frequently in microfinance and there are, in fact, new developments which have occurred after the survey period. Therefore, a new survey may be conducted to collect the concurrent data which would be more interesting to find any new issues to investigate. These issues remain open for potential future research.



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# APPENDICES

## APPENDIX 1: SURVEY QUESTIONNAIRES

### QUESTIONNAIRE 1: FOR VILLAGE LEADERS

*This questionnaire is to be answered by village heads, where households to be interviewed. The purpose of this interview is to obtain basic information about socio-economic conditions of the villages, which will be used to compare among villages and identify factors that may contribute to analyse the impact of microfinance.*

Name: \_\_\_\_\_ Location: \_\_\_\_\_  
Date: \_\_\_\_\_ Code: \_\_\_\_\_

Category		Unit	Data (2013)
<b>A. Land</b>			
	<b>1</b>	<b>2</b>	<b>3</b>
<b>1</b>	<b>Total area</b>	Decimal	
<b>B. Rice</b>			
<b>1</b>	<i>Single crop</i>	Decimal	
<b>2</b>	<i>Double crop</i>	Decimal	
<b>C. Sub-crops</b>			
<b>1</b>	Wheat	Decimal	
<b>2</b>	Jute/Sugarcane	Decimal	
<b>3</b>	Pulses	Decimal	
<b>4</b>	Other crops	Decimal	
<b>5</b>	<b>Residential area</b>	Decimal	
<b>6</b>	<b>Other land</b>	Decimal	
<b>D. Population and Labour</b>			
<b>1</b>	<b>Total household</b>	Households	
<b>2</b>	<b>Total population</b>	Persons	
<b>3</b>	<i>Female(over 18 age)</i>	Persons	
<b>E. Households classified by Wealth</b>			
<b>1</b>	Better-off (> BDT 300/day/person)	Households	
<b>2</b>	Middle( BDT 200-299/day/person)	Households	
<b>3</b>	Poor( BDT 100-199/ day/person)	Households	
<b>4</b>	Extreme poor(< BDT100/day/person)	Households	
<b>5</b>	Total labour force (aged 14-60)	Persons	
<b>6</b>	<i>In which: Women</i>	Persons	
<b>7</b>	Population by ethnicity		
<b>8</b>	Muslim	Persons	
	Hindu	Persons	
	Others	Persons	
<b>9</b>	Other ethnics	Persons	
<b>F. Households Classified by Occupation</b>			
<b>1</b>	Farming only	Households	
<b>2</b>	Farming and others	Households	
<b>G. Credit</b>			
<b>1</b>	Clients of DISA	Households/persons	
<b>2</b>	Outstanding loan from DISA	BDT million	
<b>3</b>	Clients of GB/BRAC	Households/persons	
<b>4</b>	Outstanding loan from GB/BRAC	BDT million	
<b>5</b>	Clients of others	Households/persons	
<b>6</b>	Outstanding loans from others	BDT million	
<b>H. Education</b>			
<b>1</b>	School enrolment rate	%	

2	Illiteracy rate	%	
<b>I. Average Prices</b>			
1	Rice	BDT'000/kg	
2	Wheat	BDT'000/kg	
3	Pulses	BDT'000/kg	
4	Chickens	BDT'000/kg	
5	Casual labour	BDT'000/person day	

1. In 5-scale point, could you rank how important do you think MF in poverty alleviation in your community?

Not important = 1    Less important=2    Important = 3    Very Important = 4    Most Important = 5

2. Do you think there are some criteria to select clients in MF programs? Yes = 1    No = 2

3. If “Yes”, what are the criteria and their relative importance?  
 Poor = 1    Women = 2    Recommended by group members = 3  
 Have production ability (e.g., land and labour) = 4    Other (specify) .....

4. Could you rank the contribution of MF to poverty alleviation process in your community? What is their relative importance?  
 Smooth-out consumption = 1    Increase saving = 2    Increase solidarity and self=help = 3  
 Create jobs = 4    Others .....

5. How do you rank the MF program in your community, in terms of effectiveness (i.e., compare the impacts of MF to living conditions of clients and the costs of running this service)?  
 Ineffective = 1    Not so effective = 2    Effective = 3    Very effective = 4    Most Effective =5

6. What are the reasons of this ranking?.....  
 .....

7. To improve the effectiveness of MF (if necessary), what do you think should be done and why? .....

8. How far is the nearest health complex? .....

9. Does the village have any MBBS doctor?    Yes = 1    No = 2

10. How many Union health centres in your village?     1     2     3    Other No

11. How many Allopathic doctors in your village?     1     2     3    Other No

12. How many Homeopathic doctors in your village?     1     2     3    Other No

## QUESTIONNAIRE 2: FOR HOUSEHOLDS

This set of questionnaire is designed to examine the living conditions of client households and non-client households in order to identify impacts and effectiveness of microfinance. The questionnaire assesses the overall performance of households in terms of income, physical asset, human asset, social asset and financial asset. The questionnaire also explores possible factors that contribute to changes in their living conditions. This questionnaire is to be answered by heads of households.

Respondent Name: ..... Code:     Date:.....

### A. Section

1. Village: \_\_\_\_\_   3. Union Council \_\_\_\_\_    
 2. Thana: \_\_\_\_\_   4. District \_\_\_\_\_    
 5. Income Group: Rich  Middle  Poor  Extreme poor   
 6. Member of MF: Yes  No   
 7. If yes, duration of membership (Year):    
 8. Name of MFI: DISA  Grameen Bank  BRAC  Other  
 .....

### B. General

1. Name of HH head: \_\_\_\_\_ 2. Sex: M  F   
 3. Age \_\_\_\_\_ 4. Minority Ethnic: Yes  No  5. Education   
 6. Occupation \_\_\_\_\_ 7. Type of employment: FT  PT   
 8. Spouse of HH Head: Age \_\_\_\_\_ 9. Education   
 10. Occupation \_\_\_\_\_ 11. Type of employment: FT  PT   
 12. Number of people in the family: \_\_\_\_\_ 13. Number of people in labour age (>14 Years of age) \_\_\_\_\_

### C. Household Composition

Sl. No.	Name	Relation with HH Head	Age	Sex	Marital Status	Education level	Worked/dependent
	2	3	4	5	6	7	8
1							
2							
3							
4							
5							
6							
7							
8							

Column – 3: HH Head = 1, Spouse = 2, Father= 3, Mother= 4, Brother = 5, Sister =6, Son =7, Daughter = 8,

Daughter in law = 9, Grandson =10, Granddaughter=11, Others = 12 (specify)..... ,

Column – 5: Sex: Male=1, Female=2

Column – 6: Marital Status: Unmarried=1, Married = 2, Widow = 3, Divorced = 4, Other = 5 (specify)

Column – 7: Education code: Illiterate/Elementary school=1, Secondary school=2, High school=3,

College/University=4.

Column – 8: Workability: Worked=1, Dependent=2

#### D. Physical asset

Sl	1	2
1	<i>Housing conditions</i>	Owned =1          Rented/shared = 2
2	<i>Housing elements</i>	Brick = 1          Timber = 2          Bamboo = 3          Tin = 4
3	<i>Main Household Appliances</i>	TV = 1      Radio = 2      Tape-Recorder = 3      Fridge = 4      N/A = 99
4	<i>Transport equipment</i>	Motorbike= 1      Bicycle=2      Boat=3      Rickshaw=4 Auto=Rickshaw=5      CNG=5          N/A = 99
5	<i>Production tools</i>	Plough = 1      Threshing machine = 2      Oxcart = 3      Irrigation pump = 4 N/A = 99

#### E. Income (in 2013)

##### a) Agriculture

##### 1. Crops

	Crops	Area (Decimal)	Unit	Value (estimated)
SL	1	2	3	4
Rice				
1	Single crop		Kg	
2	Double crop		Kg	
Sub – Crops				
3	Wheat		Kg	
4	Jute		Kg	
5	Sugarcane		Kg	
6	Pulses		Kg	
7	Others		Kg	
8	Fruits & Vegetables		Kg	
	<b>Total</b>			

##### b) Animal Husbandry

	Types of Animal	No of Unit	Estimated Value
SL	1	2	3
1	Cow/Calves/ Buffalo		
2	Milk /Cow Dung		
3	Goat/ Lamb		
4	Pig		
5	Duck/Hen		
6	Duckling/chicks		
7	Eggs		
8	Fisheries		
9	Others		
	<b>Total</b>		



**c) Off-farm Activities**

	Sources	Estimated income (BDT'000)
SL	1	2
1	Handicraft	
2	Trading/services	
3	Waged employment	
4	Social allowance (VGD/VGF/FFW)	
5	Others (e.g., remittances)	
	Total	

**F. Expenditure (in 2013)**

**a) Production (BDT'000)**

	Crops	Expenditure		Livestock	Expenditure		Off-farm	Expenditure
SL	1	2	SL	3	4	SL	5	6
1	Seeds		7	Animals		12	Hired labour	
2	Fertilisers		8	Feed		13	Materials	
3	Other chemicals		9	Fuel		14	Fees	
4	Hired machines		10	Vaccination				
5	Hired labour		11	Other fees				
6	Other fees							
	Total		Total			Total		

**b) Consumption (BDT'000)**

	Item	Expenditure
SL	1	2
1	Food	
2	Clothes	
3	Education	
4	Health	
5	Entertainment ('Eid, Puja)	
6	Social events (e.g., Birthday, wedding, funerals)	
7	Other	
	Total	

**c) Shocks**

In the last 12 months did you suffer from any financial shock (because of severe illness, robbery, dead, fire, drought, flood, crop loss, lost job, business failure, etc.)? Yes  No

**G. Finance**

**a) Overall**

1. Have you ever borrowed (with interest) from any source in 2013? Yes  No

2. If "no", what are the reasons?

Afraid cannot repay = 1      No collateral = 2  
No need = 3      Interest rates are too high = 4    other (specify).....

3. If "no", how do you manage to meet your financial needs?

Sell asset = 1    Sell farm products = 2    Borrow from friends/relatives = 3  
Other (specify) .....

4. If "yes", where have you borrowed from sources?

a. How many times did you borrow?.....    b. Total amount borrowed?.....  
c. Total outstanding amount?.....

5. What are the main reasons for borrowing?  
 Investment = 1      Building houses = 2      Purchase food = 3  
 Buy asset = 4      Buy Basic needs = 5      Others (specify) .....
6. Have you been able to save some money in 2013? Yes  No
7. If “yes”, what is the main purpose of saving?  
 Smooth consumption =1      Accumulate for investment= 2  
 Buffer against shocks = 3      Other (specify) .....
8. If “no”, what are the reasons?  
 Too poor = 1    No regular cash income = 2      No saving deposit service = 3  
 Other (specify) .....

**b) For member of Microfinance Programs**

*General characteristics and awareness of clients on microfinance services*

1. How long have you been participated in MF program (months)?.....
2. Total Loan received (in BDT)? .....
3. Do you know who are eligible to participate in the program? Yes =1 No = 2
4. If “yes”, specify:  
 Women =1      Poor=2      Anyone = 3      Other .....
5. If “No”, why not? .....
6. Since joining the MF program, have you participated in any training?      Yes =1  
 No = 2
7. If “yes”, what types of training?      Credit and saving =1      Production  
 techniques = 2  
 Other .....
8. If “no” why?  
 MF did not organise any training = 1      Too busy= 2      Training is not useful = 3  
 Other .....
9. What are your main expectations when participating the MF program?  
 Improve income = 1      Learn new production skills = 2      Others .....
10. To date, your expectations have been fulfilled?      Agreed =1      Disagreed = 2
11. If “yes” what services at the MF contributed the most  
 Credit = 1      Saving = 2      Training = 3      Other .....
12. Are there any restrictions on the purpose of loans from MF? Yes =1    No = 2
13. If “yes”, what are the restrictions? .....
14. Do you think the restriction is appropriate? Yes =1    No = 2
15. In practice, besides investment, do you need credit for other purposes?      Yes =1  
 No = 2

16. If “yes”, what are the most common needs?  
 Education =1    Health= 2    Food= 3    Other (specify).....
17. If MF loans only limits on investment, which sources do you use for other purposes?  
 Moneylenders =1    Relatives/friends = 2    Banks= 3    Sell farm products=4  
 Sell asset= 5    Others (specify) .....
18. How many times have you borrowed from the MF program in 2013? .....
19. What is your total current outstanding loan?.....
20. On which did you spend the loans from the MF program?  
 Animal husbandry=1    Crops = 2    Off-farm production activities = 3  
 Food =4    Education =5    Health =6    Other consumption .....
21. What is the amount overdue for at least 3 months but you have not paid? .....
22. Do you save every month since joining the MF program? Yes=1    No = 2    Only some months =3
23. If “yes”, how much have you saved to 2013? Have you ever withdrawn your saving in 2013? Yes=1    No = 2.....
24. If “yes”, what for?    Emergency spending = 1    Investment = 2    Other.....
25. If “no”, why?    MF group does not allow =1    No need yet =2    Have not saved much = 3    Other .....
26. On average, how long does it take to get loan approval (days)? .....
27. How long do you spend in monthly meeting of MF group including travel time (hours)?..
28. If could not access loan from the MF program, what had you do?  
 Borrowed from moneylenders =1    Borrowed from friends =2  
 Skipped the investment= 3    Other (specify) .....
29. What do you like the most from MF services?  
 Simple and quick procedure =1    Reasonable interest rate =2  
 Instalment payment = 3    Other (specify) .....
30. What do you dislike the most from MF services? Small loan size =1    High interest rate = 2    Compulsory saving = 3    Instalment payment = 4    Restriction of loan purposes = 5    Co-responsibilities among group members = 6    Others (specify).....
31. What do you think that is needed for the improvement on MF services?  
 Bigger loan size =1    Multi=purpose loans=2    Lower interest rate =3  
 Flexible payment schedule =4    Other (specify).....

**c) Non-member of microfinance**

1. What are the main reasons that you have not been the member of the MF program?  
 Not eligible =1    No MF program in the area= 2  
 MF is not suited to my financial needs = 3    Other (specify) .....
2. Without accessing to MF services, which sources do you mobilise for financial needs?  
 Moneylender =1    Friends/relatives= 2    BRDB =3    Banks =4    Sell assets = 5  
 Sell farm products = 6    Other (specify) .....

3. What did you borrow for? Production = 1 Education =2 Health = 3 Other .....
4. If you are eligible and MF service is available in your areas, are you interested in participating in the MF program? Yes=1 No = 2
5. If “yes” why? Quick and simple services =1 Reasonable interest rate = 2  
Technical training = 3 Other .....
6. If “no” why not? Require saving before loan = 1 Small loan= 2  
Repayment start too soon = 3 Other (specify) .....
7. If accessible to MF service, what do you appreciate the most?  
Loan= 1 Saving= 2 Technical training=3 Instalment repayment = 4  
Don't know= 88 Other (specify) .....
8. What do you dislike the most in MF services?  
Small loan size = 1 High interest rate = 2 Compulsory saving = 3  
Instalment payment = 4 Restriction of loan purposes =5  
Co-responsibilities among group members = 6 Don't know = 88  
Others (specify) .....

*This set of questionnaire is designed to examine the health conditions of client households and non-client households in order to identify impacts of microfinance on health. The questionnaire assesses the overall performance of households in terms of different parameters of health. The questionnaire also explores possible factors that contribute to changes in their living conditions. This questionnaire is to be answered by heads of households.*

#### **H. Microfinance and Impact on Health**

	Child-1	Child-2	Child-3	Child-4	Child-5
Child Name (0 = 14 years)					
1. Child's ages					
2. In general, how would you say child's current health is? (1=Excellent, 2=very good, 3=good, 4=fair, 5=poor)					
3. How concerned are you about child's weight at the moment? (1= not at all, 2=a little, 3=moderately, 4=very)					
4. What is the weight of the child?(kg)					
5. What is the height of the child? (cm.)					
6. What was the birth weight of the child? (kg)					
7. Was the child full-term? (1= Yes, 2 = No, 3= Don't Know)					
8. Does child have any of the ongoing (chronic) illness(e.g., Asthma, bronchiolitis, diarrhoea, digest problem, infections)?(1= Yes, 2= No, 3= Don't Know)					
9. How often can you get the care child needs for this condition? (1= Always, 2= Usually, 3= Sometimes, 4= Rarely, 5= Never)					

10. How often do you take your child to doctor, when he/she is sick? (1= Never, 2= sometime, 3=Frequently)					
11. Is your child vaccinated? (1=Yes, 2= No, 3= Cannot remember)					
12. Do your children wash hand after toilet? (1=Yes, 2= No, 3= Don't Know)					
13. How often do you visit the doctor? (1= Never, 2= sometime, 3=Frequently)					
14. Has the child stayed in hospital for at least one night (in last one year) because of illness, any injuries or accidents? (1=Yes, 2= No, 3= Don't Know)					
15. What types of food did you give to your children within last 24 hours? (e.g., 1= Solid, 2= Fruits, 3= Meat, 4= Milk, Other.....)					
16. Do you wash vegetables before cutting into piece or after? (1=Before, 2= After, 3= Never)					
17. Do you and your children wash a fresh fruit before eating? (1=Yes, 2= No, 3= Don't Know)					
18. Have you used any fund from MF for doctor's fees, medicine, and hospital?(1= Yes, 2= No)					
19. How can you consider that the MF helps you to improve your health condition? (1= Most, 2=More, 3= Good, 4= A little, 5= Nothing)					

**I. Microfinance impact on health condition:**

<i>Aspects</i>	<i>Before joining MFIs</i>	<i>After joining MFIs</i>
<i>1</i>	<i>2</i>	<i>3</i>
1. Source of drinking water? (1 = Deep tube well; 2 = Shallow, 3= River, Others .....		
2. Change in toilet condition? (1 = Full sanitary; 2 = Half sanitary, 3= Open, Others .....		
3. Any Antenatal care facilities provided? (1= Yes, 2= No)	Yes=1 No = 2	Yes=1 No = 2
4. Any Immunization provided? (1= Yes, 2= No)	Yes=1 No = 2	Yes=1 No = 2
5. Any kind of Diarrhoea remedies for children? (1= Yes, 2= No)	Yes=1 No = 2	Yes=1 No = 2
6. Any kind of family planning services received? (1= Yes, 2= No)	Yes=1 No = 2	Yes=1 No = 2
7. Any kind of maternal care services received? (1= Yes, 2= No)	Yes=1 No = 2	Yes=1 No = 2
8. Malaria/TB treatment? (1= Yes, 2= No)	Yes=1 No = 2	Yes=1 No = 2
9. Medicines accessible/affordable for cure diseases? (1= Yes, 2= No)	Yes=1 No = 2	Yes=1 No = 2

*This set of questionnaire is designed to examine the schooling conditions of client households and non-client households in order to identify impacts of microfinance on child schooling. The questionnaire assesses the overall performance of households in terms of different parameters of schooling. The questionnaire also explores possible factors that contribute to changes in their living conditions. This questionnaire is to be answered by heads of households.*

**J. Microfinance and Impact on Schooling**

1. Whether the MFI has any program/incentive to encourage child schooling? Yes=1  
No = 2
2. Do MF staffs put any condition regarding enrolment of child schooling of MF participants in case of granting microfinance? Yes=1 No = 2
3. If “Yes”, what are the conditions?  
.....
4. Does the MFI monitor the performance of the child schooling of the MF participant on regular interval? Yes=1 No = 2
5. If “Yes”, how they monitor?  
.....

**K. Access to Education**

a) For all the services listed below, please provide the distance from the village for those which are not available in the village.

	1	2	3
SL	Is there a service?	Yes=1 No = 2	(In Km.)
1	NGO operated school		
2	Secondary school : girls only		
3	Secondary school : boys only		
4	Secondary school : mixed		
5	Upper secondary school/ college		
6	Mosque school (Muktab)		
7	Ilmi madarassah		
8	Adult literacy centre		

If no, how far is the closest? (In Km.)

b) Answer the questions related to performance of child in schooling

	Child-1	Child-2	Child-3	Child-4	Child-5
Child's Name					
1. When did the child start school?					

2. In which grade are they now?					
3. What is the performance of child according to teacher? (1=Excellent, 2=very good, 3=good, 4=fair, 5=poor))					
4. What is the test result of the child? (1= top5%, 2=top10%, 3=top20%, 4= top30%, others .....)					
5. Have they repeated class? (1=Yes, 2=No)					
6. How many days did they miss class last year?					

c) Answer the questions related between schooling and credit such as

<i>Aspects</i>	<i>Before joining MFIs</i>	<i>After joining MFIs</i>
<i>1</i>	<i>2</i>	<i>3</i>
1. Tuition fees: How often do your children miss paying tuition fee? (1 = Never; 2 = Once in a year; Others .....)		
2. Purchasing of stationery: Do you able to purchase enough stationery for child as required? (1= Yes, 2= No)	Yes=1 No = 2	Yes=1 No = 2
3. Extra-curriculum activity: Does the family capable to pay for extra-curriculum activity to the child? (1= Yes, 2= No)	Yes=1 No = 2	Yes=1 No = 2

## L. Microfinance and Women Empowerment

### a) Decision Making

<b>1</b>	<b>2</b>	<b>3</b>
Decision Making Aspects	Before joining MFIs	After joining MFIs
1.Child's education		
2.Son's and daughter's marriage		
3.Buying household items		
4.Buying personal items		
5.Buying household assets/house repairs		
6.Use of contraceptives		
7.Avail medical treatment		
8.Avail recreational facilities		
9.Visiting parents or relatives		
10.Voting for local and National election		
11.Borrowing decisions		

Column -2 & Column - 3: Code 1= if women do not participate in decision making; 2 = if women take decision alone; 3 =if women take decision jointly with husband and other family members)

**b) Control over Women's income by themselves**

<i>Aspects</i>	<i>Before joining MFIs</i>	<i>After joining MFIs</i>
<b>1</b>	<b>2</b>	<b>3</b>
12. Do you have your control on income? (1 = No Control; 2 = Partial Control; 3 = Full Control)		
13. Do you feel secure and strong? (1= Yes, 2= No)	Yes=1 No = 2	Yes=1 No = 2

**c) Access to Family Assets by Women**

<i>Aspects</i>	<i>Before joining MFIs</i>	<i>After joining MFIs</i>
<b>1</b>	<b>2</b>	<b>3</b>
14. Do you have your access to family assets? (1 = No Access; 2 = Partial Access; 3 = Full Access)		
15. Do you feel proud and dignified in access to that? (1= Never, 2= Partially, 3=Fully)		

**d) Women's Freedom of Movement**

<i>Aspects</i>	<i>Before joining MFIs</i>	<i>After joining MFIs</i>
16. Do you have freedom to move any places? (1 = No freedom; 2 = Partial freedom; 3 = Full freedom)		
17. Can you visit market, shop, hospital, children's school and MFIs alone, if necessary, without husband's permission? ( 1= Yes, 2= No, 3= Yes sometimes)	1= Yes 2= No 3= Yes sometimes	1= Yes 2= No 3= Yes sometimes

**e) Political Empowerment of Women**

- Can you tell the names of three major political parties in Bangladesh? Which are those?  
 a. .... b. .... c. ....
- What is the name of your current Prime Minister?
- What are the names of your local Member and Chairman?  
 a. Chairman: ..... b. Member: .....
- Are you aware that there is a law against women harassment/abuse? Yes=1  
 No = 2



5. Can you tell three positive things and three negative things that microfinance has brought into your life or household?

a. Positive: Increase Income= 1 Educational development= 2 Women Empowerment = 3

b. Negative: High Interest Rate= 1 Instalment Payment = 2 Lingering Time = 3

**f) Psychological/Social Empowerment of Women**

1. Do you regard yourself as a valuable member of the family? Is your importance increased or decreased in the household after joining MFIs? Why?  
Yes=1 No = 2

2. Do you believe that you have the capacity to run the business independently? Has this capacity increased after joining MFIs? Yes=1 No = 2

3. Has physical/mental abuse (by your husband or other family members) increased or decreased after being member of MFIs? Yes=1 No = 2

**g) Overall Empowerment**

1. Do you think that Microfinance or Microcredit has increased or decreased your (women) overall empowerment? Why? Yes=1 No = 2

2.

**M. Some questions on “Village Characteristics”**

**a) Access to Facilities**

	Is there a [service] in the village	Yes=1 No = 2	(In Numbers)	2. If <b>the answer is No</b> , how far is the closest
SL	1	2	3	4
1	Shop(s)			
2	Weekly Market (Haat)			
3	Bazaar			
4	Union Council			
5	Police station			
6	Post office			
7	Telephone office			
8	Bus stop			
9	Fertilizer depot			
10	Playground/youth organization			

**b) What are the three most commonly used sources of drinking water for the residents?**

1..... 2..... 3.....

1= piped to house, 2= tank, 3= tube well, 4= surface water, 5= canal, 6= river, 7= pond, 8= others

**c) How many tube wells are there in the village?**

1. Privately owned? \_\_\_ 2. Publicly owned? \_\_\_\_\_ 3. Group tube wells? \_\_\_\_\_

**N. Some questions on “Unobserved Characteristics”**

**a) Risk attitude (e.g. Certain vs. Risky):**

There are two black box, which contain 10 tickets which written an amount of money you will receive if you pick that ticket. To pick randomly one ticket, from which box are you going to pick (unit BDT)

No	Box 1		Box 2		Choice
1	1/10 has 50,000	9/10 has 20,000	1/10 has 100,000	9/10 has nothing	Box = 1 Box = 2
2	5/10 has 50,000	5/10 has 20,000	5/10 has 100,000	5/10 has nothing	Box = 1 Box = 2
3	8/10 has 50,000	2/10 has 20,000	8/10 has 100,000	2/10 has nothing	Box = 1 Box = 2

**b) Time preference (e.g., Now or later rewards)**

No	(Box = 1) Now (get right away)	(Box = 2) Later	Choice
1	50,000	60,000 (two months)	Box = 1 Box = 2
2	50,000	70,000 (three months)	Box = 1 Box = 2
3	50,000	80,000 (four months)	Box = 1 Box = 2

**Thank you for your cooperation**

## APPENDIX 2: QUESTIONNAIRE FOR FOCUS GROUP DISCUSSION AND KEY INFORMANT INTERVIEWS

**Objective 1:** To evaluate the impact of microfinance on improving the health condition (access to health and health outcome) and schooling of the children of its beneficiaries.

- What are the positive and negative impacts of microfinance in your community with regard to health and schooling of children?
- What strategies have been taken by MFIs to improve the health condition of microfinance participants in the community?  
-What is your suggestion to improve further?
- What strategies have been taken by MFIs to improve schooling status of microfinance participants in the community?  
-Do you have any suggestion to improve it further?

**Objective 2:** To examine the role of microfinance schemes in generating income in Bangladesh

- What are the income generating activities (individual and group based) in the area?
- Why do you need microfinance?
- What are the factors that encourage you to take microfinance?
- Who has the control to invest microfinance in income-generating activities?
- Do you think that the income has been increased because of participating in microfinance? If yes, how?
- Do you have any further expectation from the MFIs regarding the improvement of income/consumption of the recipients?
- Describe the ways that MF can accelerate earnings and investment.

**Objective 3:** To examine if microfinance can empower women in Bangladesh

- What are the positive impacts of MF on empowering women?
- What strategies have been taken by MFIs on empowering women?
- How can you be sure that women empowerment has increased by MF?
- What are the major barriers on empowering women?
- How can women be empowered in true sense?

**Objective 4:** To examine the role of microfinance schemes in Bangladesh

- What types of financial services are available in your community and their relative accessibility to the poor?
- Do you think there are some criteria to select clients in MF programs? If “Yes”, what are the criteria and their relative importance?
- What are the main factors that promote microfinance operations in your community?
- What are the main factors that hinder microfinance operations in your community?
- How do you rank the MF program in your community, in terms of efficiency (i.e., compare the costs and other inputs of the service versus numbers of clients served)?
- To improve the effectiveness of MF (if necessary), what do you think should be done and why?



University of Southern Queensland

The University of Southern Queensland  
Participant Information Sheet-Questionnaire

**HREC Approval Number:** H14REA075

**Full Project Title: The Impact of Microfinance on Health, Education and Income: Evidence from Bangladesh**

**Principal Researcher: Mohammad Monzur Morshed Bhuiya**

**Other Researcher(s):**

You are invited to take part in a questionnaire concerning the impact of microfinance on health, education and income in Comilla /Chandpur/ Narshingdi/ Narayangonj District of Bangladesh. This research is being undertaken by Mohammad Monzur Morshed Bhuiya as part of his PhD program at the University of Southern Queensland, Australia.

Your participation will help the researcher to identify how microfinance influences on rural households' health, education and income. The study will contribute to make appropriate microfinance policy intervention through providing relevant reliable information and thus to improve the socio and economic conditions of the rural poor households.

About 400 participants are expected to take part in this phase (questionnaire). This should take between 30-40 minutes to be completed. The researcher will ask you a series of questions about the health condition, education status and income of the household in the area and will record your response on the questionnaire.

Your participation in this study is voluntary. You have the right to decline to answer any particular question during the interview. At any time, you may take a break or withdraw from the interview and this will not result in any penalty or discriminatory treatment. All material collected during the interviews will be treated as strictly confidential and will be placed in a secure location. Only the researcher and his supervisors will have access to the interviews. No names or other information that could personally identify you will be used in the thesis or any other publication. The information will be kept locked up and confidential for 5 years after the study is completed and then it will be permanently destroyed.

The results of this research will be published as a PhD thesis and is expected to result in articles which will be published in academic journals. Results will also be communicated to the public and private organizations involved in microfinance and health and education issues in the country. However, no personal information will be published.

## 1. Procedures

Participation in this project will involve

**The researcher will ask you set of questions. You will provide your response and it will be recorded by the researcher on the questionnaire.**

**No potential risks have been identified.**

## 2. Voluntary Participation

Participation is entirely voluntary. **If you do not wish to take part you are not obliged to.** If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. Any information already obtained from you will be destroyed.

Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with the University of Southern Queensland.

**Please notify the researcher if you decide to withdraw from this project.**

Should you have any queries regarding the progress or conduct of this research, you can contact the principal researcher:

**Mohammad Monzur Morshed Bhuiya  
Faculty of Business, Education, Law & Arts  
School of Commerce  
University of Southern Queensland  
Mohammad.Bhuiya@usq.edu.au (s)  
+614701113243**

If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant please feel free to contact the University of Southern Queensland Ethics Officer on the following details.

**Ethics and Research Integrity Officer  
Office of Research and Higher Degrees  
University of Southern Queensland  
West Street, Toowoomba 4350  
Ph: +61 7 4631 2690  
Email: [ethics@usq.edu.au](mailto:ethics@usq.edu.au) |**



The University of Southern Queensland  
Consent Form- Questionnaire

HREC Approval Number: H14REA075

**[TO: Questionnaire Participant]**

**Full Project Title: The Impact of Microfinance on Health, Education and Income:  
Evidence from Bangladesh**

**Principal Researcher: Mohammad Monzur Morshed Bhuiya**

- I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I understand and agree to take part.
- I understand the purpose of the research project and my involvement in it.
- I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.
- I confirm that I am over 18 years of age.
- I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential.
- ~~I understand that I will be photographed during the study.~~

Name of participant.....

Signed.....Date.....

If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant please feel free to contact the University of Southern Queensland Ethics Officer on the following details.

**Ethics and Research Integrity Officer  
Office of Research and Higher Degrees  
University of Southern Queensland  
West Street, Toowoomba 4350  
Ph: +61 7 4631 2690  
Email: [ethics@usq.edu.au](mailto:ethics@usq.edu.au)**



University of Southern Queensland

The University of Southern Queensland

**HREC Approval Number: H14REA075**

**Full Project Title: The Impact of Microfinance on Health, Education and Income: Evidence from Bangladesh**

**Principal Researcher: Mohammad Monzur Morshed Bhuiya**

You are invited to take part in a research project concerning the impact of microfinance on health condition, education status and income condition of rural households in the Comilla, Chandpur, Narshingdi, and Narayangonj Districts of Bangladesh. This research is being undertaken by Mohammad Monzur Morshed Bhuiya as part of his PhD program at the University of Southern Queensland, Australia.

Your participation will help the researcher to identify how microfinance impacts on your household's health, education and income status. It is anticipated that the results from this study will contribute to the development of appropriate microfinance policy interventions through making relevant and reliable information available to policy makers, and in turn improving the health and education conditions of poor rural households.

Four (4) discussion groups will be conducted with members of rural households. The numbers of people that will participate in each discussion group will be restricted to eight (8). During the discussion, the researcher will ask you a series of questions about your health outcomes, schooling, and income/consumption patterns. The group discussions will be audio recorded to allow the researcher to review your comments at a later date. You will also be invited to have your photograph taken for inclusion with the research outputs, for example, the PhD thesis.

Participating in this discussion is expected to take approximately one hour. Participating in this activity may potentially be an imposition on your time. There is also the potential that some of the topics discussed during the discussions may cause you some minor discomfort. However, the level of discomfort associated with participating in this study is not expected to be more than what you would experience on a normal day in your work, social or personal life.

All information collected during the discussion groups will be treated confidentially and will be stored in a secure location for at least five (5) years after the final publication. Only the researcher and his supervisors will have access to the information. With the exception of a photograph taken at the discussion group, no names or other information that could personally identify you will be used in the thesis or any other publication.

The results of this research will be published as a PhD thesis and research articles in academic journals. Results will also be communicated to the public and private organizations involved in food security and riverbank issues in the country. However, no personally identifiable information will be published.

Participation in this research is entirely voluntary. **If you do not wish to take part you are not obliged to.** If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. You may also wish to only participate in the group discussions component (that is, you may request that your photograph not be taken.) Information collected as part of the discussion group, audio recording and photographs are unable to be destroyed. However, if requested, the information you provide at the discussion group or your photograph will not be published.

Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with the University of Southern Queensland

**Please notify the researcher if you decide to withdraw from this project.**

Should you have any queries regarding the progress or conduct of this research, you can contact the principal researcher:

**Mohammad Monzur Morshed Bhuiya**  
**Faculty of Business, Education, Law & Arts**  
**School of Commerce**  
**University of Southern Queensland**  
Mohammad.Bhuiya@usq.edu.au (s)  
+614701113243]

If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant please feel free to contact the University of Southern Queensland Ethics Officer on the following details.

**Ethics Coordinator**  
**Office of Research and Higher Degrees**  
**University of Southern Queensland**  
**West Street, Toowoomba 4350**  
**Ph: +61 7 4631 2690**  
**Email: [ethics@usq.edu.au](mailto:ethics@usq.edu.au) |**





The University of Southern Queensland  
Consent Form (Discussion Group)

HREC Approval Number: **H14REA075** |  
[TO: Discussion Group Participant ]

**Full Project Title: The Impact of Microfinance on Health, Education and Poverty Alleviation: Evidence from Bangladesh**

**Principal Researcher: Mohammad Monzur Morshed Bhuiya**

- I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I understand and agree to take part.
- I understand the purpose of the research project and my involvement in it.
- I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.
- I confirm that I am over 18 years of age.
- I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential. This is with the exception of any photographs that I wish to be included in. I understand that my name will not be included with the photograph.
- I understand that I will be audio taped during the study and that this information will be retained for the minimum retention period required.

**Name of Participant**.....

**Signed**.....**Date**.....

If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant please feel free to contact the University of Southern Queensland Ethics Officer on the following details.

**Ethics Coordinator**  
**Office of Research and Higher Degrees**  
**University of Southern Queensland**  
**West Street, Toowoomba 4350**  
**Ph: +61 7 4631 2690**  
**Email: [ethics@usq.edu.au](mailto:ethics@usq.edu.au)**

## APPENDIX 5: ETHICS APPROVAL LETTER

**OFFICE OF RESEARCH**  
Human Research Ethics Committee  
PHONE +61 7 4631 2690| FAX +61 7 4631 5555  
EMAIL ethics@usq.edu.au



21 July 2014

Mr Mohammad Bhuiya

8/212 Sir Fred Schonell Drive

St Lucia

Brisbane QLD 4067

Dear Monzur

The USQ Human Research Ethics Committee has recently reviewed your responses to the conditions placed upon the ethical approval for the project outlined below. Your proposal is now deemed to meet the requirements of the *National Statement on Ethical Conduct in Human Research (2007)* and full ethical approval has been granted.

Approval No.	<b>H14REA075</b>
Project Title	Impact of microfinance on health, education and income: Evidence from Bangladesh
Approval date	22 July 2014
Expiry date	22 July 2017
HREC Decision	<b>Approved</b>

The standard conditions of this approval are:

- (a) conduct the project strictly in accordance with the proposal submitted and granted ethics approval, including any amendments made to the proposal required by the HREC
- (b) advise (email: [ethics@usq.edu.au](mailto:ethics@usq.edu.au)) immediately of any complaints or other issues in relation to the project which may warrant review of the ethical approval of the project
- (c) make submission for approval of amendments to the approved project before implementing such changes
- (d) provide a 'progress report' for every year of approval
- (e) provide a 'final report' when the project is complete
- (f) advise in writing if the project has been discontinued.

For (c) to (e) forms are available on the USQ ethics website:

<http://www.usq.edu.au/research/ethicsbio/human>

Please note that failure to comply with the conditions of approval and the *National Statement (2007)* may result in withdrawal of approval for the project.

You may now commence your project. I wish you all the best for the conduct of the project.



**Annmaree Jackson**

Ethics Coordinator

Copies to: [mbhuiya74@yahoo.com](mailto:mbhuiya74@yahoo.com)

## APPENDIX 6: Survey Design

Table A6.1 List of villages surveyed and Sample Weight

Village	Sample		Population		Weights	
	No MF	MF	No MF	MF	No MF	MF
Majhipara	3	19	480	230	160	12.11
Vejergaon	2	19	600	6039	300	317.84
East Behakor	4	18	5483	640	1,371	35.56
Jhaogara	4	18	410	416	103	23.11
Tipurdi	4	18	417	142	104	7.89
Balusair	4	18	1000	410	250	22.78
Algi	3	19	450	425	150	22.37
Kandapara	4	18	750	535	188	29.72
Sagordi	4	18	375	510	94	28.33
Balapur	4	18	450	525	113	29.17
Kalmakanda	3	19	550	408	183	21.47
Foilakandi	4	18	434	361	109	20.06
Rishipara	4	18	64	41	16	2.28
BalaKhal	4	18	1598	716	400	39.78
Karaish	4	18	1132	501	283	27.83
Borkoit	4	18	800	368	200	20.44
Barera	4	18	1500	260	375	14.44
Jinglatali	4	18	3000	179	750	9.94
Arjuntala	4	18	1195	220	299	12.22
Gorsar	4	18	162	128	41	7.11

Table A6.1 District and Microfinance Institution wise Sample Weight

District	Village	Member of MFI	Sample		Population		Weights	
			NoMF	MF	NoMF	MF	NoMF	MF
Narayangonj	Majhipara	GB-5 BRAC-4 DISA-10	3	19	480	230	160	12.11
	Vejergaon	GB-5 BRAC-4 DISA-10	2	19	600	6039	300	317.84
	East Behakor	GB-4 BRAC-4 DISA-10	4	18	5483	640	1,371	35.56
	Jhaogara	GB-4 BRAC-4 DISA-10	4	18	410	416	103	23.11
	Tipurdi	GB-4 BRAC-4 DISA-10	4	18	417	142	104	7.89
Narshingdi	Balusair	GB-4 BRAC-4 DISA-10	4	18	1000	410	250	22.78
	Algi	GB-5 BRAC-4 DISA-10	3	19	450	425	150	22.37
	Kandapara	GB-4 BRAC-4 DISA-10	4	18	750	535	188	29.72
	Sagordi	GB-4 BRAC-4 DISA-10	4	18	375	510	94	28.33
	Balapur	GB-4 BRAC-4 DISA-10	4	18	450	525	113	29.17
Chandpur	Kalmakanda	GB-5 BRAC-4 DISA-10	3	19	550	408	183	21.47
	Foilakandi	GB-4 BRAC-4 DISA-10	4	18	434	361	109	20.06
	Rishipara	GB-4 BRAC-4 DISA-10	4	18	64	41	16	2.28
	BalaKhal	GB-4 BRAC-4 DISA-10	4	18	1598	716	400	39.78
	Karaish	GB-4 BRAC-4 DISA-10	4	18	1132	501	283	27.83
Comilla	Borkoit	GB-4 BRAC-4 DISA-10	4	18	800	368	200	20.44
	Barera	GB-4 BRAC-4 DISA-10	4	18	1500	260	375	14.44
	Jinglatali	GB-4 BRAC-4 DISA-10	4	18	3000	179	750	9.94
	Arjuntala	GB-4 BRAC-4 DISA-10	4	18	1195	220	299	12.22
	Gorsar	GB-4 BRAC-4 DISA-10	4	18	162	128	41	7.11

## APPENDIX 7: MICROFINANCE EFFECTS ON INCOME AND CONSUMPTION

Table A7.1 Ordinary Least Square model using duration as the number of months in microfinance

Independent Variables	Log of income per adult-equivalent		Log of consumption per adult-equivalent		Poverty (\$1.25 PPP/person/day)	
	Coef.	SE	Coef.	SE	Coef.	SE
Member of MF (Yes=1)	-0.21	0.14	-0.04	0.13	0.19	0.12
Log of MF duration	0.07*	0.04	0.05	0.04	-0.06*	0.03
Sex of HH heads	0.12	0.19	-0.14	0.17	0.13	0.16
Log of age	0.01*	0.00	0.00	0.00	-0.00	0.00
Minority Ethnics	-0.10	0.08	-0.00	0.07	0.08	0.07
Education	0.14**	0.06	0.11**	0.05	-0.11**	0.05
Occupation	-0.02	0.05	-0.08	0.05	0.04	0.04
Type of Employment	0.21***	0.06	0.33***	0.06	-0.09*	0.05
Dependency ratio	-0.26*	0.15	-0.36**	0.14	0.21	0.14
Shocks in past 12 months (yes =1)	-0.03	0.06	-0.06	0.05	0.04	0.05
Village==Vejergaon	0.85***	0.19	0.57***	0.09	-0.13	0.12
Village==East Behakor	0.92***	0.18	0.67***	0.06	-0.40***	0.11
Village==Jhaogara	0.41	0.25	0.17	0.18	-0.02	0.18
Village==Tipurdi	0.30	0.19	0.46***	0.08	-0.21**	0.09
Village==Balusair	-0.13	0.20	0.03	0.08	0.08	0.11
Village==Algi	0.38**	0.19	-0.21	0.38	-0.13	0.16
Village==Kandapara	0.31*	0.18	0.69***	0.07	0.00	0.19
Village==Sagordi	0.28	0.19	0.36***	0.10	0.20*	0.12
Village==Balapur	0.57**	0.26	0.08	0.10	-0.06	0.14
Village==Kalmakanda	0.29*	0.16	0.36***	0.04	0.02	0.13
Village==Foilakandi	0.23	0.18	0.18***	0.06	0.27	0.18
Village==Rishipara	0.23	0.31	0.29***	0.10	0.21*	0.12
Village==BalaKhal	0.42	0.26	0.28***	0.09	-0.09	0.11
Village==Karaish	-0.11	0.20	0.12***	0.05	0.43***	0.11
Village==Borkoit	0.64***	0.19	-0.06	0.08	-0.07	0.14
Village==Barera	0.74***	0.23	-0.41***	0.13	-0.22	0.14
Village==Jinglatali	0.65***	0.23	0.14*	0.08	-0.06	0.17
Village==Arjuntala	0.04	0.18	0.08	0.10	0.01	0.12
Village==Gorsar	0.33*	0.19	0.36***	0.09	0.18	0.14
Constant	10.94***	0.26	10.51***	0.24	0.20	0.23
R2	0.086		0.140		0.046	
N	439		439		439	

Note: The significance level of the estimates are: \*\*\*, \*\*, and \* represent 1, 5 and 10 per cent significant level, respectively. Here Majhipara is the reference village.

Table A7.2 Village fixed model using duration as the number of months in microfinance

Independent Variables	Log of income per adult-equivalent		Log of consumption per adult-equivalent		Poverty (\$1.25 PPP/person/day)	
	Coef.	SE	Coef.	SE	Coef.	SE
Member of MF (Yes =1)	-0.61**	0.30	-0.46***	0.13	0.23*	0.13
Log of MF duration	0.19*	0.10	0.16***	0.03	-0.07**	0.04
Sex of HH heads	0.69***	0.16	0.32**	0.13	-0.14	0.12
Log of age	0.23	0.25	0.13	0.15	-0.04	0.23
Minority Ethnics	-0.12	0.20	-0.02	0.08	-0.04	0.04
Education	-0.06	0.15	0.25***	0.07	0.05	0.09
Occupation	-0.09	0.11	0.00	0.08	-0.03	0.09
Type of Employment	0.13	0.12	0.04	0.04	-0.02	0.06
Dependency ratio	-0.35	0.28	-0.26**	0.13	0.32	0.23
Shocks in past 12 months (yes =1)	-0.15	0.22	-0.02	0.08	0.23**	0.09
Village==Vejergaon	0.85***	0.19	0.57***	0.09	-0.13	0.12
Village==East Behakor	0.92***	0.18	0.67***	0.06	-0.40***	0.11
Village==Jhaogara	0.41	0.25	0.17	0.18	-0.02	0.18
Village==Tipurdi	0.30	0.19	0.46***	0.08	-0.21**	0.09
Village==Balusair	-0.13	0.20	0.03	0.08	0.08	0.11
Village==Algi	0.38**	0.19	-0.21	0.38	-0.13	0.16
Village==Kandapara	0.31*	0.18	0.69***	0.07	0.00	0.19
Village==Sagordi	0.28	0.19	0.36***	0.10	0.20*	0.12
Village==Balapur	0.57**	0.26	0.08	0.10	-0.06	0.14
Village==Kalmakanda	0.29*	0.16	0.36***	0.04	0.02	0.13
Village==Foilakandi	0.23	0.18	0.18***	0.06	0.27	0.18
Village==Rishipara	0.23	0.31	0.29***	0.10	0.21*	0.12
Village==BalaKhal	0.42	0.26	0.28***	0.09	-0.09	0.11
Village==Karaish	-0.11	0.20	0.12***	0.05	0.43***	0.11
Village==Borkoit	0.64***	0.19	-0.06	0.08	-0.07	0.14
Village==Barera	0.74***	0.23	-0.41***	0.13	-0.22	0.14
Village==Jinglatali	0.65***	0.23	0.14*	0.08	-0.06	0.17
Village==Arjuntala	0.04	0.18	0.08	0.10	0.01	0.12
Village==Gorsar	0.33*	0.19	0.36***	0.09	0.18	0.14
Constant	9.64***	1.00	9.57***	0.60	0.43	0.98
R2	0.364		0.491		0.272	
N	439		439		439	

Note: The significance level of the estimates are: \*\*\*, \*\*, and \* represent 1, 5 and 10 per cent significant level, respectively. Here Majhipara is the reference village.

## APPENDIX 8: MICROFINANCE EFFECTS ON CHILD NUTRITION

Table A8.1 Ordinary Least Square model using duration as the number of months in microfinance

Variables	Stunting (HAZ<-2)		Wasting (WAZ<-2)	
	Coef	SE	Coef	SE
Child age	-0.15***	0.04	-0.26***	0.04
Child sex	0.13	0.23	-0.10	0.27
Age of HH head	0.04	0.03	-0.01	0.02
Minority Ethnic	-1.52**	0.60	-1.14***	0.36
HH head has Secondary school	0.10	0.44	-0.04	0.27
HH head has High school (Father)	2.02**	0.88	0.37	0.51
Spouse has Secondary school	0.14	0.40	-0.33	0.26
Spouse has High school (Mother)	-2.87***	0.83	0.28	0.48
Occupation (Farmer=1)	0.10	0.34	0.11	0.22
Type of employment (fulltime=1)	-0.41	0.39	0.40	0.25
Number of people in the family	-0.17	0.15	-0.08	0.10
Dependency ratio	1.68	1.28	2.32***	0.86
Log of income per person	0.32	0.32	0.70***	0.19
Shocks (In the last 12 months did you suffer from any financial shock)	0.57	0.38	0.11	0.24
In MF for 2 years	0.32	0.48	0.08	0.31
In MF for 3 years	0.15	0.47	-0.32	0.28
In MF for 4 years or more	0.33	0.52	0.17	0.32
Illiteracy rate (%) in villages	0.02	0.02	0.06***	0.01
Distance to the nearest health complex?	0.03***	0.01	0.00	0.01
Wheat price (BDT)	0.11**	0.05	-0.00	0.03
Casual labour price (BDT)	-0.02*	0.01	0.01	0.01
MFI=DISA	-0.01	0.41	0.83***	0.25
MFI=BRAC	-0.34	0.51	1.01***	0.32
Constant	-7.24*	4.23	-13.48***	2.54
Pseudo R2		0.097		0.284

Note: .01 - \*\*\*; .05 - \*\*; .1 - \*; GB is used as reference category, BDT = Bangladeshi Taka



Table A8.2 Village characteristics model using duration as dummy variable

Variables	Stunting (HAZ<-2)		Wasting (WAZ<-2)	
	Coef	SE	Coef	SE
Child age	-0.15***	0.04	-0.26***	0.04
Child sex	0.13	0.23	-0.10	0.27
Age of HH head	-0.05**	0.02	-0.02	0.03
Minority Ethnic	1.15**	0.54	-0.08	0.58
HH head has Secondary school	0.47	0.37	-0.18	0.40
HH head has High school (Father)	-1.62**	0.74	-0.57	0.89
Spouse has Secondary school	-0.26	0.31	0.48	0.36
Spouse has High school (Mother)	2.02**	0.90	-1.09	0.87
Occupation (Farmer=1)	-0.24	0.26	0.08	0.30
Type of employment (fulltime=1)	0.54*	0.31	0.13	0.37
Number of people in the family	0.01	0.12	0.08	0.14
Dependency ratio	-3.01***	1.02	-2.84**	1.19
Log of income per person	-0.25	0.28	-0.88***	0.26
Shocks (In the last 12 months did you suffer from any financial shock)	-0.04	0.30	0.16	0.32
In MF for 2 years	-0.33	0.38	0.01	0.50
In MF for 3 years	-0.35	0.38	0.25	0.43
In MF for 4 years or more	-0.27	0.41	-0.15	0.47
Illiteracy rate (%) in villages	-0.03*	0.02	-0.05**	0.02
Distance to the nearest health complex?	-0.01	0.01	-0.00	0.01
Wheat price (BDT)	-0.10**	0.04	0.03	0.04
Casual labour price (BDT)	0.01**	0.01	-0.02**	0.01
MFI=DISA	0.01	0.32	-0.83**	0.35
MFI=BRAC	0.72*	0.42	-0.93**	0.46
Constant	5.52	3.54	17.80***	3.79
Chi <sup>2</sup>		50.89		57.20
p-value of the Chi <sup>2</sup> test		0.00		0.00
Pseudo R2		0.097		0.124

Note: .01 - \*\*\*; .05 - \*\*; .1 - \*; GB is used as reference category, BDT = Bangladeshi Taka

Table A8.3 Village fixed model using duration as dummy variable

Variables	Stunting (HAZ<-2)		Wasting (WAZ<-2)	
	Coef	SE	Coef	SE
Child age	-0.11***	0.03	-0.27***	0.03
Child sex	0.18	0.18	0.08	0.21
Age of HH head	-0.01	0.01	-0.01	0.02
Minority Ethnic	1.08**	0.52	-0.27	0.57
HH head has Secondary school	0.24	0.26	-0.15	0.29
HH head has High school (Father)	0.24	0.25	0.51*	0.27
Spouse has Secondary school	0.69	0.59	-0.80	0.70
Spouse has High school (Mother)	-0.47**	0.21	-0.05	0.25
Occupation (Farmer=1)	0.24	0.26	-0.33	0.31
Type of employment (fulltime=1)	0.05	0.09	-0.07	0.11
Number of people in the family	-0.94	0.76	-1.15	0.89
Dependency ratio	-0.27	0.23	-0.61**	0.24
Log of income per person	0.06	0.24	0.02	0.28
Shocks (In the last 12 months did you suffer from any financial shock)	-0.29	0.34	0.41	0.43
In MF for 2 years	-0.08	0.35	0.36	0.42
In MF for 3 years	-0.47	0.36	0.11	0.45
In MF for 4 years or more	0.24	0.25	0.51*	0.27
village==Vejergaon	0.00	0.73	0.04	0.79
village==East Behakor	-1.86***	0.64	0.17	0.65
village==Jhaogara	-1.00	0.74	1.71**	0.72
village==Tipurdi	0.72	0.81	-0.88	0.90
village==Balusair	0.76	0.95	-0.40	0.78
village==Algi	-0.91	0.66	-1.74**	0.84
village==Kandapara	-0.37	0.66		
village==Sagordi	-0.30	0.76	-0.56	0.76
village==Balapur	-0.88	0.67	-0.91	0.76

village==Kalmakanda	1.46	0.93	0.20	0.69
village==Foilkandi	-1.83***	0.63	0.46	0.63
village==Rishipara	-2.24***	0.82	-0.05	0.90
village==BalaKhal	-1.84**	0.78	-1.29	0.92
village==Karaish	-0.78	0.65	0.40	0.63
village==Borkoit	0.39	0.73	0.75	0.67
village==Barera	-0.84	0.65	0.31	0.66
village==Jinglatali	-1.61**	0.66	0.01	0.70
village==Arjuntala	-0.81	0.65	-0.94	0.71
village==Vejergaon	0.00	0.73	0.04	0.79
MFI=DISA	-0.20	0.25	-0.11	0.29
MFI=BRAC	0.11	0.31	-0.30	0.37
Constant	6.51**	2.68	9.03***	2.82
Chi <sup>2</sup>	137.94		142.70	
p-value of the Chi <sup>2</sup> test		0.00		0.00
Pseudo R2		0.154		0.196

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Note The significance level of the estimates are: \*\*\*, \*\*, and \* represent 1, 5 and 10 per cent significant level, respectively. GB is used as reference category, BDT = Bangladeshi Taka

APPENDIX 9: MICROFINANCE EFFECTS ON HEALTH-SEEKING BEHAVIOUR AND HEALTH SERVICES

Table A9.1 Probit model using duration as dummy variable (Note: \*\*\*, \*\*, and \* represent 1, 5 and 10 per cent significant level, respectively. Here Grameen Bank is the reference MFI)

The probit model is used to consider the changes in the health-seeking behaviour of the households because of involvement in the MFI.

Table A8.1 compares the results of probit model after controlling for household characteristics and MFI characteristic.

Independent Variables	Antenatal Care		Immunization provided		Diarrhoeal remedies		Family planning		Maternal care		Malaria/TB treatment		Medicines accessibility		Sources of water		Toilet condition	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Age (years)	-0.00	0.01	0.00	0.01	0.02*	0.01	0.03***	0.01	-0.00	0.01	-0.00	0.01	0.00	0.01	0.01	0.01	-0.02	0.01
Minority Ethnicity	0.22	0.22	-0.27	0.26	-0.79***	0.26	-0.64***	0.25	-0.16	0.23	-0.58**	0.26	-0.59***	0.22	0.34	0.30	0.56	0.38
Education of HH head (1=illiterate)	0.23	0.18	0.42**	0.20	0.29	0.19	0.35*	0.18	0.65***	0.19	0.19	0.19	0.42**	0.18	0.15	0.24	0.50	0.33
Spouse Education (1=illiterate/elementary)	-0.52***	0.18	-0.44**	0.20	-0.32*	0.19	-0.15	0.18	-0.70***	0.20	-0.17	0.18	-0.53***	0.18	0.17	0.24	0.23	0.30
Occupation (Unskilled=1)	-0.01	0.15	-0.16	0.16	-0.29*	0.15	-0.07	0.15	0.14	0.15	-0.27*	0.15	0.05	0.14	-0.15	0.19	-0.09	0.22
Type of employment (Fulltime=1)	-0.09	0.18	0.23	0.20	0.65***	0.19	0.17	0.18	-0.27	0.18	0.01	0.18	0.09	0.17	0.17	0.21	0.25	0.25
Number of people in the family	-0.03	0.06	-0.10	0.07	-0.09	0.06	-0.12*	0.06	-0.11*	0.06	-0.13**	0.07	-0.05	0.06	-0.03	0.08	0.02	0.08
Dependency ratio	0.01	0.45	-0.30	0.49	0.36	0.47	0.87*	0.47	0.31	0.47	-0.02	0.48	0.48	0.44	0.55	0.55	1.10*	0.64
Log of Income per adult equivalent	0.44***	0.15	-0.09	0.15	0.08	0.14	0.21	0.14	0.35**	0.15	-0.01	0.14	0.08	0.14	-0.15	0.18	-0.22	0.21
Dur2 (2 yrs.)	0.62***	0.22	0.82***	0.27	0.76***	0.23	0.43**	0.22	0.42*	0.23	-0.00	0.23	-0.30	0.21	0.33	0.26	0.18	0.29
Dur3 (3 yrs.)	0.70***	0.22	0.76***	0.27	0.39*	0.23	0.16	0.22	0.38*	0.22	0.42*	0.22	-0.22	0.21	0.56**	0.28	0.40	0.31
Dur4 (4yrs)	0.70***	0.25	0.87***	0.30	0.39	0.26	0.19	0.25	0.12	0.26	0.52**	0.25	-0.43*	0.23	-0.11	0.28	0.20	0.35
MFI== DISA	0.16	0.18	0.05	0.19	-0.02	0.18	0.22	0.18	0.06	0.19	0.16	0.19	-0.24	0.18	-0.21	0.24	-0.25	0.28
MFI== BRAC	0.23	0.22	-0.15	0.24	-0.11	0.23	0.23	0.22	0.12	0.23	0.21	0.23	-0.08	0.22	-0.13	0.29	0.19	0.38
Constant	-5.66***	1.68	0.10	1.73	-2.38	1.68	-4.08**	1.67	-4.11***	1.69	0.12	1.68	-0.58	1.59	2.07	2.09	3.75	2.47
N	364		364		364		364		364		364		364		364		364	

APPENDIX 10: MICROFINANCE EFFECTS ON SOCIO-ECONOMIC WELL-BEING (RAW DATA OF FOCUS GROUP DISCUSSION)

**Focus Group Discussion 1**

**District:** Narshingdi  
08/07/2014

Date:

Objective	MF Official	GB Member	BRAC Member	DISA-1	DISA-2	VL-1	VL-2
1 To evaluate the impact of microfinance on improving the health condition (access to health and health outcome) and schooling of the children of its beneficiaries.	<ul style="list-style-type: none"> <li>• Education scholarship started from 2014</li> <li>• Booklet published related to health issues</li> <li>• Health grant provided to member</li> <li>• Parents should be conscious about child health and education</li> <li>• Employment opportunities should be created as per educational qualification</li> </ul>	<ul style="list-style-type: none"> <li>• Advice given for sending child to school</li> <li>• Discussion on health related issues</li> <li>• Free medicine delivery</li> <li>• Grant provided for children during admission to school</li> </ul>	<ul style="list-style-type: none"> <li>• Free primary school available</li> <li>• Hospital available</li> <li>• Preference given to the children of member</li> <li>• Assistance given to cover expenses in case of financial difficulties</li> </ul>	<ul style="list-style-type: none"> <li>• Free schooling not yet started</li> <li>• Education scholarship granted based on grade/result achieved in school</li> </ul>	No comment	<ul style="list-style-type: none"> <li>• Children accessibility to schooling</li> <li>• Members can advise related to health issues</li> <li>• Education scholarship granted</li> </ul>	No problems at all
2 To examine the role of microfinance schemes in generating	<ul style="list-style-type: none"> <li>• Auto rickshaw purchased with the microcredit</li> <li>• Capital provided to members</li> </ul>	<ul style="list-style-type: none"> <li>• Animal husbandry</li> <li>• Trade and business</li> <li>• Land cultivation</li> </ul>	<ul style="list-style-type: none"> <li>• Rickshaw purchased with MC</li> <li>• Going abroad taking MC</li> </ul>	<ul style="list-style-type: none"> <li>• Grocery business</li> <li>• Cloth Business</li> <li>• For generating family income</li> </ul>	<ul style="list-style-type: none"> <li>• Small business</li> <li>• Cow nurturing</li> </ul>	<ul style="list-style-type: none"> <li>• Auto rickshaw purchase with MC</li> <li>• Cultivation of</li> </ul>	Animal husbandry

income in Bangladesh	<ul style="list-style-type: none"> <li>• Cow fattening project</li> <li>• Easy access to microcredit on flexible conditions</li> <li>• Invest the microcredit as per project base</li> </ul>	<p>for business purpose</p> <ul style="list-style-type: none"> <li>• MFI take less interest</li> <li>• Savings schemes available with MFI</li> <li>• Improvement in income generation</li> <li>• Microcredit used in business and achieved good profit</li> <li>• Microcredit ceiling should be enhanced</li> </ul>	<ul style="list-style-type: none"> <li>• For capital formation without selling any household assets</li> <li>• Purchased cow and sell out milk and to repay loan instalment weekly</li> <li>• Extending the ceiling of MC</li> </ul>	<ul style="list-style-type: none"> <li>• Poultry firm to increase income level</li> <li>• Extending the ceiling of MC</li> </ul>	<ul style="list-style-type: none"> <li>• MFI takes less interest compare to traditional money lenders</li> <li>• Income enhance due to business activities</li> <li>• Capital enhanced</li> </ul>	<p>vegetables</p> <ul style="list-style-type: none"> <li>• Enhance family income</li> </ul>	
3 To examine if microfinance can empower women in Bangladesh	<ul style="list-style-type: none"> <li>• Prevent early marriage through arranging meeting</li> <li>• Enhance consciousness</li> <li>• MF member should have the</li> </ul>	<ul style="list-style-type: none"> <li>• Self-dependency developed</li> <li>• Husband gets advice from me regarding any issue</li> <li>• Permission to talk to male</li> </ul>	<ul style="list-style-type: none"> <li>• Husband gives value now</li> <li>• Husband discuss with me regarding family issues or children's marriage</li> </ul>	<ul style="list-style-type: none"> <li>• Now gives value to my decision</li> <li>• Discuss regarding the education of child and business matters</li> </ul>	<ul style="list-style-type: none"> <li>• Give encouragement and get advice from me on</li> </ul>		<p>Create income generating activities .Education</p>

	interest to follow and accept the advice provided by MFI	persons in need	<ul style="list-style-type: none"> <li>• Violation of Porda</li> </ul>	<ul style="list-style-type: none"> <li>• Sometime put obstacles in case of joining MF meeting</li> </ul>	<p>any issue</p> <ul style="list-style-type: none"> <li>• Put restriction on meeting with male person</li> </ul>		provided
4 To examine the role of microfinance schemes in Bangladesh	<ul style="list-style-type: none"> <li>• Advantage of getting MC on flexible terms and within less time</li> <li>• Less interest rate compare to moneylender</li> <li>• Credit granted according to commitment</li> <li>• Credit disbursement as per necessity</li> <li>• Encourage members by paying visit to their home</li> <li>• Religious belief</li> <li>• Influence of moneylender</li> <li>• Interest is higher compare to other banks</li> <li>• Whether the MFI financing</li> </ul>	MC given to female members	<ul style="list-style-type: none"> <li>• MC granted to female and married women</li> <li>• Poor women</li> </ul>	<ul style="list-style-type: none"> <li>• Should be female to get MC</li> <li>• Married women</li> <li>• Poor women</li> <li>• Sometime project oriented</li> </ul>		<ul style="list-style-type: none"> <li>• Cow nurturing</li> <li>• Auto rickshaw</li> <li>• Horticulture</li> </ul>	

	<p>project will be running?</p> <ul style="list-style-type: none"><li>• MC should be provided after providing due training to related</li></ul>						
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## Focus Group Discussion 2

District: Narayangonj

Date: 10/07/2014

Objective	MF Official	GB Member	BRAC Member	DISA-1	DISA-2	VL-1	VL-2
1. To evaluate the impact of microfinance on improving the health condition (access to health and health outcome) and schooling of the children of its beneficiaries.	<ul style="list-style-type: none"> <li>DISA published two books on health consciousness</li> <li>Education stipend among the children of members</li> <li>Education stipend for the disabled</li> </ul>	<ul style="list-style-type: none"> <li>BDT 100.000 loan granted if children gets good results</li> <li>Keep your health good</li> <li>Assistance provided to members for educational purpose</li> </ul>	<ul style="list-style-type: none"> <li>Free stationaries for education</li> <li>Free Schooling</li> <li>Provide health facilities</li> <li>To study properly</li> </ul>	<ul style="list-style-type: none"> <li>Sub scholarship granted based on results of child</li> <li>Medical expenses provided in case of illness of the member</li> </ul>	Advice provided regarding health issues		
2. To examine the role of microfinance schemes in generating income in Bangladesh	<ul style="list-style-type: none"> <li>Member can increase investment if income increases</li> <li>MF member can take the initiative to enhance the investment amount</li> </ul>	<ul style="list-style-type: none"> <li>Auto rickshaw purchase</li> <li>Auto business</li> <li>Bushi business</li> <li>To extent the investment</li> </ul>	<ul style="list-style-type: none"> <li>Animal husbandry activities</li> <li>To provide labour wage</li> <li>Purchase cloth to enhance business</li> <li>Flexible instalment at lower interest rate</li> </ul>	<ul style="list-style-type: none"> <li>Animal Husbandry</li> <li>Auto rickshaw purchase</li> <li>Jamdani income</li> <li>Repairing car and rickshaw</li> <li>Disburse credit at lower</li> </ul>		Income from animal husbandry	

				interest rate compare to moneylender			
3. To examine if microfinance can empower women in Bangladesh	<ul style="list-style-type: none"> <li>• Give advice and motivate members through training program</li> <li>• Reduce conflict among the husband and wife</li> <li>• Women's acceptability to their husband improved</li> <li>• Earlier no alternative other than taking loan from moneylenders at higher rate of interest</li> <li>• Obstacle by the fanatic</li> </ul>	<ul style="list-style-type: none"> <li>• No scarcity and conflict in the family</li> <li>• Female decision well valued now</li> </ul>	Husband started working after getting MC from MFI	Earlier husband did not pay heed to women. But now take advice from me regarding any matter		<ul style="list-style-type: none"> <li>• Dependence on husband reduced at a greater extent</li> <li>• Women don't quarrel with husband now</li> <li>• Women can even take decision by herself now</li> <li>• Women are now solvent</li> <li>• Cash fund available with women now</li> </ul>	Availability of offices  Women are now self-reliant

<p>4. To examine the role of microfinance schemes in Bangladesh</p>	<ul style="list-style-type: none"> <li>• Disbursing credit going to members house through motivating them</li> <li>• Asking member whether the family is uncared?</li> <li>• Whether illiteracy rate increasing?</li> <li>• To mitigate the needs of capital requirement</li> <li>• Health consciousness among members</li> <li>• Provide loan at lower interest rate</li> <li>• Whether the members are uncared?</li> <li>• Loan instalment should be monthly rather than weekly</li> </ul>		<p>More loan needed</p>		<ul style="list-style-type: none"> <li>• Credit provided to women</li> <li>• It would be better if the cattle and seasonal credit provided on monthly basis</li> <li>• Should be more than once credit facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Credit granted at flexible terms and conditions</li> <li>• Difficult to get loan from banks</li> <li>• Congenial relationship between husband and wife</li> <li>• Sometime group member flew away</li> <li>• Religious leaders does not like</li> <li>• Possibility of more solvency if the</li> </ul>	<p>Religious reason</p> <p>Elderly people do not like open minded questions</p>
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	<ul style="list-style-type: none"><li>• Social injustice</li><li>• Restrictions from moneylenders and religious leaders</li></ul>					credit ceiling enhanced	
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### Focus Group Discussion 3

**District:** Chandpur

12/07/2014

Date:

Objective	MF Official	GB Member	BRAC Member	DISA-1	DISA-2	VL-1	VL-2
1. To evaluate the impact of microfinance on improving the health condition (access to health and health outcome) and schooling of the children of its beneficiaries.	<ul style="list-style-type: none"> <li>Medical cost given to the members of DISA for any kind of critical diseases</li> <li>Free pre-primary schooling</li> <li>Special education program for young girl(Songlap) and for young boys (Prottay)</li> <li>Quality education program</li> </ul>	<ul style="list-style-type: none"> <li>Educate my children</li> <li>Sub-scholarship provided to children</li> <li>No initiatives yet taken for health services</li> <li>No education program but provide loan for university going children</li> </ul>	<ul style="list-style-type: none"> <li>Free primary schooling (BRAC school)</li> <li>No scholarship given to students</li> <li>No initiatives for rendering health services</li> <li>BRAC should provide medical facilities</li> </ul>	<ul style="list-style-type: none"> <li>Provides schooling facilities</li> <li>Sub-scholarship given to students on the basis of results</li> <li>Health facilities given in the form of paying medical expenses in case of extreme sickness of the member or any one of their family</li> <li>We want free schooling</li> </ul>	<ul style="list-style-type: none"> <li>Children's are given education through taking loan from MFI</li> <li>DISA pre-primary schooling facilities</li> <li>Wants Free books</li> <li>Wants free medical facilities</li> </ul>	<ul style="list-style-type: none"> <li>BRAC establishes schooling for free educated</li> <li>Free books provided</li> </ul>	<p>Needs to establish health centre by MFI</p> <p>Needs to establish educational institutions</p>
2. To examine the role of microfinance schemes in generating	Taking credit from MFI, MF member invest their	<ul style="list-style-type: none"> <li>Previously family was in hardship but now well off</li> </ul>	<ul style="list-style-type: none"> <li>Taking MC from MFI, Purchased cow and sell milk</li> </ul>	<ul style="list-style-type: none"> <li>Renewal of auto license taking loan from MFI</li> </ul>	<ul style="list-style-type: none"> <li>MC taken for purchasing land</li> </ul>		

income in Bangladesh	<p>MC in the following sector</p> <ul style="list-style-type: none"> <li>• Horticulture project</li> <li>• Cow fattening project</li> <li>• Agriculture based project</li> </ul> <p>Use MC in production related activities such as</p> <ul style="list-style-type: none"> <li>• Poultry business</li> <li>• Cattle purchase</li> </ul>	<ul style="list-style-type: none"> <li>• Income increases</li> <li>• MC is necessary for capital of the business</li> <li>• Previously I was in extreme hardship and more poverty</li> <li>• Invest in land by taking MC</li> <li>• Spend money for children education taking MC</li> </ul>	<ul style="list-style-type: none"> <li>• For admission of daughter</li> <li>• Lower interest in MC compare to other sources</li> <li>• Own shop established</li> <li>• Income enhanced from shop business</li> </ul>	<ul style="list-style-type: none"> <li>• Repayment of one MC taking loan from another MC</li> <li>• Loan at easy terms and conditions</li> <li>• Income enhanced</li> <li>• Animal nurturing and by selling those, cash generated</li> </ul>	<ul style="list-style-type: none"> <li>• Lower interest compare to other sources</li> <li>• Flexible repayment of instalment</li> <li>• Purchased auto/tractor with the MC</li> <li>• Income enhanced</li> </ul>		
3. To examine if microfinance can empower women in Bangladesh	<ul style="list-style-type: none"> <li>• Women can put their signature because of joining MFI</li> <li>• Women can now talk at the subdistrict/ union level meeting</li> <li>• Women can take decision jointly with</li> </ul>					<p>Participation in various activities by members</p> <p>Taking advice from us while taking MC from MFI</p>	<p>Husband gives value to wife as wife gets loan from MFI</p> <p>Previously women were not cared or valued by their husband</p>

	<ul style="list-style-type: none"> <li>• their husband</li> <li>• Constructive discussion in every MF meeting</li> <li>• Women can know about the benefits of their child being educated</li> <li>• Develop consciousness regarding rights</li> <li>• Equal rights in decision making</li> </ul>						
4. To examine the role of microfinance schemes in Bangladesh	<ul style="list-style-type: none"> <li>• MC services</li> <li>• Health assistance</li> <li>• Education loan grant</li> <li>• Easy to get loan</li> <li>• Collateral free credit granted</li> <li>• Migration is one problem</li> <li>• Existence of more than one MFI</li> </ul>	Should be women				Mc given to members	Restriction created by the society due to Islamic viewpoint

	<ul style="list-style-type: none"><li>• Restriction due to religious reason</li><li>• To create more than one loans</li><li>• To reduce rate of interest</li><li>• To relax the conditions of loan</li><li>• To disburse the loan in least time</li></ul>						
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## Focus Group Discussion 4

District: Comilla

Date: 15/07/2014

Objective	MF Official	GB Member	BRAC Member	DISA-1	DISA-2	VL-1	VL-2
1. To evaluate the impact of microfinance on improving the health condition (access to health and health outcome) and schooling of the children of its beneficiaries.		<ul style="list-style-type: none"> <li>• Sub-scholarship given to children of member</li> <li>• No health facilities given</li> <li>• No free schooling</li> </ul>	<ul style="list-style-type: none"> <li>• Health related facilities</li> <li>• Free doctor and medicine facilities</li> <li>• Free primary Schooling</li> <li>• Polio immunization given</li> <li>• Sub-scholarship given on the basis of results</li> </ul>	<ul style="list-style-type: none"> <li>• Computer education from DISA</li> <li>• Health benefits given to members in case of accident</li> <li>• Sub-scholarship on the basis of results</li> <li>• Primary schooling</li> <li>• Story book from library</li> <li>• Educational stationary at lower price</li> <li>• It is better to start sub-scholarship from Prim. school</li> </ul>	<ul style="list-style-type: none"> <li>• Sub-scholarship provided to child of members</li> <li>• Discussion on health and nutrition</li> <li>• Free primary education from DISA school</li> <li>• Extension of the education program from three to five grade</li> </ul>		
2. To examine the role of microfinance schemes in	<ul style="list-style-type: none"> <li>• Can invest in Agriculture, Cattle nurturing and</li> </ul>	<ul style="list-style-type: none"> <li>• Lower interest compare to moneylenders</li> </ul>	<ul style="list-style-type: none"> <li>• Interest is higher in other sources compare to BRAC</li> </ul>	<ul style="list-style-type: none"> <li>• Credit received at a time so that I can do the best use of it</li> </ul>	<ul style="list-style-type: none"> <li>• Credit received at a time</li> <li>• Can invest in business</li> </ul>	Women empowerment because of earning capability	Women can invest in joint decision

generating income in Bangladesh	<ul style="list-style-type: none"> <li>Small business project</li> <li>Can invest in newly projects from the income generated</li> <li>Through appropriate investment in appropriate projects, members' income will be increased</li> </ul>	<ul style="list-style-type: none"> <li>Repayment facilities in weekly basis</li> <li>Less interest charged</li> <li>Yes Income enhanced</li> <li>Income increase through investing in business</li> </ul>	<ul style="list-style-type: none"> <li>No collateral required</li> <li>Weekly instalment payment</li> <li>Easy to instalment payment weekly</li> <li>Lower interest rate</li> <li>Yes Income increased</li> <li>Income enhanced through investing in cow fattening project</li> </ul>	<ul style="list-style-type: none"> <li>Weekly instalment payment</li> <li>Lower interest rate</li> <li>Easy to get the credit</li> <li>Yes income increased</li> <li>Income increased through horticulture</li> </ul>	<ul style="list-style-type: none"> <li>Weekly instalment payment</li> <li>Easy to get the loan money</li> <li>Low interest</li> <li>Getting money on time whenever necessary</li> <li>Yes income increased</li> <li>Invest in agriculture, cow fattening project and cattle nurturing</li> </ul>		<p>with her husband</p> <p>Previously there is no value of the women</p> <p>Previously, husband restricts on going to MFI</p> <p>Previously there was superstition Now no superstition</p>
3. To examine if microfinance can empower women in Bangladesh	<ul style="list-style-type: none"> <li>Discussion on weekly meeting</li> <li>Motivational meeting</li> <li>Training on rights in six month interval</li> <li>Previously no value for women decision. After joining MF,</li> </ul>				<ul style="list-style-type: none"> <li>Because of MC, both husband and wife can engage in business</li> <li>I can take any decision by myself</li> <li>Previously I could not go out my</li> </ul>	Members can do trade and business	<p>Husband did not give value to me previously</p> <p>Now husband put value to me</p> <p>Joint decision</p>

	<p>women empowerment enhanced</p> <ul style="list-style-type: none"> <li>• Social misconception</li> <li>• Religious superstition</li> <li>• Restriction from religious leader</li> <li>• If women is conscious about rights then real empowered</li> <li>• Seminar, symposium, Drama, movies</li> </ul>				home without permission of my husband		regarding any matter
4. To examine the role of microfinance schemes in Bangladesh	<ul style="list-style-type: none"> <li>• Microcredit programs</li> <li>• In less interest and without taking any collateral</li> <li>• Capital formation with the amount of savings deposited</li> <li>• Medical subsidy given in case of sudden accident</li> </ul>	<ul style="list-style-type: none"> <li>• Women and poor takes the credit</li> </ul>	<ul style="list-style-type: none"> <li>• Women, landless and helpless gets the credit</li> </ul>	<ul style="list-style-type: none"> <li>• Women and poor</li> </ul>	<ul style="list-style-type: none"> <li>• Middle class people</li> </ul>	<p>Religious reason</p> <p>Restriction from moneylenders</p>	<p>No documents required to get credit from MF</p>

	<ul style="list-style-type: none"><li>• Extend loan in flexible terms</li><li>• Collateral free loan</li><li>• Medical assistance</li><li>• Education scholarship</li><li>• Health consciousness</li><li>• Village moneylender's interest</li><li>• Superstitious</li><li>• Religious restriction</li><li>• Should enhance consciousness</li><li>• Publicity needed</li></ul>						
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