CURRENT SCENARIO OF HOUSEHOLD INCOME, FOOD SECURITY AND DIETARY DIVERSITY AMONG HANDLOOM WEAVERS OF SHIRAJGANJ DISTRICT

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This is to certify that the thesis entitled **"Current Scenario of Household Income, Food Security and Dietary Diversity Among Handloom Weavers of Shirajganj District".** submitted to the department of Agricultural Statistics, Sher-e- Bangla Agricultural University, Dhaka in partial fulfillment of the requirements for the degree of Master of Science (M.S.) in Agricultural Statistics, embodies the result of a piece of bonafide research work carried out by **Rehnuma Israt Mumu, Registration No. 19-10333** under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

I further certify that such help or source of information, as has been availed of during the course of this investigation has been duly acknowledged and style of this thesis have been approved and recommended for submission.

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Dedicated to my Beloved Parents

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ABSTRACT

Rural non-farm development plays a key role in generating employment in many developing countries. In this regard handloom industry is one of the most important factors for the development of Bangladesh. Handloom industry is the most ancient cottage industry in Bangladesh but many of the handloom weavers are in vulnerable situation. Poverty and food security are intricately interlinked and it should be analyzed in different dimensions. This study was conducted to assess the calorie intake level, determine the factors influencing calorie intake and identify the problems faced by the handloom weaver households in a selected area of Bangladesh. A sample size of 200 households was selected simple random sampling method from Four villages. Data were collected through field survey by using pre-designed and pre-tested interview schedule. To assess the per person per day calorie intake level of the sample household's members, the food consumption data of seven days was measured by standard value of 100 gm each food item. To determine the factor influencing calorie intake multiple regression analysis was carried out. Calorie intake level and food consumption scores were used to measure poverty and food insecurity. According to calorie intake level, there was no respondent belonged to ultra-poor (<1600 kcal). About 5.5% of the respondents belonged to hard core poor (<1805 kcal) whose average calorie intake was 1698.13 kcal and 21% of the respondents had an average calorie intake 2078.36 k. calories and they belonged to absolute poor. The rest 73.5% of the respondents took above 2122 kcal. and average calorie was 2251.77 kcal. Therefore, the maximum number of respondents belonged to the Non-poor group. Food consumption vary one group to another. People with higher income have ability to consume both essential and luxury foods. On the other hand, income with lower and middle rate people have to maintain their consumption list containing essentials one. Income of the household have positive impact on calorie intake of the household's members. Among the reported problems low wage rate and increase price of input was ranked the main problem faced by the handloom weavers. Bangladesh Handloom Board, government and non-government organizations, and institutions can take specialized policies for handloom weavers to reduce poverty and strengthen food security.

Contents

ABBREVIATION AND ACRONYM

1.BHB : Bangladesh Handloom Board

2.ADB : Asian Development Bank

3.FAO : Food and Agricultural Organization

4.WFP : World Food program

5.IPC : Infection prevention and control

6.CFI : Chorionic Food Insecurity

7.USDA : United State Department of Agriculture

8.BDT : Bangladesh Taka

9.WB : World Bank

10.DDS : Dietary Diversity Score

11.HDDS : Household Dietary Diversity Score

12 FANTA : Food and Nutrition Technical Assistance

13.mVAM : Mobile Vulnerability Analysis and Mapping project

14.NGO : Non-Government Organization

15.SPSS : Statistical Package for the Social Sciences

16.Kg : Kilo gram

17.Kcal : Kilo Calorie

18.Cal : Calorie

19.ERP : Effective Rate Protection

20.IFPRI : International Food Policy Research Institute

CHAPTER ONE
INTRODUCTION

Handloom industry in Bangladesh is having glorious past, this industry is the ancient, and the most important cottage industry of our country. Handloom sector being one of the oldest and most essential cottage industries under textile sector plays an essential role in building the rich Bangladeshi cultural heritage. Handloom Industry is very important for Bangladesh. It is the second employment creative sector (after agriculture) in Bangladesh. It contains more than

0.18 million handloom units with 0.51 handlooms. According to Handloom Census, 2003, 0.88 million workers are employed in this sector (Bayron *et.al,* 2021). The traditional craft of different areas are maintained by the skills and creativity of the weaver's. This industry has a lot of future prospects and this sector is responsible for a very high percentage of the nation's economy. About more than 1.5 million people are directly and indirectly involved for their livelihood. It is one of the leading source of rural employment after agriculture (Ahmmed *et.al* 1999). Rural nonfarm development is a strategic priority for many developing countries during their economic transformation from an agricultural to an industrial society. It plays an important role in generating local employment and linking with other sectors. Handloom weaving is one of the most important nonagricultural sources of income in Bangladesh (Rahman *et.al*, 2013). The knowledge & skills needed for this sector transformed from their forefathers. An international expert says that the technical skill of the weavers of Bangladesh is second to none in the world. Also handloom products are best known for their eco-friendly nature. Beside these handloom is mostly a decentralized sector that consists of weavers from the weaker sections of the society, who mainly weaves to meet their domestic needs and contribution, however to the production of textile sector. Handloom weavers & workers are generally poor. Handloom industry can lead to improvement in the earning of those people on a large scale who are at fringes of social existence by alleviating their poverty. In fact, increase in income and food safety are necessary for employment stability and creating peace among these people (Latif *et.al,*1997). The importance of the weaving industry in the national economy of Bangladesh is immense.

From traditional loom sectors, it produces about 600 million meters of woven fabric annually, which meets about 40 percent of domestic demand. The value added tax from this industry is about Tk. 1500.00 crore. Bangladesh's Traditional loom industry is the largest cottage industry in the country. According to the loom census by the government in 2003, there were more than 5 lakh handlooms in the country, out of which more than 1 lakh 35 thousand were in Sirajganj.

district. Its place is second to agriculture in terms of rural employment, including women's participation. About 1.5 million people of the country are directly and indirectly involved in this industry on the basis of profession.

As food security means that all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life. Therefore, in Bangladesh, handloom sector has heartening role to solve unemployment problem and economic development (Liton *et.al*. 2016). Poverty alleviation is the center issue in the development dialogue (Rahman *et.al*, 2006). With others areas, end poverty in all its forms everywhere, end hunger, achieve food security and improved nutrition of the citizen of a country are the focused areas in Sustainable Development Goals (SDGs). If we need to achieve the SDGs by 2030, we need to focus on poverty of all groups of people considering the importance of " poverty analysis should focus on an individual's potential to function rather than the results the individual obtains from functioning (Rahman *et.al,* 2019). Handloom weavers' poverty should be seen as the deprivation of basic capabilities rather than merely as lowness of incomes, which is the standard criterion of identification of poverty; the instrumental relation between low income and low capability is variable between different communities and even between different families and different individuals. Poverty and food insecurity have been prime disquiet in the recent times in Bangladesh. Poverty and food security of handloom weavers are essential areas need to give attention for improvement of their livelihood. Sustainable development and food security in poor countries cannot succeed in the long-term without qualified individual poverty analysis (Bryant *et.al,* 2005). Lower income people always struggle for better food consumption, their small amount of income lake on nutrition. Lower income level and food insecurity causes change in profession as resulting we losing our glorious ancient industries. The study will be conducted in four villages namely: Belkuchi, Kamarkhanda, Shazadpur and Ullapara upazila. The main purpose of this study is to focus on food security of handloom worker due to their household income with following objectives. Such analytical framework will assume greater significance in the process of providing livelihood support to millions of handloom weavers operating in every parts of the country.

1.1 Objectives

1) To estimate household income level of handloom weavers;

2) To assess the dietary diversity and nutritional status of handloom weavers;

3) To investigate the prevalence of household food insecurity level of handloom weavers; and

4) To assess the problems and prospect of handloom weavers.

1.2 Importance of the study

Handloom products in the country had attained a very high degree of perfection and reputation in the ancient Arabian and European countries. The importance of the handloom industry had been noted by many foreign travelers and historians. During the British colonial rule in the 18th century, when Bengali muslin was traded throughout the world, Britain's own clothing manufacturers conspired against the Bengali weavers. They used to cut off their fingers of weavers and break their looms so that British-made cotton cloth from their mills would find a good market in India. William Bolts, a legendary merchant also noted in his book, 'Considerations on India Affairs', in 1772, that the. History says that at the time, the weavers from Dhaka and Tangail escaped through the waterways and concealed themselves in different areas on the bank of Jamuna, for example—Belkuchi, Shahjadpur, Enayetpur of Sirajganj and Bera and Santhia of Pabna district. At one time, these absconded weavers started creating small weaving factories based on hand looms in different areas of Sirajganj. Gradually, these factories expanded, which resulted in today's massive handloom market-- 'Shahjadpur Taant Kaporer Hat', the biggest wholesale market of hand-loomed products in the country.re were instances where 'thumbs were cut off' in order to stop the production of muslin. It is a well-known fact that the handloom weavers in some parts of the rural areas are lower poor and even trying to migrate to other works, due to lack of facilities as well as disproportionate wage rate corresponding to their labor, in the weaving activity. The standard of living of the weavers is significantly low and they are leading lower poor status and pitiable life due to lower education status, low level weaving skill and unwilling to acceptance of modern technology based marketing. This situation prevails everywhere in our country.

A handloom product of selected area, which is chosen for detailed research study, is not exception to this situation. This pathetic condition of handloom products these four upazilas demands thorough investigation into the problems and measures to plug the loopholes and find remedies to the problems confronting handloom products. In one hand, the costs of the products

are increasing due to increase in raw material prices and labor charges etc. Because handloom industry is a labor intensive industry and in the other hand demand for the handloom products are decreasing due to computerized and machine made products which have more design at lowest costs. Thus the Selling prices of the products are decreasing due to decrease in demand for handloom products. It leads to decrease in amounts of income and profits earned. Income level of the weavers decides the socio-economic status of the weavers, food sufficiency, dietary diversity and nutrition. So, it is necessary to analyze household income, food security and problems of the Shirajganj handloom products. Access to safe, nutritious and sufficient food is a basic human right, with priority given to the most vulnerable. Apart from basic nutrition, food security is linked to economic stability, long-term health, women's empowerment and the environment.

CHAPTER TWO
LITERATURE REVIEW

The handloom industry in Bangladesh is having a glorious past, questionable present and confusing future. The art of weaving is perhaps as old as human civilization. Bangladesh can proudly claim to have many branches of this ancient art, of which the best known and most popular is the specialty Jamdani, which is one of the varieties of the famous Dhaka Muslin or Mul-mul (Zohir *et.al,* 1996). For over ten centuries, the Dhaka area has been renowned for this fine fabric. So fine was its texture and quality that it was said to be woven with the "thread of the winds" and the Greek and the Roman texts mention the "Gangetic muslins" as one of the most coveted luxury items. Woven from superfine cotton or silk yarn, Jamdani fabric is embroidered or inlaid on the loom with silk, gold and silver threads. Over the years, the weavers simplified the designs making them more stylized and geometric. Handloom products have shown decisive upward trend in the export market since 1972 and Bangladeshi handloom products with their distinctive design and superior quality have created a niche for themselves in overseas markets (Asian Development Bank, 2002).

An international expert's study reveals that the technical skill of the weavers of Bangladesh is second to none in the handloom-producing world. So if we can build a platform for them, it is possible to construct an ambitious future for this industry. The Handloom industry is still a very important part of the textile industry of Bangladesh, is responsible for a very high percentage of the nation's economy. As Handloom industry is the biggest handicraft industry in our country, it is the second largest source of rural employment after agriculture. Though the employment opportunity in this sector has been squeezed in the last 15 years, this sector is still offering employment to nearly 10 million weavers in rural area (Zohir *et.al,* 1996). Moreover, in general near about 20 million people are involved in this industry. Though there is a downward trend, this industry still has a significant amount of share in our total cloth production. The product range of handloom is simply amazing and includes Muslin Jamdani Sharees, Bedcovers, Bed sheets, Tapestry, Upholstery, Place mats, Rugs or Blankets, Satranji, Crochet, Muslin, Tribal textiles, Silk fabrics, Sofa covers, Block Prints, Table cloth and Napkins, Towels, Dusters, Kitchen towels, Gents, Ladies and Baby Wear and Shirts, Punjabis, and other household linen in printed, plain or embroidered Khadi (Sobhan *et.al,* 1989). This sector has a great potentiality to meet substantial requirements of fabrics in the export oriented garments industry. One of the major problems in this case that is noteworthy is inadequate distribution channel which is failing to match between demand and supply. But we have come to know that, this ancient and

most important cottage industry of Bangladesh is now on the way of extinction because of various problems and barriers adjacent to this industry (Chowdhury *et.al*, 1989).

Weavers in our country don't get quality raw materials at right time and at right price. Besides, Weavers are suffering from inadequate contemporary technology and scarcity of working capital which are mandatory to maintain the smooth flow of production (Bakht *et.al,* 1998). Although skills of our workers are up to the expectation level, they are lagging behind in capturing the modern technology due to lack of infrastructural support from the government. The major competitors of handloom products are 1) Cloths come through legal and illegal ways and 2) Power loom produced cloths.

Prof. (Dr.) Kuldeep Singh and Dr. Monica Bansal *et.al*, (2011) in their paper have discussed about the handloom export units in India. They say, handloom sector plays a very important role in India's economy. It is one of the largest economic activities providing direct employment to over 65 lakh persons engaged in weaving and allied activities. As a result of effective Government intervention through financial assistance and implementation of various developmental and welfare schemes, this sector has been able to withstand competition from the power loom and mill sectors. This sector contributes nearly 19 percent of the total cloth produced in the country and also adds substantially to export earnings. Handloom is unparalleled in its flexibility and versatility, permitting experimentation and encouraging innovations. The strength of Handloom lies in the introducing innovative designs, which cannot be replicated by the Power loom sector. Thus, Handloom forms a part of the heritage of India and exemplifies the richness and diversity of our country and the artistry of the weavers (Sing *et.al,* 2011).

Dr. Raju Phukan *et.al*, (2012) has discussed about the handloom weaving in Assam moreover the problem and prospects of handloom industry in Assam India. He says the Handloom sector plays a very important role in India's economy. It is a part of our culture and heritage and one of the largest economic activities after agriculture having the capacity of absorbing a greater number of manpower. In 2009-10 this sector provides direct employment to over 65 lakh persons in India of which 60.40% are women. This sector contributes nearly 19% of the total cloth produced in the country and also adds substantially to export earnings. The ratio of handloom to power loom in terms of cloth in 2009-10 was 1:5.55 (Phukan *et.al*, 2012).

The writing of Nuimuddin Chowdhury *et.al,* (1989) (discusses the Bangladesh's handloom economy in transition. He cased of unequal growth structural adjustment and economic mobility amid

laissez-faire markets. In his paper he showed that the character and consequence of the response forged by a predominantly rural industry, the handlooms, in Bangladesh, a country with massive poverty and considerable underdevelopment of public initiative, to the forces of economic liberalization and certain degree of investment reprioritization favoring rural development and infrastructure. The period of special interest is the decade following 1976/77-a period, among other things, of steady economic liberalization, exchange rate depreciation, growth of food grain production in excess of population growth, considerable infrastructural development. Against a background of near-total absence of public initiative, the creative response forged by the industry against the forces of competition represents a balance of the interaction between peoples' own initiatives and evolving profit opportunities. The effectiveness of the response as a whole runs substantively counter to the conventional wisdom about the situation of the handloom industry. Handloom yardage grew at a trend of 3.90% annually between 1972-73 through 1986-87-significantly in excess of the population growth. Weaving of polyester fabrics has been assimilated into the capability of the handlooms. Industry-wide loom age has grown at 2.3% during this period; loom-mix has been increasingly weighted towards the "best- practice" handlooms. Producers' returns have improved due to a more independent and flexible marketing regime, as also to widespread availability of yarn trade credit that is mutually advantageous to both traders and weavers, but highly beneficial to the weavers, even small weavers. Consequently, the ratio of income retention in value added in the handloom industry has risen more recently relative to late 1970s as a result of improvement of the economic environment. The profitability of handlooms also has risen over the same period because the labor productivity has gone up. Growth of establishment has been extensively in evidence on a large sample of handloom units. Handloom industry has coped well with the competition of the imports, frequently, illicit, of cotton fabrics from India. Many handloom weavers have left hand-weaving behind and graduated into capitalist rural power loom weaving. For all its demonstrated capacity for growth and structural adjustment amid increasing economic liberalization, the handloom industry has had its share of those bypassed. The poverty ration on BIDS sample of handloom weaver was more than one half. The pattern of growth and structural change has therefore been dualistic. This however is not surprising due to near-total absence of public interventions. The exclusion of the smallest units from favorable change is a frustrated potential that clearly existed (Chowdhury *et.al,* 1989).

In the writing of Muhammad Abdul Latif, (1989) 'Towards an Estimation of Cloth Supply in Bangladesh: 1955-56/ 1986-87' he presented that, the supplies of cloth by taking into account domestic production and imports. Cotton, non-cotton, and second-hand clothing, have all been

covered. The data on domestic mill production, and imports of cotton, non- cotton, and of second-hand textiles are available from secondary sources. Whilst the production of the handloom sector (which currently accounts for 69% of the total cloth supply in Bangladesh), factory sub-sector, and unorganized small power looms have all been estimated in this paper. An attempt has also been made to assess the smuggling in/out of various textile products. It has been seeming that the total supply of cloth (all types) has increased from an average of 477 million yards per year during those years. Per capita availability of cloth has increased slowly over time but still remains at a very low level (around 10 yards) (Latif *et.al,* 1989).

In the article 'Nominal and Effective Rates of Protection in Bangladesh Textile Economy' by Muzaffer Ahmad and AFM Mafizul Islam (1989) has discussed about the nominal and effective rates of protection being provided for various components of Bangladesh's and spinning weaving economy. The most significant finding of the paper is that handlooms receive significantly lower effective rates of protection (ERP) than power looms. Also, the ERP estimates of our study of mill-made, typically relatively coarse, fabrics are round to be lower, too, than for corresponding handloom ERPs. The disadvantage of the handlooms in terms of ERP contributes an interesting factual detail in the background from which one needs to forge the development priorities of Bangladesh's textile economy, and its weaving economy in particular (Ahmad *et.al,* 1989).

The paper 'Credit Relations and Factor Productivity in Bangladesh's Handloom Industry' is one of the importing writing by Nuimuddin Chowdhury. He has shown in the paper, that following a bungled implementation of Weavers' Credit Scheme-a public program-the weaving industry had reverted to the old day's near-total dependence on non-institutional credit. Trade credit on yarn procurement had become the all-important source. Trade credit brings forth lucrative gains for the traders by way of interest rate mark-up. However, it permits a very fast working capital turnover, of 49 per year, and therefore a high level of capacity utilization. High mark-up on the interest rate is due to high compounding that is scheduled into the repayments. Such surplus extraction imposes a strictly modest decline in weavers' profits-of about 10%. The trader does not extract as much surplus as would be indicated by his share of the resources in circulation in the weavers' business. This is due to the traders' enlightened self-interest and the want of obvious exploitability on the part of the weavers: the poverty ration on the study sample is over one-half. Against a background of high costs of yarn relative to the purchasing power of an average Bangladeshi consumer, the compulsion to keep cloth production in motion requires that at least moderate profits can accrue to the weaver, and that his poverty does not become

crushing. Multivariate regression was used to show that yarn absorption, more than half of which is financed by trade credit on the study sample, is the single most significant determinant of factor productivity, while controlling for statistically significant direct effects of several other non-fincial variables (Chowdhury *et.al,* 1989).

Abdul Hye Mondal (1989) in his paper 'Distribution of Yarn in the Handloom Sector of Bangladesh: A Further Study' has discussed that the effectiveness of the distribution of yarn in the handloom sector in its historical and contemporary perspective. It finds that there is a persistent shortfall in the total availability of cotton yarn in the country in terms of quantity, quality, count and variety. This shortfall very often intensifies and converges towards crisis owing to frequent disruptions and distortions in the supply of yarn. In the face of repeated efforts made by the government institutions, market mechanism has been the prime mover of the distribution of yarn in the handloom sector. It finds that institutional mechanism instead of curbing the involvement of the middlemen traders and controlling the market forces has been virtually instrumental in paving the way for the market mechanism to be more active but inefficient. By and large, the system of yarn distribution has been historically ineffective in meeting the diverse yarn requirement of the handloom enterprises. The paper contends that there is a clear need for controlling the yarn market and emphasizes that an all-out effort be made to improve the quality of the locally produced yarns to international standard and diversify production (Mondal *et.al,* 1989).

Abdul Hye Mondal (1989) in his another paper 'The Pricing of Cotton Yarn in the Handloom Sector of Bangladesh' discussed that, the perpetual issue of cotton yarn pricing in the handloom sector of Bangladesh which has gained both historical and contemporary relevance. It investigates the nature of yarn price variation and examines the factors governing formation of yarn price at the level of the handloom enterprises and if the existing pattern is reasonably effective in promoting allocation of yarn conducive to the healthy growth of the handloom sector. It argues that because of several limits mainly excessive price spread across host predominant counts, the existing system of yarn pricing fails to capture and sustain dynamism of the sector. It shows that any increase in yarn price which inherently results in increased variability of returns can cause negative supply response, and points out that the widely held 'law of supply' may fail when generalities of risky multi-count yarn production with risk aversion are introduced simultaneously where diversification is also affected by capacity constraints in local production and import. Contrary to popular belief, it is also found that yarn traders on the average earn only normal and sometimes even below normal profit. The paper contends that price stabilization

policy support would beyond any doubt benefit the handloom enterprises at large because a stable price takes account of risk reduction benefits (Mondal *et.al*, 1989).

Rehman Sobhan (1989) in his paper 'Employment and Social issues in the Formulation of Policy for the Handloom Industry' discussed the development of the handloom industry in a wider social context within which an appropriate set of interventions can be designed. It is argued that the continuing importance of the handloom industry is however not just an economic issue. The earnings of over three quarters of a million, mainly rural peoples, are tied-up in the fate of the industry. Through an ongoing process of structural adjustment, the handloom industry has maintained its economic issue. The earnings of over three quarters of a million, mainly rural peoples, are tied-up in the fate of the industry. Through an ongoing process of structural adjustment, the handloom industry has maintained its economic competitiveness against imports and managed to remain both absolutely and at the margin the main source of cloth supplies to the domestic market. The suggests that any strategy for promoting the development of the industry would satisfactorily reconcile the objectives of cost-effectively clothing the population of Bangladesh with the improvement in the incomes of a large number of relatively impoverished households (Sobhan *et. al,* 1989).

In their paper 'Handloom Industry On the Way of Extinction: An Empirical Study Over the Pre-Dominant Factors', Suntu Kumar Ghosh and Md. Shahriar Akter *et.al*, (2005) has shown that, handloom industry in Bangladesh is having glorious past, questionable present and blurry future due to a lot of internal and external factors that are acting behind the scene. In this paper, we have identified those predominant factors that are moving the wheels of this industry slowly. And among them, shortage of working capital, high cost of raw material procurement, lack of organizing capability, inadequate technology and efficiency, and lack of policy support are major forces which are bitterly hit the handloom industry (Ghosh *et.al,* 2005).

Niraj P Joshi (2011) conducted a research on Determinants of Household Food Security in Nepal: A Binary Logistic Regression Analysis. About 10% of the households suffer chronic food insecurity, i.e., neither are they able to meet their household calorie requirement from self- produced food-crops nor the food security income threshold level to procure deficit food. The main factors contributing to food insecurity are limited access to resources due to the absence of able- bodied male members, illiteracy, big family size, higher dependency ratio, dependency on agriculture with small landholding and limited access to irrigation and fertilizer, and dependency on wage laboring. Therefore, with these characteristics, the highest proportion of

occupational caste households and households in Mountain and Hill are chronically food- insecure. (Joshi *et.al,* 2011)

Mohammod Ataur Rahman and S.M. Mehedy Hasan Noman (2019) conducted a research on Poverty and food security analysis of handloom weaver households in a selected area of Bangladesh. The study found that most of the handloom weaver households were living with poverty and food insecurity. Majority of them were absolute poor and hard core poor having poor and average food consumption. It could be concluded from the above discussion that they were very poor and they were suffering from food insecurity. Considering the national average food consumption, it was found that the weaving households had wheat, meat and egg less than the national average consumption whereas rice, vegetables, potato, pulses, milk and fish had more than the national average consumption. The handloom weavers were facing different problems such as low wage rate, no overtime payment, health risk, unhealthy working environment, and delay payment. For ensuring food security and reducing poverty of handloom weaver's policy maker should formulate the wage rate policy for the handloom weavers on the basis of their expenditure on basic needs. Most importantly, payment should be on time. As the weavers are poor, they are waiting for their salary after end of the payment date, if they could not get their salary on time they are not able to buy their daily needs. So, the government and others relevant authorities should have focused on those problems.

CHAPTER THREE
METHODOLOGY

Methodology deserves a very careful consideration in conducting scientific research. Importance of methodology in conducting any research cannot be undermined. Methodology enables the researcher to collect valid and reliable information and to analyze them properly to arrive at correct decisions. Keeping this point in view, the researcher took utmost care for using proper methods in all the aspects of this piece of research work. Methods and procedures followed in conducting this study has been described in this chapter. Handloom industry did not develop equally in all regions of Bangladesh. It is intense in some areas where inputs are available, easy to marketing and infrastructure facilities. Sirajgang district has the highest number of establishments. For this reason, Sirajganj district was purposively selected for this study. The study was conducted in four villages namely: Ullapara, Belkuchi, Shazadpur and Kamarkhondo.

3.1 Population and Sampling Design

The handloom of the selected four villages was the population of the study. Amount of population was collected through the community head of the weavers of every selected village and it also verified through the Bangladesh handloom Board, Basic center shirajganj.Simple random sampling was applied for sample selection for conducting the field survey. A total of 200 weavers were interviewed using pre- designed interview schedule. The respondents were briefed about the objectives of the study before going to make actual interview.

Table 3.1.1 Population and Sample size

Districts	Villages	Population	Sample
Shiranjganj	Ullapara	1886	41
	Belkuchi	3512	45
	Kamarkhando	557	55
	Shazadpur	4961	59
Total		10,916	200

(Source Author survey analysis, 2021)

Interviews were normally taken place at the weavers' house in their leisure time. At the time of interview, questions were asked systematically and explained whenever, it was felt necessary. Weavers usually do not keep any records of day to day transaction of their daily life and weaving activities. In order to minimize errors, data were collected in local units. However, these local units were later converted into standard international units at the time of data processing. To assess the

calorie intake level of the sample households' members, the consumption data of handloom weaver households of seven days was measured by standard value of 100 gm each food item. Food consumption data were collected on the per day and then it was converted to calorie for the calculation. Income and expenditure data was also collected monthly basis. All these data were collected on the basis on selected questionnaires for the study.

3.2 Sources of Data

The study has been held based on primary and secondary data. The sources of the data are:

1.Primary Data Sources: The primary data was collected from respondents through questionnaire survey as well as case study of the selected study area. Side by side, the research work has been consulted with the government officials and general people who are involved with the hand loom sector.

2.Secondary Data Sources: The secondary sources of data were comprised the relevant documents and publications of government agencies, different NGOs, Archive, library, education and research institutions and internet browsing has been continuously done.

3.3 Data Processing and Analysis

The data has been processed through editing to improve their quality and coded to convert them to the form of numerical codes representing attribute of variables. The study has been conducted on the basis of qualitative and quantitative analysis. The study has used excel data sheet and the present upgraded Statistical Package for Social Science (SPSS V20) software to get appropriate combination of data.

3.4 Measurement of Variable

A variable is any characteristic, which can assume varying, or different values in successive individual cases. An organized research usually contains at least two important variables, viz. an independent and a dependent variable. An independent variable is that factor which is maintained by the researcher in his attempt to ascertain its relationship to an observed phenomenon. A dependent variable is that factor which appears, disappears or varies as the researcher introduces, removes or varies the independent variable. According to the relevant research area, the researcher selected 6 characteristics such as age of respondent, education level of respondent, number of handloom weavers, numbers of earners in family, income of the household of the as independent variable and calorie intake per person of handloom weavers as the dependent variable.

To estimate the factors influencing calorie intake the specified regression model (Gujrati *et.al*, 1995) has been developed as follows:

$$C = \alpha + \beta 1\ A + \beta 2\ E + \beta 3\ F + \beta 4\ H + \beta 5\ W + \beta 6\ I + ei \quad (i)$$

Where,

C = Calorie intake per day per person

α = Constant term

A = Age of the respondent

E = Education level of the respondent

F = Family size

H = Number of Handloom

W = Number of Earners in family

I = Income of the household

ei = Error term

clothes for example—sari (Banarasi, Jamdani, cotton Jamdani, cotton, silk, half silk, hand printed etc), three pieces, bed sheets, Lungi (traditional garment worn around the waist), Gamcha (a thin traditional cotton towel) and much more. The unique saris are sold in pairs in the local hat (bazaar) within a range of 1000 takas to 4000 takas per pair, depending on the quality. During the occasions, the Sirajganj weavers don't get any respite to talk to people, as occasions are the most hectic seasons of their business.

The sari designers are known as 'masters' and they create gorgeous designs both for the body and sidelines. After that, with the help of threads, dyes, machines and other necessary equipment, the weavers implement the intricate designs of their masters. The female members of the weaver families help their men with spinning threads with the wheels, or sometimes in weaving. Presently, the use of hand looms is being gradually replaced by the power looms, as hand loom process is regarded as a laborious and time consuming one. The amount of sales has fallen to a great extent as the power looms' clothes are more durable than the hand looms. Moreover, now- a-days, Indian saris and dresses have been flooding most of our markets both in urban and rural areas, and that is regarded as the main competitor of our local weavers. Another added burden is the substantial price hike of the weaving supplies.

CHAPTER FOUR
RESULT AND DISCUSSION

4.1 Handloom weavers

Weaving is the process of interlacement of warp and weft (vertical and horizontal) sets of yarn. The fabrics which are weaved on handloom are known as handloom products. As the name suggests, handloom is a loom that is used to weave fabrics using hands, that is, without the use of electricity (Phukan *et.al*,2012). Person who do handloom weaving known as handloom weavers.

In recent time the traditional handloom machineries are also digitalized with electricity. Though tradition of weaving by hand is a part of the country's cultural ethos. Handloom is unparalleled in its flexibility and versatility, permitting experimentation and encouraging innovation. Innovative weavers with their skillful blending of myths, faiths, symbols and imagery provide the fabric an appealing dynamism. Spinning, dyeing, beem bharai, designing, weaving — all these are traditional skills which are there from decades but have never been realized formally (Bakth *et al,*1998)

The selected area of shirajganj district are well known for their handloom industry. All these four upazillas has lots of small independent, medium and large handloom weavers.

According to the survey amount of weavers of these selected areas the small independent weaver is 3% ,49% medium ,32.5% large weavers and 15.5% Master. Master weaver have big amount of workers. They are head of handloom society and maintain weaving labor union, wage rate for each individual work. The term household income generally refers to the combined gross income of all members of a household above a specified age. Household income includes every member of a family who lives under the same roof, including spouses and their dependents. The incomes of everyone count even if they aren't all used to support the household (Rahman *et.al,* 2019)

Household income also includes anyone living in that home even if they're not related. Household income is an important risk measure used by lenders for underwriting loans and is a useful economic indicator of an area's standard of living (Mondal *el.al* 1989). The income of handloom weavers indirectly depends on their handloom size and workers. Most of the large size handloom business contain at least 12workers and small size business have minimum 5 workers. These workers take their wage based on per unit production. Market value of every unit produce draw the income and profit level of weavers.

4.2 Age of the Respondents:

I have collected data from 50 weavers who are all male. Their age is divided in to 5 groups. Among them 13 weavers (6.5%) are 19-30 years they are mostly learner, young and highly energetic. 110 weavers are 31-45years (55.0%) Here we see that they are lower middle aged, skilled. And energetic That is why they are contributing very well in the handloom sector. 62 weavers are 46-55 year weavers (31%) are upper middle age and highly skilled and 56-65years, (14%) who are aged, very skilled and experience person.

Table 4.2.1: Age group of the respondent

Age group	Frequency	Percent	Cumulative percent
19-30 years	13	6.5	6.5
31-45 years	110	55.0	61.8
46-55 years	62	31.0	93.0
56-65 years	14	7.0	100
Total	200	100	

(Source: Author survey analysis (2021)

4.3 Level of Education:

From our study universe we have seen the maximum number are belonging to the group of bellow SSC (35) 17.5% among the total 200 respondents. However, the maximum belongs to the secondary group (6-10) which is 79.0% of total respondent. While we were interviewing this respondent who is belonging to the higher secondary or graduate he is not usually the weaver he is trying to prepare himself for the job examination. However, at the present he is helping his parents in their factory. The following graph will show here a bar-chart about the ratio of the educational background of the respondents of our study.

Table 4.3.1: Level of Education

Level	Frequency	Percent	Cumulative percent
Primary (0-5)	35	17.5	17.5
Secondary (6-10)	158	79.0	96.5
Higher (Over 10)	7	3.5	100
Total	200	100	

(Source: Author survey analysis 2021)

4.4 No. of Earners in Families

From the graph we can see that, most of the families 155 (77.5%) of the weavers of our study area are depending on one earning member. There are families who are dependent on 2 earning members 37 (18.5%) and 8 families are having 3 (4%) earning members in their families. Basically what do we see here? We see that in most of the cases a family consist of 5-10 members and all the family members are depending on the income of the one or two members of that family.

Table 4.4.1: Number of Earners in family

No .of Earners	Frequency	Percent	Cumulative percent
One	155	77.5	77.5
Two	37	18.5	96.0
More than two	8	4.0	100
Total	200	100	

(Source: Author survey analysis 2021)

4.5 Number of handlooms

In the following graph we can see that there are 1647 handlooms in our total respondents. According to the handloom number survey find out four group of weavers as .5 small weavers,76% medium weavers,17.5% large weavers, and 6% master weavers. All were active handloom. Number of active handloom decided the amount of the product to produce. Each group of weavers have daily target to produce at least 5 units.

Table 4.5.1: Weavers group according to their number of handloom

Group	Frequency	Percent	Cumulative percent
Small independent	6	3	3
Medium	98	49	52
Large	65	32.5	84.5
Master	31	15.5	100
Total	200	100	

(Source: Author survey analysis 2021)

4.6 Number of workers

In the following graph we can see that in total respondent there were 3% small independent weavers, 49% medium weavers,32.5% large weavers and 15.5 master weavers according the number of weavers works in respondent factories.

Table 4.6.1: Weavers according their workers

Group	Frequency	Percent	Valid percent	Cumulative percent
Small independent weaver	6	3.0	3.0	3.0
Medium weavers	98	49.0	49.0	52.0
Large weavers	65	32.5	32.5	84.5
Master weavers	31	15.5	15.5	100.0
Total	200	100	100	

(Source: Author survey analysis 2021)

4.7 Household income of handloom weaver

The study finds out that monthly average income for small, medium and large handloom weavers is TK 21900 per month. The minimum income find through survey is TK 14000 per month and the highest income TK 120000 per month. In 200 total respondents 88% weavers earn only from weaving and 12% from livestock as milk production.

As handloom is their family business and analysis based on the data of working people, 75% weavers are only one bread earner for their family. There are 25% percentage of family have more than one earning member and share their income for household consumption. Most of the weavers have joint family and old parents with them, they have no income or no alimony from government. Very small percentage old parents get allowance from government and they only use the amount for their personal use, that does not include as others member income.

The income level of Bangladesh according world bank atlas model, TK 8541 is lowest income, low middle income is TK 8542 to TK 33625, upper middle income is TK 33626 to TK 103958 and upper income is more than TK 103966. Income group is showed to the table no. 4.7.1

Table 4.7.1: Income group of the respondent weavers

Income level of handloom weavers	Amount of Income in BDT	No. weavers	Percentage	Total Respondent
Low income	8541	0	0	200
Lower middle income	8542-33625	118	59	
Upper middle income	33626-103958	64	32	
Higher income	>103959	18	9	

(Source: Author survey analysis 2021)

Four upazillas of shirajganj district Ullapara,Belkuchi,Sazadpur and kamarkhondo are rural areas of Bangladesh. The living standard of the handloom weavers of these areas are lower middle class. Educational status among the weaver not so high. Most of the weavers are drop out of school and running their family business. They only depend on their weaving. Their household consumption also depends on only income from weaving. They are not related to other income like agriculture, wage labor, migration etc. only 12% involved in small livestock production, which main purpose is household consumption and extra earning beside weaving for family support. These are mainly handle by the housewife and others family of the weavers, and basically they are not actual earners. Only weaving is their main occupation.

Average monthly incomes form wages for 200 households TK 11500 minimum and TK 31200 maxima. The household with mean size 5 person have expenditure of minimum TK 11195.083 on food, minimum TK 583.33 on health, minimum TK 1400 on clothing and TK 2000 on education and TK 800 others like maintenance expenses of the family. These are average figures and the weavers and especially the with low income level TK 8541 don't have ability to meet their food expenses. But it's a great news to economic status of the weavers of these select area doesn't have lower income, 79% weaver have lower middle income which can easily meet household's food expenses for survival. According to the average of lower middle income the weavers only can consume their minimum basic needs through their monthly income.

The relationship between income and expenditure is often called a consumption schedule. It is used to describe economic trends in the household sector. When there is more money or anticipation of income, more goods are purchased by consumers.

Table 4.7.2: Income and expenditure of household

	Amount (BDT)	Average (BDT)	Household
Total Gross Income	7,33,88,400	3,66,942	200
Family Expenditure	1,74,83,920	87,419.6	200

(Source: Author survey analysis 2021)

Table 4.7.3: Analysis of Variance

Model	Sum of Square	df	Mean Square	F	Sig.
Regression	1.348E9	1	1.348E9	4.028	0.046
Residual	6.628E10	198	3.347E9		
Total	6.6762E10	199			

a) Predictors: (Constant), Income (Source: Author survey analysis,2021)

b) Dependent variable: Expenditure

Table 4.7.4: Food security status of respondent according income group

Group	Percentage	Number of weavers
Sever and moderate insecurity	0	0
Marginal food security	59%	118
No insecurity	41%	82

(Source: Author survey analysis,2021)

shows the over al finding to the survey analysis of the respondent percentage respond to the food security and insecurity. According their analysis this survey study finds that most of the weaver (59%) stay under the middle income group who are marginal food secured with the balance of income and food consumption but they are vulnerable.32% are under the upper middle income group who are secured and 9% higher income group who have no insecurity. But this situation can change if the present price hike doesn't stop. Weaving is nonagricultural sector weavers are depended on their income for food consumption.

Household income of weaver community also includes the loans availed form formal and informal sources without which there is no way of leading the life. The amount of loan also biggest reason that they can hardly saves from their income (Latif *et.al,* 1997). The study found weavers pay 9% installment of their loan monthly. Average amount of loan is TK 135000. Non- bank loans are 160

which is 80% of respondent and Bank loan 40 which is 20% of total respondent. These loans are taken for the lack of own capital. Household monthly shortfall fulfill from savings and borrowing as the 84.5% weavers fulfill their shortage of income from borrowing and 15.5% from savings. Weaver are fighting for better wage rate so they can have good living standard. Government has also been aware of the crisis of handloom weavers owing to the incomes being less than what is needed for minimum standard of living. District officials were instructed to examine the matter and ensure the handloom sector of Shirajganj district is in compliance with law. Officials are working and negotiating with trader for better wage rate and marketing channel for their product so that the ancient handloom industry can move forward as a profitable income generating business (Abka *et.al,* 2013)

4.8 Household food security

According to a recent definition by the World Food Summit, food security is achieved at the individual, household, national, regional and global levels, "when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO 2008). Currently, this definition appears to be the most widely adopted. This definition, which incorporates the demand as well as the supply side of food security, has been narrowed down from the global to the local context at household level. Household can be defined as "a co-residential unit, usually family- based in some way, which takes care of resource management and primary needs of its members" (Kenedey *et.al,* 1992). Kinship, residence, and resource management for primary needs are the three important elements of its definition.

The provision of food is the most important primary need and, thus, remains the core task of households. Therefore, household, as a unit of analysis, offers some distinctive advantages over larger units of analysis, especially in the rural setting where households are the primary unit of production, consumption, and exchange. International Food Policy Research Institute (IFPRI) recognized the calorie acquisition as an important outcome measure of food security at household level. Calorie acquisition of households is determined mainly by four factors; food availability, access to food, stability of supply and accessibility, and the degree to which food is nutritious and safe, and can, therefore, be utilized (FAO, 2008).

This study, however, focuses more on the availability and accessibility issues of food security. Food availability at household primarily depends on the actual production of food, which is influenced by ecological production potential as well as by available production technologies and inputs, and outputs markets. Food aid in the form of mutual aid (neighbors) as well as programs like food-for-work under rural community infrastructure work also determines the availability of food. If household cannot

produce sufficient food, the income level of the household and the availability of food in the market determine their ability to procure food Resource possession, ecological variable and education can reflect the stability and utilization aspects of food security.
Department of Agriculture (USDA) as a situation of "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways". Food security incorporates a measure of resilience to future disruption or unavailability of critical food supply due to various risk factors including droughts, shipping disruptions, fuel shortages, economic instability, and wars.

The Food and Agriculture Organization of the United Nations, or FAO (2008), identified the four pillars of food security as availability, access, utilization, and stability. The United Nations (UN) recognized the Right to Food in the Declaration of Human Rights in 1948, and has since said that it is vital for the enjoyment of all other rights.

The remote food security monitoring system (mVAM) was launched in July 2021 and collects data via telephone interviews from households across Bangladesh. Data was collected from 1,200 sampled households across eight divisions. The mVAM survey was launched to provide near real-time analytics on food security and essential needs analysis across the country. It allows for assessing the impact of shocks, including the developing global food crises, the COVID19 pandemic, and floods. Note that phone interviews are more prone to bias and should be interpreted carefully Concerning food consumption in August, an average of 68 percent of households surveyed had an adequate diet, compared to 50 percent in July. The survey revealed that the nutrient uptake worsened in August amongst the low and medium-income household groups, especially intake of home iron, which was remarkably low. The high income group remained stable and consistent in all aspects of food security indicators compared to other groups, except for a few minor changes. There had been a significant decrease in income in August with an increase in expenditure. The low and medium-income groups were the hardest hit by recurrent shocks. These continuous food insecurity shocks have major implications for the future ability of households to become resilient. (BD. mVAM, report, 2021).

Food consumption vary one group to another. People with higher income have ability to consume both essential and luxury foods (Mamidi *et.al,* 2017). On the other hand, income with lower and middle rate people have to maintain their consumption list containing essentials one. According to the survey weavers of Shirajganj district of selected area have good average income for household consumption. This the advantage of rural area they can have essentials major food available on their village market in lower rate. As result they can fulfill their daily calorie intake easily. The survey collected the information of food consumption in gram, per person, per day and converted in kg, then calories for

six-month average consumption for the convenience of result.

4.9 Dietary diversity and Nutritional status of Handloom weavers

Dietary diversity is the variety or the number of different food groups people eat over the time given. Many researchers might use the word dietary diversity' and ‘dietary variety ‘interchangeably. However, some researchers differentiate the definition between 2 words that dietary diversity has defined as the difference of food groups while dietary variety has focused on the actual food items people intake. Dietary diversity is related to nutrient intakes and is also an indicator of dietary quality. Moreover, dietary diversity associated with health outcomes such as being overweight or an increased mortality. Dietary diversity is influenced by various determinants such as physical and mental health, economic status, or food environment (FAO 2008). Dietary diversity is one of the ways to improve the quality of living by identifying where the nutrients are lacking by which immunity and nutritional status can be boosted. Working people, especially handloom workers don’t get time to concentrate on their nutrition, diet and physical activity. This study gives main focus on the approach of handloom workers towards dietary diversity and their nutritional status. This studies related to lifestyle and nutrition profile of handloom workers are limited which further increases the study significance.

Dietary diversity and also ranked accordingly into high dietary diversity (7-12), medium dietary diversity (4-6) and low dietary diversity (0 -3) (Taruving *et al.,* 2013). One of the most commonly used indicators is the Household Dietary Diversity Score (HDDS). HDDS indicator for sample population was also measured by the sum of HDDS of households divided by the total number of households. Twelve (12) food groups included in the HDDS were:

1. Cereals;
2. roots and tubers;
3. Vegetables;
4. Fruit;
5. Meat, poultry, offal;
6. Eggs;
7. Fish and sea foods;
8. Legumes, nuts and seeds;
9. Milk and milk products;
10. Oils and Fat;
11. Sugar/honey;
12. Condiments and Beverages.

These food groups were used to identify food intake quality of the households. Foods locally consumed in these food groups were determined and considered for the measure of food intake diversity in the study area. For the purposes of analysis, Table 4.8.1 is arranged these into different groups according to the categories defined above which is computed in monthly basis.

Table 4.9.1 Consumed food item of respondent

Food item	**Regular Food group**	**Point**
Maize, rice, sorghum, millet pasta, bread and other cereals, Cassava, potatoes and sweet potatoes, other tubers, plantains	Rice and Wheat	1
Beans. Peas, groundnuts and cashew nuts	Pulse	1
Vegetables, relish and leaves	Vegetable	1
Root and tuber (Any potatoes, yams, manioc, cassava or any other	Potato	1
Fruits	Fruit	1
Meat ((Any beef, pork, lamb, goat, rabbit, wild game, chicken, duck, other birds, liver kidney, heart or other organ meats)	Meat	1
Fish and sea fish(any type)	Fish	1
Egg	Egg	
Milk yogurt and other diary	Milk and milk product	1
Sugar and sugar products	Sugar	1
Oils, fats and butter	Oil	1
Spices, salt, fish power, small amounts of milk for tea.	Condiments	1
Total Point		**12**

(Source: Author Survey analysis 2021.If the answer is "YES" then award 1 point: If the answer is "No" award 0 points)

The aim of the present study is to identify the occupational health problems, to assess the nutritional profile of handloom working Weavers and associated anthropometric changes before and during the pandemic lockdown, to compare the duration of sleeping hours of working women before and during lockdown and to evaluate the occupational stress levels and effect of COVID 19 on psychological well-being of handloom.

Dietary Diversity Score (DDS) at individual level was used for collection of dietary diversity information, based on the nine food groups proposed by Food and Nutrition Technical Assistance (FANTA). The DDS reveals the micronutrient adequacy of the diet. The individual who consume less than 4 food groups was considered to have low dietary diversity and those who consume 5–6 food groups and more than 6 food groups were considered to be in medium dietary diversity and high dietary diversity.

Table.4.9.2 Food groups according food item

Food groups	**Everyday consumed food item number**	**Respondent %**	**Frequency**
Low dietary diversity	0-4 (Essentials goods at lower rate)	20.5	41
Medium dietary diversity	5-6	75	150
High dietary diversity	>6	4.5	9
Total		**100**	**200**

(Source: Author survey analysis, 2021)

Table. 4.9.3 Respondents group of Dietary Diversity

Particulars	**Low dietary diversity**	**Medium dietary diversity**	**High dietary diversity**
Dietary diversity score	0-4	5-6	>6
No. of respondents	41 (20.5%)	150 (75%)	9 (4.5)

(Source: Author Survey analysis, 2021)

This section presents estimated rural household dietary diversity categories as derived from the 10 food groups into: low, medium and high dietary diversity groups as summarized in the following table. It was noticed that the samples were giving importance to cereals and the table4.9.2 shows majority (75%) were having medium dietary diversity score (Score 4 or 5) due to the consumption of 4–5 food groups whereas 4.5% were having high dietary diversity (Score >6) who consume more than 6 food groups and only 20.5% were found to have low dietary diversity score (Score ≤3) because of consuming three or less than 3 food groups. When considering the dietary diversity in detail it was noticed that majority of samples were only giving importance to cereals (rice, wheat), pulses and legumes and other vegetables such as onion, potato, pumpkin, tomato, and ladies finger. They weren't conscious or bothered about dietary diversity and nutritional status. The consumption of vitamin A rich vegetable, tubers and fruits (Banana, papaya, carrot and mango), dark green leafy vegetables, was once or twice in a month. The study finds that weavers in selected area had medium energy intake, while protein intake was generally adequate. They consume meat, egg, milk, fish more than twice in

a month. Some weaver gets egg and milk from their own livestock production.

4.10 Food security status of the survey respondents

Food security refers to the availability of food and people's ability to obtain it. Household food security is defined as having adequate food for all members of the household at all times to live an active, healthy life. Households with dietary diversity scores of at most 4 points were considered food insecure and those with scores of at least 5 points were considered food secure. After analyzing the collected data by following dietary diversity scores, result presented in Table 4.10.1 shows food security status of the handloom weavers in Ullapara, Shazadpur, Belkuchi and Kamarkhando Upazila of Shirajganj district. Result showed that among the respondents 79.5% were found food secured whereas 20.5% were found food insecure.

Table 4.10.1 Percentage of Food Security Status of the Survey Respondents

Variable	**Number**	**Percent**
Food secured	159	79.5
Food insecure	41	20.5
Total respondent	**200**	**100**

(Source: Author Survey analysis, 2021)

Food security is measured as food supply at household level for each household is determined based on their own farm production. Six major food consumption; rice, wheat, Vegetable, Pulse, Livestock (meat, milk, egg), sugar, oil produced in their own farm(s) are considered to assess food availability based on calorie conversion of the respective food- crops. Secondly, food requirement is calculated in terms of calorie considering the age and gender of each household member i.e. adult equivalent (Joshi *et.al,* 2011).

Total calorie requirement of a respondent 2,200 kcal and 3000 kcal/person/day in Shirajganj district. and The main six food- crops contribute 87.3% of the total calorie supplied in Shirajganj and based on the calorie availability and monthly calorie requirement of the household (Ataur *et.al,* 2019).

4.11 Calorie Intake

Considering the amount of food consumed by the respondents and their family members per person per- day calorie intake was calculated. The sample households were asked about their last three month days' food consumption amount like how much rice, fish, meat vegetables, how many eggs, fruits consumed. After collecting that information, we converted all the consumed food amount into monthly calorie, then we calculated per day per person calorie intake level. The table 4.11.1 shows the person

per day food intake.

Table 4.11.1: Amount of food intake per day per person

Major food item	Per person per day food, intake (gm/person/day)	Calorie intake per person per day	National Average per person per day food intake(gm/person/day)	Difference between national average
Rice	588.39	764.907	516.16	+72.23
Wheat	35.25	128.31	45.21	-29.93
Potato	151.15	105.805	96.45	+54.70
Vegetable	120.33	78.214	109.58	+10.75
Pluses	25.92	30.0672	9.86	+6.06
Meat	12.41	35.616	23.24	-10.83
Egg	50.18	75	80.03	-2.85
Milk	32.76	19.656	21.64	+11.12
Fish	94.38	131.188	44.65	+49.73
Oil	40	353.6	30	+10
Sugar	20	77.4	18	+2
Tea	36	6.12	31.5	+5.5
Fruit	115	66.7	250	-135
Condiments	65.15	163.52	50	+15

(Source: Author survey analysis,2021)

This section compared the food consumption level of handloom weavers with national average. Per capita per day food consumption of handloom weaver was presented in table no.4.11.1 The table reflects that rice was the highest amount of food intake which was 588.39 gm per person per- day and it was 72.23 gm more than the national average. The table reveals that the weavers consume wheat, meat and egg more than the national average. Per capita per day fish intake was 94.38 gm household level while it was 44.65 gm at national level. They consumed fish 49.73 gm more than that of national level because of availability and affordable price of fishes. They also consumed pulse, milk, fish, meat, vegetable, sugar, oil, fruit and tea more than the national level average consumption. If the government policy is to ensure food and nutritional security of all group of people in Bangladesh, policies should be formulated on the basis of the local demand. The present study examines the changing livelihood conditions of the weaver community with regard to their food security and quality of food intake. From the food intake table, it is found that the intake of rice, potato, pluses, oil, green

vegetables, fish, milk, sugar, and condiments were found to be consumed in by 588.39 gm, 151.15 gm, 25.92 gm, 40 gm, 120.33 gm, 94.38, 32.5 gm,20gm and 65.15 gm per day per person of average age rate 42 respectively more than national average. On other hand consumption of meat, egg, fruit, and wheat intake by 12.41 gm, 50.18 gm, 115 gm, and 35.25 gm per day per person which is lower than the national average rate of good consumption of per day per person. It is also observed that consumption of cereals was found in good intake. The calculation found that the average per person per day calorie intake is 2024.506 calorie. The consumption of pulses, vegetables, fish, oil, and sugar was found to be slightly in excess consumption. General findings indicated that consumption of health promoting foods like fruits, meat, egg and wheat its products were found to be inadequate which may reflect in poor nutritional status. Weavers have some advantage of them own yard production which is very little but help them fulfill their nutrition. As the housewife of the weavers produce some seasonal vegetables on their yard and they hardly buy fruit from market because they enjoy their seasonal fruit (mango/jackfruit/litchi/guava/banana) which produce in their yard.

In last 10 years Bangladesh became the country self-sufficient in food. According National Average per person per day food intake need 2300 calories including the regular all groups food. (Mohsin *et.al*, 2021) The table 4.11.2 show the groups of respondent according to their calorie intake group and calculation steps.

Table 4.11.2: Calorie intake group

Group	Calorie intake	Frequency	Percent	Cumulative Percent
Ultra poor	<1600kcal	0	0	0
Hardcore poor	1600-1850kcal	11	5.5	5.5
Absolute poor	1851-2100kcal	42	21.0	26.5
Non-poor	>2100kcal	147	73.5	100
Total		**200**	**100**	

(Source: Author survey analysis 2021)

There was no respondent belonged to ultra-poor (<1600 kcal). About 5.5% of the respondents belonged to hard core poor (<1805 kcal) whose average calorie intake was 1698.13 kcal and 21% of the respondents had an average calorie intake 2078.36 k. calories and they belonged to absolute poor. The rest 73.5% of the respondents took above 2122 kcal. and average calorie was 2251.77 kcal. Therefore, the maximum number of respondents belonged to the Non-poor group. Food consumption

vary one group to another. People with higher income have ability to consume both essential and luxury foods. On the other hand, income with lower and middle rate people have to maintain their consumption list containing essentials one.

73.5% weavers of these selected area consume more than the national average. On the other hand, they have work heard so they did not skip their meal. They are not satisfied with the income level but they did not starve. They do not eat luxury foods but maintain a regular diet with main foods like rice, pluses, meat, milk, vegetables, oil which gives them proper calories and nutrition for their work. But recently the increase in price for daily commodities household consumption facing shortfall in income though they are maintaining their diet for their family and having rural advantage of agriculture than the urban areas.

Table 4.11.3: Food security status of respondent weavers on calorie intake.

	Food secured (>2230kcal)	**Food insecure (<2230kcal)**
Number of respondent	147 (73.5%)	52 (26.5%)

(Source: Author survey analysis,2021)

To measure the food security, nutrition level and dietary diversity of handloom weaver, six- month food consumption was determined based on their monthly household production, earning and consumption. In order to measure food security, food consumption score was used in this study according to WFP (2009). Weaver irregular difficulties which negatively impact on their income for food consumption. They identified these difficulties certain as shortfall in income.

According to the survey weavers of Shirajganj district of selected area have good average income for household consumption. This the advantage of rural area they can have essentials major food available on their village market in lower rate. As result they can fulfill their daily calorie intake easily.

The survey collected the information of food consumption in gram, per person, per day and converted in calories for average consumption for the convenience of result. The mean food intake of 200 selected handloom weavers from Selected areas district is given in Table 4.11.4

Table 4.11.4: Calorie intake statistics

		Family size	Age	Education	Calorie intake per person	Income	Calorie intake group
N	Valid	200	200	200	200	200	200
	Missing	0	0	0	0	0	0
Mean		6.005	42.935	7.709	2544.258	3.0005E4	3.6800
Median		6.00	42.000	8.000	2436.791	2.2000E4	4.0000
Mode		5.00	40.00	10.00	1611.86	2.00E4	4.00
Std. Deviation		1.217	8.334	1.915	541.774	2.14508E4	.57380
Variance		1.482	69.458	3.669	293519.637	4.601E8	.329
Minimum		4.00	25.00	4.00	1611.86	1.40E4	2.00
Maximum		9.00	68.00	12.00	4374.06	1.20E5	4.00

(Source: Author analysis,2021)

In the competitive environment textile sector has adversely affected the operation and growth of traditional handloom industry in rural areas, making many traditional weavers financially weaker, reflecting a deterioration in their socio-economic and livelihood status (Zohir *et.al,*1996). Table 4.9.4, indicates that the intercept term was positive. The intercept in a multiple regression model is the mean for the response when all of the explanatory variables take on the value 0. The value of the coefficients of income of the household, education of respondent and cultivable area of the respondent were positive with individual calorie intake. The handloom weaver households who had more income they purchased more foods and consumed more. Similarly, the respondents who were more educated they had more knowledge about the nutrition of the food items and consumed more nutritious foods, and the respondents who had more number of earners and handloom they produced more product in their field as a results, their more income that leads to more food consumption. On the other hand, age of the respondent and family size of the household coefficients were negative with individual calorie intake. The respondents whom age was more they were not so interested to buy more foods for their family that leads to negative calorie intake. Similarly, when family size was large, share of the limited food items was small.

Table 4.11.5: Estimated coefficients and related statistics of the linear regression

Variables	Estimated coefficient	t-value
	5079.825	33.331
Age of respondent	-0.308	-.243*
Education	4.529	.567Ins
Family size	-41.5237	-2.5686*
Number of handloom	-4.030	.733Ins
Number of earners	45.329	2.967**
Income of household	1.36	2.484**
Adjusted R^2	.825	
F	152.630*	

(Source: Author survey analysis, 2021.**Significant at the level of 1%, Significant at the *Level of 5%, Ns represent is in-significant)

Age of respondent

Regression coefficient of Age is negative and significant at 5% level, which implies that with the increase of age level the calorie intake decrease by the level of 0.308%

Education

The regression coefficient of education is positive and insignificant, which implies that if there the education class or level will increase 1 year or class or level there the calorie intake of weavers would be increased by .567%.

Family size:

The regression coefficient of Family size in that study case is negative and significant at 5% level means that the family size increase with l person then calorie intake will decrease 41.5237%.

Number of handloom:

The regression coefficient of number of handloom is negative and insignificant**.**

Number of earners:

The regression coefficient of the number of earners is positive and significant at 1% level of significance. Which implies that, if the which implied that if the number of earners of the family increased by 1 person then the calorie intake would be increased by 45.329% percent, other factors remaining constant.

Income of household:

The regression coefficient of the income is positive and significant at 1% level of significance. Which implies that, if the income of the household increased by 1 percent then the calorie intake would be increased by 1.36% percent, other factors remaining constant.

Table 4.11.6: To Check the Variance Inflation Factor

Variables	Tolerance	VIF	1/VIF
Age	.687	1.456	0.686
Education	.914	1.094	0.914
Family size	.659	1.518	0.658
No.of earners	.497	2.01	0.497
No.of handloom	.953	1.050	0.952
Expenditure	.928	1.077	0.928
Monthly income	.955	1.047	0.955

(source: Author survey analysis,2021)

from table 4.11.6 the result show that, Variance inflation factor's minimum value is 1.04 and the maximum value is 2.01 which is less than 10. That's why there's no multicollinearity problem in this data.

4.12 Changes in diet:

The study noticed that the samples were giving importance to cereals and majority (75%) were having medium dietary diversity score (Score 4 or 5) due to the consumption of 4–5 food groups whereas 4.5% were having high dietary diversity (Score >6) who consume more than 6 food groups and only 20.5% were found to have low dietary diversity score (Score ≤3) because of consuming three or less than 3 food groups. They are regular in their diet. Hardly they changed in their regular diet. They only get luxurious food when they get big increase on income or they meet any occasions on their life. Most of them get seasonal fruit from their front or back yard. Like bananas, mango, jackfruit, litchis, guavas, nuts, cocoanuts, plums etc native fruits but foreign fruit apples oranges, grapes they buy hardly in a year. The study find that 82% people don't' get change any in their regular food habit during six months and 18% changes but in one or two item in food for some diseases reason like diabetics, sugar etc. Or the superstitious about covid -19. Most of them are above 50 years old and have no education

and they believe on their remedies for cure. The figure shows the percentage of respondent if they have ever made change in their regular diet. In the figure the green area is the positive respond they have made changed and the blue area are negative response never changed their regular diet.

However, the majority of the study participants had insufficient calcium (and to a lesser extent iron) intake, based on the national average food consumption, it was found that the "weaving household's things they are taking adequate level of wheat, meat, milk, egg, fish, fruits but on comparison they are having less than the national average consumption while intake of rice, vegetables, potato, pulses, milk and fish were more than the national average consumption". Since the emergence of Bangladesh as an independent country the principal objective of its agricultural policy has been the attainment of self-sufficiency in food production.

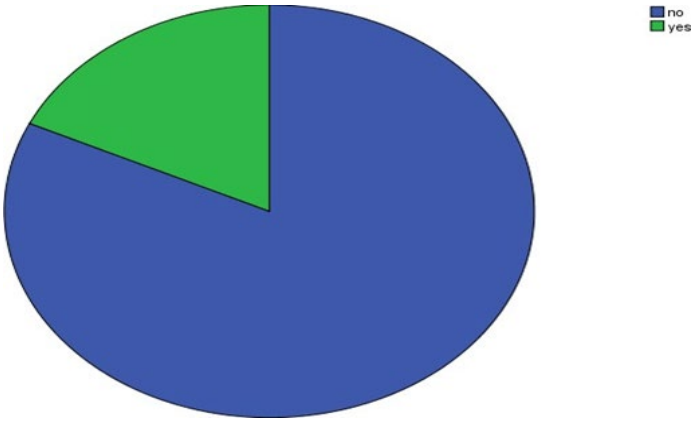

Figure 4.12.1: Percentage change in diet.

Figure 4.12.1 shows 80% of respondent weaver did not have any change in their regular diet for last 6month.The study found that they did not focus about diet chat, their main purpose it to food consumption.

Table 4.12.2: Difficulties have negatively impacted your household's ability to meet food needs

Sl. No.	Types of difficulties	Percentage	Rank
1.	Loss of employments	42.68	4
2.	Sickness	47	2
3.	Dead of household head	20.3	6
4.	High food price	52.98	1
5.	Debt of machinery	24.52	3
6.	Others	12.52	5

(Source: Author survey analysis,2021)

4.13 Food Security and Insecurity determiners

The study found that, other than consumption levels, different household characteristics can also show improvement in the standard of living. Since food security and standard of living are expected to be highly correlated, it would not be surprising to find these characteristics to be related with food security issues. Hence, it would be reasonable to expect that households with better characteristics are also demonstrating lesser level of food insecurity. Flowing tables describes the relationship between these different household characteristics and food security and the dynamic change in this relationship. Quantity house, land, livestock, looms, moveable property (Tv, freeze, machinery, vehicles, furniture's) of and food security level are closely related in Bangladesh, established by earlier works. Specifically, weavers don't have agricultural land beside they have loom related properties to generate income. Food security of handloom weavers depends on their income, which comes from weaving. They don't have any farm production and earnings. They have small percent respondent has their yard production for household consumption. Random weavers have cows and goat these also use for household consumption.

Table 4.13.1: Education level of respondent weavers

Education Level	Percentage	Frequency	Food secured	Food insecurity
1. Primary (0-5)	17.5%	35	82.5%	17.5%
2. Secondary (6-10)	79%	158		
3. Higher (over 10)	3.5%	7		

(Source: Author survey analysis,2021)

The table 4.13.1 shows the house hold level food security status of weavers according their educational status. Survey study observed that the respondent who have at least lower secondary education and awareness about the food, nutrition and sanitation they all try to have proper meal to keep them fit for hard work. As the result of the survey find 79% have secondary education and 3.5% have higher education. They have regular knowledge about food to maintain good health and for their hard work. The survey find 82.5% respondent are food secured with the analysis of education. The study doesn't find any household who starve for the shortage of food. They consumed three-time food but have difference on calorie intake. All these selected areas also have good agricultural production the price of regular good for vitamin and minerals like different types of vegetable s have lower rate than the urban areas it's an advantage to them.

Table 4.13.2: Home quality status of survey respondents

Home	Percentage	Frequency	Food secured	Insecure
Poor quality	24.5	49	75.5%	24.5%
Good quality	52.5	106		
Higher quality	23	45		

(Source: Author survey analysis,2021)

The survey of the respondent household has categorized in three qualities to measure the food security level. The three types of house poor quality which is very old, floor are made of mud shabby need construction called kacha Bari. The good quality house is made of tin; floor is constructed with brick called paka bari. Higher quality these are brick build house. These who have more than 4-acre land all of them have good quality house and who have more than 8 acres all have higher quality house. The table shows the survey analysis of house quality 52.5% have more than 4acre land containing good quality house.23% have more than 8-acre land with higher quality of house.

Table 4.13.3 Percentage of moveable property of respondent household

Moveable property				
Group of items	**Percentage**	**Frequency**	**Food secured**	**Food insecure**
1. Regular (2 items)	11%	22	89%	11%
2. Medium (3 items)	69.5%	139		
3. Rich (more than 3 item)	19.5%	39		

(Source: Author survey analysis,2021)

Moveable properties include looms, machineries furniture, TV, fridge, motor bike, domestic animals etc. Most of our rural weavers are introduced with digitalization, they are on the line of developing life standard. The table shows that 69.5% medium group of moveable property and 19.5% have more than 3 item of moveable property and they have upper level of living standard according to rural society. This category finds out that 89% people are food secured with their property.

Table 4.13.4 Food security and insecurity measure with number of active looms

Group	Percent	Food secured	Food insecure
Small independent	3	97%	3%
Medium	49		
Large	32.5		
Master	15.5		
Total	100		

(Source: Author survey analysis,2021)

The tables show that survey categorized four types of respondent weavers according their active looms and Which generate their income for livelihood. The weavers who have less than 5 looms are small independent weavers and their amount is very low. Other hand medium group weavers 49% who have 6-10 active loom generating great business in rural sector. These weavers are food secured but large and master group of weavers have more than 10 looms and having rich living they are on the line of no insecurity with their higher level of income.3% small independent weavers can have said to be food in secured according their business size.

Table 4.13.5 Family size determining food security

Family size	Percentage	Food secured	Food insecure
1. Nuclear family(0-5_)	91.5%	95%	5%
2. Joint family(6 or more than 6)	8.5%		

(Source: Author survey analysis 2021)

It's basic of calculation of our life that big family cost big expense and need big income to maintain everyone food demand. Household was categorized in nuclear family and joint family. Also found out if they were starving for shortage of food. Household did not have starving situation. Small family are considered more food secured than join family. In join or large family dependency is in bigger level. More over income of the household head or number of earners is the best measure of food security for that family. Survey analysis find that in 8.5% join family 5% have only one earners in family they can said to be in secured on the basis of their dependency.

Discussing all the factor food security it's sure that all factor has individual percentage level to select the respondent in food secured and insecure group. There is no severe insecurity among the factors. It

is clear that we need to understand the food security situation in Bangladesh and its determinants while the food price is one of the most dominant factors in determining food security of households. Understanding the determinants is important because it will help the policy makers keep abreast of the main variables that matter for food security in Bangladesh.

4.14 Prevalence of household food insecurity

Food insecurity is the condition assessed in the food security survey and represented in USDA food security reports is a household-level economic and social condition of limited or uncertain access to adequate food. Hunger is an individual-level physiological condition that may result from food insecurity (USDA report, 2020).

Prevalence's refers the fact or condition of being prevalent. As we know and found that weavers don't have own farm production for consumption. Their food security only depends on their household income and savings. The study found that they are having good calorie intake per day but they don't have saving for future crisis. We found that the monthly short fall are fulfilled by borrowing, hardly they have savings. The 1st main factor of food insecurity of handloom weavers is their income level for food consumption. Food supply and domestic farm production of these selected area of shirajganj district is the 2nd main factor to household food insecurity of weavers. Demand for food only can fulfilled by good supply of food. According to the district statistics we found that shirajganj district has good level of agriculture and livestock production.

Bangladesh has made significant progress in food security in recent years compared to many of its Asian counterparts, with over 58.5 million people, representing 36% of the total population, facing Mild Chronic Food Insecurity (IPC Level 2), and 69.8 million people, representing 43% of the total population, classified in IPC Level 1 (No/low Chronic Food Insecurity).Nearly 35 million people, representing 21% of the total population of Bangladesh, face Moderate and Severe Chronic Food Insecurity (IPC Levels 3 and 4), of which 11.7 million people, or 7% of the total population face Severe Chronic Food Insecurity (IPC Level and 23.1 million people, or 14% of the total population, face Moderate Chronic Food Insecurity (IPC CFI Level 3).Of the eight divisions in Bangladesh, the divisions of Chattogram and Dhaka have the lowest proportion of Moderate and Severe Chronic Food Insecure (CFI) people (18% and 16% respectively). Rangpur division has the highest proportion of Moderate and Severe CFI people (31%) followed by Barishal division (24%) and Rajshahi division (23%).At the next administrative level, of the 64 districts in Bangladesh, there are six districts that have a share of households equal to 35% or more in IPC CFI Levels 3 and 4. These are: Bandarban, Jamalpur, Kurigram, Gaibandha, Sunamganj and Cox's Bazar. In four districts - Chattogram, Dhaka,

Mymensingh, and Gaibandha - the total population in IPC CFI Levels 3 and 4 is greater than 1 million. These districts are analysed in greater detail in this report. Households with the highest risk of IPC CFI Levels 3 and 4 are those who mainly depend on low value and unsustainable income sources (which often generate inadequate and unpredictable income), such as unskilled daily labor, marginal farming or traditional/subsistence fishing, and live in areas where there is a high recurrence of shocks, e.g., cyclones, flash and monsoon floods, riverbank erosion, dry spells, etc. These households are likely to possess the lowest levels of human and financial capitals (BD.IPC, report, 2020). The table shows the different percentage of food security level for different factors by dividing them into groups.

Table 4.14.1: Food security and insecurity statistics according to the factors

Variables	**Food secured**	**Food Insecure**
Income	100 (59% marginal food secured, 41% no insecurity)	0%
Education	82.5%	17.5%
Home	75.5%	24.5%
Food group	79.5%	20.5%
Moveable property	89%	11%
Family size	95%	5%

(Source: Author survey analysis 2021)

4.15 Problem and Prospect of Handloom Weavers

Every industry faces more or less problems in their business. Solving and removing these problems makes business strong and profitable for long run. Handloom industry of districts of also faces some problems from small independent weavers to Large weavers. Problems are not major fact but important is that solving these problem is great issue. These problems can't have removed by the weavers, needs government involvement (Chowdhury *et.at,* 1989) Research find out many problems in handloom industry faced by handloom weavers and identify major 10 problems are common to every respondent. These are

1. Lack of knowledge modern machinery
2. Lack of availability of raw materials, labor, storage
3. Rise in prices
4. Low market research
5. Lack of adequate domestic market

6. Lack of local and govt. support
7. Lower wage rate
8. Uncertain affairs
9. Capital constrain and
10. Poor roads and traditional communication system of rural areas are some of the problems prevailing in the handloom industry.

The lack of knowledge among the weavers regarding the techniques that are present to avail the facility of loans. In Bangladesh, handloom industry is very crucial to the Bangladesh economy in terms of its contribution to GDP and employment. Receiving raw material to the industry such as yarn, dyes and dyestuffs has become a problem. Weaving of rural and semi- rural area have to go far to get these raw materials. Production activity and weavers, yarn prices always gradually increasing. As a result, there is a permanent shortage of yarn for the poor weavers.

Marketing the Handloom products require more visibility. Market network become better and wider but the there is also not have adequate domestic market in Shirajganj and exhibitions organized with the support of government do not sufficient. Wages have not increased in the last 8 to 10 years. Socio economic condition of handloom weavers are very poor (Ghosh *et. at,* 2005).

Every big or small weavers have to depend on loan for their investment. Most of the weavers dye their yarn in their own yard that used for handloom activities. As some time it faces bad climate they can't properly dye their yarn and it cause wastage of yarn, time loss and bad designed to their product (Mondal *et.al,* 1989). Sometime in flood water of jamuna river rise so high the place of working flooded by the water. Production get stopped and it not easy to move another place.

Due to pandemic over 2019 to 2021 they face great sufferings in selling handloom product. Biggest problem was lockdown situation everywhere and weavers have no way to marketing their product. This situation limited the growth rate of handloom industry. Many weavers who work as labor was migrated for their source of livelihood that time. Ranking of all problems identified by the weavers of these for selected areas shown in the table 4.15.1.

Table 4.15.1: Ranking of problems faced by weavers

Problems	Number of problems was ranked					
	Frist	Second	Third	Forth	Fifth	Respondent
Low knowledge of modern machi	40	35	52	36	37	200
Unfavorable working environment	18	36	48	68	30	200
Increased price of input	90	68	22	8	12	200
Lack of government support	35	30	50	45	40	200
Not have of adequate domestic market	12	32	24	36	96	200
Uncertain accidents (Flood, Pandemic, Fire, Expired yarn)	24	24	62	60	30	200
Third party Marketing channel	25	12	34	55	74	200
Low wage rate	56	40	44	28	32	200
Capital constrain	65	24	25	38	48	200
Poor roads and traditional communication system	45	24	36	24	71	200

(Source: Author analysis,2021)

Shirajganj handloom Industry faces many problems. It is mostly seen under small scale industries. Especially the handloom industry weavers face many problems in day to day transaction. To recover them the government also spends huge amount and trying to build them with new research techniques. Every small, medium, large handloom weaver need proper marketing channel to grow their business. Retailer collect good quality of product from rural areas and they sell them 2time higher price than weavers and make good profit.

Wage rate and Tax for per unit production of different are also different cause these taxes are imposed by the traders and also the fixes the price of the product. Some time it also causes big loss to the weavers. Because day by day prices of raw materials, yarn, color, and tools are increasing. Most of

the weavers don't have their own vehicle for delivery. Delivery cost recently reached in higher situations due to the increase in fuel price. Also roads of rural areas are not so good (BHB *et.al,* 2012). On the other hand, weavers earn small but in recently a good revolutionary change have made through modern technology as internet weavers can observed the market value and sell their product without middle man. But all these technology needs basic knowledge and skills to handle. Education, especially higher education is preferred by many weavers as they see it as passport for business mobility of weaving occupation. Many households invest considerable amount in education of the children. Now weavers are willing to shape their traditional design in modern looks. Government can have arranged some training and co-operatives trading system for the weavers through local handloom officials.

Chapter Five
Conclusion

5.1 Conclusion

The handloom products of shirajganj district have wide demand in the local as well as domestic markets. Thus from the study discussion it is clear that handloom industry gives a large opportunity to the rural people but at the same time household income of the small and large weavers have to analysis for the household food security and dietary diversity. The nutrition of the weaver mainly depends on their daily consumptions. The initial study through their calorie intake and dietary diversity majority was food secured. The study also found that there was no sever insecurity among the respondent weavers with their income. Income is the main factor of purchasing food and consumption by which the economic conditions and living standard of handloom weavers can be improved.

Handloom industry of shirajganj district of selected areas are started to growing in small rate since the industrial revolution, and subsequent technological changes. Recently handlooms started consuming mill made yarn and electric machine to produce their product, the net effect is the dependency of this traditional industry on the organized capitalist cotton mill and machinery industry. The ruling classes which protect the interests of capitalists in these industry, controls and restricts the development of traditional handloom industry. Though handloom sector provides employment opportunities to the poor and dominant people government need to make more plan for the facilities to the weavers and workers.

5.2 Scope and limitations of the study

To build rapport with the local community for identifying the specific activities of their livelihood in rural areas, was not to easy. I was the unknown and out of their community, however, I had tried to make close relationship with them and easier to share their experiences by reducing all the difficulties which a researcher always needed to be face. In spite of all positive initiatives taken to conduct this study properly, the study had a number of limitations. These were:

- The factor affecting the food security measurement, the income, consume food, education, home quality, number of looms, moveable property and it was difficult to relate all these to the health aspect of nutritional security, and prospect of all the indicators was not in same percentage line.
- The work is also limited to a household level study, because the household still remains the most important space through which humans obtain their food. The sample

included only ‘regular’ households to excluded the homeless and people in transit.

- The household were hesitant, also in some cases; they were reluctant to answer questions since they thought that the researcher might use the information against their interests. To earn the confidence of respondents a great deal of time was spent.
- Majority of the respondents were little educated and other were illiterate, thus it was very difficult to get accurate information because they did not keep the written records of their income, expenditure, yard production, etc. The researcher had to depend solely on the memory of the respondents for collecting data because they did not care to keep any written records for their daily activities.
- The producers often do not have direct access to Product markets and because of their dependence on the middlemen, who often form informal cartels, they are deprived of their share of profit. Sometimes, the producers fail to recover the costs.

The limitations discussed above are, however, common in case of any field study. It can be assumed that the limitations stated above would not affect the findings of the study. Appropriate methodology, proper research design and appropriate statistical techniques have been used to overcome these limitations.

5.3 Recommendations

After analyzing our all-major and associated findings, the study recommends the following steps, which we believe, will provide a direction for further improvement of this sector. For growth of handloom sector it is most essential to identify the problems faced by this industry. Here some recommendation through survey findings

- The first major thing is that, most of the weavers are unstable on their income. weavers don’t get raw materials at right time and at right price. In this case, our recommendation is that government should have a monitoring cell under Handloom Board of Bangladesh to monitor activities of those wholesalers and retailers who are engaged in selling raw materials for handloom products to prevent any unfair advantage. In addition, all tax and levies should be waived on all kinds of raw materials which will ensure the right price from weaver to the consumer.
- The second major thig in this sector is marketing of the product, so government need to take proper step make well construction plan about the poor roads and traditional communication system of these rural area to remove the delivery trouble and draw a lower marketing cost.

- The third major found that weavers suffer from training and inadequate knowledge on technology. High level of skill is needed to produce handloom products, but there is no development program for weavers. So various specialized trainings program should be launched for weavers that will keep them updated. Both private and public sectors can work for this.
- Government also should take necessary steps to make available these technologies in local market and should waive all taxes on these technologies so that weavers can afford these technologies.
- The study found that weavers suffer from scarcity of working capital and high interest rate for loan. Most of the time, weavers acquire their working capital from their own money and sometimes they acquire capital from various institutions like govt. banks, private banks and some other financial institutions. Both government and private sectors should work to solve this problem of working capital.
- Last master weavers need to increase their wage rate to the workers for their well off livelihood.

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APPENDIX 1

Household

Household is the smallest unit of social institution. Almost all the socioeconomic activities are being performed around this unit. It can be defined as a dwelling unit where one or more persons live and eat together under a common cooking arrangement. Matrimonial or blood or both relations exist among most of the persons who reside in the dwelling.

Family size

It referred to actual number of permanent members in a family who live in a fixed dwelling unit and eat from the same cooking arrangement.

Calorie

Calorie is the unit of heat. It is the amount of heat that requires changing the temperature of 1 cc of water to 1 degree Celsius. In case of poverty measurement, we used k.cal as the unit. It means that, the amount of heat required changing the temperature of one kilogram of water to 1 degree Celsius.

Food group

Food group is defined as a grouping of food items that have similar caloric and nutrient content. Food item cannot be further split into separate foods. However, generic terms such as 'fish' or 'poultry' are generally considered to be a food items for the purpose of this analysis.

Loom:

A loom is a device used to weave cloth and tapestry. The basic purpose of any loom is to hold the warp threads under tension to facilitate the interweaving of the weft threads. The precise shape of the loom and its mechanics may vary, but the basic function is the same.

Small weavers

These are weavers who have small numbers of handloom (0-5), have individual level of order and marketing channel for consumer of their product. usually the business run under the family labor.

Medium weavers:

The weavers who consider little well off from the small independent weavers and have regular local marketing channel over the years and also have more than 5 looms and workers.

Large weavers:

The weavers who have more than 10 looms and workers and have marketing channel outside the local area.

Master weavers:

Master weavers include the small, medium and large weavers as a community for weaving and they select the marketing channel, mark and select the level of pricing for the product. They have control over the small, medium and large weavers. They also known as Mahajan. They also provide

facility loan to the weavers. They make opportunities for the product in domestic and international markets.

Moveable property:

property that you own and can take with you other place, sell and can transfer to the others, which does not include houses, apartments, or land. As TV, Refrigerators, Mobile phone, Motor car etc.

Chorionic food insecurity:

Chronic food insecurity occurs when people are unable to meet their minimum food requirements over a sustained period of time.

APPENDIX 2

DEPARTMENT OF AGRICULTURAL STATISTICS

Sher-E-Bangla Agricultural University

(An interview schedule for a research study entitled)

Current Scenario of Household Income, Future Food Security and Dietary Diversity of Handloom Weavers of Shirajganj District in Bangladesh

1. **Preliminary information of handloom weavers:** **Sample no:**

Name…… Date…….....

District……. **Village**……. **Upazila**……...

2. **Age:** How old are you? .....years.

3. **Education level:** primary(0-5)/secondary(6-10)/higher(over-10)

4. **Revenue sources:** Agriculture/Business/Handloom/Officials job/Others

5. **Family financial condition:**

   a) Number of family member…… b) Number of earning family member……

6. **Do you work as……**

   b) Owner b) Labor c) Partner

7. **Which types of Handloom product do you make?**

   c) Sharee b) Lungi c) Than d) Gamcha

   e) Bedsheet f) Wrapper g) Scarfs h**)** All of these

8. **Occasions when you made handloom products?**

   d) During festival season b) When buyer approaches c) Year round

9. What kind of handloom business do you run?

a) Family business b) Single/Own c) Partnership d) Cooperative

10. Information on handloom machinery:

a) Own machineries b) Machineries on lease c) Machineries on rent

11. How do you make investment?

a) Own capital b) Taking loan c) Partnership

12. Do you take loan your business/machinery/Farming/Others?

a) Yes b) No

13. Amount of your loan: ……

14. Loan taken from

a) Bank b) Non-Bank (Which one please mention .....)

15. Number of handloom workers:.....

16. Number of handlooms:.....

17. Do you have women workers?

a) Yes b) No

18. What is the Number of women workers? .....

19. How you aware of the business of handloom product?

a) Family/ Friends/relatives b) Workshop c) Handloom society d) Advertisement

20. How have you learnt weaving?

a) Family occupation b)Training c)Other

21. How many hours do you work?

a) 8 hour b) more than 8 hours c) 12 hours

22. How do you take your salary?

a) Per hour b) Per day c) Monthly

23.Who determines the wage-rate for the works done by workers at the household level?

a) Weaver b) Trader c) Union d) Government e) Cooperative f) Others

24. What are the assest that you own?

Assets	Own/Rent	Type	Quantity/Number
Home			
Land			
Livestock			
Movable Property			
Loom			
Other weaving related assets			

25. Which activities in weaving are you involved in?

	Activity	Tick the work	specialized skill needs
1	Purchase of Yarn		
2	Dyeing yarn		
3	Warping		
4	Sizing		
5	Bobbin winding		
6	Achchu Atakadam		
7	Weaving		
8	Finishing		
9	Delivering the cloth to Master weaver/shop		
10	Marketing/exhibition		
11	Loom/Accessories repair		
12	Designing		

26. Question related to handloom production:

SL.no	Questions	Answer
1	How many types of products do you produce in a year?	
2	How many times do you produce it?	
3	What is your labor cost for per day/per hour**?**	
4	What kind of febric do you use for production**?**	a) Cotton b) Semi cotton c)Silk d)Mixed
5	What kind of machine do you use?	a) Traditional b) Modern c) Electric
6	Which type of product cost lower?	
7	Which types of product cost higher?	
8	Do you have access to electricity?	a)Yes b)No
9	Are you member of any cooperative society?	a) Yes b) No
10	Do you think cooperative societies have influence on your sales? decisions?	a) Yes b) No
11	Do you have easy access and satisfied with the services of Shirajganj handloom industry?	a) Yes b) No

27. List the trainings received in weaving value-chain

Sl.no	Name	Duration	Given by
1	Design		
2	Dyeing		
3	Pre-loom work/equipment's		
4	Accounts		
5	Marketing		
6	Others		

28. Information about household food consumption, production and earnings (Information for food security based on last 6 month**):**

SL.No	Types	Season	Production size	Earning amount	Household Consumption
1	Main Crops				
	Rice				
	Wheat				
	Pulses				
	Tea				
	Sugarcane				
2	Vegetables				
3	Fruits				
4	Dairy				
5	Livestock's				
6	Oil & Butter				

29. What type of family do you have?

a) Nuclear family b) Joint family

30. Do you make any change in your dietary system in last 3/6 month?

a) No b) Yes (If yes)

a) Main food b) Luxury c) Essential one d) others.

31. What was the reason for change?

a) Decrease in income b) Increase in income c) Health issues d) Deu to covid pandemic

32. In which kind of food do you spend more?

a) Main food b) Junk food c) Dairy d) Fruits e) Others

33. Do you smoke?

a) Yes b) No

34.Do you get balance meal with your income?

a) Yes b) No

35. In your opinion what is balance meal?

……..

36. Does any member skip meal due to not enough food in last 6 or 3 month?

a) Yes b) No (If yes)

37.How many time did you/other skip the meal?

a) Once in a day b) Once in a week c) once in a month d) More than once in a day

e) more than onec in week f) More than once in moth

38. How did you deal with the lockdown situation during covid-19 pandemic?

……

39. Do you store food for tomorrow for future?

a) Yes b) No

40.If there is a shortfall in monthly income, how is it filled?

a) From Savings b) Borrowing Money c) Formal Institutions – Bank, NGO d) Weavers Cooperatives

41. In last 6 months what difficulties have negatively impacted your household's ability to meet your food needs?

Types	**Tick all the difficulties identified by the household**	**Rank the top difficulties**
Loss of employment/reduce in salary		
Sickness/health expenditure		
Death of household head		
High food prices		
Debt for machinery		
Others		

42.Information related to Income and expenditure 42. Source of Income (Yearly)

Source	Duration (Months)	Place	Income (Rs.)
Weaving			
Agriculture			
Livestock			
Business			
Wage Labor (Type……)			
Migration			
Property			
Others			

43. Information related to income:

	Questions	Answer
1	Earning amount from handloom business per month/day?	
2	Do you have other income beside handloom? weaving ?	a) Yes b) No
3	(If yes) What is your source of other income?	
4	How much do you earn from others income source?	
5	Number of earners?	a) One b) Two c) More than two
6	Do you satisfy with the income?	a) Yes b) No
7	Dose other member share their income for family expenditure?	a) Yes b) NO
8	Do you/other household member can save any amount of income for future?	a) Yes b) No
9	Do your earnings attain you daily food demand?	a) Yes b) No

44. Household expenditure

Sl.no	Types	Amount(tk)
1	Food	
2	Health	
3	Clothing	
4	Education	
	Farm production	
	Fertilizer	
	Seeds	
	Feeds	
	Irrigation	
	Others	
5	Tax	
6	Others	

45. Proportion of income spent on (%)

Food	Health	Cloth	Medicine	Education

46. Do you have own transportation system for marketing?

a) Yes b) No

47. Do you receive any monetary contribution for family/children/old parents?

a) Yes b) No

48. Did you face any loss in your business this year?

a) Yes b) No

49. Mention the cause of loss in your business: …….

50. Do you get any subsidies from Government for your business in loss/accident?

a) Yes b) No

51. Mention three major challenges in handloom business:

……

……

……

52. How did you get raw materials for production?

a) Buy from market/hat b) Make in your home c) collect from cooperatives society

53. Do you face any challenges getting raw materials for production?

a) Yes b) No

54. Which marketing system do you prefer for selling your product?

a) Retail b) Direct selling to consumer c) Online d) Wholesale

55. Are you satisfied to the activities related to the entrepreneurship development on handloom industry?

b) Yes b) No

56. What is your future expectation for better livelihood?

……

……

Thank you for your participant