Rural women and food security in Mymensingh district

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Abstract

The study was undertaken to determine the key factors relevant to rural women enhancing food security which have great contribution to their family and community. A sample size of 80 women was drawn from Char Ishawrdia village of Mymensingh Sadar upazila. The findings showed that most of the respondents were economically active but not well educated. It was found that the yearly average income and expenditure of the households were Tk.66656.25 and Tk.67238.75 respectively. It was also found that yearly average income of the respondents was only Tk.7600.00. Rural women of the study area were involved in harvesting crops, crop production, livestock rearing, homestead forestry and gardening, post-harvest operation, cooking, cleaning house, washing clothes and caring children. It was found that women headed households' food security is affected by some socioeconomic factors. In functional analysis, the Log Linear model was fitted best. Result shows that the household food security was significantly influenced by education of respondent, family size, household income, access to credit, and social participation. Women were found highly empowered in the study area and empowered women had great contribution to ensure the household food security. With the process of empowering women, women have a chance to increase their income, to participate in decision making process, to build up their health and nutritional knowledge, control over capital and participate in social and political activities through which they can easily ensure food security. Findings of the study suggest that government should provide different types of facilities to rural women which will help them to ensure households' food security. Government should also take attempts to change the social attitudes towards the rural women.

Keywords: Rural women, Food security, Empowerment

Introduction

In Bangladesh, women constitute about half of the total population of which 80 percent live in rural areas (BBS, 2006). But their status has been ranked the lowest in the world on the basis of twenty indicators related to health, marriage, children, education, employment and social equality. The World Bank study in Bangladesh highlights that women have limited role in household decision-making, limited access and control over household resources (physical and financial assets), low level of individual assets, heavy domestic workloads, restricted mobility and inadequate knowledge and skills that leading to women's vulnerability (Sebstad and Cohen 2002: 44).

Rural women play a critical role in agricultural production and in the rural economies of developing countries. In the developing world as a whole, agriculture accounted for about 63 per cent of total female employment in 1997 and it is still the most important sector for female employment in sub-Saharan Africa and Asia. Rural women make major and multiple contributions to the achievement of food security and produce more than half of the food grown worldwide. Women diversify and perform multiple tasks simultaneously to sustain their livelihoods, working on farms and engaging in off-farm activities, as well as continuing their critical role in terms of reproduction. Their responsibilities include the collection of water and fuel, activities that are particularly burdensome in areas with a poor social infrastructure (Olumakaiy and Ajavi, 2006). Land and property ownership increases women's food security, their bargaining power within the household and their social status as members of the community. The spread of agro-industry and rural industrialization has increased the possibilities for women to access cash income through self-employment or the setting up of rural enterprises.

Status of women is an important factor affecting the socio-economic development of a country. There is no single indicator to measure the status of women in a society. Purdah (veil) system may act as the major obstacle for rural women to establish their rights (Begum, 1987). Despite the system of purdah, women have to perform jobs such as ensuring food for their whole family, collecting firewood and

cooking, feeding and rearing up children, feeding poultry birds and cattle, taking care of the households' animals and birds, processing agricultural products, washing clothes and gardening in the homestead premises. No doubt, the contribution of women to their families is very significant and is not necessarily less than that of the male member of family. But their contribution in terms of labour and their roles in agriculture do not get social recognition.

As an agro based country, women in rural Bangladesh have always been intimately involved in farm and non-farm activities. But their contributions are not properly assessed in calculating national income which is an urgent necessity to give the women due respect. So, the researchers attempted to undertake the study with the following objectives:

    i)   To analyze the patterns of income and expenditure of the respondents;
    ii) To explore the factors affecting to food security of the respondents.

Materials and Methods

Considering the objectives, time and availability of fund, one village named Char Ishawrdia of Mymensingh Sadar upazila was selected purposively. Sample size of 80 women headed households was chosen purposively selected for the present study. The data were collected from August to September 2013 through several visits. The interview schedule was used to collect necessary information. After the phase of data collection, the collected data were edited, coded and analyzed by using statistical tool, namely SPSS (Statistical Package for Social Sciences) and Microsoft Excel. Tabular as well as functional analysis, namely Log Linear model was used also to ascertain some factors such as education of respondent, family size, household income, access to credit, and social participation and so on which can affect household food security of rural women.

Construction of food security indicators: Indicators are constructed from a set of observations, or measurements, of food security-related conditions, which are classified according to a set of criteria, aggregated, and placed in some program relevant perspective. For example, an indicator of the number of food insecure households based on per capita consumption levels might be constructed by:

- Measuring the total food consumed by weight and food source within a household
- Calculating per capita caloric intake given estimates of the energy content by weight of specific food types and the overall household size
- Classifying households according to whether or not they are considered food insecure, by the definition of some minimum cut-off for the level of caloric intake (typically 80 percent of recommended requirements)
- Aggregating the total number of households considered to be food insecure,
- Placing the aggregate number of food insecure households in perspective by expressing it as a percentage of the total number of households in the community or project area.

There are many commonly used measures that can reflect the various dimensions of food security. In addition, there are usually a number of ways of measuring any single indicator. For example, an indicator defined as the "average total calorie consumption per capita" may be measured through a detailed dietary intake survey based on the weighing of food portions by survey enumerators, or from information based on a 24-hour recall of survey respondents.

In this study attempts were made to relate the food security level of respondent household with a number of factors such as education of respondent, household size, income, access to credit, employment and socio-demographic aspects. Double log regression analysis has been used to derive effects of selected explanatory variables on food security.

The quality of household (food secure, vulnerable to food insecure and food insecure) as food-secure on the basis of its food consumption pattern, seasonality (harvest and period) and intra household distribution (Aiga and Dhur, 2006). Coates *et al*. (2006) identified income and caloric adequacy as household-level measure and costly to collect.

Modeling: To determine the effects of the explanatory variables, linear and log linear models were initially estimated for determining the effect of some selected factors on the household income of different categories of households. But the log linear model was better in terms of expected signs and magnitudes of the co-efficient, adjusted R Square and p values. So the parameter estimators obtained from the log linear model were selected for interpretation.

Many factors may affect household food security but it is not proper to include all the variables in a model due to theoretical and economic considerations. Some important variable were selected to keep the model as simple as possible. Care was also taken to avoid the multi-co linearity of the selected variables. The linear regression model was specified as follows:

$\ln Y = \ln a + b_1 \ln X_{1i} + b_2 \ln X_{2i} + b_3 \ln X_{3i} + b_4 \ln X_{4i} + b_5 \ln X_{5i} + b_6 \ln X_{6i} + b_7 \ln X_{7i} + b_8 \ln X_{8i} + b_9 \ln X_{9i} + b_{10} \ln X_{10i} + b_{11} \ln X_{11i} + b_{12} \ln X_{12i} + b_{13} \ln X_{13i} + U_i$

Where, Y = Food security
X_1= Level of education (average years of schooling by the family members)
X_2= Household size (No. of household members)
X_3= Farm size (Decimal)
X_4= Household income (Tk/ year)
X_5= Income of respondent (Tk/Year)
X_6= Savings (Tk/Year)
X_7= Access to credit of rural woman
X_8= Employment
X_9= Nutritional knowledge of rural woman
X_{10}= Decision making ability
X_{11} =Spending ability
X_{12} =Social participation
X_{13} = Control over capital
U_i=Error terms
b_1...... b_{13}=Co-efficient of respective variables

The education level was measured by the average number of years the family members studied in school, college and university. The family size (X_2) was measured by taking into consideration all the existing family members of the respondent households. Farm size (X_3) was measured by average land owned by all the respondent households. Household income (X_4) was measured by average household income earned in a year. The variable income and savings (X_5) were measured by average income and savings of respondent earned in a year. The other variables were taken as dummy variables.

Results and Discussion

Pattern of Average Yearly Income and Expenditure of the Households

In this study, annual personal income of the respondents is considered as the summation of income earned by respondents from different farm and nonfarm activities. It was found that the amount of yearly average income of respondents from agricultural activities was Tk. 3525.00 and average income from non agricultural activities was Tk. 4233.77 (Table 1). Total yearly average income was Tk. 7600.00. Again, annual income of the household was considered as the summation of income earned by all family members from different farm and non-farm activities. Table 1 represents the average yearly income patterns of the households. From the Table 1, it was found that the amount of yearly average income from agricultural activities was Tk. 25006.25 and average income from non agricultural activities was Tk. 41650.00. Total yearly average income was Tk.66656.25. Annual expenditure was also calculated by considering the cost of all food and non food items used by all family members. It was found from the table 2 that total yearly average expenditure was Tk. 67238.75 where a large amount of earning money was spent on buying food items.

Table 1. Yearly personal and households' income patterns

Sources of income	Average income (Tk./year)	Average income (Tk./year)
From agricultural activities	3525.00	25006.25
From non agricultural activities	4233.77	41650.00
Total	7600.00	66656.25

Source: Field Survey, 2013

Table 2. Yearly expenditure patterns of the households

Item	Average expenditure (Tk/year)
Food	51475.00
Cloths	4025.00
Housing	1996.25
Education	3531.25
Health care	3473.75
Others	3041.67
Total	67238.75

Source: Field Survey, 2013

Distribution of Yearly Income of the Household and Respondents

A little number of rural women in this study area was contributing in family as an earning member. The distribution of the household and the respondents according to their income is shown in Table 3. It was found from the Table that the highest number (55 percent) of the respondents earned less than or equal to 30000 and 40 percent of the respondents have no income earning activities.

Table 3. Distribution of yearly income of the household and respondents

Categories of income	Households		Respondents	
	Number	Percent	Number	Percent
No income	0	0	32	40.00
≤ 30000	1	1.28	44	55.00
30000-60000	35	43.75	4	5.00
60000-80000	14	17.50	0	0
80000+	30	37.50	0	0
Total	80	100.00	80	100.00

Source: Field Survey, 2013

Effects of Selected Factors on Food Security

There is no single and direct indicator of measuring food security. Food security is dependent on agricultural production, food imports and donations, employment opportunities and income earning, intra household decision-making and resource allocation, health care utilization and caring practices (Jones *et al*., 1998). Obasi (2004) found that the main determinants of household food security are income, household size, education, price of staple food and sex of household head. In spite of the common use of a relatively small number of food security indicators in much of the literature on the subject, however, not all programs can be evaluated using all or even some of these criteria. The regression result (estimated values of the co-efficient and related statistics) of this research has been presented in Table 5 and the significant variables have been described later.

Family Size: Family size affects household food security negatively. If the family size of any household is large, there will be a chance to be food insecured for that household. So, food security depends on family size of any household. The regression coefficient of family size was -0.51 which was statistically significant at 1 percent level. It indicates that holding all other variables constant, 1 percent increase in family size would lead to a decrease of food security by -0.51 percent.

Education: The co-efficient was statistically significant at 1 per cent level which indicates that it is a very important indicator of food security. Educated women know that how to be food secured in the household. So education is a prominent indicators trough which the rural women become food secured in the community. Lawal (2005) also found in his research that education and land size influence rural women to utilize the improve practices for household food security and nutrition.

Table 4. Factors affecting food security in the studied households

Parameters	Coefficients	S. E.	t Stat	P value
Intercept	-0.55	0.37	-1.46	0.15
Education of respondent (X_1)	0.06*	0.02	2.77	0.01
Family size (X_2)	-0.51*	0.05	-9.99	0.01
Farm size (X_3)	0.03	0.02	1.45	0.15
Household income (X_4)	0.09*	0.04	2.61	0.01
Income of respondent (X_5)	0.02	0.01	0.76	0.45
Savings (X_6)	0.00	0.00	1.40	0.16
Access to credit (X_7)	0.12**	0.06	2.03	0.05
Employment (X_8)	0.06**	0.02	0.73	0.47
Health knowledge (X_9)	0.02	0.11	0.20	0.84
Decision making ability (X_{10})	0.09	0.11	0.85	0.40
Spending ability (X_{11})	-0.06	0.05	-1.13	0.26
Social participation (X_{12})	0.24*	0.09	2.64	0.01
Control over capital (X_{13})	0.01	0.07	0.17	0.87
Adjusted R Square	0.60			

Note: ** indicates 5%, and *indicates 1% level of significant

Household Income: Household food security depends on the income of household. Households having lower income have chance to become food insecure. On the other hand, high income group or households are most of the time food secured compared to the lower income group, because high income group have ability to buy sufficient nutritional food items. The regression coefficient of household income was 0.09 which was statistically significant at 1 percent level. But the coefficient of savings was 0.00 that indicates savings has no any influence on food security.

Availability of Credit: Sometimes due to the lack of credit, households face financial problem. As a result, they are not able to buy required amount of nutritional food and sometime, they cannot apply agricultural inputs. So, there are few households whose need credit but high dependencies on credit make them poorer and through this process, they have chance to become food unsecured. The regression coefficient of access to credit was 0.12, statistically significant at 5 percent level indicates that holding all other variables constant, 1 percent increase in access to credit would lead to an increase of food security by 0.12 percent.

Employment status: The regression coefficient of employment was 0.03. It indicates that holding all other variables constant, 1 percent increase in employment would lead to an increase of food security by 0.03 percent. It could be due to the fact that an employed person can easily fulfill the requirement of daily dietary and nutritional need. That means employment status ensures household food security.

Social participation: The regression coefficient of social participation was 0.24. The co-efficient was statistically significant at 1 percent level. It indicates that holding all other variables constant, 1 percent increase in social participation would lead to an increase of food security by 0.24 percent.

Though in this research, the regression coefficient of health knowledge, decision making ability, spending ability, control over capital etc. were not found significant, but in many empirical literatures, the variables are found significant. The estimated value of co-efficient of adjusted R square was 0.60. It indicates that after taking into account the degree of freedom (d. f.), the thirteen explanatory variables included in the model still accounted for 60 percent of the variations in food security.

Conclusion and Recommendations

Women constitute nearly of half of the total population of Bangladesh. The majority of the rural women have a great chance to ensure household food security. In our community, most of the rural women are not empowered. Through women empowerment we can easily overcome the problem of food insecurity in the society. For being food secured women need empowerment but in Bangladesh, basically in rural area women are living in social and religious prejudice. To improve this situation, some pragmatic steps are needed to be undertaken not only by the major intervening agencies, such as GO and NGOs but also by the rural community itself. Strategies aimed at empowering women must address both their practical and strategic gender needs. In view of the above considerations, the following strategies are recommended:

i) The status of rural women could be improved with the access to formal education. Community-based education to rural women needs to be promoted. Governmental organizations, NGOs and local community leaders need to take necessary steps to uproot illiteracy and related social deficiencies from rural communities.

ii) Promoting rural women's participation in decision-making, including through affirmative action, and support for women's organizations, labour unions or other associations and civil society groups promoting rural women's rights;

iii) Supporting remunerative non-agricultural employment of rural women, improving working conditions and increasing access to productive resources;

Encouraging informal women's groups in rural areas would be a step toward increasing their empowerment since this would facilitate greater mobility outside the home and their access to media. Local community leaders, extension personnel, NGO workers and representatives from women's organization would provide a vital contribution to such group by motivating them toward engaging in various development activities.

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