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Flood Coping Ability of Ultra Poor Household Women in a Flood Prone Area of Jamalpur District

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Abstract

The objectives of this study were to ascertain the flood coping ability of the ultra poor household women in a flood prone area of Jamalpur district and to explore the relationship between the flood coping ability of the ultra poor household women and their selected characteristics. Data were collected from 82 ultra poor household women (50 percent of the total population of 163) in the Dakatia village under Chaukibari union of Dewanganj upazila under Jamalpur district. Flood coping ability of the ultra poor women was measured though five aspects, namely crop production, poultry and livestock rearing, shelter and housing, means of livelihoods, and health and sanitation. A pre-tested structured personal interview schedule was used to collect data from the respondents during the period from 8 March to 23 April, 2009. Result indicated that a great majority of the ultra poor household women (72 percent) had low flood coping ability, 26.8 percent had medium and 1.2 percent of the respondents were found very low flood coping ability. Moreover, the respondent women had moderate flood coping ability in 'health and sanitation' and 'means of livelihoods' aspects, while their coping regarding 'crop production,' 'livestock and poultry rearing' and 'housing and shelter' remained very low to low. The ultra poor women's education, family size, farm size, organizational participation, and annual family income showed significant positive relationships with their flood coping ability.

Keywords: *Ultra poor, flood coping ability, women, flood prone area.*

Introduction

The geographical setting of Bangladesh makes the country vulnerable to natural disasters. Floods are more or less a recurring phenomenon in the country and occasionally they become devastating. Each year in Bangladesh about 26,000 sq km, accounted for 18 percent of the country is flooded. During severe floods, the affected area may exceed 55 percent of the total area of the country (Anonymous, 2008).

Bangladesh remains a food-deficit country with annual food grain imports of approximately 3 million metric tons (2008-09 data, MoFDM, 2010). Approximately 40.4 percent of the population (56 million) live below the absolute poverty level (poverty line- 1) and spend 45 percent of their household income on food (BBS, 2007). Among them, 10.8 million people, representing 7.8 percent of the total population (2005 data, BBS, 2007) are considered 'ultra poor'. This part of the land's population have no assets, consume below than 1,600 Kcal per day in comparison to the recommended daily allowance of 2,122 Kcal per day, and suffer from chronic food insecurity and severe malnutrition. It is assumed that ultra poor households are the most vulnerable part of the Bangladesh population (Rahman, 2009). In the rural areas of Bangladesh, three groups of ultra poor households are usually available such as

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landless farmers, day labourers and female headed households.

Although people have traditionally developed different kinds of coping mechanisms to avoid or to reduce the damages of floods (Ahmed, 2005; Paul, 2005), it is the ultra poor who seem to have least coping ability (Islam, 2005). The ultra poor or the poorest of the poor living in the flood prone areas always fight with the climatic disasters like flood, cyclone, river erosion etc. Every year during the rainy season, ultra poor households face the devastating impacts of flood in terms of loss of assets and shelter, loss of livelihood opportunity, health hazard and increasing food insecurity. Among the three groups of ultra poor households in rural Bangladesh, the female headed households are assumed to be the worst victim of natural and human made disasters. Due to lack of resources and power, the ultra poor women are the worst victims of flood and had little coping ability to sustain the shocks of seasonal calamities (Rahman, 2009). Although a number of studies are available on people's flood coping abilities in general (Anam, 1999; Nasreen, 1999; del Ninno *et al.*, 2002; Few, 2003; Ahren *et al.*, 2005), specific study on flood coping ability of rural ultra poor women is almost unavailable. Keeping these issues in view, the present study was conducted to determine the extent of flood coping ability of ultra poor women in a flood prone area of Jamalpur district. Moreover, the study explored the relationships between the flood coping ability of ultra poor women and their selected characteristics.

Methodology

The study was to be conducted in a flood prone area of the country, preferably in the Jamuna-Brahmaputra region. Dewanganj upazila under Jamalpur district was primarily selected as a suitable area for the study because this upazila is one of the most flood prone upazila of the region and people are vulnerable to chronic flood damages. Dakatia village under Chukaibari union was purposively selected as the specific study location. The selection was made on the suggestions made by local Sub-Assistant Agriculture Officer (SAAO), members of Union Parishad and upazila level officials who used to deal with flood affected people. An up to date list of all the ultra poor women members of the households was prepared with the help of SAAO and Union Parishad member. Thus, a total of 163 women (one from each household) of the selected village constituted the population of the study. A sample of 82 women or 50 percent of the population was randomly selected from the population. Data were collected through the pre-tested interview schedule by face-to-face interview procedure during the period from 08 March, 2009 to 23 April, 2009.

Ultra poor women's flood coping ability was the focus of the study. The flood coping ability was measured by considering five aspects of flood coping, namely crop production, livestock and poultry rearing, housing and shelter, means of livelihoods, and health and sanitation. Coping ability was understood as the extent of appropriateness of coping mechanisms (action or combination of a number of actions), which the ultra poor household women followed during and after flood condition to offset the damages of flood. Flood coping ability of a respondent was measured by asking one's actions or mechanisms against an aspect of flood coping. A number of questions were asked to know the overall actions (for example, for crop production aspect, the questions were: "what do you do to avoid the loss of standing crops?", "how do you mitigate crop damage after flood?", "how you procure seeds and seedlings after early damage of crop?"). A respondent was asked

to explain her actions and measures during and after flood concerning a specific situation. Appropriateness of a taken action (mechanism) was checked against a list of four previously prepared probable actions. This list of actions was prepared following the scale used by Islam (2005) and modification suggested by the concerned upazila and district level officials related to flood and disaster management activities. By checking the actions in the prepared list of appropriate actions, a specific coping action of a respondent was judged either as 'high coping ability,' 'medium coping ability,' 'low coping ability,' or 'very low or no coping ability', while weights were assigned for these as 3, 2, 1 and 0, respectively. Overall flood coping ability score of a respondent women was determined by adding scores for her responses to all five aspects of flood coping. Thus, overall flood coping ability score of a respondent could range from 0 to 15, 0 indicated very low or no coping ability while 15 indicated high coping ability.

Findings and Discussion

Ultra Poor Household Women's Flood Coping Ability

The flood coping ability of the ultra poor household women was conceptualized as consisting of five aspects. These aspects included: crop production, livestock and poultry rearing, housing and shelter, means of livelihoods, and health and sanitation. The salient features of the different aspects of flood coping are presented in Table 1.

Table 1. Flood coping ability of the ultra poor household women across different aspects

Aspects of flood coping	Observed score range (Possible range: 0-3)	Mean	Rank
Crop production	0- 2	0.09	5
Livestock and poultry rearing	0-1	0.12	4
Housing and shelter	0-2	1.09	3
Means of livelihoods	1-2	1.59	2
Health and sanitation	1-3	2.13	1

Data contained in Table 1 show that the coping ability of the respondents in respect of health and sanitation was relatively higher than in the other four aspects. It was interesting to note that ultra poor household women's ability to cope with flood damage in respect of crop production and livestock rearing were among the lowest. Moreover, the respondents' categories according to flood coping score of all five aspects have been presented in Table 2.

Crop production: Data contained in the Table 2 show that an overwhelming majority of the respondents (98.8 percent) had low coping ability as compared to any 1.2 percent having medium coping ability and there was no respondent having high coping ability. The most of the respondents of the selected were landless. They had no cultivable land and they stayed beside the road. For this, they need not take any flood coping mechanism on crop production.

Table 2. Distribution of the respondents according to their coping ability across five aspects

Aspects of flood coping	Category and scores	Respondents' percent (n=82)
Crop production	Low coping ability (0-1)	98.8
	Medium coping ability (2)	1.2
	High coping ability (3)	0
Livestock and poultry rearing	Low coping ability (0-1)	100
	Medium coping ability (2)	0
	High coping ability (3)	0
Housing and shelter	Low coping ability (0-1)	90.2
	Medium coping ability (2)	9.8
	High coping ability (3)	0
Means of livelihood	Low coping ability (0-1)	41.5
	Medium coping ability (2)	58.5
	High coping ability (3)	0
Health and sanitation	Low coping ability (0-1)	2.4
	Medium coping ability (2)	81.7
	High coping ability (3)	15.9

Livestock and poultry rearing: Data contained in the Table 2 show that all of the respondents (100 percent) had low coping ability as compared to 16 percent and 1 percent having medium and high coping ability, respectively. People of the study area not follow coping mechanism in relation to flood to protect their livestock from devastating flood because of there limited assets. Most of the respondents sell the livestock and poultry during flood. They cannot make high stages with bamboo, wood etc and can not keep their livestock on the stage when the livestock house is inundated with flood water. Some respondents keep their livestock and poultry on their own living place. They are given straw, kitchen byproducts, leaves of bamboo banana etc as fodder when grass is not available.

Housing and shelter: Data contained in the Table 2 show that majority of the respondents (90.2 percent) had low coping ability compared to 9.8 percent having medium coping ability and l percent having high coping ability. Flood causes great sufferings to ultra poor household women in relation to housing and shelter. Respondents of the study area face severe problem in this aspect every year. They have traditionally developed some coping mechanism to face the problem. When water enters their houses they make high stages in their houses and live on it. They also keep their agricultural products and other household assets on the same stage. They use portable clay hearth or stove, or make hearth by tin to cook their food when their hearths go under floodwater. Some people use sand bags to protect soil erosion of their household area. All the ultra poor household women don't posses the same ability to cope with flood in relation to housing and shelter. The present study was to be conducted to ascertain the flood coping ability in relation to housing and shelter gives the above observations.

Means of livelihoods: Data contained in the Table 2 show that majority of the respondents (58.5 percent) had medium coping ability compared to 41.5 percent having low coping ability and no one having high coping ability in this respect. As the respondents are ultra poor, they live under the poverty line. Most of the family head's major occupation is day labourer. So they face the extreme level of food crisis. During flood most of the ultra poor household women had no work and their livelihood was passed very miserably. Most of the household heads migrate to other place for earning money. Other family members take place in other family where flood water could not affect. In that time the female member of the family worked in other houses for their food and shelter and the school going children stop to go to school.

Health and sanitation: Data contained in the Table 2 show that majority of the respondents (81.7 percent) had medium coping ability as compared to 15.9 percent having high coping ability and only 2.4 percent having low coping ability. Flood causes serious health hazards to human being as well as livestock and poultry. Outbreak of diseases occurs during and immediately after flood. Pure drinking water and toilet facilities are a great problem during flood. To cope with the problem ultra poor household women set up their tube well on high pit or fetch water from other's tube well this was not inundated with flood water. Some time they use water purification tablet or use boiling water. They set up their toilet on high land. In case of emergency during flood they make temporary toilet with bamboo, wood and gunny bags or polythene sheet. However, all the ultra poor household women don't have the same coping ability. It varies from one to another for their personal and socio-economic condition.

Among the five aspects, the ultra poor household women had much better coping ability in health and sanitation aspect. Because of government priority and relief work in study area. Some tube well was placed from government for drinking water and health worker was actively worked in this area and advice about different types of diseases which were appeared during and after flood.

Overall Flood Coping Ability

The overall flood coping ability score of the ultra poor household women ranged from 1 to 8 against the probable range from 0 to 15; the mean and the standard deviation were 4.99 and 1.149, respectively. According to the obtained score, the respondents were classified into three categories as shown in Table 3.

Table 3. Distribution of the ultra poor household women according to their flood coping ability

Categories (score)	Ultra poor household women		Mean	Standard deviation
	Number	Percent		
Very low coping ability (up to 2)	1	1.2	4.99	1.149
Low coping ability (3-5)	59	72.0		
Medium coping ability (6-10)	22	26.8		

Data contained in the Table 3 show that majority of the respondents (72 percent) had low flood coping ability as compared to 26.8 percent had medium flood coping ability and 1.2 percent had very low flood coping ability. It is interesting to note that no woman of ultra poor households in the study area was found to have high flood coping ability. As any form of disaster coping in the vulnerable areas needs handful of resources owned by the households (Abrar and Azad, 2004; WFP, 2007), the ultra poor households in the study area were plausibly found having low flood coping ability. Studies also showed that the case is more common for the womenfolk (Nasreen, 1995), who have to maintain many things of household management side by side flood coping activities. As women are the worst victims of floods (Anam, 1999), their coping ability remains low in the society.

Characteristics of the Respondent Women

Data in Table 4 indicates that more than two-fifth (45.1%) of the ultra poor household women belonged to young age category followed by middle age category (39%). An overwhelming majority (87.1%) of the respondents was found as illiterate and only a negligible proportion (11%) of them had education up to primary level. Findings related to family size of the ultra poor household women show that the highest proportion (65.9%) of them belonged to small family followed by medium one. More than four-fifth (85.4%) of the respondents were found to live in the locality for short duration and only 8.5% live in the locality for long duration. A significant proportion (90.2%) of the ultra poor household was absolutely landless, and a negligible proportion (9.8%) of them had marginal to small farm size of farm. A little more than two-fifth (61%) of the respondents were found to have no organizational participation followed by low participation category (37.8%).

Data concerning annual family income of the respondents indicate that all of them either had low or very low family income. More than four-fifth i.e. 91.5% and 96.4% of the ultra poor household women were found to have low level of extension media contact and low cosmopolite in nature respectively, while the highest proportion (90.2%) of them had no training experience.

Relationship between Selected Characteristics of the Ultra Poor Household Women and Their Flood Coping Ability

Relationships between the selected characteristics of ultra poor household women and their flood coping ability were ascertained by the Pearson's product moment coefficient of correlation (r) and presented in Table 5. The Table 5 revealed that education, family size, farm size, organizational participation and annual family income had significant and positive relationship with their flood coping ability. But, the rest of the variables namely age, local orientation, extension media contact, cosmopoliteness and training exposure had no significant relationship.

Table 4. Descriptive statistics of the selected characteristics of the ultra poor household women

Characteristics	Measuring unit	Possible range	Observed range	Categories	Respondents Percent (N=82)	Mean	SD
Age	Year	Not known	16-80	Young (up to 30)	45.1	37.01	15.18
				Middle (31-50)	39.0		
				Old (above 50)	15.9		
Education	Year of schooling	Not known	0-10	Illiterate (0)	81.7	1.50	2.48
				Primary (1-5)	11		
				Secondary (6-10)	7.3		
				Higher secondary (>10)	0		
Family size	Number	Not known	1-9	Small (up to 4)	65.9	3.91	1.68
				Medium (5-6)	26.8		
				Large (above 6)	7.3		
Local orientation	Year	Not known	1-40	Short duration (up to 5)	85.4	4.7	6.78
				Medium duration (6-15)	6.1		
				Long duration (above 15)	8.5		
Farm size	Hectare	Not known	0-0.482	Landless (below 0.02)	90.2	0.03	0.11
				Marginal (0.02-0.2)	3.7		
				Small (0.21-1.0)	6.1		
Organizational participation	Scale score	Not known	0-11	No participation (0)	61.0	0.95	1.81
				Low (1-7)	37.8		
				Medium (>7)	1.2		
Annual Family income	'000' Tk	Not known	4.32-48	Very low (up to 30)	47.6	31.18	11.75
				Low (31-45)	52.4		
				Medium (above 45)	0		
Extension media contact	Scale score	0-33	0-24	No contact (0)	3.7	5.30	3.62
				Low (1-11)	91.5		
				Medium (12-22)	2.4		
				High (≥23)	2.4		
Cosmopolitene ss	Scale score	0-18	0-9	No (0)	1.2	2.82	1.56
				Low (1-6)	96.4		
				Medium (7-10)	2.4		
Training exposure	Days	Not known	0-5	No training (0)	90.2	0.26	0.91
				Short (up to 10)	9.8		
				Medium (11-20)	0		

Table 5. Relationships between selected characteristics of the ultra poor household women and their flood coping ability

Characteristics	Correlation coefficient (r) with flood coping ability (d.f. = 80)
Age	-0.167
Education	0.262*
Family size	0.262*
Local orientation	-0.128
Farm size	0.337**
Organizational exposure	0.226*
Annual family income	0.317**
Extension media contact	0.194
Cosmopoliteness	-0.063
Training Exposure	0.109

** Significant at 0.01 level of probability (table value 0.289) with 80df
* Significant at 0.05 level of probability (table value 0.222) with 80df

The findings indicate that the large or more is the education, family size, farm size, organizational participation and annual family income of the ultra poor household women the higher is the ability to cope with flood situation. It means that these characteristics of the ultra poor household women have positive impacts concerning development of their capacity to cope with flooding when they face it. These findings also confirmed the finding of the previous study as conducted by Islam (2005) in the neighbouring Madarganj upazila.

Conclusion

Findings of the study indicate that majority of the ultra poor household women had low flood coping ability and a few of the respondents had very low and medium flood coping ability. The findings also showed that the ultra poor household women had moderate coping ability regarding 'health and sanitation' and 'means of livelihoods' issues, while their coping ability regarding 'crop production' and 'livestock and poultry rearing' remained very low. As crop and livestock are primary resources of livelihoods in the rural Bangladesh, it could be concluded that livelihood of flood affected households, particularly the female headed households will not be resilient enough if the concerned authority does not provide enough support to the flood affected households in these two sectors. Moreover, education, family size, farm size, organizational participation, and annual family income of the respondents were found to have significant positive relationship with their flood coping ability. Therefore, while undertaking any safety net programmes and livelihood improvement programmes in the flood prone areas, these factors should be appropriately addressed by the concerned agencies.

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