



Determining the Coping Strategies towards Household Food Security Practiced by the Farmers in Flood Prone Areas

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

A study was carried out at each of three flood affected reverine villages of three upazilas (small administrative unit) under Jamalpur district in Bangladesh during September, 2011 to May, 2012 to find out the coping strategies towards household food security practices by the farmers during flood

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period. Data were collected from randomly selected 336 respondents of 6720 farm families through both the qualitative and quantitative techniques and analyzed with the help of SPSS. A three-point rating scale was used for measuring the coping strategies considering five components such as food preservation, food management, food collection, agricultural products protection and some social aspects. The overall situation about practicing coping strategy had medium to high level where 70.83 percent were practiced high, 29.17 percent medium and none of them were under practiced low coping strategy towards household food security. Based on the above findings, it can be said that still now there is an ample scope for the development workers to work with the flood affected people for creating awareness towards better utilization of existing resources for improving their food situation as well as livelihoods.

Keywords: Coping strategy; food security; flood prone area.

1. INTRODUCTION

Bangladesh is widely recognized as one of the most disaster prone countries in the world and it has been the focus of considerable international attention. Of all the disasters the problem of flood has aggravated most from 1955 to 2004 and become one of the main concerns of people in Bangladesh [1] which almost a recurring features. There are 13.35 million marginal and small households in Bangladesh [2]. As they are the great majority; their involvement in agriculture is high; mainly depend wage earning on agricultural laboures; household level food insecurity is very common among these people. In individual households, food security is a daily concern of consumption and intrahousehold resource allocation [3]. Food access and utilization depends on household income, distribution of household income, price of food, the resources availability to members of household, proper use of food, the existence of proper food processing and storage practices, adequate knowledge and application of nutrition and child care, and adequate health and sanitation services [4]. Moreover, these disasters can disrupt local economies and reduce households' access to food by destroying infrastructure and private productive assets, reducing employment opportunities, and lessening the profitability of private enterprises [5]. From the above discussion, the present study has been undertaken to determine the coping strategies towards household food security practiced by the farmers in flood prone areas during flood period.

2. METHODOLOGY

Each of three reverine villages of Melandaha, Madarganj and Sarishabari under Jamalpur district were purposively selected as the study area that were situated on the river side Jamuna

and Bramhaputra and regularly affected by a slow on-set flood of merely 30 days and the nature of damages due to catastrophic flood in each year in these villages did not differ much and also socio-economic condition is more or less similar. A larger sample size of 336 out of 6720 farm families were selected by using proportionate random sampling for interviewing through both the qualitative and quantitative techniques and analyzed with the help of SPSS that were flood affected and adopted coping strategies towards household food security during flood period. Data were collected by face to face interviewing the respondents with an interview schedule contained both open and closed form of questions. Coping strategies towards household food security during flood period was measured by computing a 'composite coping strategy towards household food security index' based on five food related components/aspects like (i) food preservation index, (ii) food management index, (iii) food collection index, (iv) agricultural product protection index and (v) some social aspects index. For computing each of these food security related indexes, six appropriate statements/items were selected by going through the rigorous process of item collection, items screening through field verification, judge rating, piloting, development of instruments etc. Each of these statements/items were placed against a three-point continuum e.g. 'regularly', 'occasionally' and 'never' and the assigned weights were 3, 2 and 1 respectively for measuring the influence of food coping strategies. Descriptive statistics e.g. frequency, number, percentage, mean, standard deviation, range, rank order and categories were used for the study.

The methodology for measuring such index was developed by Biswas [6] who measured the women empowerment by computing a women empowerment index, 'Livelihood Index'

developed by Islam [7], adapted by Al-Amin [8] in her study to measure 'Role Performance Index' of Char women, Hossain [9] used such formula for computing participation index for income generating activities, Islam [10] used for computing composite livelihood index and to measure the extent of practices of the coping strategies against flood, two indexes were used by Farhad [11] which was developed by Biswas [12].

3. RESULTS AND DISCUSSIONS

3.1 Practices Coping Strategies towards Household Food Security

The practices of different coping strategies towards household food security by different categories of farmers was considered under five components viz. food preservation, food collection, food management, agricultural products protection and some social aspects. The findings of each component have been presented below:

3.1.1 A. Food preservation

In all categories of farmers it was observed that majority (69.9 percent) of them 'regularly' performed maximum effort in consciousness about water contaminated diseases while rising tube-well head above flood level by additional pipes was performed 'not at all' performed by minority of them (16.1 percent). The result indicated that farmers were alert about use of safety water during flood period.

3.1.2 B. Food management

On the way of food management, 'not at all performance in advance sell of labour' and 'borrow food from neighbour or relatives' were performed by majority (79.8 percent) and more than half of them (54.5 percent) respectively. But a quarter (24.4 percent) and near to quarter (22.9

percent) of all categories of farmers performed 'rely upon less expensive and less preferred food items' and in 'reducing or limiting amount of food taken per meal' respectively. The findings indicated that the flood affected people were more interested to perform household food management as a part of household food security within the family and less interested in performing family prestigious activities outside the family which depending them to others.

3.1.3 C. Food collection

Half of the respondents (50.00 percent) showed maximum efforts in food collection by 'spend deposit money' as 'occasional' performance where majority (81.8 percent) and (80.7 percent) also put maximum efforts in 'collection of foods supplied from rehabilitation centre' and 'involve in casual labour only for food collection' taking not at all performances respectively. The above findings revealed that flood affected people playing various degrees of role for collection of food in quest of ensuring their household food security during flood period.

3.1.4 D. Agricultural product protection

'Regularly' performed by three fifths of total farmers (59.8 percent) as 'preservation and storing of seeds for emergency make-up after flood' followed by 'cultivation of short duration quick growing crops after flood' by more than half of them (51.5 percent). On the other hand, majority (87.2 percent) of all categories of farmers did not perform 'netting the surrounding of the fish farm/pond to prevent the escape of fishes during flood period'. The findings revealed that the farmers of flood affected areas are more concerned about seed storage and from their previous experience they used to store all type of previously used excess seeds to make up their emergency need which can be optimized their household food security.

Table 1. A. Percentage distribution of different categories of farmers according to their food preservation

Items of food preservation	All categories of farmers		
	*RG	*OP	*RP
1. Preparation and preservation of dry foods (Smashed/fried rice, dry fish, etc.)	50.6	47.9	1.5
2. Stored sweet gourd, potato, sweet potato and other tuber crops	37.8	47.0	15.2
3. Collection of water purifying tablets or fitkiri from neighbouring health centre	18.5	53.9	27.7
4. Rising tube-well head above flood level by additional pipes	16.1	32.4	51.5
5. Always be conscious about water contaminated diseases	69.9	23.8	6.3
6. Consulting with doctors in nearest health centre	36.6	60.4	3.0

*RG=Regularly performed, *OP= Occasionally performed and *RP= Rarely performed

Table 1. B. Percentage distribution of different categories of farmers according to their food management

Items of food management	All categories of farmers		
	*RG	*OP	*RP
1. Reduce or limit amount of food taken per meal	22.9	47.6	29.5
2. Reduce number of meals consumed per day	18.2	38.4	43.5
3. Rely upon less expensive and less preferred food items	24.4	44.3	31.3
4. Reduce adult consumption so that children can eat adequately	17.0	36.0	47.0
5. Borrow food from neighbour or relatives	1.2	44.3	54.5
6. Sell labour in advance	1.2	19.0	79.8

*RG=Regularly performed, *OP= Occasionally performed and *RP= Rarely performed

Table 1. C. Percentage distribution of different categories of farmers according to their food collection

Items of food collection	All categories of farmers		
	*RG	*OP	*RP
1. Purchase food on credit/borrow	2.7	43.2	54.2
2. Borrow money from neighbour or relatives for collecting food	0.9	45.8	53.3
3. Involve in casual labour only for food collection	3.6	15.8	80.7
4. Collection of foods supplied from rehabilitation centre	1.2	17.0	81.8
5. Spend deposit money for food collection	9.8	50.0	40.2
6. Selling reared livestock, poultry birds or fishes	8.6	44.9	46.4

*RG=Regularly performed, *OP= Occasionally performed and *RP= Rarely performed

Table 1. D. Percentage distribution of different categories of farmers according to their agricultural product protection

Items of agricultural product protection	All categories of farmers		
	*RG	*OP	*RP
1. Seed preservation and storing for emergency make-up after flood	59.8	19.9	20.2
2. Cultivation of short duration quick growing crops after flood	51.5	44.9	3.6
3. Vaccination of livestock and poultry birds before flood	23.5	64.0	12.5
4. Replacement of livestock and poultry birds on comparatively high place of homestead area	45.5	50.6	3.9
5. Consulting with veterinary doctor in case of flood related livestock and poultry diseases	29.2	67.6	3.3
6. Netting the surrounding of the fish farm/pond to prevent the escape of fishes during flood period	5.4	7.4	87.2

*RG=Regularly performed, *OP= Occasionally performed and *RP= Rarely performed

3.1.5 E. Some social aspects

It was revealed that majority of the respondents had occasional participation in all the mentioned social aspects which is a strong support in favour of an ideal society maintained in the study areas. It is notable that the farmers, who make better communication with local leaders and organizations, can avail the highest relief support that is immediate need for our financially weak farmers to recover the flood losses and ultimate go one step forward on the way of ensuring household food security.

From the above findings of flood coping strategies towards household food security regarding various food related components indicates that the overall practices of food coping

strategies were satisfactory. The farmers were highly conscious about their food to overcome the flood situation.

3.2 Overall Coping Strategies towards Household Food Security

The coping strategies practices by the respondents towards household food security ranged from 47.54 - 88.60 with a mean and standard deviation of 64.86 and 7.51, respectively. An overwhelming majority of respondents (70.83 percent) were practiced high coping strategy compared to near about one-third (29.17 percent) of them practiced medium coping strategy where none of them were under practiced low coping strategy towards household food security. That means that overall household

Table 1. E. Percentage distribution of different categories of farmers according to their social aspects

Items of social aspects	All categories of farmers		
	*RG	*OP	*RP
1. Maintaining communication with Union Parishad Chairman/members	23.5	66.1	10.4
2. Create social awareness about shifting house of caused by flood	18.2	59.5	22.3
3. Organized social groups for protecting robber, theft etc. during flood	27.4	58.6	14.0
4. Involvement with post flood relief and rehabilitation activities	8.9	45.5	45.5
5. Create social awareness about cleaning and washing of floating debris that are accumulated during flood	40.5	44.9	14.6
6. Transmission of disaster related information/ forecasting to the community	38.7	47.6	13.7

*RG=Regularly performed, *OP= Occasionally performed and *RP= Rarely performed

Table 2. Distribution of farmers according to their practices of coping strategies towards household food security

Category of coping strategy	Percentage distribution of all farmers
Practices low coping strategy (up to 40)	0
Practices medium coping strategy (41-60)	29.17
Practices high coping strategy (above 60)	70.83
Total	100.00
Range	47.54-88.60
Mean	64.86
SD	7.51
Chi-square (χ^2) = 10.681	P < .004 Highly significant

food situation during flood period was satisfactory. All the farmers had food during flood period and they practiced medium to high level of coping strategies so that they tried to ensure their food more secure and more save for better livelihoods.

The result is in accordance with national slogan where fostering that our country is food sufficient. Al-Amin [8] found in her study with char landers that majority of char women (70 percent) had performed medium to high level role in maintaining their sustainable livelihoods. Islam [10] found opposite results that 86 percent of respondents were the holder of very low to low livelihood status in rural areas of Gazipur district.

4. CONCLUSION

Most of the farmers practiced coping strategies towards household food security during flood for their survival and maintain a sustainable livelihood. This leads to conclude that the coping strategies towards household food security practiced by the farmers during flood are satisfactory. Necessary steps should be taken to improve their present situation on food habit, consumption of quality food, high value food and optimum calorie uptake.

5. RECOMMENDATIONS

Based on the above findings, it can be said that still now there is an ample scope for the development workers to work with the flood affected people for creating awareness towards better utilization of existing resources for improving their food situation as well as livelihoods. The concerned GO and NGOs can organize capacity building activities and motivational campaign for the distress people for changing their existing outlook towards the involvement in diversified activities for increasing improvement of livelihoods.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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