Bangladesh Journal of Extension Education *ISSN 1011-3916*
Volume 21, No. 1&2, 2009: 117-124 *Research Article*

Need of Rural Women in Practicing Post Harvest Activities of Brinjal Production: assessment for capacity strengthening

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Abstract

The main objectives of this study were to determine the extent of need for capacity strengthening of rural women towards post harvest activities (PHAs) of brinjal and to explore the relationship of ten selected characteristics of the rural women with their extent of need for capacity strengthening. A total 80 women from two villages of Bakta Union under Fulbaria upazila of Mymensingh district was randomly selected for data collection. A pre-tested interview schedule was used to collect data from the respondents during April to May 2008. All of the respondents had high extent of need for capacity strengthening while none of them had low. All the women had the highest extent of need for capacity strengthening in management skill and need for physical facilities. Education and ability to cope with uncertainty showed significant negative relationship with their extent of need for capacity strengthening. The rest of the variables did not show any significant relationship. The major problems faced by the women in using the PHAs of brinjal were unavailability of sale center, lack of knowledge on PHAs of brinjal, scarcity of money, lack of marketing facility, lack of cold storage and processing materials.

Keywords: *Capacity strengthening, rural women, post harvest activities, brinjal.*

Introduction

In Bangladesh about half of the population are women and the rural women are considered as untapped national resources and society would benefit more if they are given the opportunity to use their unique talents. Meaningful development can be expected if women are involved both in their traditional domestic as well as production role in a more planned way in technology sound activities. Although half of the population is women, on an average they do two-thirds of the total works including household works and received only one-tenth of world income (UNDP, 1994)

The post harvest losses of vegetables in Bangladesh could be as high as 43% (Sharma, 1987). However, the average post harvest loss is estimated to be 26% (Khan, 1991). High perish ability, lack of storage facilities, mechanical injury due to improper handling, packaging, transportation and microbial infection are major causes of post harvest losses in vegetables. The present vegetable production in Bangladesh is around one million tons per year, 70 percent of which is produced during the cool season. As a result there is an acute shortage of vegetables during the summer, which leads to chronic malnutrition among the people of Bangladesh (Khan, 1991).

Vegetables (more than 60) occupy 3% of cultivated land in Bangladesh (Ali, *et al.*, 1992) where Brinjal is cultivated in 15%

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area in *kharif* and 17% area in *rabi* season among the vegetables. Losses of vegetables can be minimized through improving storage facilities and taking care while handling, packaging and transporting to bring better economic return for the growers and the intermediaries. Processed vegetables have considerably increased market price than that of unprocessed vegetables. Women are the part and parcel of a society. Society would get benefit if women are engaged in any developmental activity. Similarly, to fulfill the need of rural women for capacity strengthening in post harvest activities (PHAs) of brinjal following objectives were undertaken: to assess the need for capacity strengthening of rural women in conducting PHAs of brinjal, to find out the extent of participation of rural women in PHAs of brinjal, to explore the relationship between ten selected characteristics of rural women with their need for capacity strengthening for practicing PHAs of brinjal and to identify the problems faced by the rural women in using up the PHAs of brinjal production.

Methodology

Two villages were purposively selected from Bakta union of Fulbaria upazila for collecting data from marginal brinjal farmers because brinjal is extensively cultivated in that areas and women are involved in the brinjal production. An updated list of households of the selected villages was collected from the Fulbaria Upazila Agriculture Office. The list comprised a total of 300 brinjal cultivating households in the study area. Among them only 80 households were randomly selected for data collection. Women involved in PHAs of those households were chosen to collect data for the study. A pre-tested and structured interview schedule was used to collect data. Ten characteristics were considered as independent variables which were age, education, dependency ratio of the family, farm size, annual family income, organizational participation, decision making capacity in the family, training exposure, credit received and ability to cope with uncertainty. Need for capacity strengthening of rural women towards PHAs of brinjal was the dependent variable of the study.

Need assessment for capacity strengthening of rural women was measured by five dimensions which were: (i) need for financial ability, (ii) need for decision making ability, (iii) need for access to support services, (iv) need for management skill and (v) need for physical facilities. The dimensions were measured on a four-point rating scale. Scores were assigned as 0, 1, 2 and 3 for `no', `low', `medium' and `high' respectively. The score of five dimensions consisting of 27 items could range from 0 to 81, where `0' indicated `no need' and `81' indicated `high need' of women for capacity strengthening towards PHAs.

To measure the extent of participation in PHAs of brinjal three dimensions namely (i) frequency of performance, (ii) part of work done and (iii) control over decision were considered. Each of the dimensions was quantified separately with four-point rating scale. Participation Index (PI) had been used to determine the extent of participation defining as the ratio of actual participation to `possible participation' in any issue expressed as percentage.

The Participation Index (PI) can mathematically be expressed as follows:

$$PI = \frac{1}{3} \times \left(\frac{f_a}{f_p} + \frac{w_a}{w_p} + \frac{d_a}{d_p} \right) \times 100 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (i)$$

Where, PI = Participation Index

f_a = Actual frequency of performance
f_p = Possible frequency of performance
w_a = Actual part of work done
wp = Possible part of work done
d_a = Actual control over decision
d_p = Possible control over decision collection data.

According to Participation Index (PI), value could vary from 0 to 100 percent, 0 indicating no participation and 100 indicated full participation in PHAs of brinjal. So, the extent of need was measured by computing the total values according to the items of work done for each of the three dimensions.

To measure problem in using PHAs of brinjal, Scored Causal Diagrams (SCDs) were used (Galpin *et al.*, 2000). Various problems of participation were listed through discussion with the respondents. Assuming the end problem `low participation in PHAs' writing it on the ground drawing circle at the center and arrows were drawn to represent the causal relationships between the problems. The causes of those problems were identified and added to the diagram. The problems at the edge of the diagram with no identified `causes' were determined as the `root' causes. Scoring was done by the importance from the end problem by dividing them between the causes of each subsequent problem.

Descriptive statistical methods like range, mean, percentage distribution and standard deviation were used in describing the dependent and independent variables. For exploring the relationship between the selected characteristics of the women with their need for capacity strengthening towards PHAs of brinjal, Pearson's Product Moment Coefficient of Correlation (r) (Ray and Mondal, 2004) was used. The analysis of data was performed using SPSS (Statistical Package for Social Sciences) computer program.

Findings and Discussion

Participation of Rural Women in PHAs

In order to investigate the participation of rural women in various PHAs of brinjal, the works are categorized into three dimensions and each of these dimensions also has five sub-dimensions with a corresponding score 0 to 3.

Table 1. Ranking of total score of participation of rural women in different PHAs

Post harvest activities	Frequency of performance	Part of work done	Control over decision	Total score	Rank order
Seed storage	236	236	236	708	1
Sorting and grading	222	221	107	550	2
Cleaning	215	210	114	539	3
Transport from field to house	220	208	94	522	4
Packaging	155	145	62	362	5

Table l showed that the highest participation of rural women conducted seed storage activities and then sorting and grading of brinjal. Timely availability of quality seed is very important for brinjal cultivation and thus, the farmers keep their own seed to avoid risk. While the farm women played their crucial role to collect and preserve seed from quality pieces of brinjal for use in subsequent years. The least involvement of the women was in packaging of brinjal as they assist mostly their male counterpart when brinjal is sent for sale at local market.

Overall Need for Capacity Strengthening

The extent of need for capacity strengthening of women was assessed in terms of need index for capacity strengthening (NICS). The NICS values could range from 0 to 100. The observed NICS values ranged from 70 to 95, average of 83.56 and standard deviation of 5.71.

Table 2. Need for capacity strengthening of rural women (n = 80)

Range of score	Category of respondents	Percent	Mean	SD
70-95	Low (_<33) Medium (34-66) High (>66)	0 0 100	83.56	5.71

Table showed that all of the respondents showed high extent of need for capacity strengthening in PHAs of brinjal. This was because, in the study area, there was scarcity of post harvest facilities of brinjal and even a little facility was available but those were not in accessible form for the rural women. Thus, the respondents logically felt high need for their capacity strengthening towards post harvest facilities of brinjal.

Dimension-wise Need for Capacity Strengthening of Rural Women

Table 3 showed that all of the women fell in high need category for all of the dimensions. The highest proportion of the respondents was in high need for financial ability and physical facilities while only a few of them had medium need for financial ability, decision making ability and access to support services respectively. None was found in low need category for any dimensions of capacity strengthening. Thus, it was a bit as usual that the components obtained low score would be felt as high need by the women.

Table 3. Dimension-wise need for capacity strengthening of rural women.

Items	Observed range of score	Category	Percent	Mean	SD
Need for financial ability	58.33-100	Low (<_33)	0		
		Medium (34-66)	2.5	89.27	9.39
		High (>66)	97.5		
Need for decision making ability	55.56-88.89	Low (<_33)	0		
		Medium (34-66)	5	75.97	6.36
		High (>66)	95		
Need for access to support_services	61.11-100	Low (≤33)	0		
		Medium (34-66)	4	81.18	8.22
		High (>66)	96		
Need for_management skill	72.22-100	Low (<33)	0	86.60	7.94
		Medium (34-66)	0		
		High (>66)	100		
Need for physical facilities	66.67-100	Low(<_33)	0		
		Medium (34-66)	0	87.33	7.62
		High (>66)	100		

Relationship Between Dependent and Independent Variables

The relationship between the dependent and independent variables has been presented in Table 4.

Table 4. Relationship between dependent and independent variables

Dependent variable	Independent variables (selected characteristics of the respondents)	Computed `r' values with 78 df
Need assessment for capacity strengthening of rural women	Age	0.137
	Education	-0.240*
	Dependency ratio	0.160
	Farm size	-0.077
	Annual income	-0.180
	Organizational participation	0.010
	Decision making ability	0.083
	Training exposure	-0.150
	Credit received	0.026
	Ability to cope with uncertainty	-0.317**

** Significant at 1% level of probability
* Significant at 5% level of probability

The Table 4 showed that education and ability to cope with uncertainty of the rural women was negatively significant at 5 percent and l percent level of probability with their extent of need. This was because; the respondents were mostly housewives and had been continuing their livelihoods from the similar social background utilizing similar resources and facilities and similar ability to cope with uncertain situations like accidents, crop failure, scarcity of money, unavailability of labor etc.

Problems in Utilizing PHAs of Brinjal

Problems faced by the women in using up the PHAs of brinjal were measured through making Scored Causal Diagrams (SCDs). Problems in participating PHAs of brinjal were discussed with the respondents, assuming the `end problem' being `low participation in PHAs of brinjal'. Firstly the problems mentioned by the respondents were listed, secondly diagrams were drawn by them on the plain ground to show causal relationships between the problems, and finally scoring of selected problems was performed again by them.

Among the `root' causes `lack of training on PHAs' got the highest score then 'social/religious barrier'. It was thought logical because lack of training caused lack of knowledge and experience resulting in low decision-making in PHAs and accordingly there was low participation in PHAs. Social/religious barriers keep away the women from any development work so their participation in PHAs was restricted by this problem. The third was `lack of cold storage' was perceived complexity in PHAs. Other root causes were lack of knowledge and experience, lack of interest, conservativeness, inefficient manpower and low market price.

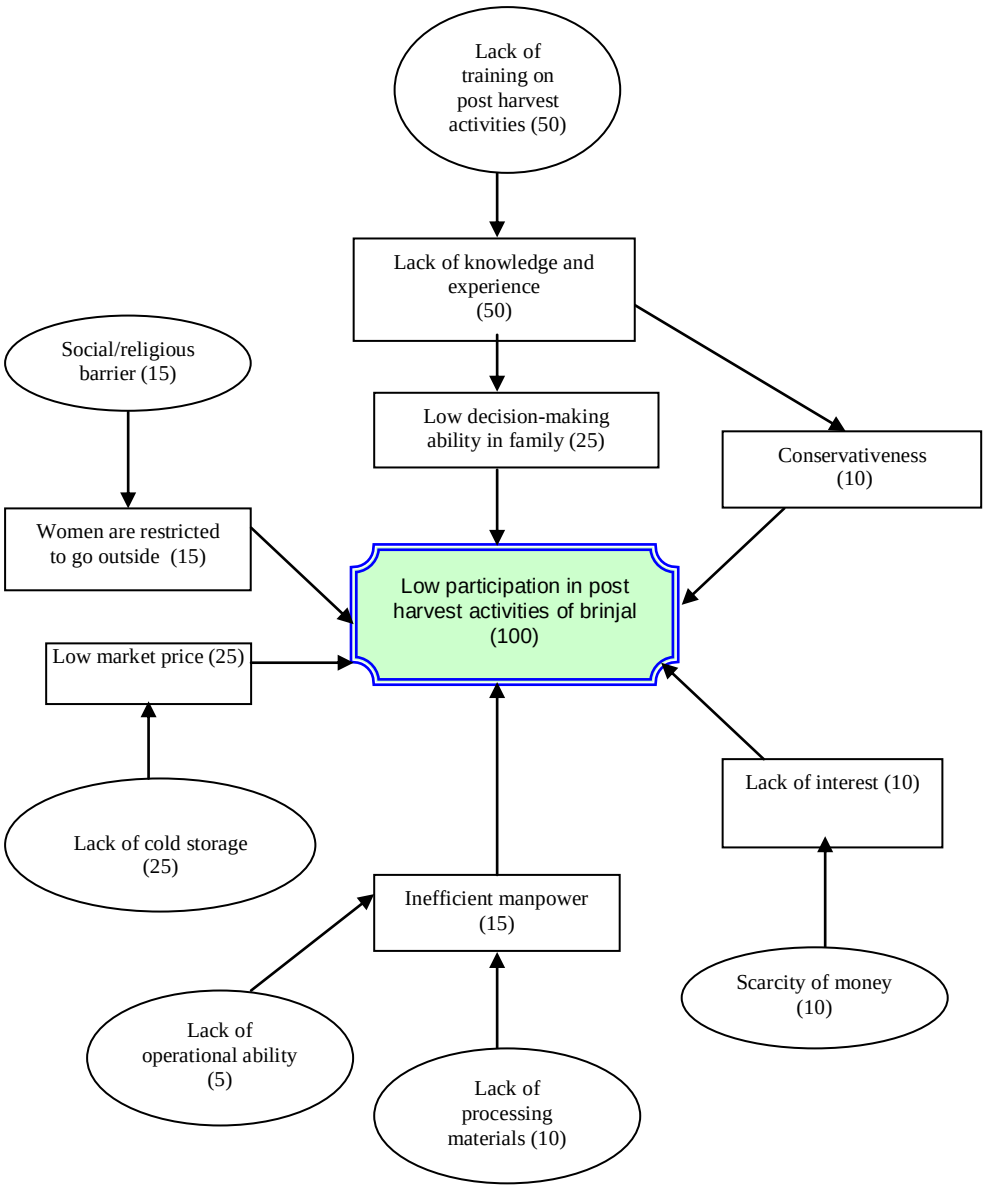

Figure 1. Scored Causal Diagrams showing the participation barrier of rural women in PHAs of brinjal

Suggested Solutions to the 'Root' Causes

Participants of the group engaged in the preparation of Scored Causal Diagram (SCD) were requested to mention possible solutions to the `root' causes of low participation in PHAs of brinjal. The respondents expressed different opinions on how these problems could be overcome. The respondent's suggestions for the solution of the problems have been given here.

Table 5. Suggested solutions with way to solve the problems

Sl No.	Suggested solutions	Way to achieve
1.	Increased training facilities for increasing their knowledge and skill towards PHAs of brinjal and to have efficient manpower.	Need GOs and NGOs collaboration
2.	Involving rural women in different PHAs of brinjal to increase their operational ability.	Government and private organization should take initiatives
3.	Establishing processing centers for the rural women to build their capacity in PHAs	GOs can create special programs with NGOs
4.	Emphasizing the necessities of women participation among the rural people with the help of local leaders, *imams, purohit* etc	Farmers should be motivated women by different communication
5.	Establishing cold storage for the rural women by the government	Government can take proper initiatives
6.	Increased credit availability according to the need of the rural women regarding post harvest facilities of brinjal.	GOs and NGOs can take proper steps in this matter

Conclusion

The findings indicate that all of the respondents (100 percent) had high extent of need for capacity strengthening and more than half (53 percent) of the respondents had medium dependency ratio in the family. So, there was enough scope to provide facilities regarding post harvest operations of brinjal to improve their capacity and minimize dependency ratio in the family. Women having small farm size, less earning member, low annual family income and low organizational participation should be the major target population for providing PHAs of brinjal. Because, these types of women have high need for different PHAs. Sale centers, cold storage and processing centers should be established in the rural areas through government and private initiatives to improve marketing facilities for the rural women. Training facilities have to be increased according to their needs for increasing their knowledge, management skill and operational ability towards PHAs of brinjal as well as to have efficient manpower.

Acknowledgement

This article has benefited from the research on *Capacity Strengthening of Rural Women in Carrying out Post Harvest Activities of Vegetables and Fruits towards Food Security* as financed as a Programme Funded Research (PR) through the Research Grant Initiative of the National Food Policy Capacity Strengthening Programme (NFPCSP) implemented by the Food and Agriculture Organization of the United Nations (FAO) in collaboration with the Food Planning and Monitoring Unit (FPMU) of the Ministry of Food and Disaster Management with the support of USAID and European Commission.

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