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THE IMPACT OF TRADITIONAL HOMESTEAD VEGETABLE CULTIVATION ON THE IMPROVEMENT OF LIVELIHOOD OF RURAL WOMEN IN BANGLADESH

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ABSTRACT

The aim of the study was to determine the level of acceptability of traditional homestead vegetable cultivation practices by rural women in the northeastern parts of Bangladesh and its impact on their livelihood. A structured interview schedule was applied to collect data. Data were collected from 100 women from two villages of South Surma Upazila in the Sylhet district and correlation tests were conducted to examine the relationship between the relevant dependent and independent variables. The results showed that 68% of rural women had a moderately favourable opinion of vegetable cultivation regarding changes in the livelihood of rural women, while 20% had low opinion and 12% had high opinion of traditional homestead vegetable practices. The majority (59%) of the women had moderately adopted traditional homestead vegetable cultivation practices compared to 24% who had adopted them little and 17% who had adopted them highly. Computed (r) values indicate that education, homestead area, family income, knowledge of homestead vegetable cultivation, availability of credit, and exposure of the rural women to communication had a significantly positive relationship to their attitudes to changes in livelihood.

Contribution/ Originality
This study has accepted the challenge of improving the livelihood of rural women through participating in various kinds of homestead vegetable gardening and how it can improve their socio-economic condition and participating in decision making in their families and social lives which play a vital role in women's empowerment.

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1. INTRODUCTION

Bangladesh is a small country with a population of 158 million on an area of 1,47,570 square kilometres (BBS, 2012). The population consists of an equal measure of men and women. The country has about 13 million farm households of which 3.8 million are dispossessed and marginal (BBS, 2005). The population of Bangladesh gradually increases. The growth rate of the population in 2016 was 1.37%. The growth of population has a massive impact on the livelihood of women (Josephson *et al*., 2014). Farm sizes have shrunk due to rapid growth of population. Land disintegration and shrinking farm size is a perilous problem that women are facing in maintaining conventional homestead farming practices (Headey *et al*., 2014). Bangladesh has a solid tradition of homestead vegetable production practiced by its farming communities. Traditional home gardens are ancient and outdated systems of usage of land with preventative measure and production functions, and play an important part in particular in women's food security and adequate nutrition (Vieira *et al*., 2012).

Assuring women's earnings is a crucial prerequisite for eradication of poverty and perpetuation of human rights (DFID, 2000) mainly on the individual level, as it assists to establish a ground for social change. While different dimensions of the issue of livelihood have been contemplated, regular income is of the highest importance. The standard of living of the rural poor will improve when they earn from economic activities (Ahmed *et al*., 2007; Al-Amin, 2008; Ahmed, 2009). Income generating activities (IGAs) can improve the living conditions, accommodation, nutrition, savings, clothing, medical treatment, wellbeing, sanitation, liberalization, and education of the poor (Ullah and Routray, 2007). Conquering widespread poverty and improving livelihood means confronting the spreading disparity of rural women's income (Kandiyoti, 1988; Fakir, 2008).

Women have been the initiators of agricultural activities in the history of humankind. Women in Bangladesh are widely recognized as contributors to agricultural and economic productivity. Women barely engage in outdoor agricultural activities (Hossain *et al*., 2002). Nearly half (49%) of the population of Bangladesh are women. 45.6% of them are related to farming (AIS, 2012). Women in Bangladesh work 84 hours a week, 16% more than men's 70 hours a week (Petra, 2003). Homestead is the center of all agricultural production activities in rural Bangladesh. It is the nest and production unit of vegetables, fruit, fuel timber, livestock, and fisheries. Homestead has special significance in Bangladesh especially for rural women. Hussein *et al*. (2002) stated that about 15% of the homestead area was covered by vegetable production.

Homestead vegetable production may contribute to uplifting the socio-economic conditions, supply of fuel wood, give protection from hazards, provide food and other benefits etc. Women thought that traditional homestead cultivation systems had a significant role in improving the socio-economic status and upgrade of the environmental conditions of the area. Hence there is great scope for improving the prevailing homestead vegetable cultivation practices with modern technology for enhancing women's livelihood.

The extent of knowledge regarding changes in attitude to livelihood encouraged women to adopt the traditional homestead cultivation system which is not sufficient for higher profit and uplifting the socio-economic condition (Parveen, 2007).

Homestead agriculture may act as a lifeboat for women's survival and existence because of assured food supply (Akanda, 1994). Women are the key operators of homestead production activities in Bangladesh. They are involved in family management besides equal participation in economic activities such as production of crops, postharvest activities, vegetable and fruit production, raising poultry, managing livestock, fisheries, pisciculture, and diverse income generating activities, and also try to increase their family income to improve their livelihood (Nessa *et al*. 2004). Moreover,

approximately 40% of rural women belongs to families with no land and 15.6% of them are ultrapoor.

Traditional home gardening is the key strategy that balances and maintains natural, financial, human, social, and physical livelihood assets and carries indispensable outcomes for the livelihood of the rural community. Thus it is necessary to deepen the knowledge of homestead vegetable cultivation practices for effective utilization of homestead areas with a suitable approach to maximal homestead productivity and family income (Parveen, 2008).

1.1. The concept of livelihood

The concept of livelihood is not new. It uses methods that have evolved for 20 years. It progressed from an extensive array of participatory and other proletarian approaches to work with the rural people and several methods. It combines the current method with an integrated approach that is comprehensive and relatively easy to use. The word "livelihood" can be used in many ways. A livelihood contains the competence, assets, and activities required for a means of living. Livelihood has been measured on household income, food security, and health. However, food security means both access to the right kinds and amounts of food to provide a balanced diet for all members of the family and sustainability of its supply. The country has achieved self-sufficiency in cereal production in the recent years, but at the household level, especially in the remote areas, poor people have inadequate access to surplus food. Moreover, there is a prominent shortage of protein, vegetables, and fruit, thus nutritional improvement is of prime concern for the improvement of livelihood (Haque, 2002). Women from rural families are involved in income generating activities such as cultivating fruit and vegetables, raising poultry, rearing goats, sewing clothes, batik printing etc., and earn money to support their families (Hossain and Bose, 2004). Due to lack of scientific knowledge and utilization of proper technology and management practices the production remains below the acceptable level. It is therefore very important to know the gap between rural women's beliefs about and performance in homestead agricultural production activities.

1.2. Objectives

Considering this context, the present study was, therefore, conducted with the following specific objectives.

- To determine the role of rural women in homestead vegetable cultivation practices on the livelihood improvement in a selected area of the Northern East of Bangladesh.
- To explore the correlation between the selected characteristics of the rural women and their attitude and adoption towards homestead vegetable cultivation for livelihood improvement.
- To know the existing problems and their probable solution of traditional homestead vegetable cultivation by the women.

2. METHODOLOGY

2.1. Location, population and sample

Two villages; namely Kunarchor and Noikhai of Muglabajar union of South Surma Upazila under Sylhet district of Bangladesh constituted the population for the study. The main purpose of selecting two villages was, In this villages most of the household women had a empty land around their houses and most of them are involved in cultivation practices as well as the production rate of vegetables is more than the other villages of the Upazila, Source (Upazila Agriculture officer).The total population of the study area was 137. About 135 questionnaires were distributed to the women in two villages. Among them 102 questionnaires were received in complete form and 28 questionnaires were received in incomplete form and the rest of 5 questionnaire has no responses from the villages women. At last, A representative sample of 100 housewives (According to sample size determination Using Krejcie and Morgan table) was the sample size of the present study. South Surma upazila is not very far from Sylhet headquarters but the upazila has all the features of rural

Bangladesh. The livelihood of the rural women of this upazila mainly depends on agriculture-based activities as well as the women have easy access to the market for their product. This is the reason for selecting this upazila as the study area.

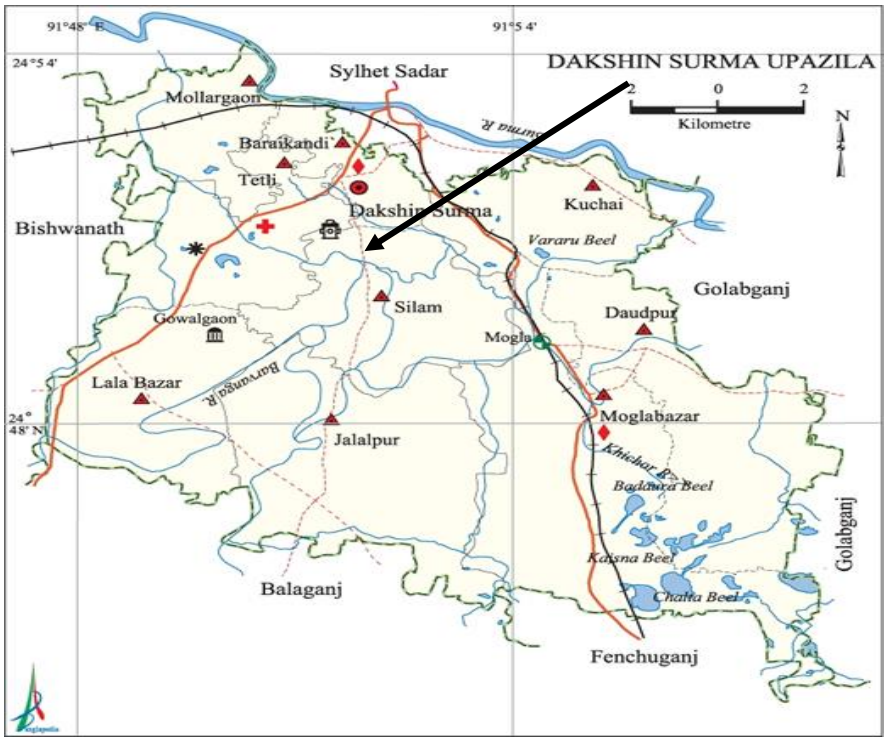

Figure 1: South Surma (Dakshin surma) Upazila under Sylhet district of Bangladesh showing locale of the study area

2.2. Preparation of questionnaire

A questionnaire was prepared for collecting necessary information from the selected women. For giving the final shape, the questionnaire had pre-tested with 20 women. Based on the pre-test results, required corrections, modifications, alternation, and adjustments were made and then finalized the questionnaire accordingly.

2.3. Period of data collection

Rapport was built with the respondents through informal discussion regarding objectives of the interview. The interviewer personally did the data collection through a face to face interview. Data was collected from 10 February to 15 July 2018.

2.4. Variables of the study

Independent variables in the study were age, education, family size, homestead area, credit availability, knowledge of homestead vegetable cultivation, annual income from homestead area, communication exposure, aspiration, fatalism and problem confrontation. The dependent variables were adoption of traditional homestead vegetable practices and opinion regarding changes in livelihood to the farmers.

2.5. Measurement of dependent variable

A four-point Likert scale was used for computing the extent of adoption of homestead vegetable cultivation practices. Weight of responses against the applicable ones of the 21 practices was assigned in the following way. A score of 3, 2, 1 and 0 was assigned for high use, medium use, low

use and no use respectively. The weight of responses of all homestead vegetable cultivation practices were added together to obtain the extent of use homestead vegetable practice and the score of the respondents could range from 0 to 82 where 0 indicating no use and 82 indicating high use of cultivation practices. Opinion regarding changes in livelihood is another dependent variable which was measured by the changes in socio-economic aspects of the women. It referred to the improvement of social as well as economic status of the respondent women. The women were asked to give their opinion regarding the improvement in socio-economic aspects of' their livelihood due to the contribution of homestead vegetable practices. It was measured on the bases of opinion obtained from the women in 10 statements containing information on the improvement of socio-economic aspects of their livelihood.

2.6. Statistical analysis

The collected data were coded into numerical, compiled, tabulated and analyzed reckon the objectives of the study in mind. In order to categorize and elucidate the data, various statistical measures such as range, mean, percentage, standard deviation and rank were used in describing the selected variables, wherever relevant. To find out the relationships, Pearson's Product moment correlation co-efficient was used in order to explore the relationship between the relevant variables.

3. RESULTS AND DISCUSSION

3.1. Selected characteristics of the rural women

Table 1: Description of women characteristics

Variables	Way of measurement	Observed range	Categories according to their selected characteristics	Rural women (Number or percentage) N=100	Mean	Standard deviation
Age	Assigning a score of 1 for each year	18-60	Young (18-35) Middle (36-50) Old (Above 50)	52 34 14	35.14	8.51
Family size	Assigning a score of 1 for each member of the family	2-10	Small (up to 4) Medium (5-6) Large (7 and above)	33 47 20	5.35	1.55
Education	Score	0-14	Illiterate (0) Can sign only (0.5) Primary level (1-5) Secondary level (6-10) Above Secondary level (Above 10)	9 32 24 28 7	4.32	3.46
Homestead area	Hectare	0.17-3.21	Marginal (< 0.02) Small (> 0.02-0.99) Medium (1-2.99) Large (3.0 and above)	14 30 38 18	1.982	0.32
Credit availability	Score	0-60	No credit receiver (0) Low credit (up to 15) Medium credit (16-20) High credit (above 20)	6 70 9 15	19.34	7.21
Knowledge of Homestead vegetable cultivation	score	0-100	Low (up to 33) Medium (34-66) High (above 66)	5 40 55	50.65	15.14
Family income	‘000 Taka	19-69	Low (up to 30) Medium (30-40) High (41 to 80)	46 29 25	36.76	11.35
Communication exposure	Score	0-75	Low (up to 25) Medium (26-50) High (above 50)	15 75 10	37.15	13.33
Aspiration	Score	6-24	Low (up to 10) Medium (11-20)	7 80	16.8	4.48

			High (above 20)	13		
Fatalism	Score	6-26	Low (up to 12) Medium (13-25) High (above 25)	4 88 8	26.74	2.86
Problem confrontation	Scale score	9-41	Low (up to 15 score) Medium (16 to 30 score) High (above 30 score)	23 59 18	21.02	6.231

52% of the respondents were young rural women, 14% were old, and 34% were middle-aged (Table 1). 47% of the respondents had medium sized, 33% small, and 20% large families. 32% could only write, 28% had secondary education, 24% primary, 9% were illiterate, and only 7% were educated beyond the secondary level. 38% had a medium sized, 30% small, 18% large, and 14% marginal farm. 70% had limited access to credit due to repayment risk for unfavorable terms and conditions of the credit providing organizations. 55% had deep, 40% medium, and 5% scarce knowledge of agriculture. 75% had low to medium, 25% high annual income. 75% had moderate, 15% low, and 10% high exposure to communication. 80% had moderate, 13% high, and 7% low aspirations. 88% showed moderate, 8% high, and 4% low fatalism. The problem confrontation score of all respondents ranged from 9-41. Most respondents had a medium (59%), 23% low, and 18% high problem confrontation.

3.2. Adoption of traditional homestead vegetable cultivation practices:

The adoption of traditional homestead vegetable cultivation practice score to the women ranged from 20 to 62 with the mean value to 29.23 and standard deviation 9.77. Based on the adoption score, the respondents were classified into 3 categories (Table 2).

Table 2: Distribution of women according to their adoption of homestead vegetable cultivation practices

Characteristics	Category	Respondent %	Measuring system	Average	Standard deviation
Adoption of traditional homestead vegetable cultivation Practices	Low (up to 30)	24	Scale score	29.23	9.77
	Moderate (30 to 50)	59			
	High (above 50)	17			

The overwhelming majority of the women were (59%) who was found to have moderate adoption of traditional homestead vegetable cultivation practices compared to 24% had low adoption and17% had high adoption of the practices.

3.3. Opinion regarding changes in livelihood

Scores of women opinion regarding changes in livelihood through traditional homestead vegetable cultivation practices ranged from 24 to 72 with a mean value to 40.40 and standard deviation 12.98. Based on the score, the respondents were classified into 3 categories (Table 3). The overwhelming majority of the women (68%) were moderate category who was found to have medium opinion on the livelihood of traditional homestead vegetable cultivation practices, where 20% had low and 12% of them had high adoption.

Table 3: Distribution of women according to their attitude to the impact of traditional homestead vegetable cultivation practices

Characteristics	Category	Respondent %	Measuring system	Average	Standard deviation
Attitude regarding changes in livelihood	Low (up to 35)	20	Scale score	40.40	12.98
	Medium (36 to 55)	68			
	High (above 55)	12			

3.4. Relationship between the selected characteristics of the respondents and impact of traditional homestead vegetable cultivation practices

To explore the relationship between the selected characteristics and their adoption and impact of their livelihood observed in traditional homestead vegetable cultivation system, Pearson's product moment co- efficient of correlation (r) has been used (Table 4) with description of the meaning of 'r' (Cohen and Holiday, 1996).

Table 4: Computed co-efficient of correlation (r) among dependent variables and selected characteristics (N=100)

Women's characteristics	Values of 'r' with df.. 98 for adoption of traditional homestead vegetable practices	Values of 'r' with df. 98 for attitude regarding changes in livelihood in homesteads
Age	- 0.082 NS	0.008 NS
Family size	0.051NS	0.071 NS
Education	0.382**	0.318**
Homestead area	0.224*	0.227*
Credit availability	0.222*	0.228 *
Knowledge of Homestead vegetable cultivation	0.037**	0.406**
Family income	0.201*	0.201*
Communication exposure	0.212*	0.223*
Aspiration	- 0.072NS	- 0.008 NS
Fatalism	- 0.052 NS	- 0.082 NS
Problem confrontation	- 0.295**	- 0.178NS

Education of rural women indicates a significant positive correlation with their attitude as well as adoption of homestead vegetable cultivation for livelihood improvement. It manifests that higher level of education of the rural women might have influenced for their moderately favorable attitude towards homestead vegetable cultivation. These aspects of homestead vegetable cultivation are mostly performed by women in rural areas and have properly been reflected in the current study. Though attitude is moderate, questions arise about productivity of homestead vegetable cultivation that has been studied. It is very significant to know the existing level of production and to find out the possible means for its development. Nasrin *et al*. (2008) also found that education plays an effective role in modern cultivation practices as well as the improvement of rural women livelihood status.

Agricultural knowledge of rural women indicates a significant positive correlation with their attitude and adoption towards homestead vegetable cultivation for livelihoods improvement. "Knowledge is power" but this has to be shared by both men and women. Although women roles are restricted within the homestead, they should also be given with technical knowledge and skills on different aspects of vegetable production like modern varieties of different vegetables, quality seed and its preservation, appropriate time of fertilizer application, IPM technique etc. In this regard Rogers (1995) reported modern agricultural knowledge through mass media plays an important role to adopt homestead vegetable cultivation.

Homestead size, family income, credit availability and communication exposure have a significantly positive correlation with the attitude of rural women towards homestead vegetable cultivation for the improvement of livelihoods. It implies that, these characteristics of the rural women have reflective influence on their attitude. These characteristics are liable to change to a great extent with changes in agricultural knowledge.

Age, family size, aspiration, fatalism, problem confrontation of rural women had no significant correlation with their adoption and also attitude towards homestead vegetable cultivation. In the case of age, Sultana (2003) found similar type of findings for adoption of homestead vegetable cultivation.

Similar study was found by (Victor *et al*., 2005) that homestead gardening program can play an important role in increasing household food security, household income, livelihood status of rural women as well as the empowerment of rural women. Further (Khatun *et al.*, 2014) showed that agricultural knowledge and also attitude to adopt practices had a positive relationship with the cultivation of homestead vegetates.

4. PROBLEMS AND SOLUTIONS

4.1. Problem with the traditional homestead vegetable cultivation system

- Minimal access to agricultural resources such as seeds, planting material, tools, and capital
- Dearth of land and deficiency of land tenure security
- Scant access to water
- Impairment due to insect pests, diseases, animals, and theft
- Poor conditions of environment
- Lack of knowledge, information, and advisory services
- Scarcity of labor
- Lowly soil fertility and soil erosion
- Limited access to quality livestock breeds
- Limited marketing prospects
- Extreme post-harvest losses
- Scarce research and development on home gardens
- Social and cultural Barriers
- Deficiency of information on nutritional benefits of home gardening

4.2. Probable solution to the problem with the traditional homestead vegetable production system

1. Raises the value of output of a specific area of land through spatial or inter temporal intercropping of trees and other species
2. Diversifies the range of outputs from a provided area in order to increase self-reliance diminish the risk to income from hostile climatic, biological, or market impacts on certain crops.

   ➢ Spreads the needs for labor more equally seasonally, thus decreasing the effects of sharp peaks
   ➢ Offers productive applications for underutilized land, labor, or capital.

5. CONCLUSION

Women have been used to traditional homestead vegetable cultivation practices and systems from time immemorial. The size of homestead is a factor in the increase of production. Some areas of the homestead were found to be unused that could be used for growing trees and vegetable crops. The selected women thought that the traditional homestead cultivation practices and systems had a significant role in improving socio-economic status and upgrade of the environmental conditions in the area. It can be concluded from the findings that most of the rural women had a moderate attitude to homestead vegetable cultivation for improvement of their livelihoods. Rice consumption may supply energy, but cereals alone cannot fulfil the requirements of balanced food. Adding vegetables and fruits to the daily diet can develop the nutritional value of supplementary food items since they are the main sources of vitamins and minerals.

Although fruits and vegetables serve the same nutritional purpose, vegetables are considerably convenient and inexpensive to grow. If women are provided with deep agricultural knowledge, they can easily utilize improved technology in vegetable production and achieve better harvests. A need based training programme should be developed and extensively implemented to improve the skill

of rural women in different homestead production areas and thereby increase production. Various NGOs are working with the government to enable their patrons and beneficiaries to advance into higher standards of living. Many of them run motivational programs for the women. These programs have become a platform for women to ascertain their rights and voice their opinions.

Despite the government's initiatives to increase awareness, ensure political and social rights, and participate in different income related activities and empowerment my view is that the government should be more sincere, active, and provide proper attention to upsurge the awareness of vulnerable and underprivileged women by totally instigating the initiatives. Cooperation between the government and NGOs can accelerate the improvement of women's livelihoods. Opportunities are growing for NGOs throughout the developing world to work with governments to improve the quality of lives and help poor women. As women's attitude was favorable, proper extension strategy may help in boosting homestead vegetable production, which can ensure better nutrition and economic benefits. Hence, homestead vegetable production can play an imperative role in changing social and livelihood issues.

6. SUGGESTION AND DIRECTION FOR FUTURE RESEARCH

It was a single student investigation, which placed limitations on time, resources etc., which obviously lead to the purposive selection of the locale of the study. The study is based on the expressed opinions of the respondents, which may not be free from their individual perception and bias in spite of the researcher's efforts to get them as objectively as possible. The major weakness of the study is its representativeness, small sample size. This study was conducted among 100 women whom were interested in traditional homestead vegetable cultivation in northeastern part of Bangladesh using quantitative research method. Future research could be conducted on a bigger sample in one district or in a number of districts in Bangladesh to gain a better picture of the overall scenario and to ensure that the findings are robust and can be generalized to the wider population. A future study could explore to a wider scope or use qualitative research method besides changing the context and get some feedback from the respondent's women in overcoming their problems for the upgrading of their livelihood status.

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