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Rural Households' Behavior Towards the Use of Food Waste by the Women

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ARTICLE INFO	ABSTRACT
Received date: May 25, 2022 Accepted date: Sep. 11, 2022	Wasting food has become a huge problem around the whole world and one-third of the world produced food is wasted nowadays. The main objectives of the study were to assess the food waste behavior of rural household and to explore relationships of selected characteristics of rural household with their food waste behavior. The study was conducted at three villages named Kalikapur, Udgori and Bedgari in Gandail union under Kazipur upazila of Sirajganj district. Pretested interview schedule was used to collect data from randomly selected one hundred women of 1200 population during the month of December in 2020. Appropriate scales and techniques were developed and used to measure independent and dependent variables. Pearson's Product Moment Correlation Coefficient (r) was computed to explore relationships between the characteristics of the respondents and their behavior towards household food waste. Most of the respondents (57.5 %) had fair status of food waste behavior in the rural household while 15.83 percent had good status and 26.67 percent showed poor status in food waste management in the rural household. Among the selected characteristics of the rural women, household farm size, decision making capacity in the family and training exposure showed positive and annual family income showed negative significant relationships with their behavior towards household food waste. And the rest of the characteristics viz. age, years of schooling, household size and organizational participation did not show any significant relationships with their behavior towards household food waste.

Keywords: Behavior, Food waste, Rural household, Rural women, Sirajganj district

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1. INTRODUCTION

Food waste is observed as a barrier to achieve nutrient and food for the millions of undernourished in the world. Moreover, all most every society at connected with moral and ethical waste dimension. For the existence of human species, adequate healthy food is necessary. But unfortunately, due to inefficient management and technical system a great amount of esculent food is wasted despite its great importance. Besides moral issues, the loss of esculent food leads to negative impacts in social, environmental and

economic sectors in our society. In most of the cases these impacts cannot be identified in detail due to lack of data pertinent to the interaction of food wastage and socio-economic outcomes. According to the Food and Agriculture Organization (FAO, 2011), people around the world wasted around 1300 million tons of food annually. But approximately 9.3 billion people will need to feed by the mid-century which is a great challenge because almost 60 percent more food will be required for that purpose. In the world, where about one in nine people do not have enough food (that's some 795 million people). It has been calculated

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that 44 percent of losses occurred at post-harvest and processing level in developing countries whereas 56 percent of losses happen at retail and consumer level (World Bank, 2014).

Wastage of food has a great harmful impact on environment. Besides, when food is wasted, the costs of processing, storage, sending and cooking along with the food are also wasted (FAO, 2013). Wastage of food is also the basic reason of different types of pollution, global warming etc. According to waste database of Bangladesh, almost 67.75 percent of city solid waste is the outcome of wastage of food and vegetable. Another research found that almost 5.5 percent of total food is being wasted across the whole Bangladesh. In that case, wastage happens almost 3 percent while cooking, 1.4 percent while serving and 1.1 percent while eating (Nazneen, 2016). Food waste is an important universal problem. The harmful impacts of wastage of food on our society are serious and can be seen as local garbage. Extra provisions are necessary to overcome this heinous impact of food waste and for new food production due to the previous food waste. In the developed countries food waste poses a great problem as large part of food waste comes from households (Parfitt et al., 2010). It is critical to wane the wastage of food during consumption at home because it will affect on the food life cycle indirectly (Williams et al., 2012).

From worldwide previous research, it is found that attitude of wastage of food at home is not very much dominant reason of food waste. That is why for identifying the true reason of food waste, more research must be conducted on this topic at root level. For promoting the reduction of food waste, there is no other better way than research. According to Food and Agriculture Organization, FAO (2016), food waste can be defined as the food which is edible but is removed due to spoiling before consumption due to bacterial infection, expiration, lack of preservation or poor storage management or negligence (United Nations, 2016). For avoiding wastage of food and ensuring food security, men and women of rural areas play significant roles in developing countries. Generally, men cultivate field crops at fields and women grow and prepare consumed food at home. Women also play the role of raising small livestock which provides protein (FAO, 2015). Besides rural women process food for ensuring a balanced diet which will help to minimize losses. It is found in research that survival chances of child increase almost 20% in those families where women take the charge of household budget and selection of food item for balanced diet of the family. Thus, women unknowingly affect in the sector of food security, dietary diversity and health of all family members especially of children. Women also play important role in case of food preparation and food preservation.

Considering these points of view, the researcher intended to conduct the study with following objectives: to assess the food waste behavior of rural women; and to find out relationships of individual features of rural household women with their food waste behavior.

2. MATERIALS AND METHODS

The study was carried out in three villages namely Kalikapur, Udgori and Bedgari in Gandail union under Kazipur upazila of Sirajganj district. Rural households of three selected villages were the population in this study. Mainly women are related to the household work like food making, preserving, cleaning etc. So, women in rural household were the main population for the study. Rural women who are only related to their household work with rearing livestock were selected with the help of Agriculture Extension Officer (AEO), Local Sub-Assistant Agricultural Officer (SAAO) and the local people of that area. The total number of rural women who are related with livestock service and household work are 1200. Ten percent (10%) of the women were selected randomly from each village. Data were collected through interview schedule from the women of the selected village during month of December in 2020.

2.1. Measurement of Independent Variable

The independent variables such as age, education, family size and farm size were measured by using measuring units of year, year of schooling school, number of members and hectare, respectively. The annual income was measured based on total earning annually by all the members of the family and expressed in Taka. The training experience was indicated by the numbers of days of training that women had received during period of last four years under different agricultural training program. A score 1 (one) was assigned for each training received each day. Organizational participation of a respondent was measured based on nature of his participation and duration of his participation in different organization in various capacities. Decision making capacity in the family was measured because of the respondents' ability to make decision in the family. A score was given against each of the activities.

Table 1 Categorization of food waste behavior of women in the rural household

Respondents			Mean	Standard Deviation
Categories of food waste behavior	Number	Percentage		
Poor (≤ 42)	32	26.67	49.29	10.55
Fair (43-60)	69	57.5		
Good (>60)	19	15.83		
Total	100	1000	Min.=25, Max.=76, Range=51	

2.2. Measurement of Dependent Variable

Food waste behavior of rural women was considered as dependent variable. Food waste behavior means behavior related to food and how people see food as part of their daily life. Ajzen (1991) made a behavior related theory named as the Theory of Planned Behavior (TPB). TPB predicts an individual's intention to engage in a behavior at a specific time and place. The TPB suggests that behavior is directly

Table 2 Characteristic of the rural women

Characteristics (Measurement Units)	Range		Respondent			Mean	Standard Deviation
	Possible	Observed	Category	No.	%		
Age (year)	-	18-60	Young (18-35)	77	64.17	34.33	9.68
			Middle (36-55)	42	35		
			Old (>55)	1	0.83		
Education (Year)	-	0-16	Illiterate (0)	6	5.00	7.87	3.35
			Primary (1-5)	28	23.33		
			Secondary (6-10)	69	57.5		
			H. secondary (11-12)	14	11.67		
			Degree (>12)	3	2.5		
Household Size (No. of members)	-	2-9	Small (2-4)	64	53.33	4.47	1.58
			Medium (5-6)	39	32.5		
			Large (≥ 7)	17	14.17		
Farm size (hectare)	-	0-5.28	Landless (<0.02)	14	11.67	0.33	0.57
			Marginal (0.02-0.2)	49	40.83		
			Small (0.21-1.0)	47	39.17		
			Medium (1.01-3.00)	9	7.5		
			Large (>3.00)	1	0.83		
Annual family income ('000' Taka)	-	70-400	Very Low (70-100)	11	9.17	218.91	87.9198
			Low (101-200)	45	37.5		
			Medium (201-300)	37	30.83		
			High (>300)	27	22.5		
Training Exposure (days)	-	0-30	No Training (0)	95	79.17	2.89	6.96
			Short-term (≤ 10)	9	7.5		
			Mid-term (11-20)	11	9.17		
			Long-term (>21)	5	4.17		
Organizational Participation (score)	-	0-9	No Participation (0)	69	57.5	0.88	1.46
			Less (≤ 2)	42	35		
			Medium (3-4)	6	5		
			High (>4)	3	2.5		
Decision Making (score)	0-40	10-40	Weak (≤ 20)	59	49.17	23.23	8.03
			Moderate (21-30)	32	26.67		
			Strong (>30)	29	24.17		

determined by intentions, which in turn are predicted by attitudes, subjective norms and perceived behavioral control (Ajzen, 1991). According to the Theory of Planned Behavior (TPB), eight aspects to measure food waste behavior which are as follows: intention to reduce food wastage, food waste attitude, personal norms, subjective norms, environmental beliefs, environmental attitudes, perceived health risk and situational factor. Different items or statements under these aspects were selected for measuring the food waste behavior. Each item was measured on modified five-point Likert type scale. Scores were assigned as '0', '1', '2', '3' and '4' for 'never', 'rarely', 'sometimes', 'very often' and 'always', respectively. Thus, a total score of a respondent under eight aspects might vary from '0' to '92' in this scale, where '0' indicated poor status and '92' indicated good status of household food waste behavior.

The collected data were coded, compiled, tabulated and analyzed. The local units were converted into standard units. The qualitative data were transferred into quantitative data

by appropriate scoring techniques. Data were analyzed in accordance with objectives of the study. SPSS (Statistical Package for Social Sciences) computer program was practiced performing the data analysis. Various statistical measures such as range, mean, number percentage, standard deviations and rank order were practiced describing the selected characteristics of the respondents of the study area. To find out the relationship between the individual characteristics of farmers and attitude, Pearson's Product Moment Correlation Co-efficient (r) was computed.

3. RESULTS AND DISCUSSION

3.1. Attitude of Food Waste Behavior of Women in the Rural Household

Food Waste Behavior of Women in the rural household was the primary hub of the experiment. The score of food waste behavior in the rural household was observed 25-76. The mean was 49.29 with a standard deviation of 10.55. The

Table 3 Relationship between the dependent and independent variable

Dependent variable	Personal characteristics of the rural women	Tabulated value		Correlation Co-efficient (r) with 118 df
		0.05 level	0.01 level	
Food waste Behavior of rural women	Age			0.105 ^{ns}
	Education			0.164 ^{ns}
	Household Size			0.083 ^{ns}
	Farm Size			0.238**
	Annual Family Income	0.2301	0.2997	-0.209*
	Training Exposure			0.188*
	Organizational Participation			0.106 ^{ns}
	Decision Making Capacity in the Family			0.486**

*, significant at 0.05 level; **, significant at 0.01 level; ns, non-significant.

respondents were categorized based on their extent of status into three categories as poor (≤ 42), fair (43-60) and good (>60) (Table 1). Table 1 showed that the highest proportion (57.5%) of the women had fair status while 15.83 percent had good status and 26.67 percent showed poor status in food waste management in the rural household. All the women play poor to good contribution of food waste in the rural household. Women often play a greater role in ensuring nutrition, food safety and quality and are also responsible for processing and preparing food for their households (Opara, 2010).

So, women are little involved with food waste at household level. If women in rural areas had the same access to land, technology, financial services, education and markets as men, agricultural production could be increased, and the number of hungry people reduced by 100-150 million (FAO, 2011). The household food waste can be reduced by proper management and timely distribution of foods among the household members. The respondents supported their family members, as well as they had been trying to ensure all the household chores to ensure minimizing the household food waste. Households, where women have access to their own incomes and can decision-making powers, tend to have an expenditure pattern different to the one existing in male dominated households. To reduce household food waste not much extra money is required, but need change in their behavior. So, women who have knowledge about different aspect of household food waste can reduce easily.

3.2. Characteristics Profile of the Rural Women

The distribution of the respondent women based on their characteristics has been shown in Table 2. The highest proportion (64.17%) of the women were in the young-aged category, while 35 percent were middle-aged, and 0.83 percent was old-aged categories. Young women might have of value ideas and more consciousness regarding the food waste behavior. A large proportion (57.50%) of the women had secondary education compared to 5% respondents with no education or can sign only, 23.33% having primary education and 13.17% having above secondary education.

The overwhelming majority (95%) of the respondent were literate from primary to above secondary. This finding also indicated that the respondents had relatively higher level of education than the national level, which is 72% on an average (BBS, 2017). Women those who had higher level of education were sincerer about their food waste behavior. The majority proportion (71.15%) of the farmers fell under the medium family category followed by 1.92% and 26.92% small and large family, respectively.

These findings indicate that more than 98.07% of the respondents had either medium or large family size. The highest proportion (64.42%) of the farmers belonged to medium farm size compared to 32.69 percent and 2.88 percent having small and large farm size, respectively. Thus, most of the farmers were in possession of small farm and number of farmers having marginal and medium farm is almost similar. Thus, the possessed majority (97.11%) of the farmers were the owners of small to medium farms. About 62.50 percent of the respondents had low revenue likened to 27.88 percent of them having medium and 9.62% having high income. In case of household size, 53.33 percent of the respondents possessed small sized household, 32.5 percent medium household and 14.17 percent had large household. The highest proportion of the rural women 40.83 percent had marginal farm size, 39.17 percent had small farm size, 7.5 percent had medium, 0.83 percent had large and 11.67 percent were landless women in the study area. Again, the highest proportion of the rural women 37.5 percent was in low-income category, while 9.17 percent, 30.83 percent and 22.5 percent of them were in very low, medium and high-income category respectively. Majority of the women (79.17 percent) had no training exposure, while 7.5 percent had short-term training exposure, 9.17 percent having mid-term and 4.17 percent having long-term training exposure. It was found that most of the respondents (57.5%) had no organizational participation while 35 percent had less participation, 5 percent had medium participation and only 2.5 percent had high participation in different organizations. In case of decision-making capacity in the family, the highest proportion 48.33 percent of the women had strong capacity while 43.33 percent of them had moderate and 8.33

percent of them had weak decision-making capacity in the family. In the context of Bangladesh, this result is the common scenario. Women are always suppressed by their husband or other active members therefore they have little chance to expose their opinions.

3.3. Relationship between the Selected Characteristics of Rural Women towards Food Waste Behavior

The objective of this article is to pursue the relationships of selected characteristics of the women towards food waste behavior in the rural household. The relationship between the characteristics of rural women and focus issues has been presented in Table 3. Pearson's Product Moment Coefficient of Correlation (r) was computed to explore relationship between the selected characteristics of the women towards food waste behavior in the rural household. Among eight characteristics of the respondents, three characteristics namely household farm size, training exposure and decision making capacity in the family showed positively significant relationships and one characteristics namely annual family income showed negatively relationships on food waste behavior of women in the rural household and the rest of the characteristics viz. age, education, farm size and organizational participation did not show any significant relationships on food waste behavior of rural women in the household. Due to increasing age, education level, farm size and any social participation of women, those are more active towards their food waste behavior.

5. CONCLUSION

The empirical research reveals rural household's behavior towards food waste in this study. Overall findings indicate that more than three-fifths women had fair status in reducing household food waste. It indicates that there is a gap in case of awareness about food waste. It is necessary to change their attitude and increase the intention to reduce food waste. Government and non-government organizations should contact training and awareness programs according to need of rural women for increasing their awareness, management skill and operational ability for practicing to reduce their household food waste.

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