MERIT RESEARCH JOURNALS
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Merit Research Journal of Agricultural Science and Soil Sciences (ISSN: 2350-2274) Vol. 3(4) pp. 043-049, April, 2015
Available online http://meritresearchjournals.org/asss/index.htm

Original Research Article

Impact of the Working Environment on Women Workers in Rice Mills in Sherpur District of Bangladesh

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Abstract

A study was conducted to assess the status of the women workers in rice processing activities among five Upazilas of Sherpur district, Nalitabari and Nokla Upazila. Random sampling was employed to collect data and 110 respondents taken as sample from 880 enlisted populations were prepared by researcher herself with the help of local NGO workers from these two Upazilas. Data were collected using predesigned interview schedule. Majority of the respondents were young and middle aged. Besides Educational status is quite frustrating because of higher illiterate percentage. Most of the lands were taken as mortgage or rent. Since their socioeconomic status were not up to the mark, that was why it can be perceived that their occupation were not very much sound. That was why quantitatively, it was brought that most of the respondents were mill workers. In the house hold, female were the higher performer than male in case of rice processing activities. On the other hand it is found inverse relation in case of rice mill. But it was observed that overall performance was higher in case of female workers in both environment i.e. household and rice mill. Education and farm income is the major influential factors on the workers daily working hours. If consideration can be made on the physical work environment, "No plantation in the mill yard" and "No good facility of aeration in mill house" were the immense problem. In case of economical problem, there are two major problems viz. "No security for holding job" and "No salary when leave taken". Moreover "No facility for recreations", "No health check up facility", "No facility for consulting with doctors" and "No insurance for accident" were the problems regarding health issues.

Keywords: Work environment, Women participation, Rice mill, Socio-economic

INTRODUCTION

Bangladesh is mainly rice base agriculture country which has managed to triple its rice production since its independence, from 10 million Metric Ton (MT) to over 33.83 million MT (Krishi Diary, 2015). Rice is the staple food of our population and more than 70 per cent of the total calorie intake comes from this food items (Zaman, 2001). Bangladesh is now world's sixth largest producer of rice which accounts for 77% of agricultural land use (irri.org, 2013). The FAO statistics show that each person in Bangladesh consumes 160 kilograms of rice in a year, which is more than three times higher than the average global consumption rate of 50 kilograms. The country's 76% people live in the rural areas and 90% of them are directly related to agriculture (Deb, *at el.,* 2014).

Generally, rice is processed by traditionally and mechanically. Akter (1995), Salauddin (1980) and Harriss (1978) reported that about 65% of paddy is milled by traditional methods and 90% of rice produced in Bangladesh is processed by women in their homesteads and in small custom mills located in the rural areas. The traditional method of husking paddy by means of '*Dheki*' (operated by women) is disappearing, because it needs manual power. The traditional means of post-harvest operations are very slow and hazardous as well, particularly for women health. Besides, over the centuries, the technologies of Bangladesh have been being developed and many new technical methods also. Rice production follow some sequential process and milling is the most important part of production of rice from paddy. In Bangladesh, the 86.7% of the total production are done by rice husking mills for the production of rice from the paddy. Approximately 40,000 rice mills in the country, which have almost 5 millions of unorganized workers, more than 60% of them are female (Anonymous, 2003). Rice processing operations include parboiling (soaking and steaming), drying and milling. Women workers are responsible for doing more laborious works than male workers such as drying and husking paddy and packing the husked rice into sacks (Siddika, 2012). But the working environment is neither conducive nor favorable to their health. Lives are also endangered in small-scale commercial rice mills due to use of risky, substandard and unrequited boilers furnaces. There is lack of knowledge and awareness regarding safety issues of workers in rice mills. Hence, it is important to improve of working environment and health status of mill women workers through investigation of the environmental condition of rice processing systems. Against this backdrop, this paper examines the socio-economic profiles of the women working in selected rice mills. So this study were carried out to assess the status of the women workers in rice processing activities at rice mills and to bring out the problems and constraints which are confronted by women workers in rice-parboiling mills.

METHODOLOGY

Among the five upazilas of Sherpur district nalitabari and nokla upazila was taken as study area. Random sampling was employed to collect data with a view to executing the research procedure, randomly 110 respondents taken as sample form 880 enlisted populations was prepared by researcher herself with the help of local NGO workers from these two upazilas. A reserve list of 12 rice mill workers was also prepared to use only when a respondent in the original list was not available for interview. In order to collect valid and reliable information from the farmers an interview schedule containing both open and closed form questions was developed considering the objectives of the study. Eleven selected characteristics viz. Family size, Farm size, Education, Age, Farm income, Non-farm income and No. of cattle holding of the respondents were the independent variables where Women' s Participation (hours worked/day) were the dependent variable. The statistical measures such as percentage and rank order were used for describing the variables of the study. In order to explore the extent of relationships between women's Participation (hours worked/day) and the selected characteristics of respondents regression analysis was employed.

RESULTS AND DISCUSSIONS

Analysis of Socio-demographic Characteristics of the Respondents

The analyzed data presented in Table 1 depicts that most of the respondents are young and middle aged. Besides the participation of male and female of different age category are similar except adolescence group. Male workers participation is higher than female in the adolescence age category. In the same table educational status is quite frustrating because of higher illiterate percentage and mean also not at satisfactory level. It indicates that the average homestead land holdings of the respondents family groups was 4.77 decimals for mill labor household. In case of mill labor household, own land was 4.60 decimals. It may be noted that this classified was done in operating sense. It may differ from the standard national figures. The mill labor households did not have any land under household gardening. The mill labor households rented in amount is higher that amount of mortgaged in land.

Gender-wise Participation in Rice Processing Activities at the Farming Households

Some of the activities are entirely done by males and females and others are jointly done by both males and females (partial involvement). Table 2 shows gender wise participation by male and female labourers in rice processing operations in the farming households. This table shows that overall 77.75% activities are done by female whereas 22.25% are done by male in rice processing operations. Individually, threshing is done 55 and 45% by male and female respectively, in Nalitabari Upazilla whereas 40 and 60% by male and female respectively, in Nakla Upazilla. On the other hand, winnowing, drying raw paddy, soaking, parboiling and drying of parboiled paddy are 100% done by female in both the district. Milling is done 70 and 30% by male and female respectively, in Nalitabari Upazilla as well as 80%

Table 1. Salient feature of the selected socio-demographic characteristics of the respondents

Characteristics	Categories		Respondents			Mean
			No.	%	Total No. (%)	
Age	Adolescence (<18)	Male	18	72	25(22.73)	33.25
		Female	7	28		
	Young (18-32)	Male	9	50	18(16.36)	
		Female	9	50		
	Middle (33 - 54)	Male	29	49.15	59(50.85)	
		Female	30	50.85		
	Old (above 54)	Male	4	50	8(7.27)	
		Female	4	50		
Education	Illiterate (0)		45		(40.91)	2.95
	Primary (1-5)		52		(47.27)	
	Secondary (6-10)		13		(11.82)	
	Higher secondary (10-12)		0		(0)	
Land holdings	Homestead				(26.21)#	4.77D
	Own				(25.27)#	4.60 D
	Rented in				(35.33)#	6.43 D
	Mortgaged in				(12.25)#	2.23 D
	Pond				(0.93)#	0.17 D
	Garden (Vegetable & Orchard)				(0)#	0.00 D
	Total land				(100)#	18.20D
Main occupation	Agriculture		8		(7.27)	
	Business		8		(7.27)	
	Student		17		(15.45)	
	Housewife		25		(22.73)	
	Service		0		(00)	
	Mill labour		10		(9.09)	
	Farm labour		42		(38.18)	

*D= Decimal, (*)# = Mean percentage part of used total land

Table 2. Gender-wise participation in rice processing activities of the farming households

Farm Activities		Nalitabari Upazilla				Nakla Upazilla				OMP	
		P(%)		Mean (%)		P (%)		Mean (%)			
		M	F	M	F	M	F	M	F	M (%)	F (%)
1.	Threshing	55	45	22.50	77.50	40	60	22.00	78.00	22.25	77.75
2.	Winnowing	0	100			0	100				
3.	Drying raw paddy	0	100			0	100				
4.	Soaking	0	100			0	100				
5.	Parboiling	0	100			0	100				
6.	Drying parboiled paddy	0	100			0	100				
7.	Milling	70	30			80	20				
8.	Cleaning	0	100			0	100				
9.	Storing	0	100			0	100				
10.	Transportation	100	0			100	0				

*P=participation, M=Male, F=Female, OMP= Overall mean participation in percentage

Table 3. Activities performed by male and female laborers in the rice processing mills

Activities		Participation (%)		Mean (%)	
		Male	Female	Male	Female
1.	Carrying bags	100	0	66.00	34.00
2.	Filling soaking tank with water	80	20		
3.	Filling steaming tank with water	80	20		
4.	Firing of furnace and feeding husk fuel	70	30		
5.	Loading / unloading soaking tank with paddy	80	20		
6.	Loading/unloading steaming tank with paddy	80	20		
7.	Drying paddy on the drying floor	50	50		
8.	Milling paddy with the huller	60	40		
9.	Separating bran and broken by hand	0	100		
10.	Weighing bags	60	40		

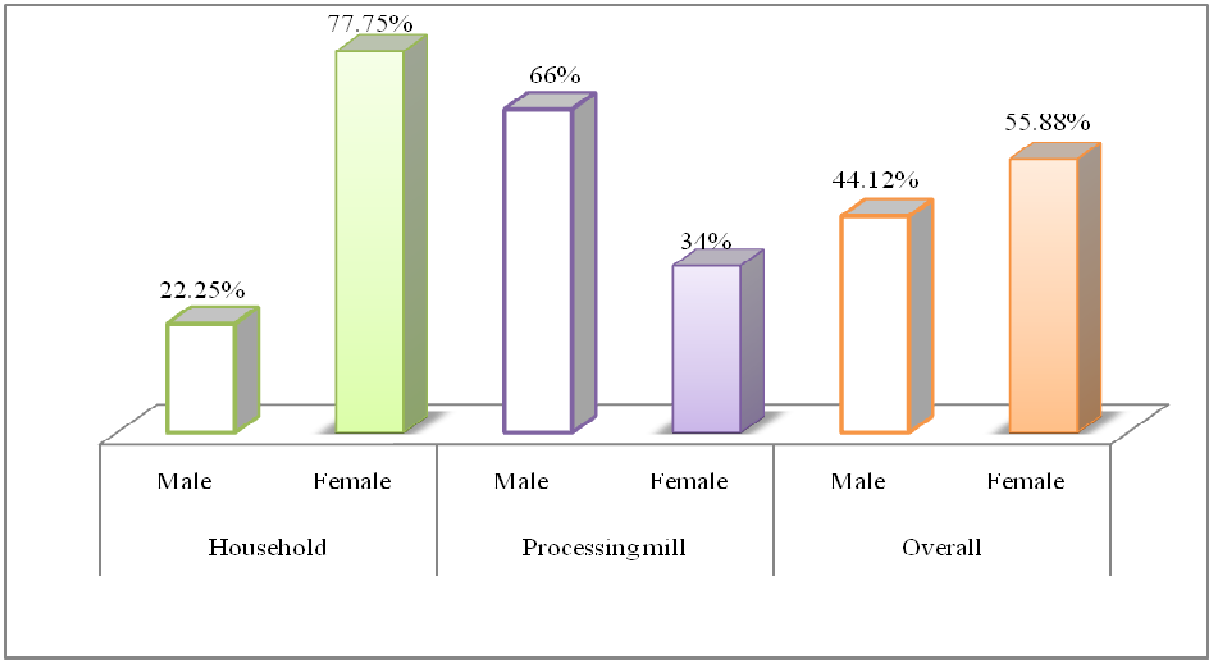

Figure 1. Comparative Participation of Male and Female at the time of post harvesting activities of rice at different environment

by male and 20% by female in Sherpur Sadar. Cleaning and storing is 100% done by female in both the Upazilla (Table 2). Transportation is totally controlled by male in both the Upazilla.

Gender-wise Participation in Rice Processing Activities at Rice Processing Mills

In the rice processing mills female labourers work side by side with male labourers. It is difficult to find out the exact works performed only by the women or only by the male. Table 3 shows that average 66% activities are done by male labourers whereas average 34% by female in the rice processing mills. Individually, Carrying of paddy/rice bags are done 100% by male. Loading and unloading soaking tank with paddy are done 80 and 20% by male and female, respectively. Drying parboiled paddy on the drying floor is done 50% by male and 50% by female (Table 3). Participation in firing of boiler furnace and

Table 4. Estimated regression coefficient of daily worked hour in rice processing of women workers

Factors	Coefficients	
	Nalitabari Upazilla	Nakla Upazilla
Family size	0.088	-0.077
Farm size	0.054	0.324
Education	-0.444*	-0.506*
Age	-0.011	-0.028
Farm income	1.85 E-06*	-8.57 E-05**
Non-farm income	8. 26 E-06	4.807 E-05
No. of cattle holding	0.054	0.456
R^2	0.564	0.422
F	14.650*	2.983**

feeding husk fuel are 70 and 30% by male and female, respectively. For milling paddy one male driver operates the huller machine; other associated activities such as feeding paddy in the huller, feeding milled rice in the cleaner/separator, etc. are done 60% by male whereas 40% by female. Manual separation of rice bran and broken is done 100% by female. Female participation in weighing bags is 40% and that of male 60%. Mean values of male and female participation in all activities are 65 and 35 percent, respectively. Sultana and Afrad (2014) found the almost similar result. They reported that women are mostly involved in drying (94.44% in drying before boiling and 96.66% in final drying) but carrying the sack (95.55%), helping in boiling (97.77%) and boiler operation is almost done by their male counter parts.

Comparative Participation of Male and Female worker

Comparative participation of male and female workers in post rice harvesting activities at different environment is shown in Figure 1. It shows that overall 55.88% female worker perform post rice harvesting activities at different environment followed by male worker. It also shows that about 22.25 and 66% male workers are engage with household and processing mill, respectively for post harvesting activities of rice where as 77.75 and 34% by female worker. Figure 1 indicates that more than 55.50% higher female worker are involves than male worker in post rice harvesting activities at household. On the other hand, more than 11.46% higher male worker are involves than female worker in rice processing mill.

Influential Independent Variables on Daily Work Hours of Workers at Rice Mills

Table 4 depicts that the regression coefficients between work hours per day and independent influential socio demographic characteristics. However R^2 value is 0.564 and 0.422 for nalitabari and nakla upazilla, respectively indicates that the 54 and 42 percent of total variation are made due to this socio demographic factor because of that only those factors can explain that extent. Here farm income and education have the significant role on the working hours of the respondents. One unit of change in education and income can increase the working hour at level of shown coefficient in the table 4.

Problems of the Women Labours

Physical work environment in rice mills

Seven physical work environments are identified and ranked (Table 5). These are, in descending order, no plantation in the mill yard (88%), no good facility of aeration in mill house (88%), insufficient light(75%), wind in the room become hot due to excessive light (75%), excessive light (68%), no window in the machine room (62%), noise of moving belt and risk of accident(53%), load shedding (48%), no facility for disposal of soaking water causing bad smell (39%). It is also similar trend for VRM too. But it was found positive relationship though not significant. It meant that the level of income is still lower than the minimum level, which affect on the working level in Nalitabari Upazilla.

Economic environment of village rice mills

The economic environment of village rice mills is shown in Table 5. The first ranked (98%) problems are no security for the job and no salary when in leave. Other problems and their rankings are no economic help for sick worker (93%), no overtime (93%), no co-operative society for securing their right, low salary and wage 88%), no bonus in Eid occasion (86%), no allowance in addition to salary

Table 5. Constraints of women workers in rice-processing mill as perceived by the respondents

Vibe	Problems	Respondents (%)	Rank
Physical work	▪ No plantation in the mill yard ▪ No good facility of aeration in mill house	88	1
	▪ Insufficient light ▪ Wind in the room become hot due to excessive light	75	2
	▪ Excessive light ▪ Excessive labor stress i.e. 10 people were employed for 15 people's work	68	3
	▪ No window in the machine room	62	4
	▪ Noise of moving belt and risk of accident ▪ No insurance for accident	53	5
	▪ Load shedding	48	6
	▪ No facility for disposal of soaking water causing bad smell	39	7
Economic	○ No security for holding job ○ No salary when in leave	98	1
	○ No economic help for sick worker ○ No overtime ○ No co-operative society for securing their right	93	2
	○ Low salary and wage	88	4
	○ No bonus in Eid Occasion	86	5
	○ No allowance in addition to salary ○ No loan facility from mill owner ○ No advance payment from salary	85	6
Health related	❋ No facility for recreations	98	1
	❋ No health check up facility ❋ No facility for consulting with doctors ❋ No insurance for accident	97	2
	❋ Unhygienic environment ❋ No facility of first aid in the mill premise	92	3
	❋ No sanitary latrine	92	4
	❋ Excessive labour stress i.e. 10 people were employed for 15 people's works	93	5
	❋ Continuous work have to do due to absence of shifting duty	90	6
	❋ No device (mask) is introduced for dust protection	90	7
	❋ No helping hands for driver and operator	80	8
Gender Related	❖ Female worker paid less salary than male worker ❖ No maternity leave for women worker ❖ No separate latrine for women worker	95	1

(85%), no loan facility from mill owner (85%), no advance payment from salary (85%). The similar study was conducted by Farouq (Zaman, *at el.,* 2002). He found the problems related to work environment in village rice mill. These are respectively economic, health and gender issues environments. Low wage, no overtime, an Eid bonus, any incentive for any sort and leave with pay not permissible related to the problems of economic environment.

Health-related environment of rice mills

As shown in Table 5, the health-related environment of rice mill women workers percent ranking are no facility for recreations (98%), no health check up facility (97%), no facility for consulting with doctors (97%), no insurance for accident (97%), unhygienic environment (92%), no facility of first aid in the mill premise (92%), no sanitary latrine (92%), excessive labour stress i.e. 10 people were employed for 15 people's works (93%), continuous work have to do due to absence of shifting duty (90%), no device (mask) is introduced for dust protection (90%), helping hands for driver and operator (80%). Zaman *et el.* (2001) also reported that no first aid given, low lighting, lack of aeration facilities and no treatment facilities etc. were the problems of health environmental problem.

Gender related issues

Table 5 conveys information that the gender disparity exists at the rice mills. However 95 % respondents mentioned that the male workers are

paid more than female workers.

CONCLUSION

From the findings it can be concluded that majority of the respondents were young, middle aged, illiterate, had a medium family size, married and earning member in their family. Besides most of the lands were taken as mortgage or rent. It can be perceived that their occupation not very much sound and their socioeconomic status were not at up to the mark. That is why quantitatively it is brought that majority of the respondents were mill workers and most of the respondents have long experience of working in the rice mill. In the house hold, female is the highest performer than male in rice processing activities. In the rice mills, women are mostly involved in drying raw paddy, soaking, parboiling, cleaning and storing activities. But it is observed that overall performance of women workers was higher in both household and rice mill environment. Education and farm income is the major influential factors on the workers daily working hours. If consideration can be made on the physical work environment, “No plantation in the mill yard”, “No good facility of aeration in mill house” were the immense problem. On the other hand in case of economical problem, “No security for holding job”, “No salary when leave taken”. Moreover “No facility for recreations”, “No health check up facility”, “No facility for consulting with doctors”, “No insurance for accident” were the main problem regarding health issues.

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