*International Research Journal of Social Sciences*_____ ISSN 2319–3565
Vol. **3(3),** 15-21, March **(2014)** *Int. Res. J. Social Sci.*

A Study on Socio-Economic Condition and Nutritional Profile of Women Worker's in Shrimp and Agriculture Sectors in Selected two Districts of Bangladesh

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Available online at: www.isca.in, www.isca.me
Received 14th January 2014, revised 24th February 2014, accepted 12th March 2014

Abstract

This cross-sectional study was conducted at purposively selected area known as Botiaghata, Lobonchoraand Dumuriaof Khulna city and purposively selected area known as Nowapara and Lokpurof Bagerhat city with a view to assess the nutritional status of working women involved in agriculture and shrimp sector. A total of 150 working women were interviewed and their anthropometric measurements were taken. A large number of respondents (48%) were in the age group of 21 to 30 years in agriculture sector on the other hand (36%) were in the age group of both 21 to 30 and 31 to 41 years in shrimp sector. In this study show that 12% women are still illiterate in agriculture sector where no illiterate women involved in shrimp sector. 60% women in shrimp sector and 42% women in agriculture sector are primary level. In agriculture sector 9% women monthly receipts is less than ≤3000 tk. and in this range no women working in shrimp sector. 22% women are in agriculture sector receipts ≥4000 tk. monthly, where no women gain this amount in shrimp sector. 32% in shrimp sector and 56% in agriculture sector women are suffering from various levels of malnourishments. In shrimp sector 22% and in agriculture sector 16% women has overweight (according to Gomez classification). 16% in shrimp and 31% in agriculture sectors women has no idea about balanced diet. In shrimp sector 24% and in agriculture sector 40% women has no idea about the food which helps blood volume in the body. 14% in shrimp and 31% in agriculture sectors women has no knowledge about vitamin-A capsule. 32% women in shrimp sector and 36% women in agriculture sector have low blood pressure. The nutritional status determined by BMI was found significantly associated with individual income, education and family expenditure of the respondents ($p < .001$) in both agriculture and shrimp sector.WHZ was also found significantly associated with individual income of the respondents ($p = .003$) in agriculture but not in shrimp sector ($p = .665$). This study provided a vivid picture of the nutritional status of the women workers involved in both agriculture and shrimp sector and could provide help to the concerned authority in their policy making and planning to alleviate the problem.

Keywords: Nutrition, agriculture, balanced diet, Shrimp, working women.

Introduction

Women throughout the world play critical role in economic growth and development and their contribution have an impact on households, communities and national economies. Women contribute to the family economy, by participating in the labour force, thereby earning an income and contributing to the family and also by undertaking the primary responsibility for household maintenance, childcare and there by sustain the family. Socio- economic and nutritional status of women is directly connected with their economic position, which in turn depends on opportunities for participation in economic activities. The economic conditions of women have profound effect not only on women's own but also on that of their children and families and on subsequent generations. It is well recognized now that women make most healthcare decision at the family level and provide most of the informal health care. They look after the sick and the elderly, determine diet, maintain the immediate environment of the family and transmit attitudes and life styles. It is generally women's rather than men's‟ education, income and time that determine the health and nutritional status of children. Women in developing countries are often in poor health and are overburdened with work, they are tired, most are anemic and many suffer from malnutrition and parasitism and chronic ill health especially, during pregnancy and childbirth. Women's special needs have often been ignored by health planners and women have thus had to bear a disproportionate share of unmet health needs[1]. The deprivation to women starts from birth in Bangladesh. The socioeconomic, health and nutritional status of women depict gloomy pictures throughout their life[2]. Moreover, like most developing countries, the picture of nutritional status of women is far too serious in the poorer socioeconomic groups who live in the rural areas and urban slums of Bangladesh[3]. It has been recognized that infants, children and women of the reproductive age constitute the most vulnerable groups from the stand point

of Nutrition[4]. Malnutrition is the outcome of many complex biological and social processes. The roots of malnutrition run deep into its social soil and it is a matter of thought that malnutrition has not been changed significantly during the last two decades[5]. One fourth of non-pregnant mothers living in the slums suffer from severe malnutrition. About 70% of women in Bangladesh suffer from deficiency anemia. For women, in Bangladesh, generally life consists of high mortality, malnutrition and ill health. Women's general health care is greatly ignored and they face special health hazards due to severe anemic condition, poor health, inadequate nutrition, multiple pregnancies, abortion etc. Although a housewife has to take care of the health of all members of the family, there is hardly anyone to take care of hers. The daily per capital calorie intake of women (1599k. cal) is lower than that of a man (1927k. cal). The life expectancy of females (60.5) is lower than that of males (60.7 years) [6].

This study is based on the objectives that: To investigate the socio-economic profile of the working women in agriculture and shrimp sector. Assess income generating strategies of working women. Analyze and determine the livelihood status of working women through examining their household income. To assess the nutritional status and the knowledge and practice about nutrition of working women individuals in agricultural and shrimp sector.

Methods and Materials

Study was conducted randomly-selected areas of *Khulna* and *Bagerhat* district, with agricultural production and fisheries industries. It was cross sectional as it was conducted at one point of time among the selected population. The study was conducted through 150 households of working women in agricultural and shrimp sector comprising 100 agriculture and 50 shrimp households were selected randomly which had at least one working women in agricultural and shrimp sectors in purposively selected area known as *Botiaghata, Lobonchora and Dumuria* of *Khulna* city and purposively selected area known as *Nowapara* and *Lokpur* of *Bagerhat* city over a six month period during July, 2012 to June, 2013. A questionnaire was prepared for the purpose of the study. It is consisted to both close and open ended question. For measuring anthropometric parameter, food consumption of household and blood for Hemoglobin measurement we use following tools: i. Stadiometer: For height measurement, ii. Height scale: For weight measurement, iii. Hemoglobin tube, filter paper, lancet, hexesole, test tube, pipette, and spectrophotometer: For hemoglobin measurement.

Socio-Economic Condition of Women Worker's in Shrimpand Agriculture Sectors: The table 1 shows about the engagement to religion of the working women. Here it shows that most of the working women in both Shrimp 96.0% and agricultural 66.0% sectors are Muslim. 4.0% in Shrimp and 18.0% in agricultural sector are Hindu. 13.0% and 3.0% are respectively Buddhist and Christian in agricultural sector. No women of Buddhist and Christian religion are involved in Shrimp sector.

The findings of the study explicates that the age of women workers both in shrimp and agriculture sectors. 10% and 12% women are 15-20 years old in respectively shrimp and agriculture sector. In shrimp sector 48% women are 21-30 years and 40% women are 31-40 years old. 36% women are in both 21-30 years and 31-40 years old in agriculture sector. Only 2% in shrimp sector and 16% in agriculture sector working women are >40 years old. Another Findings of the study show that the educational qualification of the working women. Here it shows that no women are illiterate in fisheries sector, where 12% women are illiterate in agricultural sector. 60% are primary, 18% are secondary, 6% are S.S.C. pass and 16% are able to sign in fisheries sector where 42% are primary, 18% are secondary, 12% are S.S.C. pass, 9% are able to read and write and 7% are able to sign in agricultural sector.

The table 1 shows about the marital status of the working women. Here it shows that most of the working women in both Shrimp 56.0% and 82.0% are married. 12.0% and 6.0% of women are unmarried respectively in Shrimp and agricultural sector. 10.0% of women are both widow and divorce and 12% are separated in Shrimp sector. No widow and 6.0% are both separated and divorce involve in agricultural sector.

Findings of the study show thatabout the number of family numbers. It indicates that 36% in shrimp sector and 30% in agriculture sector has less than 4 members, 40% in shrimp sector and 58% in agriculture sector has four-five family members and only 6% in shrimp sector and 3% in agriculture has more than seven family members.

The result of the study explicates thatthe monthly income of women workers. No women receipts are ≤3000 tk. In shrimp sector, but 9% women receipts is ≤3000 tk. in agriculture sector. 88% women income in shrimp sector and 39% women in agriculture sector is 3001-3500 tk. 22% women income is ≥4000 tk. In agriculture sector, but no women income is ≥4000 tk. in shrimp sector.

Nutritional Profile of Women Worker's in Shrimp and Agriculture Sectors: Food Knowledge of the Respondents: The table 3 shows the knowledge of women workers about the balanced diet. 36% women in shrimp sector and only 3% women in agriculture sector know rice/ bread is the balanced diet food. In shrimp sector 28% women and in agriculture sector 60% women know all foods are balanced diet. 16% in shrimp and 31% in agriculture sector has no idea about balanced diet.

Table-1
Personal Profile of the Respondents

Types in Religion	Shrimp		Agriculture	
	Frequency	Percent	Frequency	Percent
Muslim	48	96.0	66	66.0
Hindu	2	4.0	18	18.0
Buddhist	0	0.0	13	13.0
Christian	0	0.0	3	3.0
Total	50	100.0	100	100.0
Age				
15-20 years	5	10.0	12	12.0
21-30 years	24	48.0	36	36.0
31-40 years	20	40.0	36	36.0
>40 years	1	2.0	16	16.0
Total	50	100.0	100	100.0
Educational level				
Illiterate	0	0.0	12	12.0
Primary level	30	60.0	42	42.0
Secondary level	9	18.0	18	18.0
S.S.C pass	3	6.0	12	12.0
Able to sign	8	16.0	7	7.0
Able to read and write	0	0.0	9	9.0
Total	50	100.0	100	100.0
Marital status				
Married	28	56.0	82	82.0
Unmarried	6	12.0	6	6.0
Widow/ Widower	5	10.0	0	0.0
Rejected/Separated	6	12.0	6	6.0
Divorce	5	10.0	6	6.0
Total	50	100.0	100	100.0
Number of members				
Less than 4	18	36.0	30	30.0
4-5	20	40.0	58	58.0
6-7	9	18.0	9	9.0
More than 7	3	6.0	3	3.0
Total	50	100.0	100	100.0
Monthly income				
<3000	0	0.0	9	9.0
3001-3500	44	88	39	39.0
3551-4000	6	12	30	30.0
>4000	0	0	22	22.0
Total	50	100.0	100	100.0

(Field Survey, 2013)

Table-2
Nutritional Profile of the Respondents

Balanced diet foods	Shrimp		Agriculture	
	Frequency	Percent	Frequency	Percent
Rice/Bread	18	36.0	3	3.0
Fish/Meet/Egg	3	6.0	6	6.0
Vegetable	4	8.0	0	0.0
Fruits	3	6.0	0	0.0
Don't know	8	16.0	31	31.0
Above all	14	28.0	60	60.0
Total	50	100.0	100	100.0

(Field Survey, 2013)

Respondent's Knowledge and symptoms of common nutritional deficiency: The table 4illustrations about the knowledge about vitamin-A deficiency. Both shrimp and agriculture sectors 54% women know night-blindness is the vitamin-A deficiency. 18% in shrimp sector and 15% in agriculture sector know blindness is vitamin-A deficiency. In shrimp sector 12% and agriculture sector 31% has no idea about vitamin-A deficiency.

The outcomes of the study reveals the knowledge about vitamin-C deficiency. Both shrimp and agriculture sector 50% women know gum bleeding is vitamin-C deficiency. 12% women in shrimp sector and 285 women in agriculture sector has no idea about vitamin-C deficiency.

Table-3
Nutritional Deficiency of the Respondents

Name of thevitamin-A deficiency disease	Shrimp		Agriculture	
	Frequency	Percent	Frequency	Percent
Night-blind	27	54.0	54	54.0
Blindness	9	18.0	15	15.0
Lousy skin	8	16.0	0	0.0
Don't Know	6	12.0	31	31.0
Total	50	100.0	100	100.0
Name of the vitamin-C deficiency disease				
Gum bleeding	25	50.0	50	50.0
Fever	12	24.0	10	10.0
Gum swell	7	14.0	12	12.0
Don't know	6	12.0	28	28.0
Total	50	100.0	100	100.0

(Field Survey, 2013)

Present Suffered Diseases of the Respondents: The table 5 shows that women workers suffer by vitamin-A deficiency disease. In shrimp sector 88% and in agriculture sector 66% women workers suffer by lousy skin.

Another study shows that the women workers suffer by vitamin-C deficiency disease. 60% in shrimp sector and 57% women worker in agriculture sector suffer by gum bleeding. In shrimp sector 18% and in agriculture sector 25% women workers are suffer by gum swell.

The results of the study elucidates the blood pressure level of women workers both in shrimp and agriculture sector. 52% women in shrimp sector and 27% women in agriculture sector has low blood pressure. 16% in shrimp sector and 37% women in agriculture sector has high blood pressure.

Table-4
Diseases of the Respondents

Suffer by vitamin-A deficiency	Shrimp		Agriculture	
	Frequency	Percent	Frequency	Percent
Lousy skin	44	88.0	66	66.0
None	6	12.0	34	34.0
Total	50	100.0	100	100.0
Suffer by vitamin-C deficiency				
Gum bleeding	30	60.0	57	57.0
Fever	5	10.0	11	11.0
Gum swell	9	18.0	25	25.0
None	6	12.0	7	7.0
Total	50	100.0	100	100.0
Blood Pressure Level				
Low	26	52.0	27	27.0
Normal	16	32.0	36	36.0
High	8	16.0	37	37.0
Total	50	100.0	100	100.0

(Field Survey, 2013)

Anthropometric analysis for Knowing Nutritional Status of the Respondents: The table shows the weight for height (WHZ) score. 68% in shrimp sector and 60% in agriculture sector women has standard weight. In shrimp sector 24% women are obese.

The table shows the nutritional status of women according to BMI. 32% in shrimp sector and 56% in agriculture sector women are suffering from various levels of malnourishments. In shrimp sector 22% and in agriculture sector 16% women has overweight (according to Gomez classification).

Testing Chi-square Test of Independence Hypotheses: Test no. 1 shows the probability of the chi-square test static (chi-square =41.459) was Monte Carlo $p < .001$, less than or equal to the alpha level of significance of 0.05. The null hypothesis that differences in "BMI (Body mass index)" are independent of differences in "Individual income" is rejected.The research hypothesis that differences in "BMI (Body mass index)" are related to differences in "Individual income" is supported by this analysis. On the other hand the probability of the chi-square test static (chi-square =26.997) was Monte Carlo $p = .008$, less than or equal to the alpha level of significance of 0.05. The null hypothesis that differences in "BMI (Body mass index)" are independent of differences in "Individual income" is rejected. The research hypothesis that differences in "BMI (Body mass index)" are

related to differences in "Individual income" is supported by this analysis.

Table-5
Nutritional Status of the Respondents

WHZ level	Shrimp		Agriculture	
	Frequency	Percent	Frequency	Percent
Standard	34	68.0	60	60.0
80% Standard	4	8.0	21	21.0
70% Standard	0	0.0	3	3.0
<60% Standard	0	0.0	16	16.0
Obese	12	24.0	0	0.0
Total	50	100.0	100	100.0
BMI				
<16 (Severe malnourished)	0	0.0	3	3.0
16-16.99 (Moderate malnourished)	1	2.0	6	6.0
17-18.49 (Mild malnourished)	10	20.0	15	15.0
18.5-20 (Marginal malnourished)	5	10.0	32	32.0
21.01-24.99 (Normal)	23	46.0	28	28.0
25-29.99 (Overweight)	11	22.0	16	16.0
>30 (Obese)	0	0.0	0	0.0
Total	50	100.0	100	100.0

(Field Survey, 2013)

Test no. 2 presents the probability of the chi-square test static (chi-square =25.457) was Monte Carlo p = .003, less than or equal to the alpha level of significance of 0.05. The null hypothesis that differences in "Weight for height (WHZ)**"** are independent of differences in "Individual income" is rejected.The research hypothesis that differences in "Weight for height (WHZ)" are related to differences in "Individual income" is supported by this analysis. On the other hand the probability of the chi-square test static (chi-square =.934) was Monte Carlo p = .665, greater than the alpha level of significance of 0.05. The null hypothesis that differences in "Weight for height (WHZ)" are independent of differences in "Individual income" is not rejected.The research hypothesis that differences in "Weight for height (WHZ)" are related to differences in "Individual income" is not supported by this analysis.

Test no. 3 illustrations the probability of the chi-square test static (chi-square =67.052) was Monte Carlo p< .001, less than or equal to the alpha level of significance of 0.05. The null hypothesis that differences in "Vitamin A deficiency "are independent of differences in "Education" is rejected. The research hypothesis that differences in "Vitamin A deficiency" are related to differences in "Education" is supported by this analysis. On the other hand the probability of the chi-square test static (chi-square =11.828) was Monte Carlo p = .223, greater than the alpha level of significance of 0.05. The null hypothesis that differences in "Vitamin A deficiency "are independent of differences in "Education" is not rejected. The research hypothesis that differences in "Vitamin A deficiency" are related to differences in "Education" is not supported by this analysis.

Test no. 4 presents the probability of the chi-square test static (chi-square =97.286) was Monte Carlo p< .001, less than or equal to the alpha level of significance of 0.05. The null hypothesis that differences in "Vitamin C deficiency "are independent of differences in "Education" is rejected. The research hypothesis that differences in "Vitamin C deficiency" are related to differences in "Education" is supported by this analysis. Another side the probability of the chi-square test static (chi-square =5.921) was Monte Carlo p = .739, greater than the alpha level of significance of 0.05. The null hypothesis that differences in "Vitamin C deficiency "are independent of differences in "Education" is not rejected. The research hypothesis that differences in "Vitamin C deficiency" are related to differences in "Education" is not supported by this analysis.

Test no. 5 presents the probability of the chi-square test static (chi-square =85.060) was Monte Carlo p< .001, less than or equal to the alpha level of significance of 0.05. The null hypothesis that differences in "BMI (Body mass index)" are independent of differences in "Education" is rejected. The research hypothesis that differences in "BMI (Body mass index)" are related to differences in "Education" is supported by this analysis. In other side the probability of the chi-square test static (chi-square =10.531) was Monte Carlo p = .309, greater than the alpha level of significance of 0.05. The null hypothesis that differences in "BMI (Body mass index)" are independent of differences in "Education" is not rejected. The research hypothesis that differences in "BMI (Body mass index)" are related to differences in "Education" is not supported by this analysis.

Test no. 6 shows the probability of the chi-square test static (chi-square =59.624) was Monte Carlo p< .001, less than or equal to the alpha level of significance of 0.05. The null hypothesis that differences in "BMI (Body mass index)" are independent of differences in "Family expenditure on food" is rejected. The research hypothesis that differences in "BMI (Body mass index)" are related to differences in "Family expenditure on food" is supported by this analysis. On the other hand the probability of the chi-square test static (chi-square =25.060) was Monte Carlo p = .008, less than or equal to the alpha level of significance of 0.05. The null hypothesis that differences in "BMI (Body mass index)" are independent of differences in "Family expenditure on food" is rejected. The research hypothesis that differences in "BMI (Body mass index)" are related to differences in "Family expenditure on food" is supported by this analysis.

Table-6
Hypothesis testing

SI No.	Test Conducted	Independent Variable	Dependent Variable	Study Area	Value	df	Monte Carlo Sig. (2-sided)
1.	Pearson's χ^2	Individual income	Body Mass Index(BMI)	Agriculture	41.459	12	$p < .001$
				Shrimp	26.997	12	$p = .008$
2.	Pearson's χ^2	Individual income	Weight for height (WHZ)	Agriculture	25.457	9	$p = .003$
				Shrimp	.934	2	$p = .665$
3.	Pearson's χ^2	Education	Vitamin A deficiency	Agriculture	67.052	10	$p < .001$
				Shrimp	11.828	9	$p = .223$
4.	Pearson's χ^2	Education	Vitamin C deficiency	Agriculture	97.286	15	$p < .001$
				Shrimp	5.921	9	$p = .739$
5.	Pearson's χ^2	Education	Body Mass Index(BMI)	Agriculture	85.060	20	$p < .001$
				Shrimp	10.531	9	$p = .309$
6.	Pearson's χ^2	Family food expenditure	Body Mass Index(BMI)	Agriculture	59.624	16	$p < .001$
				Shrimp	25.060	12	$p = .008$

Field Survey, 2013

Table-7
Test of Gamma Statistic

SI No.	Test Conducted	Independent Variable	Dependent Variable	Study Area	Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
1.	Gamma (γ)	Age of respondents	Blood pressure of respondents	Agriculture	.596	.077	7.063	.000
				Shrimp	-.167	.214	-.775	.438

Field Survey, 2013, *Not assuming the null hypothesis. *Using the asymptotic standard error assuming the null hypothesis.

Test of Gamma Statistic: Test no. 1 presentssince the gamma was a positive value, survey respondents who had higher age attached greater possibility to have higher blood pressure level like low, normal and high. However the relationship between these variables was moderate.It can also be interpreted that information about survey respondents values for "Age" improves our predictions of their "possibility to have higher blood pressure level" by 59.6% (i.e., gamma of .596). On the other hand since the gamma was a positive value, survey respondents who had higher age attached greater possibility to have higher blood pressure level like low, normal and high. However the relationship between these variables was very weak.

It can also be interpreted that information about survey respondents values for "Age" improves our predictions of their "possibility to have higher blood pressure level" by 16.7% (i.e., gamma of - 167).

Conclusion

There exists wealth of evidence to show that women contribute towards economic and social development. To continue to do this they should have sound health. It is an astonishing fact that most of the women working in various fields do not enjoy good health. This study provided some important information on the nutritional status of working women involved in both agriculture and fisheries sector of *Bagerhat* and *Khulna* city. The findings of this cross-sectional study presented a gloomy picture of the working women which might reflect the picture of the women in Bangladesh as a whole. So, a longitudinal study on a large scale including all the variables related to nutritional status of the women is desirable for gaining further insight. It is therefore an urgent need on the part of the policy makers to take effective steps to better the condition of women in textile industry not only to improve their condition but also to make effective contribution to the society.

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