INNSPUB

International Journal of Biosciences | IJB |
ISSN: 2220-6655 (Print) 2222-5234 (Online)
http://www.innspub.net
Vol. 3, No. 4, p. 192-198, 2013

RESEARCH PAPER OPEN ACCESS

Nutritional status and level of KAP about food & hygiene among the illiterate and primary educated women in Monga areas, Bangladesh

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Key words: Nutritional status, KAP, food, hygiene, monga.

doi: http://dx.doi.org/10.12692/ijb/3.4.192-198 Article published on April 22, 2013

Abstract

Abstract

The nutritional status, life style & food intake patterns of selected Monga areas, Bangladesh was assessed by a cross sectional study among the 372 households. Economic hardship is extensive in the Monga areas, highly agriculture-dependent and disproportionate size of day-laborers. Literacy rate was very poor in both male and female. About 55.4% of the respondent's husbands were day labor/ farm labor and only 9.7% skilled labor was the main profession. The mean monthly income and expenditure of the family was Tk. 3963 and 3615 only with the standard deviation of Tk. 542 and 457only respectively. Nutritional status is also indicates the life style situation of that areas. The prevalence of malnutrition among the respondents were 8.3%, 14.8% and 55.9% were in CED_3, CED_2 and CED_1 respectively. However, about twenty percent (19.6%) of them were normal and 1.4% was overweight. About 95.2% respondents collected food from the local market. Only 4.8% were collected food from their agricultural farm. The presence of egg and meat sources, milk sources and fruits and vegetables sources of the respondents were 32.5, 34.9 and 59.4% respectively.

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Introduction

Seasonal hunger induced by agricultural seasonality is often a characteristic feature of rural poverty. The evidence of seasonal distress in many agrarian societies can be found in the narratives of economic historians. Although predictable seasonality creates hardship on a regular basis, it also allows some recovery. But irregular occurrences, such as floods or failure of the monsoon rains, can magnify the adverse seasonal effects and can culminate in a famine like situation. Seasonal hunger has thus been varyingly described as the "cycle of quiet starvation" and the "father of famine," indicating that controlling seasonal hunger is a step toward averting famine (Devereux et al., 2008).

Monga or seasonal food insecurity is not a new phenomenon in rural Bangladesh, but the topic just started to catch public interest in the recent years. NGOs and other actors in the development process monga is now an important apprehension, for which they collect funds and implement programmes (Zug S, 2006). The Northern Region of Bangladesh is situated in the Tista and Jamuna basin, and contains many tributaries of these. Rangpur region not only has lagged in poverty reduction compared to other regions, but also has remained particularly vulnerable to seasonal hunger, locally known as *monga* (Elahi et al., 2008; Narayan et al., 2007; Rahman and Hossain, 1995). The public awareness of Monga has risen with media focus in the 2000s. It was cited in Poverty Reduction Strategy Paper, Bangladesh and has been the subject of NGO aid programs (Conroy et al., 2007).

In north-western Bangladesh there is an annual period of food insecurity (the *monga*) that generally occurs between mid-September and mid-November and is primarily caused by unemployment and a lack of income before the large *aman* rice harvest[2]. People who live on *chars,* which are large flat islands in the main river channels, are particularly affected by the *monga* as flooding occurs during the preceding months almost every year. When flooding is severe, there can be household damage, a loss of assets, disruption of agricultural activities and obstacles to rearing livestock. *Chars* dwellers may be confronted with river bank erosion, which can take away their homestead and any land they possess. The scarcity of work also has severe repercussions for the income of poor *char* households and many are obliged to reduce their food intake during this period (Conroy and Marks, 2008).

Despite the fact that reducing food intake throughout slack seasons is one of the distinguishing features (over 80 percent) for coping with the Monga have been resonated, and response actions should have on the basis on suggested pre-crisis early warning system. The number of size and outreach of mitigating strategies that have been, and are being, adopted across the Monga-prone areas in Bangladesh by several government bodies, NGO's or international development agencies from northern to north-western region, testify to this prediction(Conroy et al., 2007).

The 'monga region' is economically weaker than other regions. Taking only the GDP's component of manufacturing into consideration, Bangladesh is very heterogeneous. Lalmonirhat, Nilpharmari and Kurigram are the three districts with the lowest productivity in this sector in Bangladesh. Industrialization in Greater Rangpur is far below the national average. Their major employment opportunity is agricultural labour, as there is only very limited demand from other sectors. The unequal land distribution combined with the lacking alternatives results in a very high share of agricultural labour households in the region (The Bangladesh Census of Agriculture, 1996).

Although Greater Rangpur is a food surplus area, agriculture cannot provide enough employment for the big agricultural labour force (Kabi, 2005). This leads to a very low wage rate in Greater Rangpur. In 2004 the daily average wage for male labourers of 50.9 Taka per day without meals made up only 68% of the average wage rate in Bangladesh (74.5 taka).

Only Greater Dinajpur had a similar low wage rate (52.1 taka). Agricultural labourers in all other greater districts were significantly higher paid with 60.7 to 109 taka per day (Bangladesh Bureau of Statistics, 2005). A major reason for the low employment opportunities is the lack of agricultural diversification. Agricultural production in the districts is mainly based on paddy, while labour intensive high-value crops like vegetables are only rarely cultivated.

In 2006, one million person-days of employment in labor-intensive earthwork, primarily homestead plinth-raising, were provided in the districts of Kurigram, Gaibandha and Jamalpur. More than 25,000 men and 12,000 women were employed with a wage rate fixed at Tk. 80 per day with payment occurring every 3-4 days. On average, these wages were sufficient to allow a family to purchase 2 meals per day (Conroy et al., 2007).

In years with particular negative weather conditions – drought, cold spells or floods -, the period of seasonal unemployment expands to more than four months, for example when early floods in August – September destroy part of the recently sown *Aman* rice crop, and whenever unexpected rainfall leads to swollen rivers and increased erosion or flooding, the implications are destroyed houses hitting cash-strapped poor households, loss of stored food stocks, and entire families fleeing to higher grounds where they have to sleep in the open.

Due to these phenomenon's, their nutritional status and food intake pattern is undoubtedly measureable which significantly influences the quality of human life. Nutritional status is an important health indicator to assess a country's health status and morbidity pattern and food intake pattern reveals the condition of household food security, income, expenditure on foods and knowledge about foods. A detailed food intake history and physical examination permit an assessment of prevalence of malnutrition and risk.

The Monga area was selected just to find out their causes of poor food intake pattern, lack of employment opportunity, consciousness about nutrition and effect of their health conditions and thus this study will expand the horizon of knowledge regarding beliefs and practices for developing relevant programmers on their issue. Seasonal poverty may be alleviated to some extent by bolstering safety-net programs, the roots of the problem may lie deeper and must be addressed through long-term investments in human and physical capital (Jalan et al., 2000).

Methods and materials

Study design

Cross sectional study was conducted on the selected vulnerable group like women and child was selected from the selected areas in Monga (Northern region of Bangladesh). A total number of 372 household were selected from different locations of Monga areas in Gaibandha District where at least one under five children or pregnant or lactating mother exists. Anthropometric, socio-economic and dietary intakes of 24-hours were collected.

Sample size

A statistical method will be applied to determine the sample size by the following formula:

Sample size (n) = z^2pq/d^2	**Here,**
$= (1.96)^2 \times 0.41 \times 0.59/ (0.05)^2$	n = Sample size
	P = Prevalence rate = 0.41(Kabir,2005).
$= 3.8416 \times 0.2419 / 0.0025$	Q = (1-P) = (1-0.41) = 0.59
	d = 5% level of confidence interval = 0.05
$= 371.7$	
≈ 372	Z = 1.96; Value of the normal variable which is equal to 1.96 at 5% level of significance

Development of questionnaire

A questionnaire was developed containing both closed & open ended questions to obtain relevant information on anthropometric, socioeconomic, dietary condition of the adolescent girls. All questions were designed, pretested, modified and

resettled to obtain and record information easily. Any modification necessary were then made and a final recoded, pretested questionnaire was drawn up.

Anthropometric assessment

The anthropometric data were collected based on standard methods. Age of the subjects under study was determined by interrogation and confirmed through probing if the birth certificate or the health card were unavailable. Measurements of weight and height were obtained from all subjects. The subjects were weighed wearing minimal cloths and bare footed. Three weight measurements were obtained using a bathroom weighing scale and the average was calculated and recorded to the nearest 0.1 kg. The height was measured with a wooden measuring board without shoes and the average was calculated and recorded to the nearest 0.1 cm. Body Mass Index (BMI) is the best method of measuring the nutritional status of the respondent.

$$\text{BMI} = \frac{Weight\ in\ kg}{Height\ in\ m^2}$$

Table 1. Socio-demographic features of the respondent women from Monga areas.

Socio-demographic features	Frequency	Percentage	p-values
Age in Years			
< 20	39	10.4	
20-29	142	38.2	p>0.05
30-39	184	49.5	
≥40	7	1.9	
Religious			
Muslim	355	95.4	p>0.05
Hindu	17	4.6	
Education			
Illiterate	43	11.6	p<0.05
Can read and sign	304	81.7	
Primary	25	6.7	
Occupations			
House wife	194	52.1	
Day labour/ farm labour	93	25.0	
Maid servant	71	19.3	
Small business	9	2.4	p<0.05
Others	5	1.2	
Monthly Family income (Tk.)			
<2500	23	6.2	
2500 – 4999	173	46.5	
5000- 7499	148	39.8	p<0.05
>7500	28	7.5	
Respondent's Age, Mean ± SD		26.9±2.1	
Family Size, mean ± SD		5.8 ±1.2	
Monthly Family Income (Tk.) Mean ±SD		3963 ± 542	
Monthly Family Expenditure (Tk.) Mean ±SD		3615 ± 457	

Data collection procedure

Socio-demographic, anthropometrical information and clinical sign symptoms of malnutrition related individuals, different food insecurity factors such as agriculture production, post harvest losses, lack of employment opportunity women and child care was collected by the face to face interview schedule.

Data analysis

The data set were first checked, cleaned and entered into the computer from the numerical codes on the form. The data was edited if there is any discrepancy and then cleaned it. The frequency distributions of the entire variables were checked by using SPSS 14.0 windows program. For tabular, charts and graphical representation Microsoft word and Microsoft excel were used.

Results and discussion

Monga or seasonal food insecurity is not a new phenomenon in rural Bangladesh, but the issue just started to catch public interest in the last few years. To the NGOs and other actors in the development process Monga is now an important concern, for which they collect funds and implement programmers. Table-1 shows the Socio-demographic features of the respondent women from Monga areas. Half of the (49.5%) respondents were 30-39 age range. About 10.4% were less than twenty ages, 38.2% were age range 20-29 and only 1.9% respondents were greater than forty age. About 95.4% respondents were Muslims and rests of 4.6% were Hindus. In this study we saw that 81.7% respondents can read and sign. About 11.6% and 6.7% respondents were illiterate and complete their primary levels respectively. About Half (52.1 %) of the respondents were House wife and 25%, 19.3% 2.4% ,1.2% respondent's were related with day labor, maid servant, small business, others jobs. The monthly family income and expenditure of a family were 3963 (Tk.) and 3615 (Tk.) respectively.

Table 2 shows the prevalence of malnutrition among the respondents. It was assessed by body mass index (BMI), 80% (n = 372) of the female respondents were suffering from varying degrees of Chronic Energy Deficiency (CED), of which 8.3%, 14.8% and 55.9% were in CED_3, CED_2 and CED_1 respectively. However, about twenty percent (19.6%) of them were normal and 1.4% was overweight.

Table 2. Nutritional status of the respondents according to BMI.

BMI	Nutritional status	Frequency (%)
< 16.0	CED_3 (severe)	31 (8.3)
16.00-16.99	CED_2 (moderate)	55(14.8)
17.00 – 18.49	CED_1(mild)	208 (55.9)
18.50 – 24.99	Normal	73(19.6)
25.00 – 29.99	Over weight	5 (1.4)
Total	-	372 (100.0)

Table 3. Distribution of the respondent's sanitary practices.

Sanitary practices	Frequency	Percentage
Presence of tube-well in-house	61	16.4
Presence of latrine in-house	359	96.5
Sanitary/ pacca latrine	32	8.6
Temporary latrine	237	63.7
Using toilet soap	11	2.9

Table 3 shows that more than ninety percent of the household have family latrine but only 8.6% family's had sanitary latrine/ pacca latrine. About 63.7% had temporary latrine and only 2.9 % respondents using toilet soap.

Table-4 shows that 95.2% respondents collected food from the local market. Only 4.8% were collected food from their agricultural farm. The Presence of egg and meat sources, Presence of milk sources and Presence of fruits and vegetables sources of the respondents were 32.5, 34.9 and 59.4% respectively.

Table-5 shows the food intake pattern of the respondents and observed that their diet was monotonous and the sources of animal food such as meat, fish, milk are very limited.

Table 4. Distribution of the respondent's information about food sources (n=372).

Food Sources	Frequency	Percentage
Local Market	354	95.2
Agriculture farm	18	4.8
Presence of egg and meat sources	121	32.5
Presence of milk sources	130	34.9
Presence of fruits and vegetables sources	221	59.4

Table 5. Distribution of the respondent's food intake frequency (n=372).

Food items	Daily	Frequently	Of time	Rarely
Rice	372	0	0	0
Wheat	361	11	0	0
Egg	5	3	191	173
Milk and milk products	12	39	145	176
Fruits	39	21	217	95
Vegetables	187	143	41	1
Pulses	100	210	62	0
Meat/fish	0	6	19	347

Conclusion

Monga is more multifaceted than it seems. It is a phenomenon formed by various factors that are partly man-made and partly resolute by nature. It is the temporal coincidence of different problems which have a big worst impact on the livelihoods of the rural poor in a specific time of the year. However, Monga was often not observed with a broad perspective. Monga was mainly elucidated by the seasonal working patterns associated to agriculture and partly by chronic poverty. Monga has also to be seen in many more circumstances like economic performance, natural disaster, land administration, social relations and mechanisms, actions and interests of local and national government as well as the NGOs. Putting Monga in a broad framework has to be continued in research and in actions.

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