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FOOD SECURITY AND SOCIODEMOGRAPHIC CHARACTERISTICS OF UNDER FIVE CHILDREN IN A COASTAL AREA OF BANGLADESH

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ABSTRACT

Geographically Bangladesh is a climate sensitive country. Climate change is considered one of the most alarming global important issues of this time. Bangladesh is a naturally hazard prone country and highly affected by climate change. This cross-sectional study aimed to find out the extent of association between household food security and sociodemographic characteristics of under 5 children in a coastal area of Bangladesh. This household based cross-sectional study was conducted among 453 under five children and their respective mother/ head of household residing in 11 villages of 5 union parishad of Ashasuni upazill of Satkhira district of Bangladesh to find out the extent of association between household food security and sociodemographic characteristics of them. Children getting consent from their parents were inducted as study participants. Semi-structured questionnaire was used to collect data on the food security and socio-demographic variables. Among 453 participants about 46% (210/453) people were from food secure family. About 51.4% (108) male child and 48.6% (231) female child were from food secure family. The age of respondent's child was between 12 to 57 month and the mean age was 29.77±14.219 month and the youngest child was 12 month of age while the oldest was 57 month of age. About 41.4% (87) of the participants of 12-20 month of age group were from food secure family. About 25.2% (53) cases head of a food secure family were completed primary level of education and about 44.3% (93) were completed secondary level of education. Most of the head of a food secure family were service holder (69%, 145). About 62.4% (131) cases participants of food secure family lived in pukka house. Most of the food secure participants (80%, 168) lived in nuclear family. Most of the cases (17.6%, 37) monthly income of a food secure family was less than 10,185 taka. There was a statistically significant relationship between food security status and type of family (p=0.011), level of education of family head (p=0.000), total monthly family income (p=0.000) and housing condition (p=0.000). Occupation of family head (p=0.067) and age of child (p=0.077) had a marginal relationship with level of food security. Sociodemographic and socioeconomic factors may be a key contributor of food security status. Paternal responsibility towards family, his occupation, overall earning capacity of family, educational status of children and their housing type may contribute a significant role in household food insecurity level. Improvement of these factors may improve overall security status.

KEYWORDS: Food Security, Sociodemographic Characteristics, Under Five Children, Coastal Area of Bangladesh.

INTRODUCTION

Geographically Bangladesh is a climate sensitive country. Climate change is considered one of the most alarming global important issues of this time. Bangladesh is a naturally hazard prone country and highly affected by climate change.[1] There is significant linkage between climate change and vulnerability contexts with household food security as well as with nutritional status.[2-3] For every human being, the first 5 years of life is a vital time for development of health, immunity, psychosocial characteristics for the future. These early years of life is important in construct of an

ideal human being. Food security and malnutrition could act as the major barrier in achieving these goals.[3] There are three elements of food security: availability, accessibility and utilization according to USAID. Food availability refers to the physical presence of food at various levels from household to national level, be that from own production or through markets. Food access refers to the opportunity to obtain an appropriate and nutritious diet at the household level.[4] Food utilization refers to the proper use of food, which includes the existence of proper food processing and storage practices, adequate knowledge and application of healthy nutritional support and child care, and adequate health and sanitation services too.[5-7] The USAID's policy determination states that, "food security exists when all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life". According to USAID 1992, this definition of food security focuses on three district but interrelated elements, which are essential to achieve food security.[8-9]

1. **Food availability:** Having sufficient quantities of food from household production, other domestic output, commercial imports, or food assistance.
2. **Food access:** Having adequate resources to obtain appropriate food for a nutritious diet that depends on available income, distribution of income in the household, food prices.
3. **Food utilization:** proper biological use of food, requiring a diet with sufficient energy and essential nutrients; potable water and adequate sanitation; and knowledge of food storage, processing, basic nutrition, and child care and illness management.[10]

This cross-sectional study aimed to find out the extent of association between household food security and sociodemographic characteristics of under 5 children in a coastal area of Bangladesh.

METHODOLOGY

A household based cross-sectional study was conducted among 453 under five children and their respective mother/ head of household residing in 11 villages of 5 union parishad of coastal area of Satkhira district of Bangladesh to find out the extent of association between household food security and sociodemographic characteristics of them. Sample was selected conveniently by visiting households of selected coastal area. Children getting consent from their parents were inducted as study participants. Semi-structured questionnaire was used to collect data on the food security and socio-demographic variables. Inclusion criteria was under-five children (12-60 months) residing in coastal area and getting consent from their parents for participating in this study. Exclusion criteria was unable to participate and severely ill. Since the largest calculated sample size was found to be 384. To minimize non-respondent after 20% increase in the size was 460. Total 7 participants were non-responsive and for that the final sample size was 453. A semi-structures questionnaire was developed in English. The questionnaire was developed using the selected variables according to the specific objectives. The questionnaire was contained questions related to:

1. Socio-demographic characteristics of participants and their family.
2. Measurement of food security among the participants.

In this study, the food security was measures by "The Household Food Insecurity Access Scale (HFIAS)". The HFIAS is composed of a set of nine questions that have been used in several countries and appear to distinguish food insecure from food secure households across different cultural contexts. The information generated by the HFIAS can be used to assess the prevalence of household food security (access component) and to detect changes in the food security situation of a population over time.

The HFIAS module covers a recall period of 30 days, and consists of two types of questions: nine "occurrence" and nine "frequency-of-occurrence" questions. The respondent is first asked if a given condition was experienced (yes or no) and, if it was, then with what frequency (rarely, sometimes, or often). The resulting responses can be transformed into either a continuous or categorical indicator of food security. When calculating the HFIAS as a continuous indicator, each of the nine questions is scored 0-3, with 3 being the highest frequency of occurrence, and the score for each is added together. The total HFIAS can range from 0 to 27, indicating the degree of insecure food access. As a categorical variable, households are categorized as food secure, mildly food insecure, moderately food insecure, or severely food insecure[10]. Households that respond affirmatively to the more severe behaviours (or experience them more frequently) are classified as more severely food insecure. For more in-depth information on using and interpreting the HFIAS, refer to the guide created by FANTA.[11]

The questionnaire was finalized after necessary modification according to the findings of pretesting. After the collection of whole range of data, they were processed and tabulated. Editing, coding and decoding of collected data were done simultaneously, avoiding irrelevant and unreliable information. The turbulent data was analysed and described according to the aims and objectives of the study, using SPSS version 26. The rest statistics was used to analyse the data was Chi Square, Fisher's Exact Test. Level of significant was set at 0.05. The results were presented in the form of tables and graphs.

RESULT

Among 453 participants about 46% (210/453) people were from food secure family. Rest of them were from food insecure family. About 51.4% (108) male child and 48.6% (231) female child were from food secure family.

The age of respondent's child was between 12 to 57 month and the mean age was 29.77±14.219 month and the youngest child was 12 month of age while the oldest was 57 month of age. About 41.4% (87) of the participants of 12-20 month of age group were from food secure family followed by 16.7% (35) of 21-30 month of age group, 15.2% (32) of 31-40 month of age, 12.4% (26) of 41-50 month of age and 14.3% (30) of 50 month or older age group. About 25.2% (53) cases head of a food secure family were completed primary level of education and about 44.3% (93) were completed secondary level of education. Only 20% (44) participant has been completed graduation and about 3.8% (8) didn't have any formal education. Most of the head of a food secure family were service holder (69%, 145) followed by businessman (31%, 65). About 62.4% (131) cases participants of food secure family lived in pukka house followed by kuccha (14.3%, 30) and semi-pukka house (23.3%, 49). Most of the food secure participants (80%, 168) lived in nuclear family followed by joint family (20%, 42). Most of the cases (17.6%, 37) monthly income of a food secure family was less than 10,185 taka followed by in between 10,185-17,045 taka in 28.1% (59) cases. Only in 7.1% cases (15) monthly family income was more than 34,125 taka only. There was a statistically significant relationship between food security status and type of family (p=0.011), level of education of family head (p=0.000), total monthly family income (p=0.000) and housing condition (p=0.000). Occupation of family head (p=0.067) and age of child (p=0.077) had a marginal relationship with level of food security.

Table 01: Food security status of children and sociodemographic factors.

Socio-demographic characteristics		Frequency (%)	p value
Type of family	Nuclear	168 (80)	**0.011**
	Joint	42 (20)	
Education of family head	Graduation	42 (20)	**0.000**
	Higher secondary level of education	14 (6.7)	
	Secondary level of education	93 (44.3)	
	Primary level of education	53 (25.2)	
	No formal education	8 (3.8)	
Total monthly income of family	<10,185 taka	37 (17.6)	**0.000**
	10,185-17,045 taka	59 (28.1)	
	17,045-25,585 taka	84 (40.0)	
	25,585-34,125 taka	15 (7.1)	
	>34,125 taka	15 (7.1)	
Housing condition	Kuccha	30 (14.3)	**0.000**
	Semi-kuccha	49 (23.3)	
	Pukka	131 (62.4)	
Occupation of family head	Service-holder	145 (69.0)	0.067
	Businessman	65 (31.0)	
	Unemployed	0 (0.0)	
Sex of child	Male	108 (51.4)	0.400
	Female	102(48.6)	
Age of child	12-20 months	87 (41.4)	0.077
	21-30 months	35 (16.7)	
	31-40 months	32 (15.2)	
	41-50 months	26 (12.4)	
	>50 months	30 (14.3)	

DISCUSSION

In this study, we explored the influence of sociodemographic characteristics of under five children residing in coastal area over their food security status. Our findings showed a strong positive association between household food security status and family head education as well as their employment status, and other socioeconomic factors such as household monthly income, age of children, and type of family of respondents.[11-13]

Our study revealed that children from the food secure households had higher dietary diversity compared to the children from the food insecure households during the monsoon season, consistent with other findings.[12] Poverty, low agricultural production, high food price, natural calamity and seasonality are some of the reasons behind household food insecurity in the developing countries. Initiation and expansion of new social safety net programmes such as cash transfer, food transfer and other income generating programmes can improve the capacity of people to acquire foods and thereby maintain and ensure household food insecurity status during low harvest seasons.[13]

Household food security is also related with agricultural production. Agricultural interventions can improve

household food security status by increasing the availability of and accessibility to various nutritious food items. A study from Nepal suggests that each additional food group produced by the household increases the log odds of meeting minimum dietary diversity of children aged 18–24 month by 0.25 (p value 0.01). Intake of dairy, poultry, vitamin A rich fruits & vegetables & other vegetables improve with diversification of household food production.[14-16]

Wealthier households often use additional income to purchase non-staple foods, thus increasing household dietary diversity. A recent analysis found income to be a significant determinant of household dietary diversity in Bangladesh.[16] Evidence from different demographic studies also indicated that families with higher income and more resources tend to have more diverse diets.

Educated parents/household head are more likely to have better knowledge and practices of nutritious food habits. Our study also linked mothers' educational attainments with higher mean in food insecurity status. These results are supported by findings from other developing countries. Nutritional education programmes can improve dietary diversity practices in those coastal areas. Home based nutrition counselling improved diet quality of children from both food secure and insecure population. However, the translation of education to improved dietary practices and subsequent improvements in nutritional status, is a lengthy process. Improvements in IYCF practices took as long as 18 months of counselling sessions by health staffs including regular home visits and growth monitoring in Peru.[16-18]

Culturally shaped dietary habits can act as bottlenecks and prevent dietary diversity and improved food security statuses of children. In Bangladesh, the major portion of regular meals consists of starchy staples. Also, women and children receive small share of food due to inequity in intra-household food distribution[19-20]. However, the scenario can be different for mother's employed as skilled workers. The findings of this study confirmed those of others that children whose mothers are skilled workers are more likely to have higher level of food security status when compared to children with stay at home mothers.[20-22,16] A working mother may have more control on food choices due to increased accessibility and affordability. They are also likely to have better knowledge about healthy food for their children, which may influence better feeding practices. On a different note, given the nature of the work the women are involved in, further explorative study would be pertinent to identify the factors facilitating good feeding practices among working mothers in different areas.[23-30]

Ethical Consideration

The study was done through collection of data using questionnaire where neither any intervention nor any invasive procedure was undertaken. However, prior to initiation of the study the proposed thesis protocol was approved by approval committee of BUP. Ethical clearance of the study was obtained from the Institutional Review Board (IRB) of BUP. Before taking the interview a brief introduction on the aims and objective of the study was presented to the respondents. They were informed about their full right to participate or refuse to participate in the study. Researcher himself also assured the respondent that there was no invasive procedure included in the study and all the findings of the study will be used to guide the service providers and policy makers for the improvement of household food security level and influencing sociodemographic factors of primary school children in the coastal region of Bangladesh. A complete assurance was given them that all information provided by them would be kept confidential and their names, social status, monthly income or anything which can identify them would not be published or exposed anywhere. Their participation and contribution were acknowledged with due respect. After completion of these procedures the interview started with their informed written consent.

Declaration

No funding facilities were available for this study and all authors have read and approved the final version of the manuscript and also none of the participating authors has a conflicting financial or other interest related to the work detailed in this manuscript.

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CONCLUSION

In a nutshell, sociodemographic and socioeconomic factors may be a key contributor of food insecurity status. Paternal responsibility towards family, his occupation, overall earning capacity of family, educational status of children and their housing type may contribute a significant role in household food insecurity level. Improvement of these factors may improve overall security status.

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