ISSN: 2319-6505

Available Online at http://journalijcar.org

International Journal of Current Advanced Research
Vol 4, Issue 3, pp 34-39, March 2015

International Journal of Current Advanced Research

ISSN: 2319 - 6475

RESEARCH ARTICLE

NUTRITIONAL STATUS AND DIETARY BEHAVIOR AMONG UP TO TEN YEARS CHILDREN IN SELECTED THREE JELEPARA OF BANGLADESH

[1]Rayhan, [2]Serajul Islam, [3]Ruksanara Sharmin, [4]Sirajul Islam, [5]Abdul Hakim and [6]Abu Zubair

[1, 3,4,5,6] Department of Food Technology and Nutritional Science,
Mawlana Bhashani Science and Technology University, Santosh, Tangail, Bangladesh
[2]Society for Social Service (SSS), SSS Bhaban Mymensingh Road, Tangail, Bangladesh

A R T I C L E I N F O

Article History:

Received12th, February, 2015
Received in revised form26th, February, 2015
Accepted8th, March, 2015
Published online 28th, March, 2015

Key words:

Up to ten years children, Socio-economic condition, Dietary behaviour, Nutritional Status, mother's nutritional knowledge and Jelepara.

A B S T R A C T

The study was conducted among the children aged up to ten years old in selected three Jelepara of Bangladesh. The major goals of the study were to identify the nutritional status and dietary behaviour of the children in Jelepara selected from three regions as Bhola, Tangail and Mymensingh district. Three Jelepara were selected purposively for availability of the samples and other relevant inclusions and exclusions factors. The data collection tools included a questionnaire, anthropometric measurements (weight and height) and a food frequency questionnaire. The Centre for Disease Control (CDC) BMI-for-age percentiles were used to identify children who were underweight (< 5th BMI-for age percentile), overweight (85th to 95th percentile BMI-for age) or obese (≥95th percentile BMI-for-age).Anthropometric measurements revealed the prevalence of both under nutrition and over nutrition among the children. From the assessment of socio-economic condition significant differences were found in household total monthly income. Household total monthly income was higher in Mymensingh Jelepara as compared to Bhola and Tangail Jelepara. From the assessment of dietary intake pattern it was found that the regular eating habit of fish and vegetables were better in Bhola Jelepara. The anthropometric assessment showed that among the selected areas nutritional status of children were better in Bhola Jelepara (73.3% healthy weight) as compared to Tangail (60% healthy weight) and Mymensingh (66.7% healthy weight) Jelepara. On the other hand, majority of the under nutrition were found in Tangail Jelepara (26.7% underweight) comparable to Bhola and Mymensingh Jelepara.The overall nutritional study focused that 24.4% of the children were underweight, 8.9%were overweight, and 66.7% were healthy weight among the three selected Jelepara. It was also observed that the mother's nutritional status and nutritional knowledge was comparatively better in Mymensingh Jelepara. The above study concluded that it should be need for local education and health authorities to develop nutrition education programmers that are contextually sensitive to specifically target children and parents in deprived areas of Jelepara in Bangladesh.

© Copy Right, Research Alert, 2015, Academic Journals. All rights reserved.

INTRODUCTION

Malnutrition among children is a major public health problem in developing countries including Bangladesh [1, 2], resulting from consumption of poor diet over a long period of time [3]. Undernutrition, and high mortality and morbidity, have persisted in many low-income countries. While the more obvious physical consequences of undernutrition mortality, morbidity, stunting and wasting have received a lot of policy attention, the hidden consequences of inadequate micronutrient intake, which often do not have obvious symptoms, have more recently become a main concern in public health and development organizations. These hidden consequences of micronutrients intake affect immune function, cognitive development, the growth of children, reproductive performance, and work productivity[4].
The mothers of malnourished children are necessarily ignorant or that all illiterate mothers. Whether their children are healthy or malnourished, are ignorant [5]. Their knowledge of child nutrition and child-care practices can be expected to have a significant bearing on their children's nutritional status, but conflicting results have been reported in this regard. Whereas some studies have observed a positive relationship between childhood malnutrition and maternal knowledge and beliefs regarding nutrition [6,7].

Most of the causal factors of under nutrition mentioned above and little attention to the under-five children in social-ecological studies are evident in Mafia Island. Poor dietary intake, inability to access fish for household consumption and mothers' worries about the quality of diets for their children [8,9].

Fish is more nutritious than staple foods, providing animal protein, essential fatty acids and micronutrients. The interventions of food-based strategies which promote production and consumption of locally available nutritious foods have utilised fish instead of supplement distribution

as a sustainable way of tackling micronutrient deficiencies [10,11,12].

The fisheries sector plays an important role in food consumption nutrition, employment and export. The sector contributes more than 5% of Bangladesh's GDP and it creates job opportunities of 1.4 million people. According to the statistics of the FY of 2006-7, this sector earns 4.9% of the total foreign currency to export their commodities. "The state of world fisheries and Aquaculture" (FAO 2014) stated that Bangladesh is 4th in the production of fresh water fish. About 57% animal protein come from fish. Household survey 2010 stated that one person of Bangladesh consume 12kg fish in a year. In the world this amount is 22.4kg.

According to an UN (2007) study about 73 % children in Bangladesh were malnourished including underweight 45.9 % and stunted 25.7%. More than 50% of Bangladeshi school children suffer from sub clinical under nutrition as indicated by low birth weight for age and 65 % fall in group which indicates long duration malnutrition. Malnutrition during childhood causes tragic waste of human resources because though the children join the schools at right ageless 50 % are able complete their school education with poor academic performance. The impact of malnutrition depends on the stage of the child's development as well as the severity and duration of malnutrition.
A lot of studies found that the prevalence of malnutrition were higher in the Jelepara area compared to other area. Hence, this study was undertaken to identify and compare socio-economic status, Mother's Nutritional Knowledge and Dietary Behavior of Children and their living environment and the nutritional status of up to ten years children among Bhola, Mymensingh and Tangail District of Bangladesh.

MATERIALS AND METHODS

Study Type

The study was a descriptive type of cross sectional study.

Study area

The purpose of this assigned study was to assess the nutritional status and dietary behavior among up to ten years children in selected three Jelepara of Bangladesh. Total 90 Sample collected from Uttar Batamara Jelepara under Borhanuddin upazilla of Bhola (30 sample), Baruka Jelepara under Fulbariaupazilla of Mymensingh (30 sample) and Dainna Jelepara under Tangail (30 sample) District.

Study variables

To assess the dietary intake pattern and nutritional status of the study population following variables were taken as anthropometric, socio-economic, dietary and health service information.

Study instruments

Pilot study

A pilot study was conducted to test the efficiency of the questionnaire, to look for any problem in the methodology and to improve the skill in collecting the data. Any discrepancy in the questionnaire and methodology was then corrected. A simple observational survey constituted a situation analysis at the Jelepara by means of a field visit.

Measuring instrument

a. Modified tape: Height measurement
b. Bathroom scale/Salter scale: Weight measurement

Procedure of data collection

A pre coded & pre tested questionnaire was administered to the study mothers and children by asking questions. Both qualitative & quantitative data were collected by interviewing & measurement.

Anthropometric data

The anthropometric data were collected based on standard methods. The following anthropometric data were collected-by 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 weight machine was calibrated at every morning before going to the field and checked after every 20 weighing using a known weight. The height was measured without shoes and the average was calculated and recorded to the nearest 0.1 cm.

Dietary information

It was measured by food frequency questionnaire. Information about provision of food, consumption was obtained.

Procedure of data analysis

The data was first checked, cleaned, and entered into the computer from the numerical codes on the form. The data was edited if there were any discrepancy found. The frequency distribution of the entire variables was checked by using SPSS 16 for windows program. It was overall information about the variables.

For purposive data analysis, the raw anthropometric data of SPSS 16 windows program were placed in the growth curves derived indices in values of percentiles. The indices derived from the growth curves values of percentiles, were then transferred again SPSS16 for windows program for further analysis. The new variables obtained were recorded on the basis of analysis such as age, sex, education etc. For tabular, chart and graphical representation Microsoft word and Microsoft excel were used. After summarizing the collected data for each of the suggested indicators to answer the questions based on the objectives of the study, analysis was preceded according to the plan.

RESULTS

Table- 1 shows the distribution of the all children by their sex indicated 56.7% of the children were boys and 43.3% were

girls. In Mymensingh Jelepara 50% mother were illiterate but 26.7% Bhola and Tangail. About 26.7% mother accomplished SSC level in Bhola where 20% Tangail but no respondent's mother accomplished SSC in Mymensingh. Thus it can be concluded that mother education level was comparatively good in Bhola than Tangail and Mymensingh Jelepara.The household total monthly income highlighted that there were far differences in monthly income. It was observed that the highest monthly income more than 10,000 BDT in Mymensingh (46.7%, n=14), 7001-10,000 BDT Bhola (66.7%, n=20), 5001-10,000 BDT in Tangail (36.7%, n=11).

Table 1 Socio-Economic Profile

Distribution of children according to sex

Sex of child	Frequency	Percentage
Boys	39	43.3
Girls	51	56.7
Total	90	100

Distribution of children according to age

Age of children	Frequency	Percent
Up to 3 years	26	28.9
(4-6) years	29	32.2
(7-10) years	35	38.9
Total	90	100

Distribution of the number of children of the respondent mother by different area

	Number of children				
Area	One n(%)	Two n(%)	Three n(%)	Four n(%)	More than four n(%)
Bhola	2(6.7)	9(30)	8(26.7)	4(13.3)	7(23.3)
Tangail	7(23.3)	17(56.7)	5(16.7)	1(3.3)	0(0)
Mymensingh	4(13.3)	10(33.3)	9(30)	1(3.3)	6(20)
Total	13(14.4)	36(40)	22(24.4)	6(6.7)	13(14.4)

Distribution of Mother's education level by different area

	Education level			
Area	Illiterate n(%)	< class 5 n(%)	Up to class 5 n(%)	Up to s s c n(%)
Bhola	8(26.7)	14(46.7)	0(0)	8(26.7)
Tangail	8(26.7)	14(46.7)	2(6.7)	6(20)
Mymensingh	15(50)	15(50)	0(0)	0(0)
Total	31(34.4)	43(47.8)	2(2.2)	14(15.6)

Household total monthly income by different area

	Monthly income			
Area	<5000 n(%)	5001-7000 n(%)	7001-10000 n(%)	>10000 n(%)
Bhola	2(6.7)	3(10)	20(66.7)	5(16.7)
Tangail	2(6.7)	11(36.7)	14(46.7)	3(10)
Mymensingh	1(3.3)	8(26.7)	7(23.3)	14(46.7)
Total	5(5.6)	22(24.4)	41(45.6)	22(24.4)

Table-2 shows the distribution of the score of mother's nutritional knowledge in selected areas about 83.3% (n= 25) mother could answer 1-3 questions on the other hand, 16.7% (n=5) could not answer any question in Bhola. Answering of 4-5 questions about 66.7% (n=20) Mymensingh where 56.7% (n=17) Tangail. However, 6.7% mother could answer 10-12 questions in Tangail and Bhola Jelepara. Moreover, in Bhola Jelepara no mother could answer above 3 questions.

Majority of the child just 60% (n=54) were not suffering from fever in two week and only 40% (n=36) were suffering from fever in last two weeks. About 61.1% (n=55) were suffering from cold-cough in last two weeks and only 38.9% (n=35) were not suffering from cold-cough in last two weeks.

Table 2 Nutritional Knowledge and Practice

Score of mother's nutritional knowledge about Balancec diet &Micronutrient by different area

	Score of nutritional knowledge				
Area	0 n(%)	1-3 n(%)	4-5 n(%)	6-9 n(%)	10-12 n(%)
Bhola	5(16.7)	25(83.3)	0(0)	0(0)	0(0)
Tangail	0(0)	11(36.7)	17(56.7)	0(0)	2(6.7)
Mymensingh	0(0)	6(20)	20(66.7)	2(6.7)	2(6.7)
Total	5(5.6)	42(46.7)	37(41.1)	2(2.2)	4(4.4)

Disease in last two weeks

	Disease Name			
Presence of disease	Fever	Cold-cough	Dysentery	Pneumonia
Yes	36(40)	55(61.1)	2(2.2)	3(3.3)
No	54(60)	35(38.9)	88(97.8)	87(96.7)

Figure-1 shows that the majority of the child were taken treatment about 84.4% to the quack where only 11.1% to the registered doctor and 4.4% homeopathic treatment. The household sanitation observed that about 93.3% Tangail, 86.7% Bhola and 83.3% in Mymensingh Jelepara had sanitary latrine .Overall sanitary latrine about 87.8%. About 76.7% household had tube well in Tangail, 6.7% Bhola and 46.7% Mymensingh.

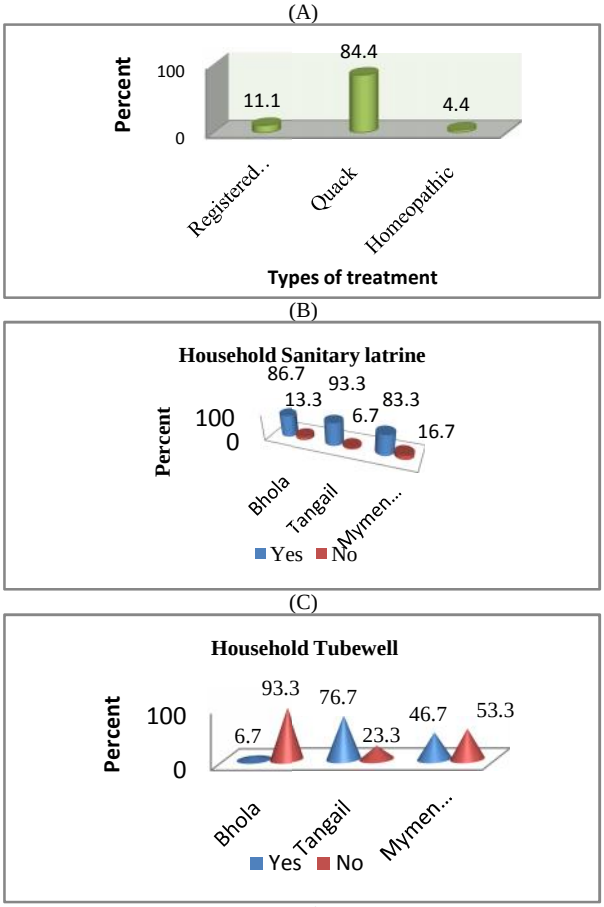

Figure 1 (A) Percent distribution of treatment seeking behaviour (B) Percent distribution of the household according to sanitary latrine by different area (C) Distribution the household according to Tube well by different area.

Table-3 shows that 65.4% children were taken fish daily per week in Bhola Jelepara, abput11.5% and 19.2% children were taken fish at 1-3 days and 4-6 days per week respectively where only 3.8% children were not taken fish in Bhola Jelepara. In Tangail Jelepara about 42.3%, 15.4% and 38.5%

children were taken fish at 1-3 days, 4-6 days and 7 days per week respectively. In Mymensingh Jelepara 44.8%, 13.8% and 41.4% children were taken fish 1-3 days, 4-6 days and 7 days per week respectively. In Mymensingh 13.8% and 6.9% children were taken meat at 1-3 days and 4-6 days in a week respectively.

About 15.4%, 23.1% and 24.1% children in Bhola,Tangail and Mymensingh Jelepara were taken milk 1-3 days in a week but 80.8%, 61.5% and 48.3% children were not taken milk in a week in Bhola, Tangail and Mymensingh Jelepara respectively.

(BMI<16) only in Mymensingh (3.3%) but a certain percentage of overweight mother was also found in study areas 23.3% in Bhola, Tangail and 13.3% Mymensingh.

DISCUSSION

The nutritional status and dietary behaviour among up to ten years children in selected three Jelepara (Bhola, Tangail and Mymensingh) area of Bangladesh was assessed. This assessment is expected to reflect a number of variables that might influence early growth and development.

Table 3 Dietary Behaviour

Fish intake behaviour in a week by different area				
		Days/Week		
Area	**1-3 n(%)**	**4-6 n(%)**	**7 n(%)**	**None n(%)**
Bhola	3(11.5)	5(19.2)	17(65.4)	1(3.8)
Tangail	11(42.3)	4(15.4)	10(38.5)	1(3.8)
Mymensingh	13(44.8)	4(13.8)	12(41.4)	0(0)
Total	**27(33.3)**	**13(16)**	**39(48.1)**	**2(2.5)**

Others food intake behaviour in a week by different area									
	Bhola			**Tangail**			**Mymensingh**		
Food items	1-3 Days/w n (%)	4-6 Days/w n (%)	7 Days/w n (%)	1-3 Days/w n (%)	4-6 Days/w n (%)	7 Days/w n (%)	1-3 Days/w n (%)	4-6 Days/w n (%)	7 Days/w n (%)
Milk	4(15.4)	0(0)	1(3.8)	6(23.1)	0(0)	4(15.4)	7(24.1)	4(13.8)	4(13.8)
Egg	10(38.5)	2(7.7)	0(0)	9(34.6)	1(3.8)	3(11.5)	13(44.8)	3(10.3)	1(3.4)
Meat	12(46.2)	0(0)	-	4(15.4)	0(0)	-	4(13.8)	2(6.9)	-
Vegetable	17(65.4)	6(23.1)	1(3.8)	15(57.7)	4(15.4)	1(3.8)	21(72.4)	8(27.6)	0(0)
Fruits	14(53.8)	1(3.8)	-	9(34.6)	1(3.8)	-	22(84.6)	1(3.8)	-

Table 4 Anthropometric Information

Nutritional status of children by Age group			
	Nutritional status		
Age of child	Under weight	Healthy weight	Over weight
<1 year	1(11.1)	8(88.9)	0(0)
1-3 years	3(17.6)	11(64.7)	3(17.6)
4-6 years	8(27.6)	18(62.1)	3(10.3)
7-9 years	8(25.8)	21(67.7)	2(6.5)
10 years	2(50)	2(50)	0(0)
Total	22(24.4)	60(66.7)	8(8.9)

Nutritional status of children by different area

	Nutritional status		
Area	Under weight	Healthy weight	Over weight
Bhola	7(23.3)	22(73.3)	1(3.3)
Tangail	8(26.7)	18(60)	4(13.3)
Mymensingh	7(23.3)	20(66.7)	3(10)
Total	22(24.4)	60(66.7)	8(8.9)

Nutritional status of mother in different area by BMI

	BMI					
Area	<16 n(%)	16-16.99 n (%)	17-18.49 n (%)	18.5-24.99 n (%)	25-29.99 n (%)	30-39.99 n (%)
Bhola	0(0)	2(6.7)	9(30)	12(40)	7(23.3)	0(0)
Tangail	0(0)	3(10)	0(0)	18(60)	7(23.3)	2(6.7)
Mymensingh	1(3.3)	2(6.7)	4(13.3)	19(63.3)	4(13.3)	0(0)
Total	1(1.1)	7(7.8)	13(14.4)	49(54.4)	18(20)	2(2.2)

Table-4 shows the comparison of nutritional status of children about 88.9% children had healthy weight of <1 year age group. Also 64.7% children of (1-3) years, 62.1% of (4-6) years, and 67.7% of (7-9) year's age group had healthy weight according to age group. About 73.3% children had healthy weight in Bhola Jelepara area also 60% Tangail and 66.7% Mymensingh. However, 23.3% Bhola, 26.7% Tangail and 23.3% Mymensingh had underweight. Moreover, 3.3% Bhola, 13.3% Tangail and 6.5% Mymensingh had over weight. Majority of the mother in study areas was normal BMI range 18.5-24.99. In Mymensingh (63.3%) normal BMI range was better than Tangail (60%) and Bhola (40%). However a little percentage of mother were under nourished

The result revealed that the distribution of the all children by their sex indicated 56.7% of the children were boys and 43.3% were girls. In Mymensingh Jelepara 50% mother were illiterate but 26.7% Bhola and Tangail. About 26.7% mother accomplished SSC level in Bhola where 20% Tangail but no respondent's mother accomplished SSC in Mymensingh. Thus it can be concluded that mother education level was comparatively good in Bhola than Tangail and Mymensingh Jelepara.The household total monthly income highlighted that there were far differences in monthly income. It was observed that the highest monthly income more than 10,000 BDT in Mymensingh (46.7%, n=14), 7001-10,000 BDT Bhola (66.7%, n=20), 5001-10,000 BDT in Tangail (36.7%, n=11).

For the identification nutritional knowledge 12 questions were administered to respondents mothers then questions were scored. The score of mother's nutritional knowledge in selected areas about 83.3% (n= 25) mother could answer 1-3 questions. Mother's nutritional knowledge were better in Mymensingh compared to Tangail and Bhola Jelepara. Some studies have found no relationship of mothers' nutrition knowledge on the nutritional status of children. On the basis of arbitrarily prepared knowledge and belief scores, one such study reported that the mothers of well-nourished children were as ignorant about essential facts regarding nutrition as those of undernourished children [13].

Fish is more nutritious than staple foods, providing animal protein, essential fatty acids and micronutrients. The result shown that about 65.4% children were taken fish daily per week in Bhola Jelepara, about 11.5% and 19.2% children were taken fish at 1-3 days and 4-6 days per week respectively where only 3.8% children were not taken fish in Bhola Jelepara. In Tangail Jelepara about 42.3%, 15.4% and 38.5% children were taken fish at 1-3 days, 4-6 days and 7 days per week respectively. In Mymensingh Jelepara 44.8%, 13.8% and 41.4% children were taken fish 1-3 days, 4-6 days and 7 days per week respectively. In Mymensingh 13.8% and 6.9% children were taken meat at 1-3 days and 4-6 days in a week respectively.

Majority of the mother in study areas was normal BMI range 18.5-24.99. In Mymensingh (63.3%) normal BMI range was better than Tangail (60%) and Bhola (40%). However a little percentage of mother were under nourished (BMI<16) only in Mymensingh (3.3%) but a certain percentage of overweight mother was also found in study areas 23.3% in Bhola, Tangail and 13.3% Mymensingh.

BMI for age percentile about 73.3% children had healthy weight in Bhola Jelepara area also 60% Tangail and 66.7% Mymensingh. However, 23.3% Bhola, 26.7% Tangail and 23.3% Mymensingh had underweight. Moreover, 3.3% Bhola, 13.3% Tangail and 6.5% Mymensingh had over weight. In Sri Lanka also has been reported a considerable proportion of underweight (21.1%), stunting (17.3%) and wasting (14.7%) prevailing among preschoolers according to the survey conducted by the department of census and statistics[14].

CONCLUSION

Study on the nutritional status and dietary behavior among up to ten years children in selected three Jelepara of Bangladesh was carried out to assess the nutritional status of children and simultaneously the dietary intake pattern and socio-demographic conditions observed. To know the nutritional status of children CDC BMI-for-age growth chart was applied according to age and BMI. The degree of underweight in study areas varied across age groups, with children below one year of age being the least affected with underweight problems. This could be partly due to the fact that infants were breastfed. On the other hand, children above one year were less breastfed, and were fed on low nutritional meals. About 88.9% children had healthy weight of <1 year age group. Anthropometric measurements revealed the prevalence of both under nutrition and over nutrition among the children. The overall nutritional study focused that 24.4% of the children were underweight, 8.9% were overweight, and 66.7% were healthy weight among the three selected Jelepara. It was also observed that the mother's nutritional status and nutritional knowledge was comparatively better in Mymensingh Jelepara.The study findings indicate that the children are being fed the wrong kinds of foods or the wrong proportions. Thus, there is a need for local education and health authorities to develop nutrition education programmes that are contextually sensitive to specifically target children and parents in deprived areas of Jelepara in Bangladesh.

Reference

1. Ash, D., Takala, S., & Latham, M. C. (2007). Community driven comprehensive anemia control program can reduce anemia and improve overall health and nutritional status. *Abstract in Micronutrient Forum Istanbul,Turkey*.
2. B. A. Abuya, J. M. Ciera and E. Kimani-Murage, "Effect of Mother's Education on Child's Nutritional Status in the Slums of Nairobi", *BMC Pediatr*, vol. 12, p.80, 2012.
3. Bangladesh Demographic and Health Survey 2011, National Institute of Population Research and Training (NIPORT) &Mitra and Associates, Dhaka,Bangladesh; Macro International, Calverton, Maryland, USA.
4. Demographic and Health Survey- 2006/07, Department of Census and Statistics, Colombo, Sri Lanka, Chapter 11- Nutrition of children and women, pp135- 158.
5. Gibson, R. S., Hotz, C. (2001). Dietary diversification/modification strategies to enhance micronutrient content and bioavailability of diets in developing countries, *British Journal of Nutrition*, 85(2), 159 - 166.
6. Kimati VP. Who is ignorant? rural mothers who feed their well nourished children or the nutrition experts? the Tanzanian story. J Trop Pediatr 1986;32:130-36.
7. M. M. Islam, M. Alam,M. Tariquzaman, M. A. Kabir, R. Pervin, M. Begum and M. M. H. Khan, "Predictors of the Number of Under-five Malnourished Children in Bangladesh: Application of the Generalized Poisson Regression Model", *BMC Public Health*, vol. 13, p.11, 2013.
8. M. S. Akhtar, N. Bhatty, M. Sattar and M. T. Javed, "Comparison of Nutritional Status in Children of Different Socio-Economic Statuses", *Medical Journal of Islamic Academy of Sciences*, vol. 14, no. 3, pp. 97-102, 2001.
9. Roos, N., Wahab, M.A., Chamnan, C., Thilsted, S. H. (2007b). The role of fish in food-based strategies to combat Vitamin A and mineral deficiencies in developing countries, *The journal of Nutrition*, 137, 1106 -1109.
10. Smith MF, Paulsen SK, Fougers W, Ritchey SJ. Socioeconomic, education and health factors influencing growth of rural Haitian children. Ecol Food Nutr 1983;13:99-lOX.
11. Srikantia SG, Sastry CY. Effects of maternal attributes on malnutrition in children. Proceedings of the First

Asian Congress of Nutrition. Hyderabad, India. 1972:584

12. Tontisirin, K., Nantel, G., Bhattacharjee, L. (2002). Food-based strategies to meet the challenges of micronutrient malnutrition in the developing world. *Proceedings of the Nutrition Society*, 61(2), 243 - 250.
13. Underwood, B. A. (2000). Overcoming micronutrient deficiencies in developing countries: Is there a role for agriculture. *Food and Nutrition Bulletin*, 21(4), 356 - 360.
14. Walia BNS, Gambhir SK. The relationship between childhood malnutrition and maternal knowledge and beliefs regarding nutrition. Ind Pediatr 1975; 12: 563-68.
15. Walley, C. (2004). *Rough Waters: Nature and Development in an East African Marine Park*. New Jersey: Princeton University Press.

****