Impact of Nutritional Health Services over the Nutritional Status of Under five Children in the City of Barishal, Bangladesh: A Community Based Survey

Md. Hasib[1*], Md. Nazmul Hassan1, Mehedi Hasan[2]

[1*]M.Sc. in Environmental Sanitation, B.Sc. in Nutrition and Food Science, Department of Environmental Sanitation, Patuakhali Science and Technology University, Bangladesh, Cell No: +8801763117971
[1]Associate Professor, Chairman, Department of Environmental Sanitation, Patuakhali Science and Technology University, Bangladesh, Cell No: +8801717459271
[2*]M.Sc. in Environmental Sanitation, B.Sc. in Nutrition and Food Science, Department of Environmental Sanitation, Patuakhali Science and Technology University, Bangladesh, Cell No: +8801715571546

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Abstract- Purpose of the Study: *To assess the nutritional status of the children before and after getting nutritional health services, to determine the health impact of nutritional status and to assess the dietary diversity of the children.* ***Methodology:*** *Data of 200 children of 0-5 years were taken before and after receiving nutritional health services and the data were collected from Barishal Sadar Upazilla, Barishal. Follow up data was obtained by anthropometric measurement, MUAC tape, health impact inspected by questionnaire including the dietary diversity by food groups and analyzed in Anthro-Plus and SPSS software.* ***Major Findings:*** *The study showed that 41% stunting present before health services were taken and 39% after health services received. Consequently, Wasting 15% and 11% respectively before and after health services rendered. Moreover, Underweight 18% and 14% respectively along with overweight 3% and 4% surrounding. The MUAC tape showed that all children were quite normal Vitamin-A consumption was 36% and 43% respectively and the handwashing for both mother and children were 58% and 75% respectively. Among them <4 food groups taken were 65% and 49% respectively. Food groups, Disease, worm infestation over the category of children either received health care services or not were seen which was statistically significant. Again handwashing, Vitamin-A consumption and worm infestation effects over the disease condition were also statistically significant. But the food groups and disease over the MUAC category were not statistically significant.* ***Originality/Value:*** *After performing our research it's possible to determine the effectiveness of health services towards the nutritional status of under five children in Bangladesh, along which we could find out what short of improvement of the health services should be done to get a nutritionally sound under children and nation.*

Index Terms- Heath services, nutritional status, under five children, dietary pattern, and effectivenes

I. Introduction

Nutrition is an important influencing factor with regard to the continuous growth and development that occur throughout the childhood. It is, therefore, useful in the prevention of diseases or early detection of malnutrition. Consequently, malnutrition varies from country to country depending on economic, ecological, social, and other factors(Edris, n.d.). Although, it is a major public health problems in developing countries like Bangladesh but Protein Energy Malnutrition (PEM) among children were more alarming issues(Bhandari & Chhetri, 2013). Despite of the fact in the past few decades, child malnutrition is still a challenging health problem aged less than five years were expected to have moderate in Bangladesh but it is causing one-third of all deaths of under-five children(Roy et al., 2019) & (Olack et al., 2011). Moreover, every year 7.6 million children die for such preventable malnutrition in the world(Bhandari & Chhetri, 2013). At about 6 months of age, the supply of energy and some nutrients from breast milk can no longer meet infant's needs, requiring the administration of complementary foods to achieve a well-balanced diet(Nyaruhucha et al., 2006). Children aged above 6 months and below five years are considered to be at the greatest nutritional risk due to poor feeding practices, with repercussions on their growth and development. Consequently, this age group is at increased risk of mortality and morbidity among young children(Kumar et al., 2006). So, nutritional status and its health impact on children play an important role for having a healthy society. The serious consequences of malnutrition on a child's growth and health, as well as economic consequences for the nation, nutritional status of children should be periodically assessed to monitor the situation, and appropriate action should be taken to combat and prevent malnutrition(Ergin et al., 2007).

Objectives

i) To assess the nutritional status of the children before and after getting nutritional health services.
ii) To determine the health impact of nutritional status of the children.
iii) To assess the dietary diversity of the children.

II. Materials and Methods

Data of 200 children of 0-5 years were taken purposively before and after receiving nutritional health services which was a follow up study. The 2nd slot data of same children were taken after 3 months of 1st slot data. The research continued from June 2018-December 2018 and the data were collected from Barishal Sadar Upazilla, Barishal. Data was collected from both primary and secondary sources. Primary data includes all the possible outcomes obtained from the questionnaire by direct interviewing of respondents. The secondary sources include govt. publications, papers, journals, published and unpublished thesis, and topic from various books, web site etc. The instruments used in data collection Questionnaire, Anthropometric measurement by height and weight machine, mid upper arm circumference (MUAC) tape measurement, Food groups chart to see the dietary pattern of the people including the health impacts.

Some ethical steps were taken which includes informing the local stakeholders previously for the co-operation of the respondents and also avoiding criticism.

Analysis was done in SPSS software. We find out the descriptive statistics of the subjects and Independent T test, one way ANOVA test for finding the comparison of their mean along with the different subjects to test the significant level.

III. Results and Discussion

Table 1. Background of the Study

Respondents Information	**Children (Before Health Services)**		**Children (After Health Services)**	
WHZ	**Numbers**	**Values**	**Numbers**	**Values**
Wasting	15	15%	11	11%
Moderate Wasting	10	10%	09	9%
Severe Wasting	05	5%	02	2%
Normal	82	82%	85	85%
Overweight (WHZ >2)	03	3%	04	4%
HAZ				
Stunting	41	41%	39	39%
Moderate stunting	29	29%	34	34%
Severe Stunting	12	12%	05	5%
Normal	59	59%	61	61%
WAZ				
Underweight	18	18%	14	14%
Moderate Underweight	14	14%	09	9%
Severe Underweight	04	04%	05	5%
Normal	82	82%	86	86%
Disease				
Present	55	55%	48	48%
Absent	45	45%	52	52%
Vitamin-A Intake				
Taken	36	36%	43	43%
Not Taken	64	64%	57	57%
Handwashing				

Done	58	58%	75	75%
Not Done	42	42%	25	25%
Food Groups Taken				
<4 food groups	65	65%	49	49%
4/4+ food groups	35	35%	51	51%

The Table 1 showed the mean comparison of weight for height Z score (WHZ), height for age Z score (HAZ) and weight for age Z score (WAZ) of two category of children we found. Percentage of wasting of the children showed 15% and 11% respectively before and after health services taken. Moreover, stunting of the children showed 41% and 39% respectively before and after health services. Simultaneously the percentage of underweight showed that it was 18% and 14% respectively. Among the respondents the percentage of overweight was 3% and 4% respectively. The study of Asante and Nube, 1997 showed that wasting, stunting and underweight was 7%, 29.7% and 27% respectively compared to which showed that it was high in our study as well as the overweight condition(Asante & Nube, 1997). It occurred because of the economic crisis to afford the health care services and their wrong perception over health care services that, it was very costly(Waters et al., 2003). After rendering the health care services the condition changed quite satisfactory because primary health care services was the best strategy for the improvement of the nutritional status within a short period of time("Emhj_2000_6_2_3_238_245.pdf," n.d.). Moreover, vitamin A intake over the study category were 36% and 43% respectively which was also according to the study of Malekafzali et al., which showed that if a successful awareness building program for the encouragement of health services could eradicate all health issues("Emhj_2000_6_2_3_238_245.pdf," n.d.). The disease condition of our study showed it was 55% and 48% respectively which showed the decreasing of the disease percentage which was according to the study of Basing et al., and it could be made by fruitful co-operation of the respondent family with the health care centers (Basinga et al., n.d.). Simultaneously, the percentage of handwashing were 58% and 75% respectively which was changed by proper guidance of the health care centers by showing the appropriate handwashing practice and giving the knowledge of bad consequences of inappropriate hand washing(Bank et al., n.d.). Moreover, 4/4+ food groups taken were 65% and 49% respectively. The study of Asante and Nube, 1997 revealed that the economic crisis restrict people to afford 4/4+ food groups but for the wellbeing of their child they were counselled to give their children nutritious food with a very low cost and which will improve the health status of children(Asante & Nube, 1997).

Table 2. Comparison of their Mean Along with the Different Subjects to Test the Significant Level

Variables	Mean ± Std. Deviation	P-value
Food groups over Category of Children		
Before Health Service	1.35±0.48	.001[b]
After Health Service	1.51±0.50	
Disease over Category of Children		
Before Health Service	1.50±0.50	.000[b]
After Health Service	1.86±0.35	
Worm infestation over Category of Children		
Before Health Service	1.60±0.49	.000[b]
After Health Service	1.85±0.36	
Handwashing over disease		
Present	1.16±0.37	.000[b]
Absent	1.42±0.49	
Vitamin-A intake over disease		
Present	1.48±0.50	.000[b]
Absent	1.67±0.47	
Worm infestation over disease		
Present	1.26±0.44	.000[b]
Absent	1.95±0.21	
Food groups over MUAC		
<11.5cm	0.00±0.00	
11.5-12.5cm	0.00±0.00	.874[a]
>12.5cm	1.43±0.50	
Disease over MUAC		
<11.5cm	0.00±0.00	

11.5-12.5cm	0.00±0.00	.192[a]
>12.5cm	1.68±0.47	
Handwashing over Category of Children		
Before Health Service	1.16±0.42	.000[b]
After Health Service	1.42±0.50	

Note: [a]P value for One way ANOVA Test
[b]P value for Independent T Test

The Table 2 showed the food groups, disease and worm infestation, handwashing over the two category of children were seen and the P value obtained P<.05 which showed that there were significantly differences in the study area as expected but the study of Basing et al., showed it was not statistically significant because in our study the respondents were not aware of the health of children but the study of Basing et al., the respondent were fully aware because for more than 6 month intervention were carried out there (Basinga et al., n.d.). In addition, food groups showed significantly different in the category of children because after the health services taken by the family they were fully aware of the fact about their children health and they were well known about the low cost nutritious foods which wouldn't be costly(Asante & Nube, 1997). Moreover, handwashing, vitamin A intake and worm infestation over disease condition was seen and we obtained P value that was P<.05 and it showed a significant differences in disease condition. The study of Bank et al., revealed that an inappropriate handwashing and lack of fresh water causes diseases as well as if the worm infestation was not done then all the nutrients in the body will be absorbed by the worms which will make us malnourished and vulnerable to disease. Vitamin A intake negligence would suffer the children with different kind of diseases due to vitamin A deficiency like liver disorders, fat mal-absorption, night blindness etc.(Bank et al., n.d.). On the contrary food groups, disease over mid upper arm circumference (MUAC) tape categories wasn't P<.05 which were not significant but the study of Bhandari & Chhetri, 2013 showed it was significant because in our study exclusive breastfeeding and taking health care was much more but in the study of Bhandari & Chhetri, 2013 it was unsatisfactory (Bhandari & Chhetri, 2013).

IV. Conclusion

The problems of low standard of living, hunger, starvation, malnutrition, agricultural illiteracy, poor antenatal care, disease, unsatisfactory sanitary and housing facilities etc. of the family has to be developed totally by implementation of policy for the improvement of nutritional status of 0-5 year's old children to have a positive health impact. Stunting in our study was much more than our national stunting condition which was really alarming. So, poor nutritional status should be halted or minimized at an acceptable level overcome such condition.

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Authors

First Author – Md. Hasib, M.Sc. in Environmental Sanitation, B.Sc. in Nutrition and Food Science, Department of Environmental Sanitation, Patuakhali Science and Technology University, Bangladesh, Cell No: +8801763117971
Second Author – Md. Nazmul Hassan, Associate Professor, Chairman, Department of Environmental Sanitation, Patuakhali Science and Technology University, Bangladesh, Cell No: +8801717459271
Third Author – Mehedi Hasan, M.Sc. in Environmental Sanitation, B.Sc. in Nutrition and Food Science, Department of Environmental Sanitation, Patuakhali Science and Technology University, Bangladesh, Cell No: +8801715571546