Research Paper: ORIGINAL ARTICLE

PREVALENCE AND PATTERN OF MALNUTRITION AMONG CHILDREN OF WOMEN FARMERS IN NORTH EASTERN NIGERIA

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Abstract

Background: According to the 98th World Health assembly in 1995, about a third of the world children were undernourished and most of them were in the developing world in which Nigeria accounted for 29 per cent. Women account for 70 to 80 per cent of household food production in sub-Saharan Africa including Nigeria.

Objectives: To determine the prevalence and pattern of malnutrition among under five year old children of female farmers.

Method: Study design was cross-sectional descriptive type. Multistage sampling method was used in the selection of 400 women to whom questionnaires were administered. Height and weight of their under five children were measured.

Results: The study revealed that 176 (44%) were underweight. Out of which 19.4 per cent were wasted, 35.2 per cent were stunted and 45.4 per cent were both wasted and stunted.

Conclusion: Strengthening partnership between policy makers, primary health care service providers, local government authorities and Non Governmental Organizations, NGOs, to encourage interventional strategies is still desirable to reduce the high prevalence of malnutrition.

Keywords: Malnutrition, Under five children, women farmers

Introduction

Malnutrition refers to faulty nutrition resulting from poor diet or overeating, malabsorbtion.[1] The problem of malnutrition constitute greatest threat to public health universally but it is most common in Asia, Africa and South America.[2] Over nutrition may cause obesity but under nutrition is more common among children and has many deleterious effects. Therefore it receives more attention throughout the world.[2] Poor diet leads to under nutrition which describes the physical and mental consequence of inadequate intake due to food scarcity in most developing countries.[2] The consequence of under nutrition has cumulative pervasive effects on subsequent performances such as decreased cognitive functions, social development, physical work capacity, productivity and ultimately economic growth.[3] Under-nutrition is strongly linked to increase morbidity and mortality.[2,3] Chronic under nutrition results in stunting (low height for age) and acute under nutrition results in wasting (low weight for age). Underweight (low weight for age) may be due to stunting and / or wasting.[2,3]

There is a strong link between mother's educational level (formal or informal), occupation, socioeconomic status as well as health care seeking behaviour with risks of malnutrition.[1]

In developing countries, among the poor, rural women majority of whom are farmers are the poorest and more adversely affected by poverty than men.[4] The incidence of poverty among rural women is on the rise in most of the developing countries. Rural poverty is related to food security, undernutrition, and access to assets, services and markets. Study by Mahgoub in Botswana has shown that underweight was less prevalent among children whose parents worked in the agricultural sector than among children whose parents were involved in informal business.[5] Probably, majority of farmers in Botswana are economically better off than those in informal business.

Anthropometric indices have been used successfully for many years to estimate the prevalence of under-nutrition among under fives.[6] These include height–for- age, weight-for- height, weight-for-age, z- score, Mid Upper Arm Circumference, MUAC, etc.

It was estimated that nearly forty per cent (over 140 million) of the world's pre-school children suffer from malnutrition. About 59 per cent of them live in the southeast Asia.[1] A survey conducted by UNICEF in 1987 among under five children in four local government areas in Nigeria indicated that less than fifty per cent of the children had normal weight for age.[2] About one third moderately to severely malnourished and over 25 per cent of young children were permanently stunted by WHO standard.[2] A local study conducted in 1998 in Gwoza town of north eastern Nigeria has shown that

about 53 per cent of the under 5 children were wasted while about 25 per cent were stunted.[7] In that study, immunization status was not observed to influence nutritional status of the children. It was however, noted that only about 46.7 per cent of the children had completed immunization for age.

About half of all young children's deaths were malnutritional and have most devastating effects facing the world's poor family and continue to be the leading problems of most developing countries.[3,6,8]
In one study, conducted in three different areas in Nigeria, women considerably spent more time on their farm work depriving their children of quality care. Economic considerations were the major determinants of extent to which women were involved in farming. Women took up food production for consumption and for sale.[4] Majority of women who were illiterate and often found it difficult to understand that sanitation, infection, nutrition are factors that contribute to good health and nutritional status.[9] One of the main aims of the millennium development goals is to significantly reduce hunger by the year 2015.[9]

The Nigerian Demographic Health Survey (NDHS) 2008 revealed important findings among under fives.[10] That was 41 per cent of children under the age of five years were stunted, 14 per cent wasted and 23 per cent underweight.[10] Stunting was apparent even among children of 6 months of age (21%) and increases with age through the first 2 years of life till the 3rd and 4th years of life when it starts to decline. Male children are more likely to be malnourished (45%) than their female counterparts (38%) for unclear reasons. Education and wealth are both inversely related to malnutrition. A survey of child nutrition conducted in Dhaka, 2005, in Bangladesh revealed that the percentage of children aged 6-59 month that were stunted was 42.4 per cent, underweight was found in 47.8 per cent and wasting in 12.7 per cent.[11] Result of another survey in Timbuktu Region in Mali, showed that these figures were likely to be worse during the dry season because of lack of food.[12]

The significance of this study lies in the fact that malnutrition among children of women farmers, those who produce food was wide spread. Several factors affect nutrition directly. These include socio-cultural practices and taboos, low socio-economic status, diseases, large family size, parental ignorance, weaning diet and practices, and breastfeeding among others. These factors act individually or in combinations in causing malnutrition.[12] Improved nutrition allows children to perform better in school. Eliminating hunger, therefore, can increase the prevalence of the skills needed for higher value-added jobs. This work will therefore highlight the pattern and prevalence of malnutrition among the under five year old children so as to contribute in planning towards national development and achievement of the MDGs.

Objectives of the Study

Aim- To determine the anthropometric measurement of under fives of women farmers.

Objectives

1. To determine the prevalence of malnutrition among under fives.
2. To determine the pattern of malnutrition among under fives.

Materials And Methods

The study was conducted in Gwoza local Government Area of Borno state, which was one of the 27 local government areas in the state. It has estimated population of 276,312.[13] Generally, agriculture is the major occupation of the inhabitants.
The study employed a cross-sectional descriptive study design. A total of 400 women farmer were selected by multistage sampling method. A structured interview questionnaire was administered to the selected households. The questionnaire sought information about their socio-demographic profile and Anthropometric measurement of their under five years old children were assessed.

Methods of Anthropometric Measurement

The following anthropometric parameters were used:

a) Weight: A bathroom scale standardized with a known weight was used to measure the weight of the child to the nearest kilogram. In situations where the child could not stand or refused to stand on the scale, the weight of the mother with the child was taken and the weight of the mother alone was ascertained and the latter subtracted from the former to get the weight of the child. Each child was made to stand erect and barefooted on the scale with head in an upright position looking straightforward. After each weighing, the scale was adjusted to the zero mark.
b) Length or height: This was measured with the child standing with the head upright using a calibrated wooden meter rule. For young infants that could not stand, their lengths were taken using a McDonald's tape.

Data Analysis: The data obtained from the respondents was analysed using SPSS version 16.0.

Results

Table 1 show that respondents were of diverse ethnic background. Among the respondents, 242 (60%) are in the age group of 25-34 years and 50 per cent had one to five children in a family. Only 107(27%) had formal education, while 192(48.0%) had quranic education and 101(25%) had no any form of education and therefore

Table 1: ***Distribution of demographic characteristics of women farmers and their children, in Gwoza Local Government Area.***

	Frequency/Percentage (%)
Mother's age (years)	
<20	26(7)
20-24	93(23)
25-29	137(34)
30-34	105(26)
≥35	39 (10)
Total	**400(100)**
Mother's religion	
Islam	256(64)
Christianity	144(36)
Total	**400(100)**
Mother's tribe	
Mandara	174 (44)
Glavda	86 (22)
Zalidva	13 (3)
Mafa	10 (3)
Others	117(29)
Total	**400(100)**
Number of children	
1-5	201(50)
6-10	171 (43)
>10	28 (7)
Total	**400(100)**
Mother's level of education	
Primary	68 (17)
Secondary	34 (9)
Tertiary	5 (1)
Qur'anic	192 (48)
No formal education (illiterate)	101(25)
Total	**400(100)**
Child's age (months)	
≤12	43 (11)
13-24	119 (30)
25-36	83 (21)
37-48	70 (18)
49-60	85 (21)
Total	**400(100)**
Child's sex	
Male	207 (52)
Female	193 (48)
Total	**400(100)**
Child's immunization status	
No	229 (57)
Yes	171 (43)
Total	**400(100)**

illiterate. About half of the children 202(51%) were between 12-36 months old out of which 51.8 per cent were male and 48.2 per cent were not immunized.

One hundred and eleven children (28.3%) were underweight out of which 9(7.9%) were less than 12 months old (Table 2).

Among the children that are malnourished, high proportions, 35%, were stunted and 19% were wasted while 45 per cent of the children were both stunted and wasted (Table 3).

About 82 per cent got their potable water supply from wells and 49 per cent were found to treat the water before use.

Table 2: ***Weight of children of women farmers, in Gwoza Local Government area***

Age (Months)	Normal weight (%)	Under weight (%)
<12	34(11.8)	9(7.9)
12-60	253(88.2)	104(82.1)
Total	**287(71.7)**	**113(28.3)**

Discussion

Nutritional status of under fives of women farmers was assessed by means of anthropometric measurements. The nutritional status of children in a particular community is a mirror image of their standard of living. This is because status of living is determined by the socioeconomic factors. Good nutrition is therefore the cornerstone for survival, proper health and development. For the human body to function properly, it has to be nourished with adequate nutrients in right quantity and quality for proper physical and mental growth of the child. Although all the nutrients are important, the need for the calorie rich nutrients (protein, carbohydrate and fats) can never be overemphasized.

Nutritional assessment by use of anthropometry was employed where weight and height or length were measured using a bathroom weighing scale, meter rule and Shakir's tape. The three indices used were; weight for length or height, length or height for age, and weight for age. These indices showed evidence of wasting and/or stunting.

Table 1 shows the socio-demographic data of the respondents. The table showed that 242(60%) of the women were within the age group of (25-34 years). At least 201(50%) of the respondents had 1-5 children while 171 (43%) had 6-10 children and 28(7%) had more than 10 children. Therefore, it can be said that the remaining fifty per cent had large family size of 6 to

Table 3: ***Types of malnutrition in children of women farmers, Gwoza Local Government area***

Age Months	Wasted(%)	Stunted(%)	Wasted & Stunted(%)
≤12	6(3.4)	16(9.1)	9(5.1)
13-24	3(1.7)	20(11.4)	28(15.9)
25-36	10(5.7)	18(10.2)	14(8.0)
37-48	4(2.3)	4(2.3)	11(6.3)
49-60	11(6.3)	4(2.3)	18(10.2)
Total	**34(19)**	**62(35)**	**80(45)**

greater than 10 children in number. There was low literacy level among the respondents as, only 107(27%) had western education. Four hundred children were assessed, 207(52%) were males and 193(48%) were females and only 171(43%) of these children were immunized.

Table 2 shows weight and height for age and nutritional status of four hundred children studied out of which 287(71.8%) were of normal weight whereas, 113(28.3%) were underweight. Also the height for age showed that 258(64.5%) were of normal height while a total of 142 children (35.5%) were stunted. About 19.4 per cent of the children were wasted. In this study it was found that more children were nourished as against those that were malnourished. Farming being the major occupation of the mothers' food was adequate in most of their families. Food availability was not a major problem. However, the quality may not be enough to cater for all the requirements of a "balanced diet". Majority of their children were found to have normal weight for their age as well as normal height for age. However, these findings are different from the surveillance on under five nutrition conducted by UNICEF in four local government areas in Nigeria which have shown that less than fifty per cent of the children had normal weight for age; about one third were moderately to severely malnourished, and over twenty-five percent of young children were by WHO standard permanently stunted.[2] These women farmers, grow the basic crops for household consumption and sell some proportion of their harvest to meet socio-economic needs. This finding is similar to a survey conducted among women farmers in three region of Nigeria.[10] However; the figures for stunting and wasting were higher than those of the NDHS 2008 indicating that there was a chronic background pathology or hunger among the affected children of Gwoza region. This also explains a regional difference in the findings of this study and that of the NDHS 2008, which was a reflection of the national average. Also noticed in this study was the fact that, like the findings of the NDHS 2008, stunting was apparent even among the infants (9.1%) and continued to increase through the second year (11.4%) and then began to decline from the 3rd to 4th year (2.3%).

From tables 1 and 2, the study revealed low level of education, large family size and lack of immunization among children which were some of the contributory factors to malnutrition among children.[11]

Table 3 shows that; 56 per cent were of normal nutritional status, whereas 44 per cent were malnourished. Out of the malnourished children, 19 per cent were wasted, 35 per cent were stunted and 45.4 per cent were both. Although their husbands significantly contributed to family uptake the high number of nourished children against malnourished children was attributed to the fact that the women farmers largely made their harvest available to their families for consumption in sizeable quantities first before selling what was needed for other domestic purposes.[11] However, ignorance, family size and immunization status were seen to play a major role in under nutrition. The higher proportion of stunted to wasted children showed that a more chronic pathology was involve, and as 45 per cent of the children were both stunted and wasted, it shows that process was continuous.[10] Also, it was noticed that these women cultivate crops of high nutritional value such as guinea corn, ground nut, and beans amongst others. Sufficient food items were incorporated into diets by the mothers, thus greatly reducing the incidence of malnutrition amongst their children as compared to the general population of the study area. Prevalence of malnutrition was up to 70% in previous studies among the general population of the study area as compared to 45% obtained in this study.[3] A study by Mahgoub has shown that underweight was less prevalent among children whose parents worked in the agricultural sector than among children whose parents were involved in informal business.[5] This correlates with what was found in this study.

Some studies have shown that diseases such chronic infestation with endoparasites, other infections or non communicable chronic diseases can be major cause of malnutrition.[2,3] All these factors were found to not only contribute to under nutrition but also compromise the child's immune status.

In conclusion, this study has brought into lime light the prevalence and pattern of nutritional status of children of women farmers in Gwoza Local Government Area. The anthropometric measurement reveals that more than half of the children were within normal limit of nutrition for their respective ages. However, a number of them were found to be underweight, stunted or wasted despite cultivating of nutritious crops by their mothers. Malnutrition is a public health problem in Nigeria. Recommendations proffered from this study are advice to national governments and international organizations to take steps in three broad areas. Primary Health Care (PHC) should be used to achieve the MDGs especially goal 5 having to do with maternal mortality. Secondly, it is necessary to increase womens' ability to produce food, enhanced their access to resources, technology, and information as a way of female gender empowerment. Thirdly, policy makers should find ways to increase literacy rate of women and girls to enhance their productivity now and in the future.

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