Research Article

Food, Health Habits and Anthropometric Indices of Under-Five Aged Children in Imo State, Nigeria

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ABSTRACT

This study examined the food and health habits and anthropometric indices of under-5 aged children in Mbieri, Mbaitem Local Government Area (L.G.A) in Imo State, Nigeria. Cross-sectional descriptive research design was used for the study. Research methodology included assessment of nutritional status by anthropometric measurements to determine the weight, height and age of children. Dietary intake and food habits assessment was determined using a 24-hour recall. The respondents were mothers with children under five years or caregivers where the mother did not live with the child. Using interviewer-administered questionnaire, information on socio-demographics, dietary history/pattern, food habits, health information and anthropometric measurements of selected pupils was obtained. Data collected were summarised and analysed using statistical package for social sciences (SPSS) programme. Results from analysed data were presented in frequencies, percentages and means. Findings of the study showed that 7.6% and 6.5% of the children were moderately and severely stunted, 1.1% and 5.4% were moderately and severely wasted, 10.9% and 7.6% were moderately and severely overweight and 6.5% and 1.1% were moderately and severely underweight. Spearman correlation coefficient tests were used to determine relationships between dietary intake, food habit, health and nutritional status of children under five years. A level of P≤0.05 was used to indicate statistical significance in all analysis.

Introduction

In West Africa, Nigeria has the largest territorial unit and currently with a population of 180,000,000 [1]. Women and children dominated the Nigerian population with 75% and they majorly reside in the rural areas. Within this huge rural population, particularly among the urban poor, Nigeria infant and child mortality rates are alarming. The rate is 100 per 1,000 births and mortality of 1,100 per 100,000 live births. Most of these deaths are due to lack of adequate intake of food (food habit) or inappropriate combinations of food (diet) [1]. A study by Akinyele showed that malnutrition among children is widespread in Nigeria in high level with 56% and 84.3% in some rural area of South West and northern part respectively [2].

The major causes of children’s death globally are inadequate diet and malnutrition. According to the report of High-Level Task Force on Global Food Crisis, every year over 3.5 million children are killed due to it [3]. Inadequate diet and malnutrition are resulted from inadequate dietary pattern [3]. In Nigeria, inadequate dietary pattern have emerged as a major development crisis facing the country today. The country’s productivity may greatly be affected as the growth and health of individuals are been affected. The United Nations Development Programme Report (UNDP) stated that adequate diet and health of the...
people are indicators of the country’s socio-economic situation [4].
Apart from shelter and clothing as the basic needs of life, food remains
the core or apex in the hierarchy of human needs. This is because of its
importance not just to children but to the entire human existence. Over
two thirds of child's deaths are associated with inappropriate feeding
practices that occur within the first year of life. Malnourished children
who survive are more frequently sick and suffer the lifelong
consequences of impaired development [5].

Inadequate intake of food will continue to affect the nutritional status of
households leading to malnutrition and consequently to poor health, poor
livelihoods and poor productivity. This is very important and critical to
life; adequate and appropriate dietary pattern should be the right of every
individual. So, it is very important to monitor the nutritional status of
any country to determine the productive rate of that nation [3]. The
importance of good diet, food habit and health cannot be overlooked
because food and eating well can make the difference between being
alive or dead and being well or sick. Some researchers have shown that
food or good diet can prolong life, well-being and promote human
development [6, 7]. This is because a healthy population means healthy
productive force. Individual nutritional status is dependent on the
interaction between food that is eaten (food habit), the state of health
and the physical environment. Many childhood deaths can be prevented if
there is timely intervention for example; ensuring appropriate dietary
pattern from birth, immunizing children against preventable diseases and
making sure that children receive prompt and appropriate treatment
when they become ill [5].

Malnutrition is associated with an inadequate diet, poor health and
sanitation services as well as inadequate care given to children.
Malnutrition (poor nutritional status) constitutes a major public health
problem in most developing countries including Nigeria [4, 5]. A lot of
the population cannot afford enough to eat and most of them live in very
poor environment. Vulnerable children with high nutritional needs and
weak immune systems fall victims to diseases and subsequently to
malnutrition. Eliminating hunger and malnutrition is one of the most
fundamental challenges facing humanity. Malnutrition and its associated
disease conditions can be caused by eating too little, eating too much or
eating inadequate diet that lacks necessary nutrients. Malnutrition is one
of the most devastating problems worldwide. It is inextricably linked
with ignorance, illiteracy, poverty and lack of development [6]. Creating
awareness and appropriate knowledge of food combination (adequate
diet) will contribute to reducing the incidence of malnutrition. Dietary
pattern becomes established in children from infancy and to a greater
extent persist throughout life. Nutrition affects health throughout the life
cycle, and it is best to prevent malnutrition early in life. The general
objective of the study was to assess the effects of diet, food habit and
health on the nutritional status of children under five years in Mbaiteulu
local government area Imo State, Nigeria (using Mbierri as case study).
The specific objectives were to 1) assess the demographic and socio-
conomic characteristics of the Mothers/Caregivers, 2) assess the
nutritional status of the under-5 children, 3) assess the food consumption
pattern of mothers/caregivers and feeding and dietary habit of under-5
children, 4) assess the health status of the under-5 children and 5) determine the relationship between feeding practices and nutritional
status of under-5 children.

Materials and Methods

I Area of Study

The study area is located at Mbierri in Mbaiteulu Local Government Area
of Imo state and 8 km form North of Owerri, the state capital. The town
is made up of 18 villages and 7 autonomous communities. The people of
the town are mostly Anglican though there are other Christian
denomination followers among her people.

II Population of Study

The population of the study was 100 children under-5 i.e. children from
the age of 12 months up to their fifth birthday taken from each of the
villages from homes or children’s care centers in Mbeiri Community in
Mbaiteulu L.G.A of Imo State.

III Study Design

The study design for this research was a cross sectional descriptive
survey design [8].

IV Sample Selection

A stratified random sampling technique was used in selecting the sample
individuals and size for this study to make up of children under-5 i.e.
within the age of 1-4 years from day-care centers, churches and homes
located in the 9 towns in Mbeiri Community of Imo State.

V Sample Size Determination

The formula as presented in equation (1) was used for the samples size
determination of both the children from homes and day-care centers
which are between the ages of 1-4 years [9].

\[ n = \frac{N \cdot e^2}{1+N \cdot e^2} \] (1)

Where n = sample size; N = population size = 100; 1 = constant; e=
margin of error (5% or 0.05) and by solving the equation (1), n = 80.

VI Data Collection

Structured and validated questionnaire was used to collect information
about their biodata, food habit, health and as well as knowledge about
their diet and record of their anthropometric measurement. Data from the
respondents selected throughout the study were analysed statistically.

VII Anthropometry

The anthropometric measurement is one of the methods used in gaining
information on nutritional status. This involve the measurement of the
participant such as weight with the use of bathroom-scale in kg (unit),
height with the use of stadiometre in meters, waist and Hip
circumference of the children (1-4 years) were measured using Tailors
tape which is in cm (unit). The BMI was calculated using the relationship
between current weight and current height (BMI=kg/m²).
Anthropometric Measures of Weight and Height

i Weight Measurement

Weight measurement was done according to UNICEF method [10]. Weight of the subject was done using Hana’s bathroom scale.

Standardized Procedure for Measurement of Weight

Weight is recorded with the subject wearing the minimum of clothing shorts only for male, light dress. For female, foot wearing removed. Weight is recorded in Kilogram (kg).

ii Height Measurement

Height measurements were taken according to UNICEF method with aid of a tape in centimetres which had 150cm capacity [9, 10]. The subject will be asked to remove their foot wears and stand erect against the wall ( backing the wall), the back of their buttocks and back heads touching the wall while ensuring that heels were not raised. The readings were taken to the nearest 0.1cm.

a Standardized Procedure for Measuring Height

A ruler is fixed to the wall. The subject was made to stand as upright as possible while ensuring that heels are not raised from the ground without shoes on. A flat headpiece was used for accurate height measurement. Height was recorded to the nearest 0.1cm.

b The Body Mass Index (B.M.I) Calculation

The body mass index was used to calculate the weight by height or rather divide weight in kilograms by the square of height in meters [11].

\[ B.M.I = \frac{\text{Weight in Kg}}{\text{Height in m}^2} \]  \hspace{1cm} (2)

VIII Data Analysis

Data obtained from the household interview were entered and analysed using Statistical Package for Social Sciences (SPSS) version 11. Descriptive statistics such as frequencies, percentages, means and standard deviation were computed. Anthropometric data were analysed using EPI INFO 2000, Nutrition Package. The Z-scores were used to determine the nutritional status of children who were expressed as normal, stunted, wasted and underweight. Children minus 2SD in all categories were considered malnourished according to National Centre for Health Statistics. The NCHS standards are preferred for international comparisons. Data collected from the 24-hour recall were computed and analysed using FAO nutrient database to establish the total amount of selected nutrients in the meals consumed per day [12]. These were compared with the RDA to establish whether there was adequate food consumption. Anova test was used to determine relationship between variables such as dietary intake, morbidity among children’s microbiological quality of food, water and nutritional status of children under five years. Pearson product-moment correlation (r) was used to determine the presence and strength of relationship between dietary intake and nutritional status of children under five years. A level of p<0.05 was used to indicate statistical significance in all analysis.

Result

I Personal Characteristics of Mother/Caregiver

The personal characteristics of mothers/caregivers are presented in (Table 1). The demographic characteristics of mother/caregiver showed that almost all 92.1% of the respondent were mothers, 72.3% were married, 62.4% had 4 person and above in their households.

Table 1: Personal Characteristics of Mothers/Caregivers.

| Variable                        | Frequency | Percentage |
|---------------------------------|-----------|------------|
| Relationship of respondent with child |           |            |
| Mother                          | 93        | 92.1       |
| Caregiver                       | 6         | 5.9        |
| No response                     | 2         | 2.0        |
| Total                           | 101       | 100        |
| Marital status of respondent    |           |            |
| Single                          | 15        | 14.9       |
| ‘married                        | 73        | 72.3       |
| Separated                       | 9         | 8.9        |
| Widowed                         | 2         | 2.0        |
| No response                     | 2         | 2.0        |
| Total                           | 101       | 100.0      |
| Number of people living in the household |           |            |
| 2 persons and below             | 11        | 10.9       |
| 3 persons                       | 27        | 26.7       |
| 4 persons and above             | 63        | 62.4       |
| Total                           | 101       | 100        |

Table 2: Mean Age of Mothers and Caregivers in year.

| Variable            | Mother | Caregiver | t value | R value |
|---------------------|--------|-----------|---------|---------|
| Age in years of respondent | 27 ± 4 | 55 ± 12   | -10.390 | 0.000   |

The descriptive statistics for age of mothers and caregivers are presented in (Table 2). The mean age of mothers and caregivers in year showed mothers 27±4 and caregivers 55±12 respectively. The caregivers are significantly older than the mothers.

II Socio/Economic Characteristics of the Respondents

In (Table 3), the socio/economic characteristics of the respondent show the socio/economic characteristics of the respondents. More than half (51.5%) of the respondents had not completed their secondary education, 29.7% of the respondents husbands were casual labourers, 66% of the respondents were businesswomen/traders.
Table 3: Economic Characteristics of the Respondents.

| Variable               | Frequency | Percentage |
|------------------------|-----------|------------|
| **Highest education level** |           |            |
| None                   | 3         | 3.0        |
| Primary education not completed | 7 | 6.9 |
| Primary education completed | 6 | 5.9 |
| Secondary education not completed | 52 | 51.5 |
| Secondary education completed | 22 | 21.8 |
| College education      | 8         | 7.9        |
| University education   | 3         | 3.0        |
| Total                  | 101       | 100        |
| **Husbands occupation** |           |            |
| Civil servant          | 12        | 11.9       |
| Private sector         | 21        | 20.8       |
| Casual labourer        | 30        | 29.7       |
| Business trader        | 25        | 24.8       |
| Artisan               | 2         | 2.0        |
| No response            | 11        | 10.9       |
| Total                  | 101       | 100        |
| **Wife’s occupation** |           |            |
| Civil servant          | 4         | 4.0        |
| Private sector         | 12        | 11.9       |
| Casual labourer        | 8         | 7.9        |
| Business trader        | 66        | 65.3       |
| Artisan               | 10        | 9.9        |
| No response            | 1         | 1.0        |
| Total                  | 101       | 100        |

Table 4: Food consumption pattern of the respondents.

| Foods         | Daily | Weekly | Monthly | Never | Total |
|---------------|-------|--------|---------|-------|-------|
| Rice          | 79    | 21     | 00      | 00    | 100   |
| Agidi         | 15    | 25     | 30      | 29    | 99    |
| Bread         | 62    | 37     | 01      | 00    | 100   |
| Oat           | 12    | 13     | 18      | 57    | 100   |
| Cornflakes    | 24    | 22     | 38      | 15    | 100   |
| Indomie       | 60    | 31     | 08      | 00    | 100   |
| Pap           | 29    | 55     | 14      | 00    | 98    |
| Spaghetti     | 32    | 32     | 30      | 06    | 100   |
| Custard       | 21    | 25     | 17      | 33    | 100   |
| Orange        | 64    | 24     | 12      | 00    | 100   |
| Banana        | 69    | 28     | 03      | 00    | 100   |
| Pineapple     | 66    | 19     | 15      | 00    | 100   |
| Pawpaw        | 58    | 23     | 15      | 04    | 100   |
| Waterleaf     | 24    | 59     | 16      | 01    | 100   |
| Okro          | 42    | 55     | 02      | 00    | 99    |
| Yam           | 39    | 46     | 13      | 02    | 100   |
| Cassava       | 73    | 17     | 08      | 02    | 100   |
| Plantain      | 43    | 50     | 06      | 00    | 99    |
| Potatoes      | 26    | 25     | 40      | 08    | 99    |
| Soyabean      | 36    | 39     | 19      | 05    | 99    |
| Beans         | 69    | 27     | 04      | 00    | 100   |
| Groundnut     | 26    | 36     | 27      | 10    | 100   |
| Akara bean    | 32    | 44     | 24      | 00    | 100   |
| Poultry       | 18    | 46     | 19      | 00    | 83    |
| Egg           | 59    | 22     | 19      | 00    | 100   |
| Fish          | 90    | 10     | 00      | 00    | 100   |

Table 4 shows the food consumption frequency of the respondents. Majority 79% of the respondents consumes rice daily, 30.3% consumes agidi monthly, 62% consumes bread daily, 37% never consumes oat, 38.4% consumes cornflakes monthly, 60.6% consumes indomie daily, 56.1% consumes pap weekly, 32% each consumes spaghetti daily and weekly, 34.4% never consumes custard, 64% consumes oranges daily, 69% consumes banana daily, 66% consumes pineapple daily, 58% consumes pawpaw daily, 59% consumes waterleaf weekly, 55.6% consumes okro weekly, 46% consumes yam weekly, 73% consumes cassava daily, 50.5% consumes plantain weekly, 40.4% consumes potatoes monthly, 39.4% consumes soybean weekly, 69% consumes beans daily, 36.4% consumes groundnut weekly, 44% consumes akara weekly, 55.4% consumes poultry foods weekly, 59% consumes egg daily, 90% consumes fish daily, 82% consumes milk daily, 35% consumes yoghurt weekly, 55% consumes ice cream weekly, 40% consumes honey weekly and 68.4% consumes sugar daily.
Table 5: Anthropometric indices of respondents.

| Variables              | Frequency | Percentage |
|------------------------|-----------|------------|
| Weight for height      |           |            |
| Severe overweight      | 7         | 7.6        |
| Moderate overweight    | 10        | 10.9       |
| Normal                 | 69        | 75.0       |
| Moderate wasting       | 1         | 1.1        |
| Severe wasting         | 5         | 5.4        |
| Total                  | 92        | 100.0      |
| Height for age         |           |            |
| Severe overgrowth      | 6         | 6.5        |
| Moderate overgrowth    | 4         | 4.3        |
| Normal                 | 69        | 75.0       |
| Moderate stunting      | 7         | 7.6        |
| Severe stunting        | 6         | 6.5        |
| Total                  | 92        | 100.0      |
| Weight for age         |           |            |
| Moderate overweight    | 6         | 6.5        |
| Healthy bodyweight     | 79        | 85.9       |
| Moderate underweight   | 6         | 6.5        |
| Severe underweight     | 1         | 1.1        |
| Total                  | 92        | 100.0      |
| Body mass index for age|           |            |
| Severe overweight      | 7         | 7.6        |
| Moderate overweight    | 11        | 12.0       |
| Healthy weight for height | 67    | 72.8       |
| Moderate wasting       | 2         | 2.2        |
| Severe wasting         | 5         | 5.4        |
| Total                  | 92        | 100.0      |

Table 6: Dietary Habits of the Respondents.

| Variables                        | Frequency | Percentage |
|----------------------------------|-----------|------------|
| How many meals do you eat in a day|           |            |
| Two                              | 41        | 4.0        |
| Three                            | 62        | 6.1        |
| Four                             | 31        | 3.0        |
| No response                      | 4         | 0.4        |
| Total                            | 101       | 100.0      |
| Do you have any stored food now?  |           |            |
| Yes                              | 77        | 76.2       |
| No                               | 22        | 21.8       |
| No response                      | 2         | 2.0        |
| Total                            | 101       | 100.0      |
| How long do you expect it to last|           |            |
| 1/5 days                         | 15        | 15.0       |
| 6/29 (weeks)                     | 44        | 43.5       |
| 30/60 (month)                    | 19        | 18.9       |
| No response                      | 23        | 22.8       |
| Total                            | 101       | 100.0      |
| During the episodes of failure and food shortage, how do you provide for the family| | |
| There is always food in the house | 2         | 2.0        |
| From the garden and farm produce | 1         | 1.0        |
| Cut down the portion size        | 5         | 5.0        |
| Ask for help from family         | 1         | 1.0        |
| No response                      | 92        | 91.0       |
| Total                            | 101       | 100.0      |
| Do you have special food to children under five years within the family| | |
| Yes                              | 21        | 20.8       |
| No                               | 48        | 47.5       |
| No response                      | 32        | 31.7       |
| Total                            | 101       | 100.0      |
| How do you acquire food to meet the household food needs| | |
| Purchase from market             | 42        | 41.6       |
| Farm produce and purchase from market | 48    | 47.6       |
| Food aid                         | 1         | 1.0        |
| No response                      | 4         | 4.0        |
| Farm produce                     | 6         | 5.9        |
| Total                            | 101       | 100.0      |
| Is the food in the household enough|           |            |
| Yes                              | 80        | 79.2       |
| Sometimes                        | 17        | 16.8       |
| No                               | 2         | 2.0        |
| No response                      | 2         | 2.0        |
| Total                            | 101       | 100.0      |

IV Nutritional Status of Under Five Children Using Anthropometric Indices

Table 5 shows the nutritional status of under five children using anthropometric indices. The result shows that 10.9% and 7.6% of children were moderately and severely underweight respectively while 1.1% and 5.4% were moderately and severely wasted respectively based on their weight for age indices, 12.0% and 7.6% were moderately and severely stunted respectively based on their height for age indices, 6.5% were moderately overweight while 6.5% and 1.1% were moderately and severely underweight respectively based on their weight for age indices, 6.5% and 7.6% were moderately and severely over weight respectively while 2.2% and 5.4% were moderately and severely wasted respectively based on their body mass index for age.

Table 6 shows the dietary and feeding practice of the respondents. More than half (61.4%) eat three times a day with few (4%) that eat twice a day, 76.2% had food stored, 43.5% reported that they expect their food to last for weeks, 91% gave no response to the episodes of failure and food shortage, 47.5% have no special food for children under-five years within the family, 47.6% acquire food through farm produce and purchased from the market, 79.2% responded to the food being enough.

V Dietary and Feeding Practice of the Respondent

Table 6 shows the dietary and feeding practice of the respondents. More than half (61.4%) eat three times a day with few (4%) that eat twice a day, 76.2% had food stored, 43.5% reported that they expect their food to last for weeks, 91% gave no response to the episodes of failure and...
VI Health Status of the Respondent

Table 7 shows the health status of the respondent has received all the immunisation according to their age, 51.5% have no record of sickness in the last two weeks, 83.2% of the children bathe twice a day, 46.5% brush their teeth once. 27.7% of children sleep three times per day, 54.5% were often taken out for tourism and recreation.

Table 7: Health habits of the respondents.

| Variable                                      | frequency | Percentage |
|-----------------------------------------------|-----------|------------|
| Has the child received all the immunisation according to the age |           |            |
| Yes                                           | 80        | 79.2       |
| No                                            | 5         | 5.0        |
| No response                                   | 16        | 15.8       |
| Total                                         | 101       | 100.0      |
| Do you have any record of sickness of the child in the last two weeks |           |            |
| Yes                                           | 30        | 29.7       |
| No                                            | 52        | 51.5       |
| No response                                   | 19        | 18.8       |
| Total                                         | 101       | 100.0      |
| Number of times child is bathed                |           |            |
| Once                                          | 5         | 5.0        |
| Twice                                         | 84        | 83.2       |
| No response                                   | 12        | 11.9       |
| Total                                         | 101       | 100.0      |
| Number of times child brushes teeth            |           |            |
| Once                                          | 47        | 46.5       |
| Twice                                         | 42        | 41.6       |
| No response                                   | 12        | 11.9       |
| Total                                         | 101       | 100.0      |
| Number of times the child sleeps per day       |           |            |
| Once                                          | 18        | 17.8       |
| Two                                           | 25        | 24.8       |
| Three                                         | 28        | 27.7       |
| Four                                          | 15        | 14.9       |
| No response                                   | 15        | 14.9       |
| Total                                         | 101       | 100.0      |
| Are children taken out for tourism and recreation |       |            |
| Steadily                                      | 18        | 17.8       |
| Often                                         | 55        | 54.5       |
| No                                            | 16        | 15.8       |
| No response                                   | 12        | 11.9       |
| Total                                         | 101       | 100.0      |

VII Correlation between Feeding Practices and Nutritional Status of Under-Five Children

Table 8 correlation between feeding practices and nutritional status of under five children. There is significant (p<0.05) but negative correlation between weight of children and feeding practice options such as if there is enough food and if there is available stored food but there is no significant correlation between weight of children, how food is acquired to meet household food needs, number of meals eaten a day, duration of expected food stored, provision of food during episodes of failure and food shortage and children on special food in the family. There is no significant (p>0.05) but positive correlation between height of the children and feeding practice options such as how food I acquired to meet household food needs, how many meals eaten a day but there is no significant but negative correlation between height and if there is enough food, if there is any stored food, duration of expected food stored, provision of food during episodes of failure and food shortage and children on special foods but there is no significant but negative correlation between weight for height indices and if there is any food stored now.

There is significant (p<0.05) but positive correlation between height for age indices of the children and feeding practice options such as if there is enough food and if there is available stored food, children on special foods in the family, while there is no significant but negative correlation between height for age and duration of expected food stored and provision of food during episodes of failure and food shortage. There is no significant (p>0.05) but positive correlation between weight for age indices and feeding practice options such as how food is acquired to meet the household food needs, number of meals eaten a day, duration of expected food stored, children on special foods in the family but there is no significant but negative correlation between weight for age indices and if there is enough food, if there is any food stored and provision of food during episodes of failure and food shortage. There is no significant (p>0.05) but positive correlation between BMI for age indices and feeding practice options such as how food is acquired to meet household food needs, duration of expected food stored, provision of food during episodes of failure and food shortage and children on special foods but there is no significant but negative correlation between BMI for age indices and if there is enough food, number of meals eaten a day, if there is any stored food.

Table 8: Correlation between feeding practices and nutritional status of under-five children.

|                        | Waist | Height | WHZ  | HAZ  | WAZ  | BAZ  |
|------------------------|-------|--------|------|------|------|------|
| How do you acquire food to meet the household food |       |        |      |      |      |      |
| needs                  | 0.088 | 0.087  | 0.054| 0.159| 0.166| 0.034|
|                        | 0.414 | 0.421  | 0.619| 0.140| 0.122| 0.756|
|                        | 88    | 88     | 88   | 88   | 88   | 88   |
| If the food were enough| -0.226| -0.186 | -0.073| 0.054| -0.018| -0.069|
|                        | 0.032 | 0.079  | 0.493| 0.611| 0.865| 0.520|
|                        | 90    | 90     | 90   | 90   | 90   | 90   |
Discussion

This study was carried out to determine the effects of diet, food habit, and health on the nutritional status of under 5 aged children in Mbeir town, Mbaitol Local Government Area of Imo State. Adequate nutrition promotes good nutritional status and thus satisfies the requirement for good physical health hence the risk of malnutrition is increased with unhealthy dietary habits and practices [4]. Nutritional status has a great impact on the learning capacity of children, on their productivity as adults as well as and on their quality of life in general [13]. The results in (Tables 1 & 2) shows demographic characteristics of mother/caregiver and their mean age which revealed that almost all 92.1% of the respondent were mothers, 72.3% were married, 62.4% had 4 person and above in their households and the mean age revealed that the caregivers are significantly older than the mothers (respondents) used in the study.

The socio-economic characteristics of the respondent show the socio/economic characteristics of the respondents. More than half (51.5%) of the respondents had not completed their secondary education, 29.7% of the respondents husbands were casual labourers, 66% of the respondents were businesswomen/traders. This result is in line with NDHS which reported that many Nigerians have no formal education [14]. Educated mothers are better, well informed to use health care facilities to ensure nutrition security, practice child spacing, give birth to fewer children and have better opportunities to pursue work outside the home to generate additional household income [5].

The result on the food consumption frequency of the respondents revealed that the majority 79% of the respondents consumes rice daily, 30.3% consumes agidimomyt, 62% consumes bread daily, 37% never consumes oat, 38.4% consumes cornflakes monthly, 60.6% consumes indomie daily, 56.1% consumes pap weekly, 32% each consumes spaghetti daily and weekly, 34.4% never consumes custard, 64% consumes oranges daily, 69% consumes banana daily, 66% consumes pineapple daily, 58% consumes pawpaw daily, 59% consumes waterleaf weekly, 55.6% consumes okro weekly, 46% consumes yam weekly, 73% consumes cassava daily, 50.5% consumes plantain weekly, 40.4% consumes potatoes monthly, 39.4% consumes soybean weekly, 69% consumes beans daily, 36.4 consumes groundnut weekly, 44% consumes akara weekly, 55.4%consumes poultry foods weekly, 59% consumes yoghurt weekly, 55% consumes ice cream weekly, 40% consumes honey weekly and 68.4% consumes sugar daily. This was contrary to the findings of Wang obtained among African-Americans where he found low consumption of soft drinks [15]. Egg and milk consumption by pupils in the rural area was poor as only a tenth of the pupils reportedly consume egg regularly (at least 4-7 days/week) and just a little over half consume milk regularly. This is not encouraging as these are protein of animal sources which are readily available and essential for the growth and development of children.

The result on nutritional status of under five children using anthropometric indices revealed that 10.9% and 7.6% of children were moderately and severely overweight respectively while 1.1% and 5.4% were moderately and severely wasted respectively based on their weight for height indices, 7.6% and 6.5% were moderately and severely stunted respectively based on their height for age indices, 6.5% were moderately overweight while 6.5% and 1.1% were moderately and severely underweight respectively based on their weight for age indices, 12.0% and 7.6% were moderately and severely over weight respectively while 2.2% and 5.4% were moderately and severely wasted respectively based on their body mass index for age. This finding is in line with the previous findings which established 22.2% of the under five children with severe malnutrition and several national and international organizations reported similar scenario [11, 16].

On the dietary and feeding practice of the respondents, the result showed that more than half (61.4%) eat three times a day with few (4%) that eat twice a day, 76.2% had food stored, 43.5% reported that they expect their food to last for weeks, 91% gave no response to the episodes of failure and food shortage, 47.5% have no special food for children under-five years within the family, 47.6% acquire food through farm produce and purchased from the market, 79.2% responded to the food being enough.

The result on the health status of the respondent showed that the respondents had received all the immunization according to their age, 51.5% have no record of sickness in the last two weeks, 83.2% of the children bath twice a day, 46.5% brush their teeth once, 27.7% of children sleep three times per day, 54.5% were often taken out for tourism and recreation. Therefore, the Immunization record of the children showed that not all the children had a full completed immunization, This is in a way agreed with Nigerian food consumption
The result of the correlation analysis showed that there is significant (p<0.05) but negative correlation between weight of children and feeding practice and there is no significant (p>0.05) but positive correlation between height of the children and feeding practice. The result also showed that there is no significant (p>0.05) but positive correlation between weight for height indices of the children and feeding practices, but there is no significant (p>0.05) but positive correlation between height for age indices and feeding practices. There is no significant (p>0.05) but positive correlation between weight for age indices and feeding practice, but there is no significant but negative correlation between weight for age indices. There is no significant (p>0.05) but positive correlation between BMI for age indices and feeding practice, but there is no significant but negative correlation between BMI for age indices.

Conclusion

Nutritional status of children under five years in Mbieri, Mbaetoli Local government area of Imo State was not too poor as depicted by the low levels of malnutrition; overweight (7.6%), wasting (5.4%), and underweight (1.1%). Consumption of foods below the recommended dietary allowance exposed the children to high risk occurrence of malnutrition though the majority of children consume adequate food hence it reduced the problem of malnutrition among them. Food consumption (diet) which determines the health of a child was shown to influence child nutritional status. Diarrhea diseases resulted in poor growth through decreased absorption of nutrients and increased requirements thereby contributing to general protein – energy malnutrition. Results from the study showed that there was a significant relationship between diet, food habit, health and the nutritional status of children under five years in Mbieri. Therefore, in summary, from all indication the study have succeeded in showing that, there is malnutrition among under-five children in the area of study but the rate was low.

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Conflicts of Interest

None.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

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