Knowledge of Mothers and Care-Givers on the Causes, Prevention and Consequences of Malnutrition in the Under-Fives

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*The case of Bali Urban Health Area in North West Cameroon, Nigeria

Abstract
Introduction
According to the WHO, malnutrition remains a major contributor to under-five mortality. Six million children die of hunger whilst underweight births and intra-uterine growth restrictions cause 2.2 million child deaths a year. The combination of direct and indirect deaths from malnutrition caused by unsafe water, sanitation and hygiene practices is estimated to lead to 860,000 deaths per year in the under-fives.

The objective of the study was to assess the knowledge of mothers and care-givers on the causes, prevention and consequences of malnutrition in the under-fives. A structured questionnaire was used to collect primary data from mothers/care-givers within the Bali Health Area.

Results
Malnutrition is caused by lack of knowledge on the types of nutrients, due to poverty, and by lack of knowledge on balanced diet. The consequences of malnutrition are growth retardation and improper cognitive function, diseases and death.

Discussion
Ignorance is a great danger for human life and the life of the child is on the hands of the mother, as such her ignorance can expose the child to infections due to inappropriate feeding practice which will influence the nutritional status and proper cognitive function of the child.

Conclusion
Stakeholders within the Bali Urban Health Area involved in livestock production, agriculture, and basic education should liaise with the health administration to safeguard the welfare of the under-five children.

Keywords
Malnutrition; Nutrients; Under-fives; Cognition; Growth Retardation; Mothers; Care-givers; Balanced Diet; Complementary Feeding

1.1 Introduction
Malnutrition is the condition that develops when the body does not get the quality and quantity of nutrients needed to maintain healthy body tissues and organs functions. When a person is not getting enough food or not getting the right nutrients in food, malnutrition is just around the corner. Even if people get enough to eat they will become malnourished if the food they eat does not provide the proper amounts of vitamins and minerals to meet daily nutritional requirements.
Malnutrition at an early age leads to reduce physical and mental development during childhood. Stunting for example affect more than 147 million pre-scholars in developing countries, iodine deficiency is the world’s single greatest cause of mental retardation and brain damage according to the UN’s Standing Committee on Malnutrition.

Right now more than 870 million people in the world do not have enough to eat. The majority of these people (98%) live in developing countries. Malnutrition at early age can have long term effects on the child’s growth and development. Currently one in four of the world’s children (173 million) have been left stunted due to lack of appropriate nutrition in early life [1].

According to World Health Organization (WHO), malnutrition is the major contributor to child mortality within the under-five population. Six million children die of hunger every year, underweight births and intra-uterine growth restriction cause 2.2 million child deaths a year. Poor or non-existent breastfeeding causes another 1.4 million. Other deficiency such as lack of vitamin A account 1 million malnutrition in the first two years is irreversible. The combination of direct and indirect deaths from malnutrition caused by unsafe water, sanitation and hygiene (WASH) practices is estimated to lead to 860,000 deaths per year in children under five years of age [2].

In Africa, according to the WHO an estimated 6.3 million children under-five years of age die every minute. Two third of these deaths can be attributed to preventable causes. Malnutrition is a risk factor in most countries, nutrition and food security remain a fundamental challenge to child survival. There are many factors in the health system that block the child health care interventions like insufficient human, financial and material resources with limited managerial capability leading to poor service delivery and low coverage of interventions. Financial resources for child survival programmes and adolescent health interventions are far from adequate to reach every community in every district with low cost interventions.

In Cameroon, the food security and nutrition situation has deteriorated due to multiple shocks such as influx of refugees from the Central Africa Republic and Nigeria, increase insecurity and natural disasters. In early 2015, the number of food unsecured people stands three times higher than two years ago, affecting one out of seven people in the worst hit regions of the north. In the Adamawa and East regions, the global malnutrition rate among refugees from Central African Republic is about 12.10% which is considered critical. Malnutrition rate is also on the increase and children particularly are affected by this rising. The condition is due to primarily a lack of access to appropriate foods and feeding practices, essential health services and safe water and hygiene [2].

The causes of malnutrition in Cameroon vary and include: lack of basic health care, food insecurity, minimal access to child survival services and poor infant feeding practices.

In the Nord West region, studies show that the child feeding practice was unsatisfactory with diarrhea and under-five malnutrition due to expensiveness of food and there are people who cannot afford the food to feed themselves; the studies also show that malnutrition was also due to the drinking of water of unprotected source [2].

Major obstacles to child survival in the developing world include: infections, parasitic diseases, malnutrition and the risks associated with low birth weight. A serious problem exist in the villages, children die from common illnesses and infections that are attributable to poor nutrition though high nutritious foods are available in the villages, it is apparent that mothers and care-givers do not have an understanding of exactly what food contain the most value for their children [4]. The most significant person in the life of young child is the child’s mother.

Only 3.7% of children in sub-Saharan Africa are exclusively breastfeed for up to 6 months of life and complementary foods are inadequate and inappropriate in the region. About a quarter of mothers stop breastfeeding the child before 3 months of age which is contrary to the WHO recommendations of infant feeding in 2003. The introduction of complementary foods has been shown as a critical period for a child’s development in most developing countries where prevalence of stunting starts to increase rapidly after the first 8 months. Protein foods such as meat, eggs and fish are mostly introduced only after the first year of age because of the belief that they bring intestinal worms. Vegetables are rarely introduced in children’s diets. That is why the under-fives malnutrition have been attributed to PEM (Protein Energy Malnutrition); illnesses like diarrhea, tuberculosis, malaria and anemia, their co-morbidity may prolong the duration of hospital stay and death among affected children [5].

Research has shown that the children of mothers who have an understanding of how to provide good nutrition to their children stand a significantly greater chance of survival during the first years of life, (87% survival rate) as compared with children of mothers who do not know
how to provide a good nutrition (43%) survival rate [4].

1.2 Research Question
What is the knowledge of the mothers and care-givers on the causes, consequences and prevention of malnutrition on the under-fives?

1.3 (a) General Objective
To assess the knowledge of mothers and care-givers on the causes, prevention and consequences of malnutrition within the under-five population in the Bali Urban health area.

(b) Specific Objectives
The Specific Objectives of the Study Included to:
1. Assess the knowledge of the mothers/care-givers in the prevention of malnutrition.
2. Find out their practices in the preventive measures of malnutrition in the under-fives.
3. Find out the difficulties encountered by mothers/care-givers in the practice of the prevention of malnutrition in the under-fives.
4. Find out the consequences of malnutrition in the under-fives from inadequate prevention or management.

2. Methodology
2.1 Research Design
A descriptive cross sectional study was used for the study to find out mothers and care-givers’ knowledge on the causes, their practices in the prevention and consequences of malnutrition in the under-fives; at a given point in time and the findings described as such as per the study objectives.

2.2 Study Population
The study population comprised of mothers/care-givers present in the Bali health area during the period slated for primary data collection.

2.3 Sample Size/Sampling Procedure
The sample size was calculated using the formula;

\[ N = \frac{(z)^2 \times p(1-p)}{(e)^2} \]

Where,
- \( N \) = The required sample size
- \( z \) = Confidence interval of 95% (\( z = 1.96 \))
- \( p \) = The proportion of mothers in households (at 16%)
- \( e \) = Random error of 5% (type 1 value of 0.05)
- \( N \) = 200 respondents

A total of 200 mothers and care-givers were sampled from households in the Bali urban health area. The sampling procedure was a simple random sampling and a structured questionnaire was administered after every 3 households in the 3 health zones of Bali urban community. The co-researchers explained appropriately the procedure to them before proceeding to collect primary data; those who were illiterate were assisted in the completion of the questionnaire.

2.4 Instruments/Tools for Data Collection
Data was collected by the use of a well structured questionnaire design with both opened and closed questions.

2.5 Data Collection Procedure
Questionnaires were self administered to each respondent through face to face contact. The purpose of the study was explained to the respondents so as to ascertain information on their knowledge and practices, confidentiality of information provided was equally assured. Those respondents who could neither read nor write, the interviewer technique was applied by the co-researchers to obtain desired information with the purpose of reducing a high non-response rate.

2.6 Data Analysis Tools
Data was analyzed using an electronic calculator/excel, and presented in tables, pie and bar charts.

3. Presentation of Results
3.1 Socio-Demographic Da
3.1.1 Age Distribution of Respondents
Out of the 200 respondents selected for the study, 22% were within the age range 18-25, 34% were within the age range 26-30 years, 28% were between 31-35 years, lastly, 16% were within the age range 36 and above.

3.1.2 Religious Beliefs of Respondents
From Table 2, 34% were Catholics, 26% were Presbyterians, 24% were from the Full Gospel denomination and 16% were from the Baptist denomination. More Catholics were surveyed than the other denominations.
3.1.3 Occupation of Respondents
From Figure 1, 28% were farmers, 16% were hairdressers, 14% were housewives, 14% were seamstresses, 12% were businessmen and women, 10% were teachers and finally, 6% were students.

3.1.4 Educational Level of Respondents
Figure 2, shows that out of the 200 respondents involved in the study, 50% had been to primary school, 16% had been to secondary school, 14% had been to high school, 10% had been to the university and the rest of the 10% had never been to school.

3.1.5 Respondents’ Number of Children
From Table 3, it can seen that 14% of mothers had 1 child, 18% had two children each, 20% had three children, 22% had four children, 12% had five children and lastly 14% had six children.

3.2 Knowledge on Malnutrition
3.2.1 Respondents’ Knowledge on Malnutrition
In Table 4, out of the 200 respondents involved in the study, 30% said that malnutrition is the practice of dieting which does not contain the quality and quantity of nutrients, 40% said is when a person eat a diet with low nutrients, 24% said that it is malnourishment, then 6% said that it is eating too much.

3.2.2 Respondents Ability to Identify a Child with Malnutrition
In Figure 3, 80% of them agreed that they can easily identify a child with malnutrition, while 20% said they cannot identify a child with malnutrition.

3.2.3 Manifestations of Malnutrition
Table 5, shows that 70% of respondents said malnutrition is manifested as weight loss, hair loss, weakness; 30% said that the stomach became swollen, and the eyes sunken.

3.2.4 Causes of Malnutrition
From Table 6, 50% said malnutrition is caused by lack of knowledge on the types of nutrients, 22% said it is due to poverty, 18% said it is caused by lack of knowledge
on balanced diet, lastly 10% said it is caused by improper hygiene.

Figure 3: Responses of Respondents if they can Easily Identify a Child with Malnutrition

Table 5: Respondents’ Responses on the Manifestations of Malnutrition

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight loss, hair loss weakness</td>
<td>140</td>
<td>70%</td>
</tr>
<tr>
<td>Swollen stomach, sunken eyes</td>
<td>60</td>
<td>30%</td>
</tr>
<tr>
<td>Breathing difficulties</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>200</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 6: Respondents’ Responses on the Causes of Malnutrition

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of knowledge on the types of nutrients</td>
<td>100</td>
<td>50%</td>
</tr>
<tr>
<td>Malnutrition is due to poverty</td>
<td>44</td>
<td>22%</td>
</tr>
<tr>
<td>Lack of knowledge on the balance diet</td>
<td>36</td>
<td>18%</td>
</tr>
<tr>
<td>Caused by improper hygiene</td>
<td>20</td>
<td>10%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>200</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

3.3 Knowledge in the Prevention of Malnutrition

3.3.1 Breastfeeding Practices of Mothers with the Under-Fives

In Figure 4, 82% said they breastfeed the child for more than 6 months and only 18% said they breastfeed the child until 6 months.

3.3.2 Commencement of Complementary Feeding by Mothers

In Figure 5, out of the 200 respondents involved in the study, 70% said they start feeding the child with complementary feeds at 3 months, 26% start at 6 months and lastly only 4% start feeding their child with complementary feeds at more than 6 months.

3.3.3 Knowledge of Complementary Foods by Mothers

In Figure 6, out of the 50 respondents, 32% use Corn-Fufu and Okro as complementary food for the child, 30% introduce pap or soya bean pap in the diet of the child as complementary foods, 20% use Arish potatoes and lastly 18% used artificial milk as complementary food for their baby’s diet.

3.3.4 Precautions Taken When Preparing Complementary Foods

From Figure 7, 32% said that they wash their hands when preparing complementary food, 16% said they protect food from flies as precautions when preparing,
22% said they cleaned the environment and lastly, 30% did not know.

**Figure 7: Knowledge of the Mothers/Care-givers on the Precautions taken when Preparing Complementary Foods**

### 3.3.5 Responses Respondents Relative to If they know that without taking those Precautions into Practice it may lead to Illnesses

As seen in Figure 8, 70% said they knew that without taking those measures into practice it may lead to illnesses while 30% said they didn’t know.

**Figure 8: Responses Respondents Relative to if they know that without taking those Precautions into Practice it may lead to Illnesses.**

### 3.3.6 Responses of Respondents on the Illnesses that the Child can have if the Precautions are not taken when Preparing Complementary Foods

In Figure 9, out of the 200 respondents involved in the study, 50% of respondents said the illnesses that the child can have is diarrhea, 28% said vomiting/weight loss, 12% said he can have lack of appetite, and lastly 10% said typhoid.

**Figure 9: Responses of Respondents on the Illnesses that the Child can have if the Precautions are not taken when Preparing Complementary Foods**

### 3.3.7 Mothers’ Assessment of Manifestations of Malnutrition

In Table 7, 46% of them said it is when the baby grows normally, 38% said that is when the baby increases in weight that he is not suffering from malnutrition and 16% said is when the baby eats many times a day that he does not suffer from malnutrition.

**Figure 10: Respondents’ Responses on the Different Difficulties Faced in the Practice of Proper Nutrition**

### 3.4 Problems Faced in the Practice of Preventive Measures

#### 3.4.1 Difficulties Encountered in the Proper Nutrition of the Under-Fives

Figure 10, shows that 42% of the respondents said lack of knowledge was the difficulty they encountered, 32% said they lacked money, 18% said they lacked time and lastly 8% said they do not face any difficulty in preventing malnutrition.

**Table 7: Respondent’s Responses on how they do know that their Baby is not Suffering from Malnutrition**

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baby grows normally</td>
<td>92</td>
<td>46%</td>
</tr>
<tr>
<td>Baby increase weight</td>
<td>76</td>
<td>38%</td>
</tr>
<tr>
<td>Baby eat many times a day</td>
<td>32</td>
<td>16%</td>
</tr>
<tr>
<td>Baby looks pale</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100%</td>
</tr>
</tbody>
</table>

### Table 7: Respondent’s Responses on how they do know that their Baby is not Suffering from Malnutrition.
3.5 Consequences of Malnutrition

Figure 11 shows that 42% of them said the consequences of malnutrition is growth retardation, 34% said diseases and death and lastly 24% said the consequences were diverse deformities.

Figure 11: Respondents’ Knowledge on the Consequences of Malnutrition

4.1 Discussion of Results

4.1.1 Socio-Demographic Data

From the presentation of respondents according to occupation, it was observed that 28% were farmers as compared to students who were 6% and teachers 10%. It was found out that the greater proportion were farmers; they lacked knowledge to care for their children as compared to teachers and students. As cited by John Uliwmwengu [6] that in some countries, there is the high occurrence of malnutrition even though their land is blessed with great agricultural plantation, they select good items to sell on the market and give anything without nutritious elements to the child.

Concerning the distribution of respondents according to the level of education, data presented in Figure 2 shows that the majority of respondents went to primary school (50%) and 10% have never been to school, as compared to 10% that have gone to the university level. This means that, lesser parents have higher education, as such with lesser knowledge about malnutrition. This may explain the fact that the highest respondents who were from primary school level have little or no knowledge of malnutrition. That is why they had difficulties to answer some of the questions. Genebot, et al. [7] shows in his studies that a decrease in incidence of malnutrition goes along way with increase mothers’ educational level.

4.1.2 Respondents Knowledge on Malnutrition

Concerning the responses of respondents on how long they breastfeed their babies (Figure 5), 82% said they give breast milk to their child until they are more than 6 months, 18% said they breastfeed until 6 months.

As to what time they start feeding the child with complementary food; 70% said they start feeding the child at the age of 3 months as compared to 26% who said they start feeding the child at 6 months old. It can be seen here that the majority of women do not know that it is good
to add complementary foods in the baby’s diet only at 6 months of age. The baby should be breastfeed exclusively with express breast milk with no other food or fluids for the first 6 months of an infant life with exception of medicines (syrup, vitamins) prescribed by a physician (WHO, 2011). This study shows that only 26% have knowledge on what moment to start introducing complementary foods in the child diet.

Conversely, as to what complementary foods they knew (Figure 7), 32% said what they used as complementary foods: Corn-Fufu and Okro to feed the child, 30% said pap or soya beans pap and 20% said they use Irish potatoes and finally 18% used but artificial milk. Since mothers are not knowledgeable enough on complementary feeding options and the type of food that contain nutrients necessary for the growth of the child, most children will be malnourished and this will affect their growing abilities. In many households, there is no prioritized food for a baby, the food the mother cooks is for the whole family, the baby inclusive. According to Pamela Legowski [1], the nutritional composition of a family pot is equally an important determinant of child growth and development. To buttress this statement, delay and inadequate complementary feeding is found to be an important reason for the onset of malnutrition among children less than 5 years of age (World Food Program, 2000).

As concerns the precautions taken when preparing complementary foods (Figure 9), 32% said they wash their hands and pot before cooking, but the other greater portion (30%) do not know the precautions to take when preparing complementary foods. So, most of the mothers need to be taught on the precautions to take when preparing child’s food, like cleaning household utensils before cooking and to cook with clean and potable water.

As seen in Figure 10, the respondents gave the illnesses that the child can have when appropriate precautions are not put in place when preparing the child’s food; 50% said diarrhea, and 28% said weight loss and vomiting. This is due to the fact that mothers/care-givers do not know hygienic practices that lead to the exposure of the child to these illnesses and may lead to malnutrition; John and Bartlett [10] said the leading cause of diarrhea and intestinal worm infections in children in developing countries is lack of clean water, sanitation and hygiene. Children may become malnourished due to abnormal nutrients loss accompanied with diarrhea.

4.1.4 Problems Encountered in the Prevention of Malnutrition

Comparing the problems faced by the mothers/care-givers in the practice of proper nutrition (Figure11), the greatest problem was lack of knowledge (42%), because most of the mothers’ level of education was elementary and most of them were farmers followed by 32% who said their main difficulty was the lack of money. This means that they lacked money and education to prevent under-five malnutrition. Ignorance is a great danger for human life and the life of the child is on the hands of the mother and her ignorance can expose the child to infections due to inappropriate feeding practice which will influence the nutritional status and proper cognitive function of the child. Also with poverty, they are not able to provide special foods such as milk products, meat, fish, oils and fruits for the child growth and wellbeing. Armaya [11] stated that malnutrition and famine were more related to problems of food distribution and family purchasing power.

5. Conclusion

Most women do not practice good nutrition because of the nature of their jobs or socio-economic activities, 28% of them were farmers comprising the greater proportion; most of them sell the best products and consume lesser nutritive food because of economic issues and the lack of knowledge on what type of food was good for their health.

Fifty percent admitted that the causes of malnutrition was the lack of knowledge about the type of nutrients, therefore, they ought to be taught the types of foods to be introduced in the child’s diet and at what time it should be introduced.

Furthermore, they did not know the precautions to take when preparing complementary foods for the baby, so emphasis on the point that malnutrition related diseases should be avoided as well as improper hygiene practices and the use of unsafe water to prepare the children’s food. Poverty is also a greater problem in the practice of proper nutrition and adequate household hygiene because without money, coupled with the expensiveness of food in the market there is no way to buy good complementary foods for the child.

One of objectives of the Sustainable Development Goals (SDGs) is to reduce poverty and hunger and this can be achieved by the improvement of the nutritional status of children which will help to prevent deaths from diarrhea, malaria, pneumonia, measles and HIV and will
consequently reduce neonatal mortality. Stakeholders within the health area involved in livestock production, agriculture and basic education should liaise with the health administration to safeguard the welfare of the under-five children.

References

2. UNICEF (2011) Improving child nutrition, the achievable imperative progress in the world.


