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Malnutrition in the Under-Fives: Assessment of the Knowledge And Practices of Mothers in its Prevention
A study carried out in the Bamendankwe Health Area in North West Cameroon

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Abstract

Introduction: *According to the WHO, malnutrition remains the biggest contributor to child mortality with 6 million children dying from hunger each year. In 2010, protein energy malnutrition was estimated to have resulted in 600 000 deaths from 883000 deaths, in 1990 another 8400 deaths resulted from iodine and iron deficiency.*

The general objective of the study was to find out if mothers of the under-fives leaving in the Bamendakwe Health Area are knowledgeable of the preventive measures against malnutrition.

Materials & Methods: *A descriptive cross-sectional design was employed in which a structural questionnaire was used for the collection of primary data from a sample of mothers with under-five children on their knowledge in the prevention of malnutrition.*

Results*: Results obtained show that feeding a child with a balanced diet will help prevent malnutrition in children less than 5 years.*

Discussion*: Mothers lacked the means to prevent malnutrition, lacked the knowledge of different foods to feed the child to prevent malnutrition. Ignorance and poverty are associated with malnutrition; according to Kammann (2003), ignorance, lack of adequate funds, unemployment leads a deficit in the means to purchase the right kind of foods rich in proteins.*

Conclusion*: Malnutrition remains a serious paediatric problem in the under-fives as mothers' deficit on balanced dieting can result to malnutrition.*

Key words: *Malnutrition, Marasmus, Kwashiorkor, Health education, Balanced Diets, Breastfeeding, Sanitation, Behaviour Change Communication*

Introduction

Malnutrition is a condition that results from eating a diet in which nutrients are not enough or are too much such that it causes health problems. It remains a common pediatric problem worldwide. The nutrients involved are, calories, vitamins, proteins, carbohydrates and mineral. More than half of all deaths in children below five years, have malnutrition as the underlying cause.

In 2014, a program on maternal, newborn child health said if malnutrition occurred during pregnancy or before the second year of age in a child's life, it may result in permanent health problems in physical and mental development and stunted growth, thin body, very poor energy levels, swollen abdomen and legs.

In 2010 protein energy malnutrition was estimated to have resulted to 600 000 deaths down from 883 000 deaths in 1990, another 8400 deaths resulted from iodine and iron deficiency (Black R et al., 2010).

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Mortality due to malnutrition accounted for 58 % of the total mortality in 2006 with approximately 62 million people affected. All causes of deaths combined each year have malnutrition as the leading cause.

In 2006, more than 36 million people died of hunger and diseases due to deficiencies in micro nutrients. According to WHO (1995), malnutrition is the biggest contributor to child mortality, present in half of all cases of death, 6 million children died of hunger every year all over the world.

UNICEF (2011) reported that the number of malnourished people in the world exceeds 1 million accounting to 6 million of the world's population. In 2006, malnutrition accounted for 58% of total mortality in the world approximately 62 million people that is all causes of death combined each year.

According to the WHO (2008) malnutrition is the biggest contributor to child mortality. 6 million children die of hunger each year.

Cameroon is thought to have 44% of undernourished children in the six member community of central African States (CEMAC). UNICEF says malnutrition afflicts 3 out of 10 of Cameroonian children. Experts blame the high number on poverty, political neglects and epidemics. The situation, illustrated by increasing numbers of stunted growth and emaciated children, has alarmed child health advocate.

According to Ines Lezama, a nutrition expert with UNICEF Cameroon, the country has being in a red list (danger zone) for a long time and evidence shows that the latest surveys in 2011, the rate of stunting or acute malnutrition is going up and varies according to region ranging from mild prevalence in the fertile south, more severe in the Sahelian and drought–prone Northern regions on the fringes of the Sahara desert.

In Garoua, Cameroon one of the nurses explained that the poverty stricken area, home to 1/3 of the country's 9 million kids suffer malnutrition. In June 2014, the hospital registered 31 malnourished children, 6 died, 1 recovered and 21 were referred to other hospitals.

According to the most recent study by the National Institute of Statistics (NIS), published in October 2011, 33% of under 5's in Cameroon suffer from chronic malnutrition and 14% are severely malnourished. The Far North has the highest number of malnourished children as a result of lack of food resulting from the lean period which last mid June to the end of August.

Celine Essengue, a UNICEF staff gave her assessment situation and says Cameroon provides enough food to feed her children and so has no need to import food but poverty acts as a barrier of getting a balanced meal. UNICEF states that an estimate of 57,616 children under the age of five are at risk of severe malnutrition in the North and Far North regions of the country and that 145 000 children under 5 years will suffer stunted growth. Mothers' education of the first sign of malnutrition and to take their children as soon as possible for check up is quite primordial.

In the North West region of Cameroon, the researcher witnessed cases of malnutrition-related diseases in the Bamendakwe Integrated Health Centre in which mothers often consulted their children for disease related to growth and under weight. He realized that most of these babies suffered from malnutrition related illnesses and that if the mothers were knowledgeable about the preventive measures of malnutrition then these children would not be sick as some presented with prostration.

Research Question

What is the knowledge and practical measures needed by mothers of the under-fives in the prevention of malnutrition in children?

Study Objectives

General Objective

To find out if mothers of the under-fives living in the Bamendakwe Health Area are knowledgeable of the preventive measures against malnutrition.

Specific Objectives

- To assess the knowledge of mothers with under-five children in the prevention of malnutrition.
- To assess the various measures employed by mothers in prevention of malnutrition in the under-fives.
- To find out the problems faced by mothers in the prevention of malnutrition.
- To ascertain the additional information mothers of the under-fives need to improve on good infant nutrition.

Hypothesis

Mothers who are knowledgeable of the practices to prevent malnutrition in the under fives have a likelihood that these infants would grow healthily and have good cognitive outcomes than those who are not.

Methodology

Study Design

A descriptive cross-sectional design was employed in which a structural questionnaire was used for the collection of primary data from a sample of mothers with under-five children on their knowledge in the prevention of malnutrition.

Study Population

The study involved mothers of the under-fives living in the Bamendankwe Health Area.

Sample Size and Sampling Procedure.

The sample size was calculated using the formula below:

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

Where,
N=the required sample size
Z=confidence interval of 95% (z=1.96)
p=the population of households (15%)
e=random error of 5% (type 1 value of 0.05)
N=120 respondents.

A systematic random sampling procedure was used to obtain a sample size of 120 women as they arrive for the Antenatal Clinic and Infant Welfare Clinics Sessions. Self administered questionnaire were used to collect data from the study population. 120 women living in the Bamendankwe Health Area and using the health facility were sampled and a questionnaire administered to them.

Data Analysis Method

Data was analysed and presented in graphics (pie charts, histograms and bar charts); data was entered in Epiinfo software 6.0 and exported to SPSS for analysis.

Presentation and Analysis of Results

Distribution of respondents according to age

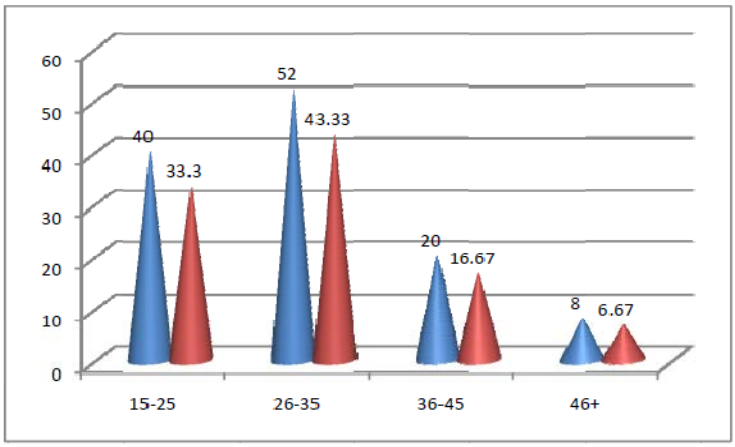

Figure 1: Age distribution of respondents

Out of the 60 respondents recruited for the study, 40(33.3%) were within the age range 15-25years, 52(43.33%) were within the age range of 26-35 years, 20(16.67%) were within the age range 36-45years and 8(6.67%) were within the age range 46 and above years old.

Distribution of respondents according to denomination

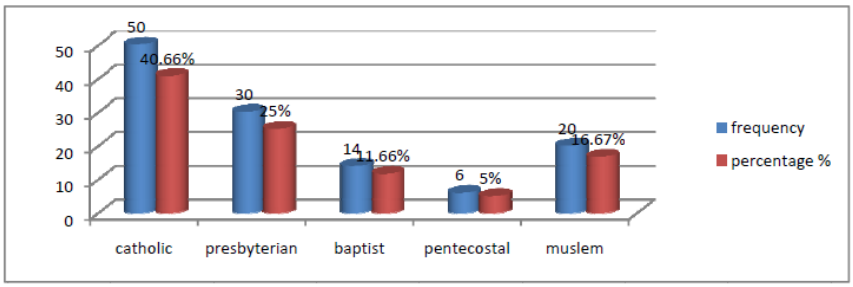

Figure 2: Distributions of respondents according to denomination

From the figure above out of the 120 respondents, 50(40.66%) were Catholics, 30(25%) were Presbyterians, 14(11.66%) were Baptist, 6(5%) were Pentecostal and 20(16.67%) were Muslims.

Distribution of respondents according to marital status

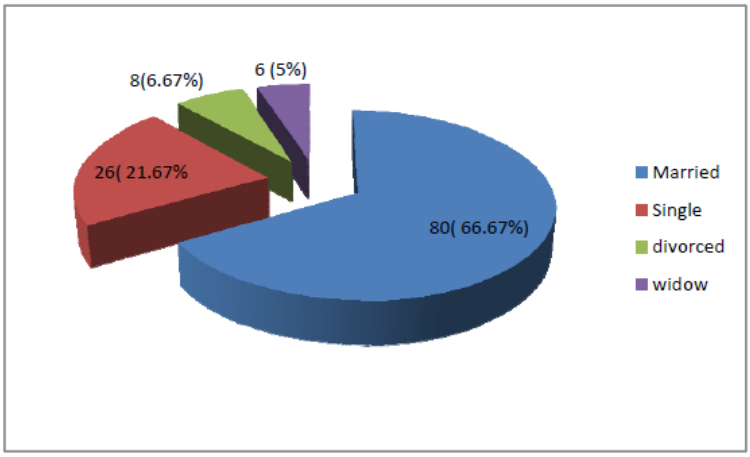

Figure 3: Distribution of respondents according to marital status

From the total of 120 respondents as can be seen on the table above, 80(66.67%) were married, 26(21.67%) were single, 8(6.67%) were divorced and 6(5%) were widows.

Distribution of respondents according to level of education

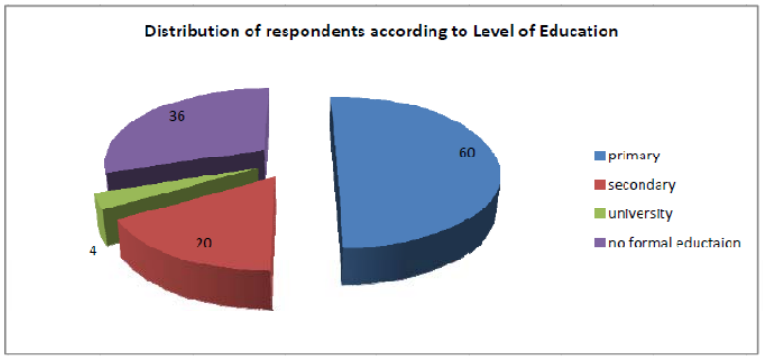

Figure 4: Distribution of respondents according to level of education

From the above, it shows that out of the 120 respondents, 60(50%) have attain at least primary school, 20(16.67%) had gone to secondary school, 4 (3.33%) have attained university and 36(30%) had no formal education.

Distribution of respondents according to occupation

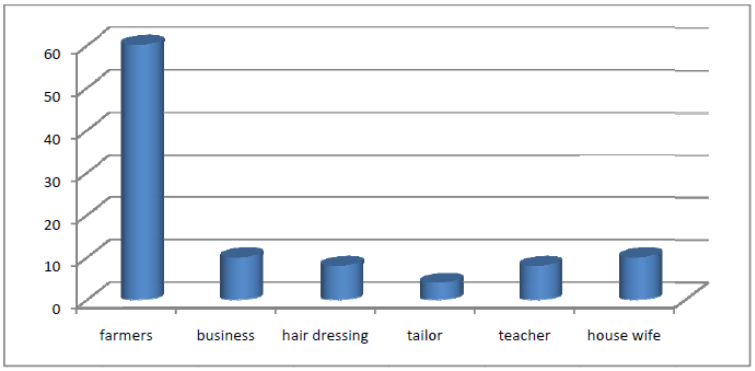

Figure 5: Distribution of respondents according to occupation

From the figure above, it shows that out of the 120 respondents recruited, 20(16.67%) were students, 60(50%) were farmers, 10(8.33%) were business women, 8(6.67%) were hair dressers 4(3.33%) were tailors, 8 (6.67%) were teachers and 10 (8.33%) were house wife.

Distribution of respondents according to number of children alive

Table 1: Distribution of respondents according to number of children alive

Number Of Children Alive	Frequency	Percentage %
1	10	8.33
2	16	13.33
3	30	25
4	40	33.33
5	20	16.67
6 and above	4	3.33
Total	**120**	**100**

From the table 1, out of the 120 respondents recruited for this study, 10(8.33%) had 1 child, 16 (13.33%) had 2 children, 30 (25%) had 3 children, 40(33.33%) had 4 children, 20(16.67%) had 5 children and 4(3.33%) had 6 children and above.

Knowledge of Malnutrition

Distribution of respondents according to their knowledge on malnutrition

Table 2: Distribution of respondents according to their knowledge on malnutrition

Responses	Frequency	%
Lack of food	4	3.33
Eating food that contain insufficient nutrients	73	60%
Irregular feeding pattern	20	16.67
Low quantity of food being eaten	24	20%
Total	120	100

Out of the 120 respondents recruited for this study, 4(3.33%) thought malnutrition is lack of food, 72(60%) thought that malnutrition is eating food with insufficient food nutrients, 20(16.67%) thought malnutrition is irregular feeding pattern and 24(20%) said malnutrition was eating food in low quantity.

Distribution of respondents according to their knowledge of diseases caused by malnutrition.

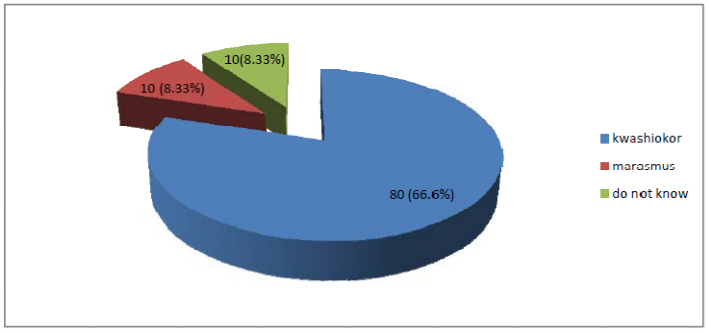

Figure 6: Distribution of respondents according to their knowledge on caused by malnutrition

Out of the 100 respondents who said malnutrition causes diseases, 80(66.67%) said malnutrition will lead to kwashiorkor, 10(8.33%) said malnutrition could cause marasmus and 10 (8.33%) said they did not know.

Distribution of respondents on their knowledge of the complications of malnutrition

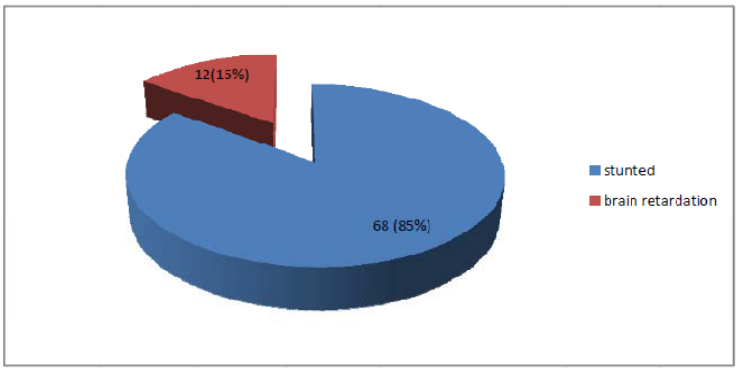

Figure 7: Distribution of respondents relative to their knowledge of the complications of malnutrition

Out of the 80 respondents who said malnutrition can cause damage to a child`s growth, 68(85%) said malnutrition has stunted growth as a complication and 12(15%) said brain retardation is a complication of malnutrition.

Responses of respondents on diseases that can be severe as a result of malnutrition in children below 5 years

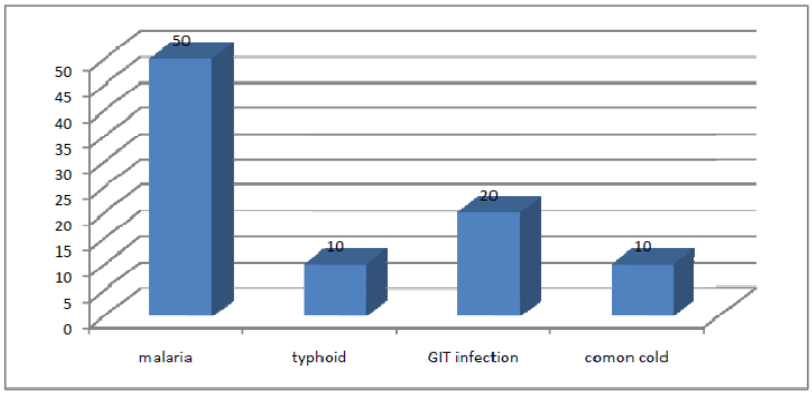

Figure 8: Responses of respondents on diseases that can be severe as a result of malnutrition in children below 5 years

From the figure above out of the 90 respondents who said malnutrition could cause severity of diseases in children, 50(55.56%) said malaria can be severe in a child if a child is malnourished, 10(11.11%) said typhoid will be severe as a result of malnutrition, 20(22.22%) said GIT infection will be severe in a child that is malnourished and 10 (11.11%) said common cold could be severe in a malnourished child.

Knowledge on Prevention of Malnutrition

Distribution of respondents on the prevention of malnutrition

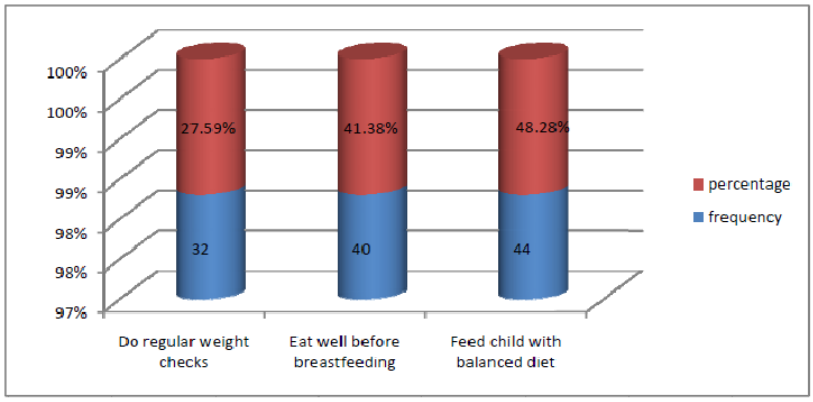

Figure 9: Preventive measures against malnutrition

Out of the 116 respondents who said malnutrition could be prevented, 32(27.59%) said weighing the child regularly will help prevent malnutrition, 40(41.38%) said for prevention purposes, a breastfeeding mother should eat well before breastfeeding a child and 44(48.28%) said feeding a child with a balance diet will help prevent malnutrition in children less than 5 years.

Responses on reasons for mixed feeding

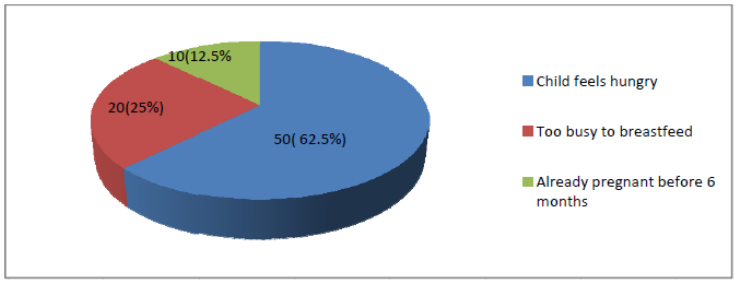

Figure 10: Responses on reasons for mixed feeding

From the figure the figure above, out of the 80 respondents who practice mixed feeding, 50(62.5%) do this because they think child fills hungry before 6 months, 20 (25%) did not practice breastfeeding exclusively because they are too busy and 10(12.%) did not breastfeed their children because they were pregnant before then.

Distribution of respondents according to signs and symptoms of malnutrition

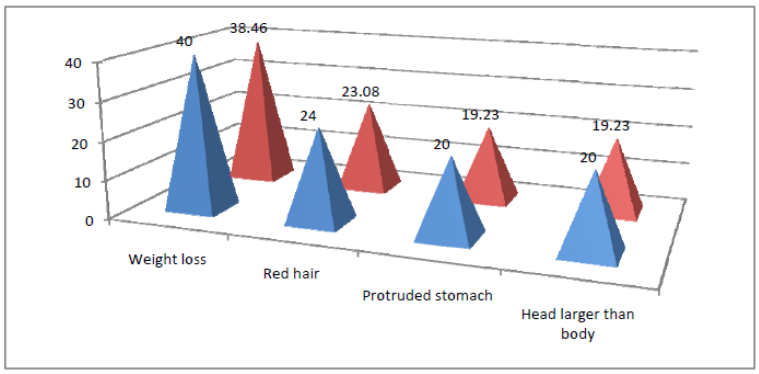

Figure 11: Distribution of respondents according to signs and symptoms of malnutrition

From the 104 respondents who said they could identify malnutrition in a child, 40(38.46%) said malnutrition can be recognised by a marked weight loss, 24(23.08%) said a child with red hair is showing malnutrition, 20(19.23%) said protruded stomach is a sign of malnutrition and 20(19.23%) said a child with a head larger than the body is suffering from malnutrition.

Distribution of respondents according to different foods given to children

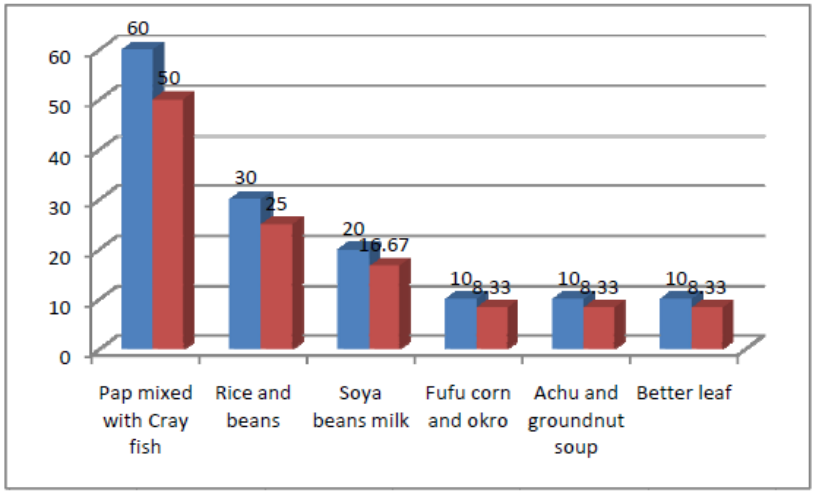

Figure 12: Distribution of respondents according to different foods given to children

From the 120 respondents taken for this study, 60(50%) feed their children with pap mixed with Cray fish, 30(25%) fed their children with rice and beans, 20(16.67) fed their children with soya beans, 10(8.33%) said they fed their children with *Corn-Fufu* and *Okro*, 10(8.67% said they fed their children with *Achu* and groundnut soup and 10 (8.67%) said they fed their children with *bitter-leaf*.

Distribution of respondents relative to where malnutrition should be managed

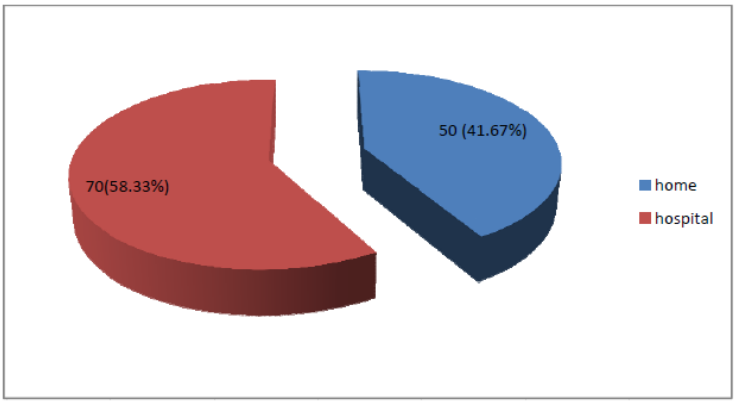

Figure 13: Distribution of respondents relative to where malnutrition should be managed.

Out of the 120 recruited respondents, 50(41.67%) said malnutrition can be managed at home and 70(58.33%) said malnutrition can best be managed in the hospital.

Problems Encountered in the Prevention of Malnutrition

Distribution of respondents relative to problems faced in the prevention of malnutrition.

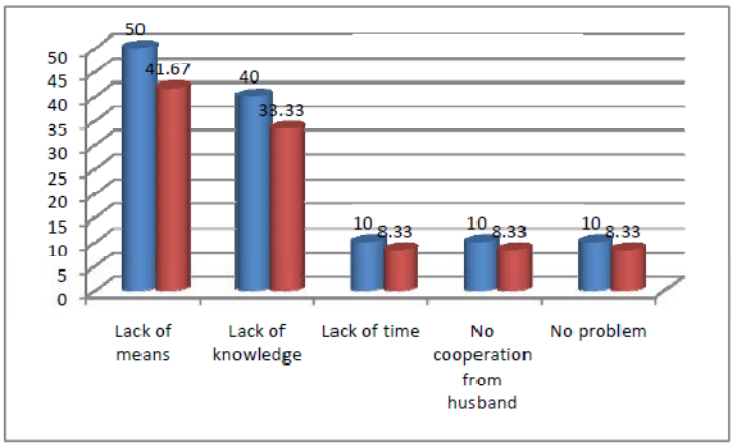

Figure 14: Distribution of respondents relative to problem faced in the prevention of malnutrition

Out of the 120 recruited respondents, 50(30%) did not have what it takes to prevent malnutrition, 40(33.33%) did not have the knowledge to prevent malnutrition, 10(8.33%) did not have time to care for children, 10(8.33%) are faced with lack of cooperation from husband and 10(8.33%) did not have any problem in the prevention of malnutrition.

Respondents' proposed solutions envisaged to salvage the problems.

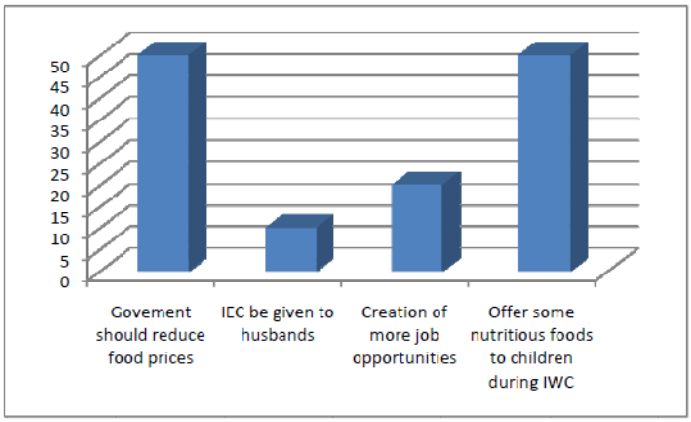

Figure 15. Respondents' proposed solutions to salvage the problems encountered.

From the 110 respondents who had problem in preventing malnutrition, 50(45.45%) said government should reduce food prices, 10(9.09%) taught IEC should be extended to husbands, 20(18.18%) said more job opportunities should be created and 30(27.27%) said some nutritious food items should be offered to women during IWC.

Practical Guidelines Geared at Preventing Malnutrition.

Distribution of respondents relative to information needed from health personnel

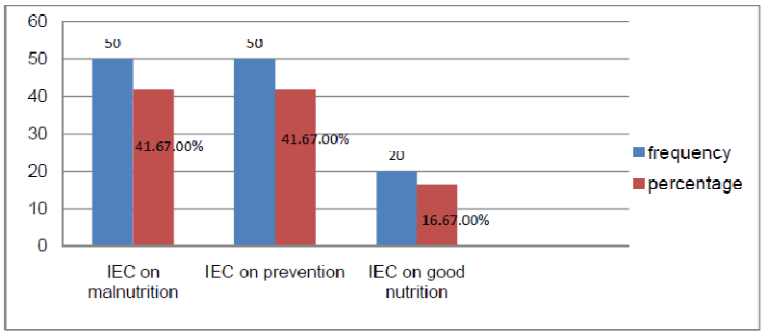

Figure 16: Distribution of respondents relative to information needed from health care providers.

The figure above shows that out of the 120 respondents, 50 (41.67%) said they need IEC on malnutrition, 50 (41.67%) said they need IEC on the prevention of malnutrition, and 20 (16.67%) said they need IEC on good nutrition.

Responses on reasons for the practical measures of prevention of malnutrition

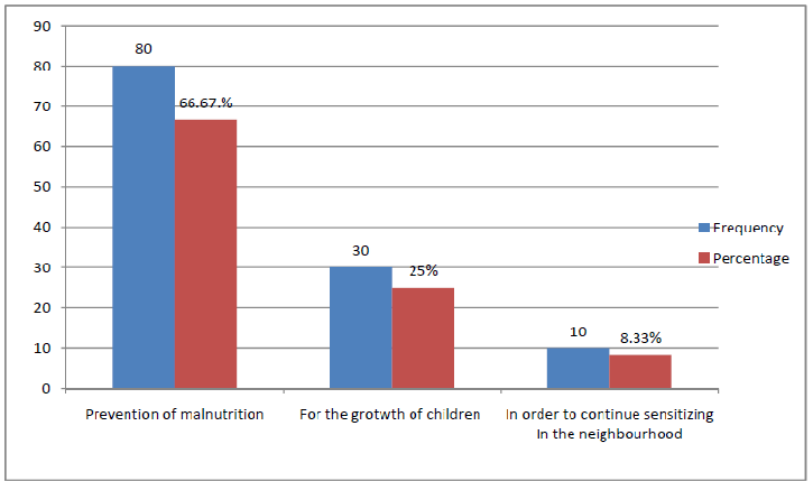

Figure 17: Responses on reasons for the practical measures of prevention of malnutrition.

Out of the 120 respondents recruited for this study, 80 (66.67%) said they will effectively put into practice the information given to them by health personnel in order to prevent malnutrition. 30 (25%) said in order to help their children grow well, 10 (8.33%) said they will get the information from health personnel so that they will be able to help sensitize to other women in the community.

Discussion of Results

Concerning the distribution of respondents according to occupation, 20 (16,67%) were students, 60 (50%) were farmers, 10 (8,33%) were business women, 8 (6,67%) were hair dressers, 4 (3,33%) were tailors, 8 (6,67%) were teachers and 10 (8,33%) were housewives. Most of the women were farmers in the developing countries, most rural women are farmers and these women lack farm to market roads which at the end, they cannot sell some of these foods in order to purchase some nutrients which they do not cultivate. According to Goghlan B et al.(2010), poor socio-economic position is associated with chronic malnutrition since it inhibits purchase of nutrient foods such as milk, meat, poultry, and fruits; conversely UNICEF (2008) said Cameroon produces enough food to feed its children and so has no need to import food but poverty acts as a barrier of getting a balanced meal. Klasen S. (2008) intimated that most of the time these women farm a single type of food, thus deriving too much of one's diet from a single source, such as eating almost exclusively corn or rice leading malnutrition.

On the level of education of respondents, 60 (50%) have attended primary education, 20 (16.67%) secondary education, 4 (3.33%) attended tertiary education whilst 36 (30%) have had no formal education. According to Mosley W. (1984), low parental education is associated to malnutrition.

Knowledge of Malnutrition

Concerning their distribution according to knowledge on what malnutrition, 72 (60%) had good knowledge on what malnutrition is. Malnutrition results from inadequate intake of nutrients that the body needs to maintain healthy tissues and organ functions ;40% had no knowledge of malnutrition and for this reason, some women do practice preventive measures against malnutrition because they do not know its importance.

On the distribution of respondents according to their knowledge on the complications of malnutrition, 80 (66.67%) of women had a good knowledge while 40 (33.33%) did not have. All

the 80 who knew said stunted growth was a complication of malnutrition. Reed BA (1996) said apart from stunted growth, malnutrition also has wasting, kwashiorkor, marasmus, as well as weakened immunity, so women who do not know won't practice and so their children run this risk.

Knowledge in the Prevention of Malnutrition

As concerns the distribution of the respondents on the prevention of malnutrition, 58 (96.67%) said malnutrition can be prevented. Out of the 116, 56 (48.28%) said feeding the child with a balanced diet will prevent malnutrition in their children. It was a good idea in contrary to some women who thought that more meat is to be eaten by the father; according to UNICEF (2008), some children are malnourished as a result of ignorance.

As concerns the distribution of respondents according to breastfeeding practices, 40 (33.33%) do practice exclusive breastfeeding while 80 (66.67%) do not practice exclusive breastfeeding. Most women were aware of the benefits of breastfeeding but still find it very difficult to practice exclusive breastfeeding (Gwatkin DR et al., 2000).

According to (WHO, 1995), about ¼ of the women stop breastfeeding their children before 3 months, leaving the child hungry and vulnerable to infections. So breastfeeding education helps in preventing malnutrition.

Respondents' responses on knowledge of signs and symptoms of malnutrition were apparent, 104 (86.67%) could enlist the signs and symptoms of malnutrition in a child. According to UNICEF (2008), an estimate of 57,616 million under-fives is at risk of severe malnutrition.

Problems Encountered in the Prevention of Malnutrition

Out of the 120 respondents recruited, 50 (46.7%) lacked the means to prevent malnutrition, 40 (33.33%) lacked the knowledge of different foods to feed the child to prevent malnutrition, 10 (8.33%) lacked time, 10 (8.33%) lacked cooperation from husbands to complete the practice of prevention of malnutrition. Ignorance and poverty are associated with malnutrition; according to Kammann EE (2003), ignorance, lack of adequate funds or limited sources of income, unemployment will lead to lack of means to purchase the right kinds of foods rich in proteins.

Additional guidelines needed from Care-providers to complement the prevention of malnutrition.

Out of the 120 respondents recruited for this study, 80 (66.67%) said they will effectively put into practice the information given to them by health personnel in order to prevent malnutrition; 10 (8.33%) said they will get the information from health personnel so that they will be able to help sensitize to other women in the community; with falls in line with WHO's recommendations for IEC dispensed to expectant mothers during ANC.

Conclusion

Malnutrition remains a serious paediatric problem in the under-fives as mothers' deficit on balanced dieting can result to malnutrition. Children who are spaced and well fed will be healthy and have good cognitive abilities than those who are not. Also, mothers lack adequate knowledge in the importance of breastfeeding. Children who are breastfed exclusively and for up to 6 months before the introduction of complementary feds stand a better chance of escaping malnutrition and malnutrition-related infections.

From the study results, it is evident that most children are malnourished not because their mothers lack the knowledge of its prevention but because they lack finances and adequate knowledge on its prevention.

Recommendations

The staff of Bamendakwe Integrated health centre should improve on:

- IEC provided to pregnant women on proper nutrition during pregnancy and post-partum;
- Malnutrition and its complications on the lives of these babies and how they can at their basic level prevent malnutrition with the means and food supply they have at their disposal.

The Ministry of Public Health should:

- Re-inforce the workforce by recruiting more nurses who will reduce the work load in the health centres and have enough time to follow up these mothers during home visits in their homes.
- Provide teaching aids such as flip-charts, posters and video projectors which will lead to satisfactory comprehension of lectures, abandonment of old habits and thus adoption of appropriate practice.

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