

ADDIS ABABA UNIVERSITY
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DEPARTMENT OF NURSING AND MIDWIFERY

ASSESSMENT OF RISK FACTORS ASSOCIATED WITH SEVERE ACUTE MALNUTRITION
AMONG CHILDREN ADMITTED TO ADDIS ABABA GOVERNMENTAL HOSPITALS,
ETHIOPIA, 2014.

BY:

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ADDIS ABABA, ETHIOPIA

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APPROVED BY THE BOARD OF EXAMINERS

This thesis by Gebre Gelana is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of master in pediatrics and child health nursing.

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ABBREVIATIONS

AA – Addis Ababa

AIDS – acquired immunodeficiency syndrome

BSc – Bachelor of Science

EDHS – Ethiopian Demographic Health Survey

ETB – Ethiopian Birr

GAM – Global Acute Malnutrition

Gov't - government

HIV – Human immune virus

IGME - Interagency Group for Child Mortality Estimation

SAM – Severe acute malnutrition

LMIC – Low and Middle income countries

MDG – millennium development goal

NGO – Nongovernmental Organization

SNNPR – Southern Nation, Nationalities and People Region

SPSS – Statistical package for social science

TFC - Therapeutic feeding center

UN – United Nation

USD – United State Dollar

WHO – World Health Organization

ABSTRACT

Background Malnutrition remains one of the most common causes of morbidity and mortality among children throughout the world. It is responsible about 60% cause of death in under age of 5 years.

Objective To assess feeding practice and factors associated with severe acute malnutrition in under age of 5 year children admitted to Addis Ababa Government Hospitals, Ethiopia, 2014.

Methods and Materials A cross sectional study design was conducted on 151 under age of 5 year children admitted to Addis Ababa Governmental Hospitals from April to May 2014. The required number of sample was selected based on the registration and diagnosis. Data was collected by review of medical records and interview of the family member nearby during data collection. The data was manipulated and analyzed by using Epi.info version 3.5.4 for windows and SPSS version 16.0.

Results Out of one hundred fifty one study subjects, 124(82.1%) of them breastfed; but majority of them, 65.4% did not practice exclusive breast feeding. Maternal illiteracy had 2.46 times high risk and significant association with severe acute malnutrition (AOR=2.46, 95% CI, 1.4-42.4). Being age younger than 11 months also showed 5.97 times high risk and statistically significant association with severe acute malnutrition (AOR=5.97, 95% CI, 1.8-20). Children of governmental employee mother were 2.29 times high risk to be affected by marasmus (AOR=2.29, 95% CI, 1.4–3.86). Male children were 2.28 times higher risk to be affected by the case than female children (AOR= 2.28, 95% CI, 1.1–4.9).

Conclusion Maternal illiteracy, maternal occupation, sex of the child being male and age of the child younger than 11 months have strong and statistically significant association with child severe acute malnutrition.

Recommendation I would like to recommend Ministry of Health, Ministry of Education and Addis Ababa Health Bureau to strengthen maternal education in order to improve the knowledge and practice of parents on appropriate infant and young child feeding practices.

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Keywords: Risk factors, severe acute malnutrition, Children, Hospitals.

1. INTRODUCTION

1.1. Background

Malnutrition is a pathological state resulting from inadequate nutrition. It is broadly classified as under nutrition, as a result of insufficient intake of energy and other nutrients, and over nutrition due to excessive consumption of energy and other nutrients (1).

Severe acute malnutrition (SAM) is defined by a very low weight for height (below -3 z scores of the median WHO growth standards), by visible severe wasting, or by the presence of nutritional edema (2).

Malnutrition remains one of the most common causes of morbidity and mortality among children throughout the world (3). Particularly stunting, is still a severe public health problem in Sub-Saharan Africa (4). For example, about 35 % of preschoolers are stunted; while 29 % are underweight in Sub-Saharan Africa (5). In addition, the Fifth Global Nutritional Report estimates that in East Africa 44 % of children under-five were stunted while 31 % were underweight in 2005 (6). It has been responsible, directly or indirectly, for 60% of the 10.9 million deaths annually among children under five (6).

Malnutrition has both short term and long term adverse ramifications. In the short-term for the individual, it is associated with illness, health and mortality (7). In the long-term, it leads to impaired cognitive development, poor educational achievement and economic productivity (8-9). Poverty and ignorance play important roles at the background in the causation of malnutrition especially in the developing world. Poor feeding practices have been identified in the developing

world to arise from ignorance about adequate breastfeeding and appropriate weaning practices. All these are closely related to the socioeconomic status and sizes of families (10).

Individuals from low socio-economic backgrounds and particularly those living in poverty are more likely to be malnourished than individuals from higher socio-economic classes. This is most often primary malnutrition as a result of food insecurity. Secondary malnutrition is also more prevalent in situations of poverty due to overcrowding and poor sanitation (which for example increase the risk of infection) and contributes to the increased incidence of malnutrition amongst the poor.

History of recent infectious and parasitic disease, in particular diarrhea, malaria, or intestinal worms predisposes an individual to malnutrition and these conditions reduce the proportion of nutrients which the body is able to consume.

1.2. Problem Statement

Achieving the Millennium Development Goals that aim to reduce malnutrition and child mortality depends in part on the ability of governments/policy makers to address nutritional status of children in general and those infected or affected by HIV/ AIDS in particular (11).

Although the worldwide child mortality rate has declined by two-fifths since 1990, the United Nations (UN) Interagency Group for Child Mortality Estimation (IGME) recently reported that, in 2011, 7.6 million children died worldwide before the age of 5 years, a reduction from 8.1 million deaths in 2008. Despite global progress in reducing child mortality rates, the average annual rate of reduction is low in many countries (12).

In low and middle income countries (LMIC), an estimated 6.9 million children under the age of five still die annually because of preventable and treatable illnesses including pneumonia, diarrheal disease, malaria, and underlying malnutrition. In developing countries, malnutrition is a contributing factor in over 50% of child deaths. (13).

SAM affects approximately 20 million children under five years of age and contributes to more than 1 million child deaths in the world each year(14).

Malnutrition affects one out of every three preschool age children living in developing countries. In South Asia, increases in women's status have a strong influence on both the long- and short-term nutritional status of children, leading to reductions in both stunting and wasting. In Sub-Saharan Africa too, women's status and the long- and short-term nutritional status of children are linked (15).

According to the study conducted in Zaria city, Northwest Nigeria, the mean prevalence of underweight malnutrition, was found to be 67%. In addition, this study has established that maternal literacy affects the nutritional status of children; as children of illiterate mothers (with no formal education) have increased risk for development of malnutrition in children under the age of 5 years especially for stunting (16).

Community based studies done in Ethiopia showed that malnutrition is common. A study done in Southern Nations Nationalities and Peoples Regional state attested that 45% of the children were stunted, 42% underweight and 12% wasted (17). Similarly in Jimma town the prevalence of underweight, wasting and stunting were 36%, 9% and 36% respectively (18).

Parental illiteracy is found to be associated with a higher risk of SAM. This is observed in studies done in North Wollo, Ethiopia (19), and in other African (20-21), Southeast Asian (22-23) and Latin American countries (24). In a case-control study in Bangladesh, the maternal illiteracy was associated with a fourfold increase in the risk of severe acute malnutrition in their children (25).

Many studies show other factors contribute to acute child malnutrition. Studies done in Nigeria, India, a community based study done in Jimma and a case control done in Gonder University, Ethiopia showed that children with malnutrition lived in a household with low monthly income (18, 26-27).

1.3. significance of the study

Over the years, researchers have tried to identify risk factors for malnutrition in children in developing countries (4–9). The result of this study is essential to determine the risk factors associated with severe acute malnutrition and plan resources needed for effective management of malnutrition in children and to identify the associated factors with malnutrition in same population which helps to prevent the occurrence of malnutrition. The findings of this study also expected to be used as reference by other researchers, governmental and nongovernmental organizations working with child nutrition and food security to redesign their implementation strategies. Overall, the findings have important implications for policy and programme efforts towards improved child nutritional status in affected communities and other sub-groups of the population.

2. LITERATURE REVIEW

2.1 Malnutrition in Ethiopian context

Ethiopia has been experiencing drought and chronic food insecurity for the last four decades. The situation in the last few years has been serious. The nutrition situation in Ethiopia was graded as serious and critical with global acute malnutrition (GAM) and SAM prevalence ranging from 7.7 to 23.4 and 2.0 to 4.5 percent respectively in 2008 (28).

The number of Ethiopians in need of food assistance between July and December 2011 increased to 4.5 million, from an earlier assessment of 2.8 million (29). Food insecurity in 2011 further threatened more than 250,000 children who suffer from severe acute malnutrition (30).

A study conducted in Southern Region of Ethiopia showed a total of 13,843 patients with severe malnutrition were admitted to 25 therapeutic feeding centers (TFC) in five zones and one special woreda. Of the 12,827 patients, 70% (8,979) were children younger than five years. Of the 11,550 (83%) patients for which nutritional status was documented, 47% (5,447) had severe wasting and 53% (6,103) had edematous malnutrition (31).

The Ethiopian Demographic and Health Survey (EDHS) reports have showed that there has been improvement in the nutritional status of children in the past 11 years in Ethiopia(32-33). Accordingly, stunting prevalence decreased by 12 percent between 2000 and 2005 (33-34) . The prevalence further fallen by an additional 14 % to become 44 % between 2005 and 2011 (32-33). The decline in the proportion of stunted Ethiopian children shows improvement in chronic malnutrition over the past eleven years. A similar pattern is also observed for the proportion of children underweight which dropped by 20 percent from 2000 to 2005 and 12 percent from 2005

to 2011 (32-33). However, there is no change in the prevalence of wasting, as it remained about 11%. Overall, 10 percent of Ethiopian children are wasted, and two percent are severely wasted (32).

According to nutrition baseline survey report for the national nutrition program of Ethiopia , 12 percent of children aged 6 to 59 months were wasted and three percent of them were severely wasted, this problem also hold back progress towards reaching MDG 4 to reduce child mortality (35). In which The primary impact objectives include reduce the prevalence of underweight from 38% to 30%; Reduce the prevalence of stunting (H/A <-2 z-scores) from 46% to 40% and reduce the prevalence of wasting (W/H <-2 z-scores) from 11% to 5% by 2013 (36).

In the Southern Nations, Nationalities and Peoples' Region , 44.1% of children were stunted, of which 22.9% were severely stunted ; 6.5% of children were wasted, of which 1.9% were severely wasted and 28.3 % of children were underweight, of which 9.6% were severely underweight (6, 18).

Soloman Amsalu, and Zemene Tigabu in their study concluded that maternal illiteracy is most common cause for severe acute malnutrition followed by monthly income less 50 USD, paternal illiteracy, lack of exclusive breast feeding, family size more than 3 children, late initiation of complementary diet, bottle feeding . Pre lacteal feeds were thought to be important in 28.4% of cases when compared to 8.8% in controls (27).

2.2. Socio-demographic characteristics of the family

2.2.1. Parental educational status

Educational level of mother is important because educated mothers are more knowledgeable about their children's health and nutrition. They can make better use of health services, provide better care, have better hygienic practices and also have higher status in the family. It is also known that better economic conditions increase the living standard of the families, which allow them to take essential care of the children (37).

According to the study conducted in Nairobi, Kenya by Benta A Abuya et al in 2009/10, the prevalence of stunting among children aged up to 42 months in these communities was close to 40 %. (38). They found a persisting significance of mother's education on child's stunting in their study.

From the study done by Ahmad Ayuba Umar et.al, maternal literacy has a significant association with malnutrition in under- five. The findings from this study among the mothers with no formal education of 8.7%, 41%, and 29% of their children with wasting, stunting, and underweight, respectively (16); Similarly, Rayhan, et al. (39) also found that mothers with secondary or higher level of education had likelihood of 37% and 30% less number of stunted and underweight under five children, respectively than illiterate mothers. In a cross-country analysis from 63 countries, Smith and Haddad (40), found that women's education was strongly associated with child malnutrition in developing countries. Wamani, et al.(41), also reported maternal education to be associated with stunting among under-two children in Uganda.

According to study conducted in Kenya, Nairobi, Stunting is more common among children born to single mothers and older mothers, with 45 % and 46 % respectively. Mothers those have at

most primary level of education have 43 % of their children stunted compared to 37 % for mothers with at least secondary level of education (38).

From Ethiopian DHS 2011, the mother's level of education generally has an inverse relationship with stunting levels. For example, children of mothers with more than secondary education are the least likely to be stunted (19 percent), while children whose mothers have no education are the most likely to be stunted (47 percent) (42).

2.2.2 Family size

A larger family size is associated with an increased risk of SAM. The effect of a large family size with overcrowding and inadequate spacing has been implicated as a risk factor for severe malnutrition in different studies as well (43-44). In hospital based prospective study conducted in Sukkur, large family size is highly associated with an increased risk of SAM. It was seen that 66.6% cases were from large family size (45).

2.2.3. Monthly Family income

The risk of SAM is increased when the monthly income is lower than 50 USD. Similarly poor family income has been found as a risk factor for severe acute malnutrition in studies done in Nigeria (44), and India (22). A community based study done in Jimma, Ethiopia showed that children with malnutrition lived in a household with low monthly income (18). A similar inverse relationship is observed between the household wealth index and the stunting levels of children; that is, a higher proportion of children in the lowest household wealth quintile are stunted 49 % than of children in the highest wealth quintile 30% (42).

2.3.Previous illnesses

Kwashiorkor is one of the most severe forms of protein-energy malnutrition in children in developing countries. The condition is aggravated by repeated infections, especially diarrheal diseases. Wasting is usually used as a measure of recent nutritional problems especially after an illness, particularly diarrhea. The major causes of childhood mortality in Nigeria include malaria (30%), vaccine preventable diseases (22%), diarrhea (19%), acute respiratory tract infections (16%), etc., with malnutrition underlying about 60% of these childhood deaths (46).

Pelletier D L, Frongillo E A in their study showed that 56% of children deaths were attributable to malnutrition's potentiating effects (47).

The findings of all these studies showed that illness like diarrhea, respiratory diseases, acute febrile illnesses etc interrupt nutritional status of the child which increases the risk of SAM among the children who have experienced the diseases.

2.4. Feeding practice

As a global public health recommendation, infants should be exclusively breastfed for the first 6 months of life to achieve optimal growth, development and health. Thereafter to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods while breastfeeding continues for up to two years of age or beyond (48). Introduction of other diet before six months of age is 3.2 times more common with cases than in the controls; and initiation of complementary diet after one year of age was 3.4 times more common in the malnourished group, indicating that children with severe acute malnutrition are started with complementary diet either too early or too late (27). A study done in China showed

that the introduction of other diet before the age of six months increased the prevalence of pneumonia and diarrhoeal disease (49). Similarly a study done in Kenya showed an increased risk of being underweight when complementary food was started early. The proportion of malnourished children was higher among those who were abruptly weaned (43.7%) than gradually weaned (23.3%) children (50).

Bottle-feeding is more commonly observed in the severely malnourished group than the controls. Bottle-feeding is discouraged at any age (27). It is usually associated with increased risk of illness, and especially diarrheal disease, because of the difficulty in sterilizing the nipples properly. Bottle-feeding also shortens the period of postpartum amenorrhea and increases the risk of pregnancy (33).

In general, malnutrition is the major public health problem as stated in different literatures above, specifically in developing countries. The causing factor of this problem is not only lack of food. There are a lot of contributing factors like parental illiteracy, larger family size, and low family income, acute and chronic diseases and inappropriate child weaning practice which directly or indirectly interrupt child nutritional status. Therefore, it is important to consider such factors in a given community to intervene and prevent malnutrition.

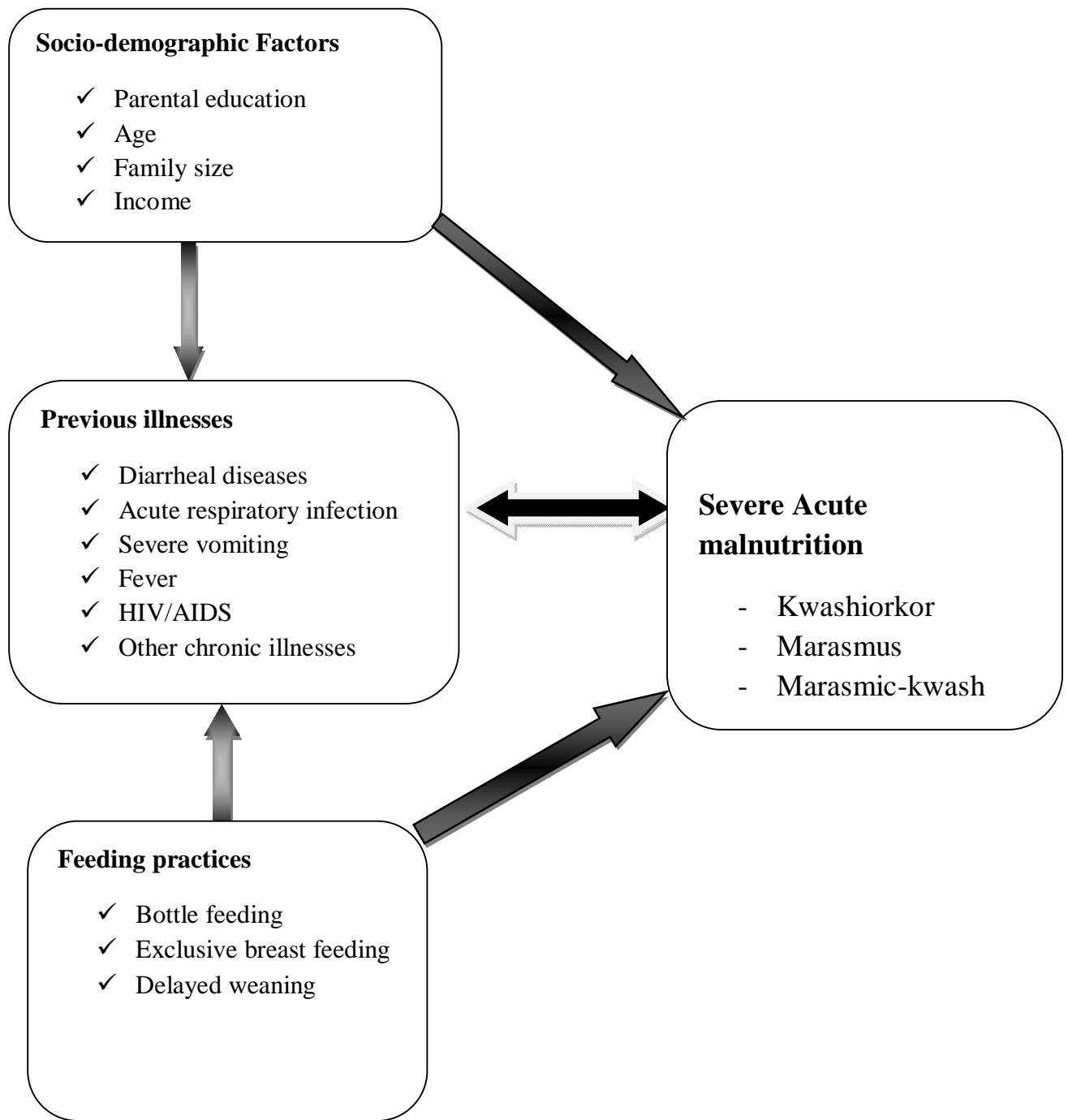


Figure 1: Conceptual framework of risk factors associated with severe acute malnutrition in under age of 5 years children.

Source: Developed from different literatures by principal investigator.

3. OBJECTIVE

3.1. General Objective

To assess feeding practice and factors associated with severe acute malnutrition in under age of 5 children admitted to Addis Ababa Governmental Hospitals, Ethiopia, 2014.

3.2. Specific Objectives

To assess the feeding practice of the child with severe acute malnutrition among children admitted to Addis Ababa Governmental Hospitals.

To assess the factors associated with severe acute malnutrition among children admitted to Addis Ababa Governmental Hospitals.

4. METHODS AND MATERIALS

4.1. Study area

Addis Ababa is the capital city of Ethiopia and head quarter of African Union covering an area of 540 sq. km. The total population of the city is about 3.3 million with 5046 peoples per square kilo meter, more of slum and overcrowded. The Administrative region has 10 sub cities and 106 woredas (districts). According to Addis Ababa Health Bureau Report of 2010, there were 49 hospitals of which 12 were government owned, 5 NGOs and 32 are private, 27 public health centers, and 130 public health stations, 700 different levels private clinics are found in Addis Ababa city Administrative region. The study was conducted in three purposively selected Governmental Hospitals those admit malnourished children.

4.2. Study design and period

A cross-sectional study was conducted in Addis Ababa Governmental Hospitals to assess risk factors associated with SAM among children admitted with severe acute malnutrition from April to May 2014.

4.3. Population

4.3.1. Source population

All children those had been admitted to Addis Ababa Governmental Hospitals for further treatment.

4.3.2. Study population

Children with severe acute malnutrition age from birth to 59 months who had been admitted to these hospitals and fulfilling the following criteria

Inclusion criteria

- The child diagnosed by
 - Severe wasting (marasmus) ($W/H < -3$ SD or $<70\%$)
 - MUAC <11.5 cm
 - Bilateral edema (Kwashiorkor)
- Aged birth – 59 months
- Family member nearby
- Complete document

Exclusion criteria

- Incomplete data.
- Children in intensive care unit
- Older than five years.

4.4. Sample size determinations and sampling technique

4.4.1. Sample size determination

All children who met the inclusion criteria and admitted to the hospital were purposively included until the required sample was saturated.

The required sample size was calculated by the following formula and p-value, prevalence of wasting from Ethiopian Demographic Health Survey 2011, 10% in the literature.

A single population proportion formula, $[n = (Z \alpha / 2)^2 p (1-p) / d^2]$, was used to estimate the sample size. ($p = 0.1$), 95% confidence interval, margin of error 5% ($d = 0.05$). Computing with the above formula and 10% of contingency for non respondent rate gives a total sample size of 151.

4.4.2. Sampling technique

All children admitted to hospital with severe acute malnutrition before and during data collection were included as study participant based on their registration documented in registration book. Unfortunately if their registration book is incomplete or not met the inclusion criteria, the child was automatically excluded.

The hospitals were selected based on the service they provide. Based on this the public hospitals which provide therapies for malnutrition inpatient are Black Lion Hospital, Zewuditu Memorial Hospital, Yekatit 12 Hospital and St. Paul Hospital Millennium Medical College. Black Lion Hospital was excluded to prevent sample overlap because most of the cases were taken as referral from other hospitals.

The children fulfilling the criteria were included from the selected hospitals until the required sample size saturated. Samples were selected consecutively starting from April to May 2014 using Patient's registration book.

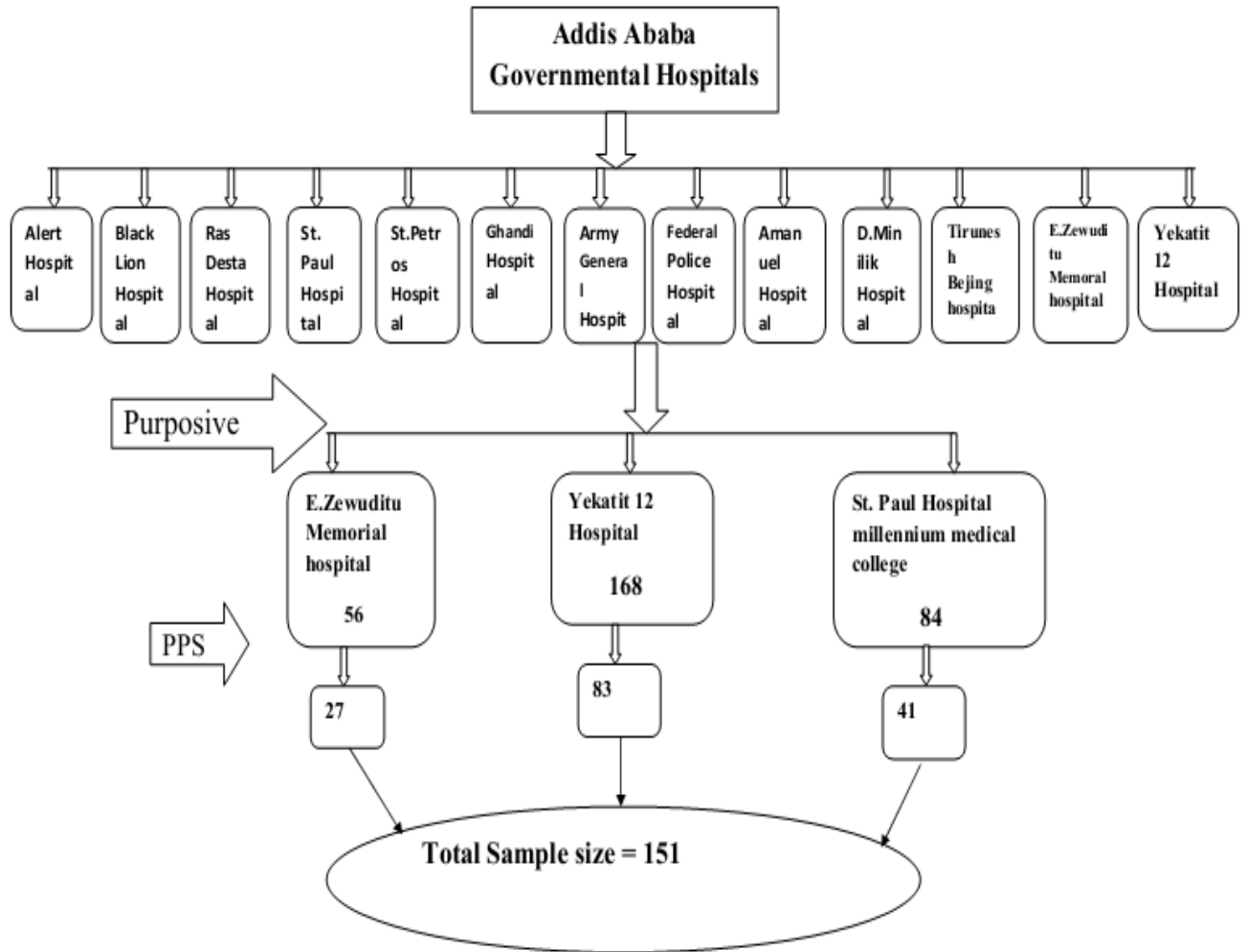


Figure 2 Schematic presentation of sampling procedure

PPS – proportion to population size

4.5. Study Variables

4.5.1. Independent variables

The independent variables are socio demographic characteristics like age, sex, religion, ethnicity, education, occupation, marital status, family size and monthly income.

Clinical and anthropometric information such as previous illnesses: infections, diarrhea, acute respiratory infection, HIV/AIDS and feeding practice.

4.5.2. Dependent variables

The dependent variable is severe acute malnutrition (marasmus, kwashiorkor and marasmic-kwashiorkor).

4.6. Data collection procedure

4.6.1 Data collection tool

The questionnaire consists of the following data

- Socio demographic data of family and child
- Child characteristics: clinical, previous illnesses and Anthropometric data
- Feeding practice

4.6.2 Data collection and quality control

The structured questionnaire was translated to Amharic languages and the questionnaire was pretested on 15 children admitted with SAM to Black Lion Hospital. Training was given for one supervisor (Bachelor Nurse) and four data collectors (Diploma Nurses) and included provision of handouts on a review of general study objectives and procedures, detailed discussion of every

data item to be collected and discussion of how to resolve potential problems, practical session on measurement and observations based on standard way. The data was collected by reviewing records from inpatient registration book, and interview of family member nearby.

The data collection format of each data collectors was checked daily for completeness, missed or other relevant information on meeting and close supervision during data collection. Data editing was done by the data collectors, supervisors and the principal investigator in the field and further cleaning of data, coding and entry to computer.

4.7 Operational definitions

Age – age of the child in month

Anthropometric information- refers to weight for height and mid upper arm circumference.

Children- birth to 59 months old children.

Education – maternal education

Malnutrition – under nutrition results from insufficient intake of nutrients.

Occupation – maternal occupation

Severe acute malnutrition – child diagnosed by severe wasting (marasmus) and bilateral edema (kwashiorkor) and MUAC less than 11.5 centimeter.

Unknown HIV status: those children whose HIV test result is not recorded on their card.

4.8 Data entry, analysis and processing

Data was entered to Epi-Info 3.5.4 for windows and analyzed using SPSS version 16.0 for windows. The data was double entered to check the consistency. The data was cleaned and edited before analysis. Data exploration was undertaken to see if there were odd codes or items that were not logical and then subsequent editing was made. Frequency distributions, pie chart, figures and tables were used to provide an overall and coherent presentation and description of the data. Binary logistic regression and multinomial logistic regression tests were used to express the magnitude and association between independent variables such as maternal educational status, monthly income, family size, previous illnesses, feeding practice etc and different form of severe acute malnutrition.

4.9 Ethical consideration

The thesis proposal was submitted to Department of Nursing and Midwifery, School of post graduate studies of Addis Ababa University Nursing Research Review Committee for approval. Followed the approval by Institutional Review Board, Official letter of co-operation was written to the concerned bodies by School of Allied Health sciences, Department of Nursing and Midwifery. As the study was conducted through review of medical records and non invasive data collection methods, the individual patients were not subjected to any harm as far as the confidentiality was kept. No personal identifiers were used on data collection form. The recorded data was not accessed by a third person except the principal investigator, and was kept confidentially.

4.10 Dissemination of results

Findings of the study will be communicated to the hospitals where the study was conducted, to Ethiopian Ministry of Education to strengthen maternal education, School of Allied Health Sciences through soft and hard copy after presentation. The findings will be submitted to conferences, example Ethiopian Nursing Association, Symposia, or Workshops. The findings will finally be published to access to others users as well.

5. RESULTS

5.1 Description of socio demographic of the Family and the child

The total sample size included in the study was 151 subjects. All the study subjects provided their relevant information which making the response rate 100%.

The mean age of the mother's is 27.99 with Standard deviation of 4.76. Concerning educational status of the mother's 57(37.7%) were educated to grade 1-8, 29(19.2%) can read and write, 28(18.5%) were attended grade 9-12, 26(17.2%) have no formal education (illiterate), and 11(7.3%) were complete College/University. When considering occupational status of the mother's, most of them were daily labor workers 65(43%), 46(31.8%) were house wife, 21(13.9%) were merchant, 9(6%) were governmental employee and 8(5.3%) were private workers (Table 1).

Most of the study subjects' fathers were attended grade 1-8, 53(43.4%), 32(25.4%) were completed grade 9-12, 21(17.2%) were attended college/University, 10(8.2%) can read and write and 7(5.7%) have no formal education (illiterate). Regarding occupational status of study subject's fathers, 60(49.2%) were daily labors, 26(21.3%) were merchant, 20(16.4%) were private worker and 16(13.1%) were governmental workers (Table 1).

Regarding the ethnic group of the study subjects, 46(30.5%) were Oromo, 45(29.8%) were Amhara, 26(17.2%) were Tigre, 25(16.6%) were Gurage and 9(6%) were others. Of 151 study subjects, 96(63.6%) were Orthodox, 28(18.5) were Protestant and the remaining 27(17.9%) were Muslims (Table 1).

Table 1 Socio demographic characteristics of the family and the child of the children admitted with SAM to AA Governmental Hospitals, 2014.

	Characteristics	Frequency	Percent
Age of mothers	20- 24	31	20.5
	25- 29	69	45.7
	30+	51	33.8
	Total	151	100.0
Ethnic Group	Amhara	45	29.8
	Oromo	46	30.5
	Tigre	26	17.2
	Gurage	25	16.6
	Others	9	6.0
	Total	151	100.0
Religion	Orthodox	96	63.6
	Protestant	28	18.5
	Muslim	27	17.9
	Total	151	100.0
Mother's educational status	Illiterate	26	17.2
	Can read and write	29	19.2
	Grade 1-8	57	37.7
	Grade 9-12	28	18.5
	College/University	11	7.3
Mother's Occupation	Total	151	100.0
	House wife	48	31.8
	Government employee	9	6.0
	Merchant	21	13.9
	Daily labor	65	43.0
	Private worker	8	5.3
Marital status	Total	151	100.0
	Single	4	2.6
	Married	122	80.8
	Divorced	22	14.6
	Widowed	3	2.0
	Total	151	100.0
	Illiterate	7	5.7

	Can read and write	10	8.2
Fathers	Grade 1-8	53	43.4
Educational	Grade 9-12	31	25.4
status	College/University	21	17.2
	Total	122	100.0
	Government employee	16	13.1
	Merchant	26	21.3
Father's	Daily labor	60	49.2
Occupation	Private worker	20	16.4
	Total	122	100.0
	<500 Birr	29	19.2
	500-1000 Birr	59	39.1
Monthly	1100 - 1500 Birr	20	13.2
income	1600 - 2000 Birr	22	14.6
	>2000 Birr	21	13.9
	Total	151	100.0
	2	13	8.6
	3	31	20.5
Family size	4	63	41.7
	5	34	22.5
	>5	10	6.6
	Total	151	100.0
Number of	1	134	88.7
children 0- 59	2	14	9.3
months in the	>2	3	2.0
family	Total	151	100.0
Age in months	0 - 11	73	48.3
	12 – 23	61	40.4
	24 – 59	17	11.3
	Total	151	100.0
Sex	Male	89	58.9
	Female	62	41.1
	Total	151	100.0

Monthly income of most of the study subjects' family ranges from 500-1000 Birr which accounts 59(39.1%), < 500 Birr accounts 29(19.2%), 1600- 2000 Birr accounts 22(14.6%), >2000 Birr accounts 21(13.9%) and 1100-1500 Birr accounts 20(13.2%)(Table 1).

Regarding the family size of the study subjects, 63(41.7%) has 4 members, 34(22.5%) has 5 members, 31(20.5%) has 3 members, 13(8.6%) has 2 members and 10(6.6%) has >5 members. The number of under age of 5 years children in the family is one in most of the study subjects which is 134(88.7%), 14(9.3%) has 2 and 3(2%) has >2 under age of 5 years children (Table 1).

Regarding the child's socio demographic status, 73(48.3) of them were 11 and younger than 11 months, 61(40.4) were 12-23 months and the remaining 17(11.3) were 24 to 59 months old. Out of 151 study subjects, 89(58.9) were male and 62(41.1) were female (Table 1).

5.2 The types of malnutrition diagnosed by clinical and laboratory findings.

Out of one hundred fifty one children diagnosed with severe acute malnutrition and admitted to hospitals 97(64.2%) were marasmic cases, 30(19.9%) were kwashiorkor and the remaining 24(15.9%) were mixed type of malnutrition (marasmic-kwash) (Table 2).

One of the criteria to classify an admitted child with severe acute malnutrition is bilateral edema. Out of one hundred fifty one children admitted with the case, 98(64.9%) had no edema, 27(17.9%) had grade II edema (++), 19(12.6%) had grade III edema (+++) and the remaining 7(4.6%) had grade I edema (+) when they admitted to the hospitals (Table 2).

Table 2 Degree of bilateral edema on admission and different form of SAM diagnosed among children admitted to AA governmental hospitals, 2014.

		Frequency	Percent
Types of malnutrition	Kwashiorkor	30	19.9
	Marasmus	97	64.2
	Marasmic-Kwash	24	15.9
	Total	151	100.0
Degree of bilateral edema on admission	0	98	64.9
	+	7	4.6
	++	27	17.9
	+++	19	12.6
	Total	151	100.0

Regarding weight for height condition on admission, 96(63.6%) were <60%, 30(19.9%) were >=80% and the rest 25(16.6%) were between 60 – 80%. Concerning about MUAC on admission 105(69.5%) were less than 11.5 cm and 46(30.5%) were greater than or equal to 11.5cm (Fig. 3).

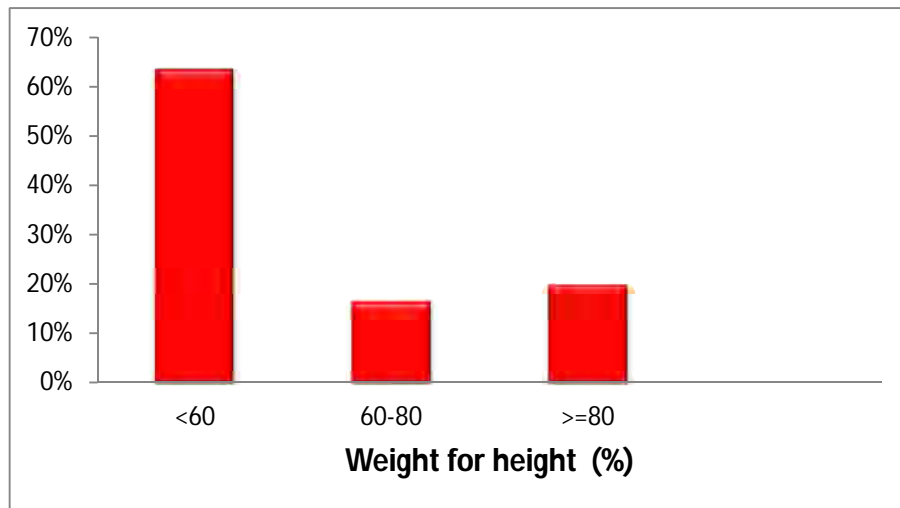


Figure 3 Weight for height status on admission of children admitted with different form of SAM to AA governmental hospitals, 2014.

5.3 Previous disease status of the child

Out of one hundred fifty one study subjects, 64(42.4%) of them reported different cases that they have experienced in a month before the study. They have reported more than one case they have experienced in the past. 35 (54.7%) of them reported history of severe vomiting, 45(70.3%) reported history of fever, 41(64.1%) reported history of diarrhea, 17(26.6%) reported history of pneumonia and 27(42.9%) reported history of chronic illnesses like heart disease, Tuberculosis, and spinal cord defect (Figure 4).

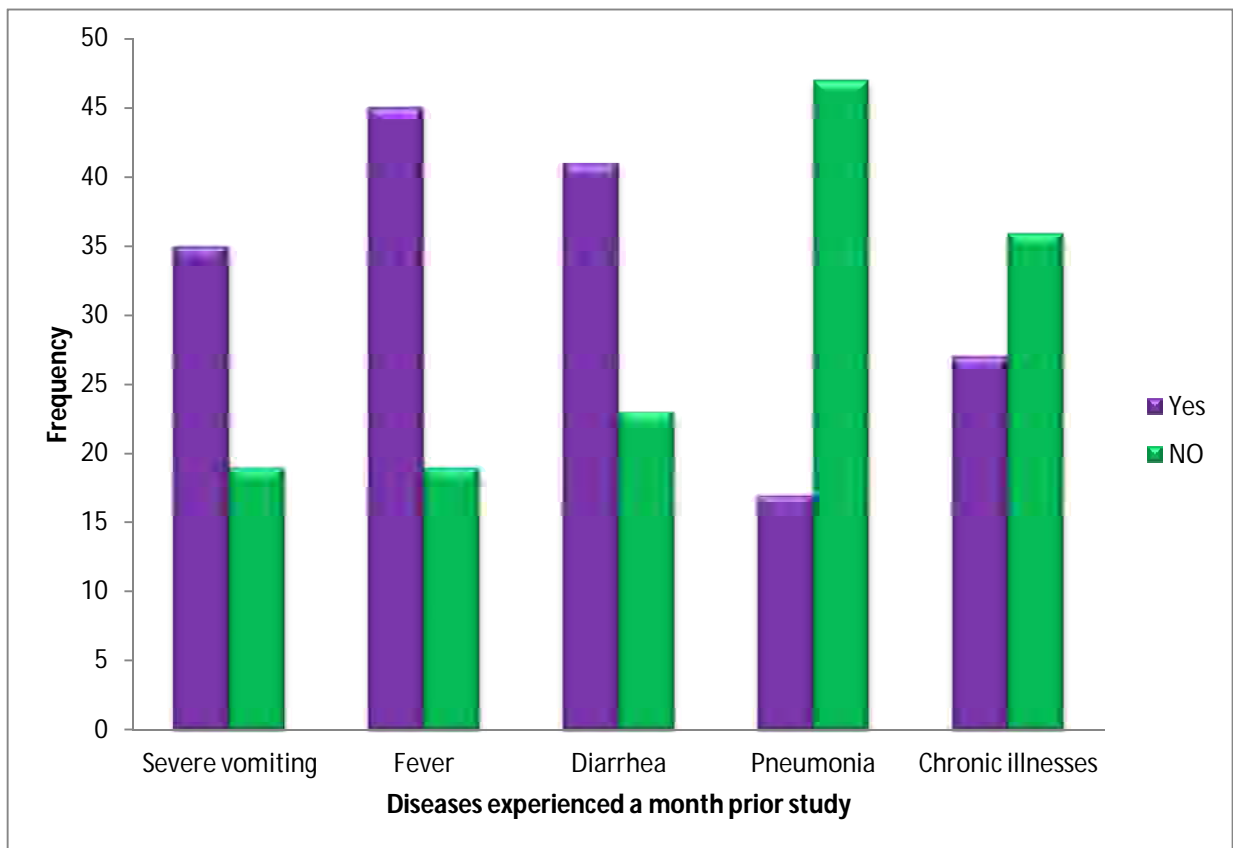


Figure 4 History of cases experienced a month prior the study by children admitted with SAM to AA governmental hospitals, 2014.

Concerning HIV status of the study subjects, 105(69.5%) of them were non reactive, 44(29.2%) were unknown result and 2(1.3%) were reactive (Figure 5).

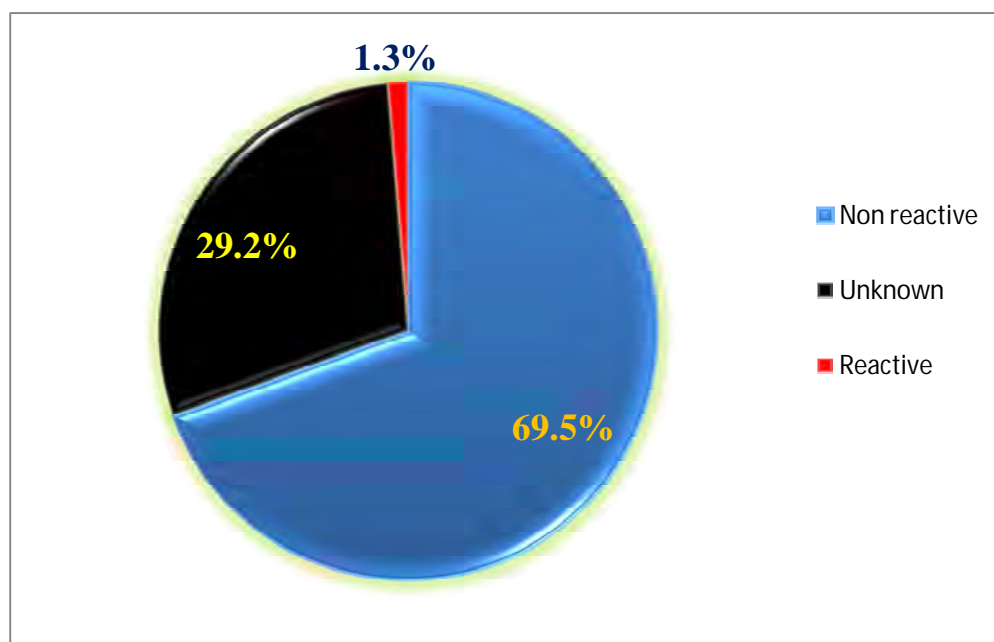


Figure 5 HIV status of children admitted with SAM to AA governmental hospitals, 2014.

5.4 Feeding practice of the child

Regarding breast feeding practice, most of the study subjects have fed breast milk since their birth which accounts 124(82.1%) and the remaining 27(17.9%) did not feed breast milk instead they have fed formula milk. Those children who have got breast milk, fed for vary duration in time. 77(62.1%) of them fed for 7-12 months, 21(16.9%) fed for >12 months, 15(12.1%) fed for 4-6 months and 11(8.9%) fed for <4 months (Table 3).

Table 3 Duration of breast feeding among children admitted with SAM to AA governmental hospitals, 2014.

Age	Frequency	Percent
<4 months	11	8.9
4-6 months	15	12.1
7-12 months	77	62.1
>12 months	21	16.9
Total	124	100.0

Out of children who have got breast milk, 107(86.3%) of them have started additional food other than breast milk. Most of them started before the age of 6 months which accounts 70(65.4), 30(28.1%) started at the age of 6 months, 6(5.6%) started between the age of 7-12 months and 1(0.9%) started after 12 months old (Figure 6).

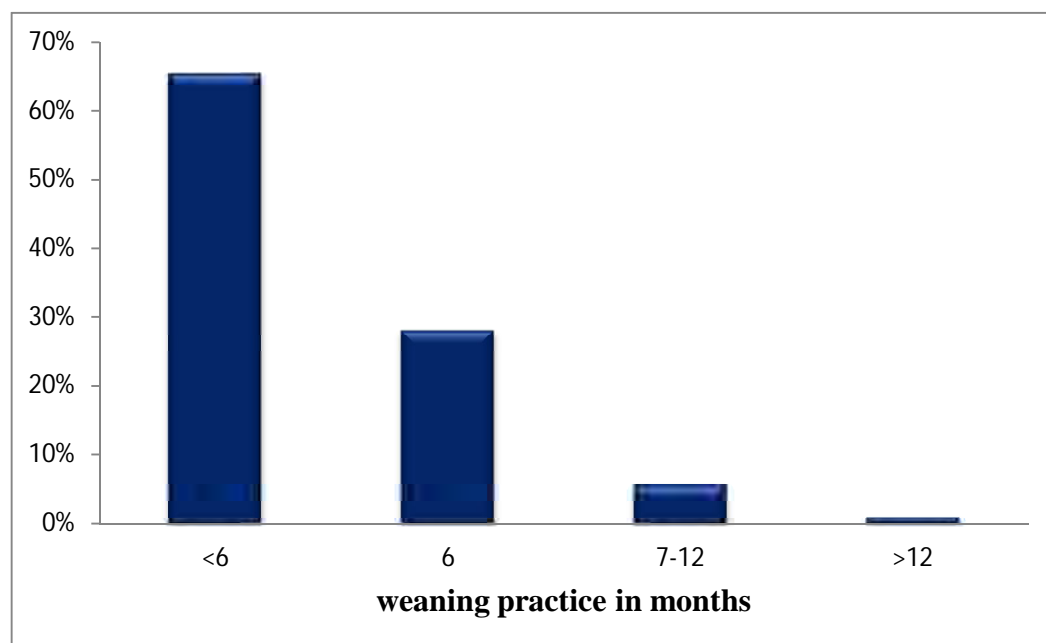


Figure 6 Weaning practice among children admitted with SAM to AA governmental hospitals, 2014.

Out of one hundred thirty four children who are currently on feeding other than breast milk and/or breast milk, 98(73.1%) are fed by mothers or fathers, 20(14.9%) are fed by siblings and 16(12.0%) are fed by others like grandmother. Regarding the means of feeding foods other than breast milk, 115(85.8%) are used bottle feeding, 14(10.5%) are used cup and 5(3.7%) are used spoon to feed the child (Figure 7).

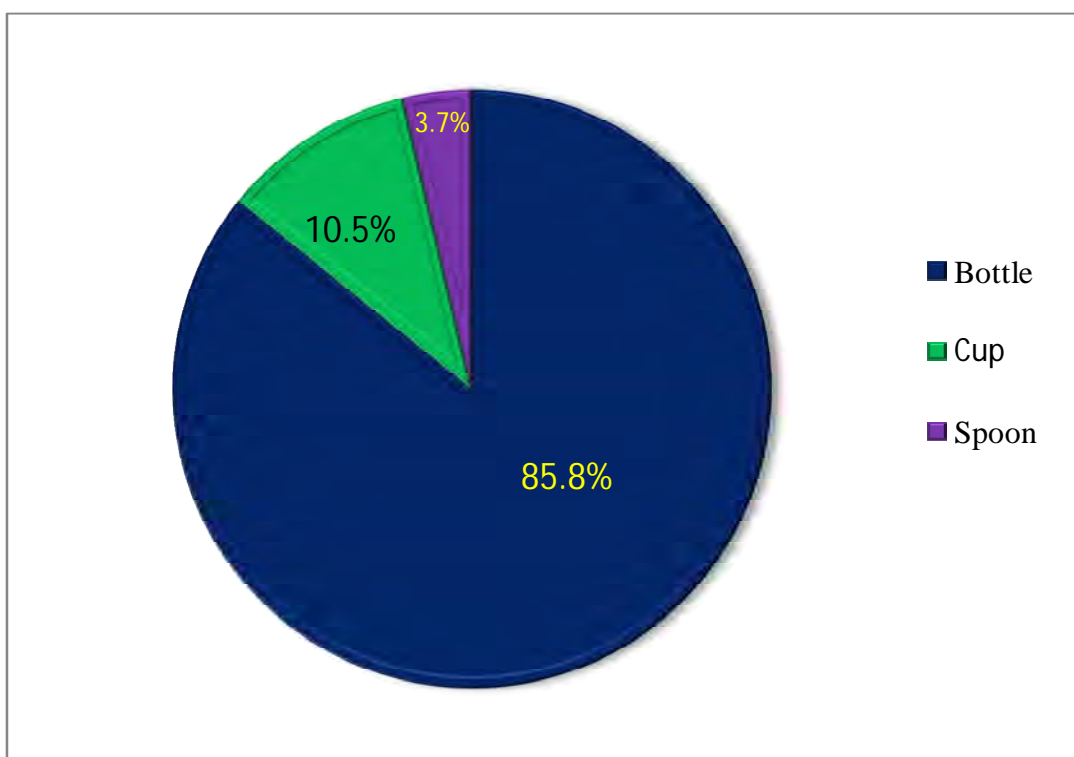


Figure 7 Means of feeding foods other than breast milk among children admitted with SAM to AA governmental hospitals, 2014.

5.5 Risk factors associated with marasmus among children admitted with SAM to AA public hospitals.

From the table of association below, 55 of children 11 months and younger were marasmic. These age group is 4.37 times high risk to be affected by marasmus and has statistically significant association at (COR= 4.37, 95%CI, 1.45-13.15). Further adjustment for other variables by multinomial logistic regression again shows that these age group is 5.97 times high risk to be affected by the case which indicate stronger association between these variables and statistically significant association at (AOR=5.97, 95% CI, 1.8 - 20) (Table 4).

Regarding the sex, the risks of male children being marasmic relative to female children were high: 1.99 times of female children and has statistically significant association at (COR=1.99, 95% CI, 1.01-3.93); and adjustment with other variables by multinomial logistic regression indicates 2.28 times high risk male children affected than female children and has statistically significant association at (AOR= 2.28, 95% CI, 1.1 – 4.9) (Table 4).

When concerning maternal education, children from illiterate mothers were 5.04 times affected by marasmus and has statistically significant association at (COR=5.04, 95% CI, 1.09-234). Further adjustment also shows greater association and significance (AOR=2.46, 95% CI, 1.4 – 42.4) (Table 4).

Children of governmental employee mother were 1.15 times affected by marasmus form of SAM and has statistically significant association at (COR=1.15 95% CI, 1.12-9.89); then further adjustment also shows more strength and significant association at (AOR=2.29, 95% CI, 1.4 – 3.86) (Table 4).

Table 4 Risk factors associated with marasmus among children admitted with SAM to AA public hospitals, 2014.

Variables	Marasmus					
	Yes %	No %	p-value	COR(95% CI)	p-value	AOR(95% CI)
Age of child (months)						
0-11	55(75.3)	18(24.7)	0.009	4.37(1.45-	0.004	5.97(1.8-20)**
12-23	35(57.4)	26(42.6)	0.24	13.15)*		
24-59	7(41.2)	10(58.8)		1.92(0.65-5.72)		
Sex						
Male	63(70.8)	26(29.2)	0.046	1.99(1.01-3.93)*	0.035	2.28(1.1-4.9)**
Female	34(54.8)	28(45.2)				
Age of mother (yrs)						
20-24	22(71.0)	9(29.0)	0.447	1.45(0.56-3.79)		
25-29	43(62.3)	26(37.7)		0.98(0.46-2.07)		
30+	32(62.7)	19(37.3)				
Mother Education						
Illiterate	21(80.8)	5(19.2)	0.039	5.04(1.09-23.4)*	0.028	2.46(1.4-42.4)**
Can read & write	19(65.5)	10(34.5)	0.253	2.28(0.56-9.36)		
Grade 1-8	33(57.9)	24(42.1)	0.450	1.65(0.45-6.04)		
Grade 9-12	19(67.9)	9(32.1)	0.202	2.53(0.61-10.56)		
College/University	5(45.5)	6(54.5)				
Father Education						
Illiterate	4(57.1)	3(42.9)	0.650	0.67(0.12-3.84)		
Can read & write	9(90.0)	1(10.0)	0.191	4.5(0.47-42.97)		
Grade 1-8	33(62.3)	20(37.7)	0.723	0.83(0.29-2.39)		
Grade 9-12	15(48.4)	16(51.6)	0.196	0.47(0.15-1.48)		
College/University	14(66.7)	7(33.3)				
Mother occupation						
Housewife	27(56.2)	21(43.8)	0.119	3.86(0.71-21.09)	0.030	2.29(1.4-38.6)**
Gov't employee	7(77.8)	2(22.2)	0.040	1.15(1.12-9.89)*		
Merchant	16(76.2)	5(23.8)	0.019	9.6(1.45-63.5)*		
Daily labor	45(69.2)	20(30.2)	0.026	6.75(1.25-36.4)*		
Private worker	2(25.0)	6(75.0)				
Father occupation						
Gov't employee	9(56.2)	7(43.8)	0.821	0.86(0.23-3.25)		
Merchant	20(76.9)	6(23.1)	0.221	2.22(0.62-7.97)		
Daily labor	34(56.7)	26(43.3)	0.794	0.87(0.31-2.44)		
Private worker	12(60.0)	8(40.0)				
Marital status						
Single	3(75.0)	1(25.0)	0.287	6(0.22-162.53)		
Married	75(61.5)	47(38.5)	0.349	3.2(0.28-36.18)		
Divorced	18(81.8)	4(18.2)	0.102	9(0.65-125.32)		

Widowed	1(33.3)	2(66.7)				
Monthly income						
<500 birr	18(62.1)	11(37.9)	0.726	1.23(0.91-3.85)		
500-1000 birr	38(64.4)	21(35.6)	0.556	1.36(0.49-3.75)		
1100-1500 birr	13(65.0)	7(35.0)	0.607	1.39(0.39-4.92)		
1600-2000 birr	16(72.7)	6(27.3)	0.287	2(0.56-7.16)		
>2000 birr	12(57.1)	9(42.9)				
Family size						
<4	28(63.6)	16(36.4)	0.921	0.96(0.46-2.0)		
>=4	69(64.5)	38(35.5)				
Previous illness						
Yes	34(54.0)	29(46.0)	0.027	0.47(0.24-0.92)*		
No	63(71.6)	25(28.4)				
Severe vomiting						
Yes	17(48.6)	18(51.4)	0.282	0.58(0.21-1.57)		
No	18(62.1)	11(37.9)				
Fever						
Yes	27(60.0)	18(40.0)	0.192	2.1(0.69-6.13)		
No	8(42.1)	11(57.9)				
Diarrhea						
Yes	22(53.7)	19(46.3)	0.825	0.89(0.32-2.49)		
No	13(56.5)	10(43.5)				
Pneumonia						
Yes	12(70.6)	5(29.4)	0.130	2.5(0.76-8.23)		
No	23(48.9)	24(51.1)				
Chronic illnesses						
Yes	12(44.4)	15(55.6)	0.191	0.51(0.19-1.40)		
No	22(61.1)	14(38.9)				
Breast feed						
Yes	78(63.4)	45(36.6)	0.658	0.82(0.34-1.97)		
No	19(67.9)	9(32.1)				
Weaning practice						
<6 months	53(69.7)	23(30.3)	0.157	1.62(0.83 -3.18)		
6 months	24(52.2)	22(47.8)	0.042	0.48(0.24-0.98)*		
7-12 months	5(50.0)	5(50.0)				
>12 months	1(100.0)					
Means of feeding						
Bottle	74(64.3)	41(35.5)	0.247	1.8(0.66- 4.9)		
Cup	7(50.0)	7(50.0)				
Spoon	3(50.0)	2(50.0)				

Note: * significant association by binary logistic regression

** Significant association by multinomial logistic regression

6. DISCUSSION

According to nutrition baseline survey report for the national nutrition program of Ethiopia, 12 percent of children aged 6 to 59 months were wasted and three percent of them were severely wasted (35). Many studies conducted in different countries justified that maternal literacy, family income; family size, previous illness and feeding practice are the factors either directly or indirectly affecting child nutritional status. Therefore, conducting this study is mandatory to dig out which one of this factor contributes to the occurrence of severe acute malnutrition among the study subjects.

Educational level of mother is important because educated mothers are more knowledgeable about their children's health and nutrition. They can make better use of health services, provide better care, have better hygienic practices and also have higher status in the family (37).

However, majority of the study subjects' mothers have various educational level; 17.2% of them were illiterate which significantly affects nutritional status of the child among the study subjects.

Similarly, the studies conducted in Kenya in 2009/10 (38), in Nigeria (16), in Uganda (41), a cross country analysis from 63 countries by Smith and Haddad (40), and Ethiopian DHS 2011 found that mother's education was strongly associated with child malnutrition.

Being age 11 months or younger increased the risk of severe acute malnutrition as shown strong association in this study. The reason behind may be inappropriate weaning practice as indicated in this study most of the study subjects abruptly weaned which increases risk of different diseases which in turn affects nutritional status of the child.

Regarding maternal occupation, children from governmental employee mothers were high affected because these children may be fed by servants, elder siblings and others who may not care for the child as mother.

Male children were affected than female children in this study. But reason why being male child predispose to the case is unclear which needs further investigation.

In this study, many of the study subjects were reported more than one past illness they have been experienced a month prior to the study. But there is no significant association shown with severe acute malnutrition in case of this study. The reason behind is the difference of study subjects, severity of the case and duration of the diseases they have been experienced. The study conducted in Nigeria indicated that the risk of severe acute malnutrition among children who have experienced malaria, diarrhea and respiratory diseases was higher (46).

Though, most of the children (82.1%) were breastfed, 65.4% of them have been started complementary feeding before the age of six months. According to WHO recommendation the child should be exclusively feed breast milk for the first six months of life. This helps the child to achieve optimal growth, development and health (48). But most of the study subjects of this study did not practice in same way. They put their child on complementary feeding earlier than six months which affects the child's later life. The findings of different studies conducted in different countries indicate the same results in relation to the risk of early weaning practice. The study conducted in China showed that introduction of complementary feeding before six months of life increased the prevalence of pneumonia and diarrheal diseases which in turn interrupt

nutritional status of the child (49). Similarly, the study conducted in Kenya showed that the risk of SAM increased among the children abruptly weaned (50).

Regarding means of feeding foods other than breast milk, however, there is no significant association between severe acute malnutrition and means of feeding in this study; most of the study subjects' family, (85.8%) used bottle feeding which increases the risk of malnutrition and other diseases. Many studies showed that bottle-feeding should be discouraged at any age because it is usually associated with increased risk of illness, and especially diarrheal disease, because of the hygienic problem which is difficulty in sterilizing the nipples properly. It also shortens the period of postpartum amenorrhea and increases the risk of pregnancy (27, 33). Hospital based study conducted in Gonder University hospital also strengthen the evidence about risk of bottle-feeding which was commonly observed in the severely malnourished group than the controls. (27).

Strength of the study

- All most all of the respondents were the child's mothers which maximizes the accuracy of obtained information.
- The response rate was 100%, which also maximizes the representativeness of the sample for the source population.

Limitation of the study

- Difficulty of getting accurate monthly income of the family because most of the families were daily labor and their daily income varies.
- Difficulty to get required sample from the selected hospitals on adjusted time because the occurrence of the case of interest is seasonal.
- Classifying the child to different form of SAM based on the diagnosis obtained from the card which may be misdiagnosed/ misreported.

7. CONCLUSION AND RECOMMENDATION

7.1. Conclusion

Although, most of the variables analyzed in this study did not show statistically significant association with the outcome variable, maternal education, maternal occupation, sex of the child being male and age of the child younger than 11 months have strong and statistically significant association with child severe acute malnutrition.

7.2. Recommendation

- ☞ The Ministry of Health in collaboration with Ministry of Education should be encouraged maternal education because it plays a vital role in child care, and feeding.
- ☞ Ministry of Health should be provided education concerning appropriate means of feeding and exclusive breast feeding practice at each level in the community.
- ☞ The respective hospitals where the data was collected should be provided health education for mothers visiting hospitals about exclusive breast feeding and appropriate feeding of complementary food.
- ☞ Addis Ababa Health Bureau should arrange training program for mothers on the way of child feeding to improve child nutritional status.
- ☞ To reduce childhood malnutrition due emphasis should be given in improving the knowledge and practice of parents on appropriate infant and young child feeding practices.

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Appendix- I: Informed Consent Sheet

Consent to participate in a project on risk factors associated with SAM among under age of 5 years children admitted to Addis Ababa Governmental Hospitals, Ethiopia.

Greetings! My name is _____ I am a data collector temporarily working on the behalf of principal investigator on the Thesis with the objective of identifying risk factors associated with SAM in under age of 5 children admitted to Addis Ababa Governmental Hospitals.

Purpose of the Study One hundred and fifty one (151) under age of 5 years children will be enrolled to identify risk factors associated with severe acute malnutrition in under age of 5 children admitted to Addis Ababa Governmental Hospitals.

Confidentiality All information collected on forms will be entered into computers with only the study identification number. All information that will be collected from you will be protected. The study will not include details that directly identify you, such as your name. Only a participant identification number will be used in the survey. Only a small number of researchers/ Research Assistants will have direct access to the survey. If the results of the current study will be published or presented in a scientific meeting, names and other information that might identify you will not be used.

Risks As the study was conducted through review of medical records and non invasive data collection method, the individual patients and respondents were not subjected to any harm.

Rights to Withdraw and Alternatives Taking part in this study is completely your choice. You are free to skip any question if you feel uncomfortable to disclose information. You can stop

participating in this study at any time, even if you have already given your consent. Refusal to participate, or withdrawal from the study, will not involve penalty or loss of any benefits to which you are otherwise entitled.

Benefits There are no direct benefits to you; But, I hope that the results of the study will provide valuable information on the risk factors associated with SAM in under age of 5 children.

Who to Contact If you ever have questions about this study, you should contact the principal investigator **Gebre Gelana Gudisa** (+2519-19-40-59-02) Addis Ababa University, Collage of Health Science, Allied School of Health Sciences, Department of Nursing and Midwifery.

Signature: _____

Do you agree to participate?

Participant agrees Participant does NOT agree

Name and Signature of the data collector _____ Date_____

Addis Ababa University

College of Health Sciences School of Allied Health Science

Department of Nursing and Midwifery

Annex-II: Information sheet

This patient information collection sheet is intended to assess risk factors associated with SAM in under –five children with severe acute malnutrition who are treated at Addis Ababa governmental Hospitals. The study was conducted by Gebre Gelana Gudisa who is master of pediatrics and child health nursing student in Addis Ababa University. The study was conducted through reviewing secondary data and interviewing mothers or guardians. The study will give evidence for health providers at hospitals, governmental and non -governmental organizations which work in the area of severe acute malnutrition by providing basic information on risk factors for SAM. Information which is necessary for the study was taken from SAM registration book and interview. As the study was conducted through review of medical records and non invasive data collection method, the individual patients was not subjected to any harm as far as the confidentiality was kept and no personal identifiers was disclosed.

The interview was taken 20 minutes.

Are you voluntary to participate? Yes No

Date of interview (DD/MM/YY) -----

Name of interviewer-----Signature-----

Name of the hospital: _____

Time started-----Time ended-----

Name of supervisor-----

Signature-----

Principal investigator: Gebre Gelana Gudisa

Phone No: +251 919 40 59 02

Annex - III Questionnaire

1. English Version

Part 100: Socio demographic characteristics of family and the child

Ques Code	Question (variable)	Response	Skipping pattern	Response code
101	Age of the mother (years)	_____		
102	Marital status of the mother	01. Single 02. Married 03. Divorce 04. Widowed		
103	Ethnicity	01 Oromo . 02. Amhara 03. Tigre 04. Gurage 05. Other_____		
104	Religion	01. Orthodox 02. Protestant 03. Muslim 04. Other_____		
105	Mother's Educational	01. Illiterate 02. Can read and write		

	status	03. Grade 1-8 04. Grade 9-12 05. College/ University		
106	Father's Educational status	01. Illiterate 02. Can read and write 03. Grade 1-8 04. Grade 9-12 05. College/ University		
107	Mother's Occupation	01. Housewife 02. Govt. employee 03. Merchant 04. Daily labor 05. Other_____		
108	Father's Occupation	01. Govt. employee 02. Merchant 03. Daily labor 04. Other_____		
109	Monthly income	_____ Birr		
110	Family size	_____		
111	No of under 5 children	_____		
112	Age of the child	_____ (month)		
113	Sex of the child	1. Male 2. Female		

Part 200: Base line clinical, laboratory and Anthropometric information

Ques Code	Question (variable)	Response	Skipping pattern	Response code
201	Type of malnutrition diagnosed	01. Edematous malnutrition /Kwashiorkor 02. Marasmus/severe wasted 03. Marasmic- kwash		
202	Was it Relapse?	01. Yes 02. No		

203	Weight on admission	----- (Kg)		
204	Height on admission	----- (cm)		
205	W/H% on admission	-----		
206	MUAC on admission	----- (mm)		
207	Degree of Bilateral pitting edema on admission	01. 0 02. + 03. ++ 04. +++		
208	Is your child diseased in the last month previously?	01. Yes 02. No		
209	If your answer to (208) is yes, Which type of illnesses: (multiple answers are possible).	01. Severe vomiting 02. Fever 03. Diarrhea 04. HIV/AIDS 05. Malaria 06. Pneumonia 07. Others -----		
210	HIV-Status	01. Reactive 02. Non-reactive 03. Unknown		

Part 300 feeding practice

Ques Code	Question (variable)	Response	Skipping pattern	Response code
301	Was/ is the child breast feed?	01. Yes 02. No		
302	If 'No' what was/is the child fed?	01. Cow milk 02. Formula milk 03. Soup 04. Fenugreek (abish) 05. Others (specify)-----		
303	If (301) yes, For how long did you breast feed? (In months)	01. <4 02. 4-6 03. 7-12 04. >12		
304	Have you started to give any drink other than breast milk and/or food? (only for child's currently feeding)	01. Yes 02. No		
305	At what age did you start to give additional food other than breast milk? (in months)	01. <6 02. 6 03. 7-12 04. >12		
306	How did/do you feed the added food/drink?	01. Bottle 02. Cup 03. Spoon 04. Others (specify)_____		
307	Who feed the child?	01. Him/herself 02. Elder siblings 03. Parents 04. Other (specify)_____		

አዲስ አበባ ዩኒቨርሲቲ

ጤና ሳይንስ ኮሌጅ

ነርሲንግ እና የሚድዊፈሪ ትምህርት ክፍል

2. Amharic Version

ቃለ መጠይቅ

መግቢያ

ጤና ይስጥልኝ! ስሜ -----

እኔ በአዲስ አበባ ዩኒቨርሲቲ የጤና ሳይንስ ኮሌጅ ነርሲንግ እና የሚድዊፈሪ ትምህርት ክፍል በገብሬ ገላና በሚካሄደው ጥናት ላይ በጊዜያዊነት ተወክዬ ነው ይህን ጥያቄና መልስ ይገባኝ የመጣሁት።

ይህ ጥናት የሚካሄደው አደገኛ የምግብ እጥረት በሽታ ያለባቸው በመንግስት ሆስፒታሎች የሚታከሙ ከ5 ዓመት በታች ያሉ ህፃናት ላይ ሲሆን ለበሽታው ያጋለጣቸውን ምክንያቶች እና ችግሮች እንዲሁም የተያያዙ ጉዳዮችን ለመፈተሽ ነው።

ይህ ጥናት ከወላጆች ጋር በቀጥታ የተያያዘ ስለሆነ በጥናቱ እንዲሳተፉ ከተመረጡት ወላጆች አንድ እርሶኛት። ስለዚህ እዚህ ጥናት ላይ እንዲሳተፉና አስፈላጊ መረጃ እንዲሰጡን በትህትና እንጠይቃለን።

ይሁን እንጂ ማንኛውንም ጥያቄ አለመመለስ ይችላሉ። እንዲሁም በማንኛውም ጊዜ ጥያቄውን ማቋረጥና በጥናቱ አለመሳተፍ ይችላሉ። በጥናቱ ባለመሳተፍ ማግኘት ከሚገባዎት አገልግሎት ከማግኘት አያግደትም። ጥያቄና መልሱ 20 ደቂቃ ይወስዳል። ይህ በግልጽ የሚሰጡት መልስም በሚሰጠር የሚጠበቅ ስለሆነ ከጥናቱ ውጤት ጋር በምንም የሚያያዝ አይደለም። ላረጋግጥልዎ የምፈልገው ግን ይህ የሚሰጡት መልስ በጣም አስፈላጊ የሚሆነው ጥናቱን ለማጥናት ብቻ ሳይሆን በምግብ እጥረት በሽታ የሚሰቃዩ ልጆችን ችግር ለመፍታት እንዲሁም በሽታውን ለዘለቄታው ለማስወገድ የሚረዱ እቅድ ለማውጣት እና በተግባር ለማዋል እንዲሁም ልጆች በምግብ እጥረት መሞት ቁጥር የሚጠቅም አስተያየት ለማግኘት ነው።

በመጥይቁ ለመሳተፍ ፍቃደኛ ነዎት? አዎ.....ይቀጥሉ አይደለም.....ያቁሙ

ተጠያቂ ፍቃደኛ ካሌሆኑ አመሰግነው ያሰናብቷቸው ፍቃደኛ ከሆኑ ግን የሚከተሉትን ጥያቄዎች ይጠይቋቸው።

አመሰግናለሁ!!!

1. የጤና ተቋሙ ስም _____

2. ቀን _____/_____/_____

3. የጥያቄ ወረቀቱ መለያ ቁጥር _____

4. የመረጃ ሰብሳቢ ስምና ፋርማ _____

5. የተቆጣጣሪ ስምና ፋርማ _____

ክፍል 100: ሥነ ህዝብና ማህበራዊ ጉዳዮች

ተ.ቁ	ጥያቄ	መልስ	አለፍ የመልስ	ኮድ
101	የእናት እድሜ	-----		
102	የጋብቻ ሁኔታ	01. ያላገባች 02. ያገባች 03. የተፋታች 04. ባሏ የሞተባት		
103	ብሔር	01. አማራ 02. ኦሮሞ 03. ትግሬ 04. ጉራጌ 05. ሌላ		
104	ሀይማኖት	01. ኦርቶዶክስ 02. ካቶሊክ 03. ፕሮቴስታንት 04. ሙስሊም 05. ሌላ		
105	የእናት ትምህርት ደረጃ	01. ያልተማረ 02. መፃፍ ማንበብ የሚችል 03. አንደኛ ደረጃ (1-8) 04. ሁለተኛ ደረጃ (9-12) 05. ከፍተኛ የትምህርት ደረጃ (ከ12 ክፍል በላይ)		
106	የአባት ትምህርት ደረጃ	01. ያልተማረ 02. መፃፍ ማንበብ የሚችል 03. አንደኛ ደረጃ (1-8) 04. ሁለተኛ ደረጃ (9-12) 05. ከፍተኛ የትምህርት ደረጃ (ከ12 ክፍል በላይ)		
107	የእናት ሥራ	01. የቤት አመቤት 02. የመንግስት ሰራተኛ		

		03. ነጋዴ 04. የቀን ሰራተኛ 05. ሌላ (ይገለጽ)-----		
108	የአባት ሥራ	01. የመንግስት ሰራተኛ 02. ነጋዴ 03. የቀን ሰራተኛ 04. ሌላ (ይገለጽ)-----		
109	ወርሃዊ ገቢ (በብር)			
110	የቤተሰብ ብዛት			
111	የልጅ ብዛት (ከ5 ዓመት በታች)			
112	እድሜ			
113	ጾታ	01. ወንድ 02. ሴት		

ክፍል 200: የምርመራ እና የላቦራቶሪ ውጤት

ተ.ቁ	ጥያቄ	መልስ	አለፍ	የመልስ ኮድ
201	የምግብ እጥረቱ አይነት	01. ኩዋሻኮር 02. ማራስመስ 03. ማራስምክ-ኩዋሻኮር		
202	አገርሽቶበት ነበር?	01. አዎ 02. አይደለም		
203	ወደ ሆስፕታሉ ሲገባ የነበረው ክብደት	----- (ኪግ)		
204	ወደ ሆስፕታሉ ሲገባ የነበረው ቁመት	----- (ሲ.ሜ)		
205	W/H% on admission			
206	ወደ ሆስፕታሉ ሲገባው የነበረው MUAC	----- (ሚ.ሜ)		
207	ወደ ሆስፕታሉ ሲገባ በሁለቱም እግሩ ላይ የነበረው የእብጠት መጠን	01. 0 02. + 03. ++ 04. +++		
208	ልጅሽ ባለፈው ወር ታም ነበር?	01. አዎ 02. አይደለም		
209	መልስዎ አዎ ከሆነ ምን ነበር የበሽታው ዓይነት ? (ከአንድ መልስ በላይ መመለስ ይቻላል)	01. ሀይለኛ ትውከት 02. ትኩሳት 03. ተቅማጥ 04. ኤችአይቪ 05. ወባ 06. የሳንባ ምች 07. ሌላ (ይገለጽ)-----		

210	የኤችአይቪ ሁኔታ	01. ፖዘቲቭ 02. ኔጌቲቭ 03. አይታወቅም		
-----	------------	------------------------------------	--	--

ክፍል 300: የአመጋገብ ልምድ

ተ.ቁ	ጥያቄ	መልስ	እለፍ	የመልስ ኮድ
301	ልጁ ጡት ጠብቷል?	01. አዎ 02. አልጠባም		
302	መልስዎ አይደለም ከሆነ ምን ነበር የተሰጠው?	01. የላም ወተት 02. የታሸጉ ወተቶች 03. አጥሚት 04. አብሽ 05. ሌላ (ይገለጽ)-----		
303	መልስዎ አዎ ከሆነ ለስንት ወር ነው የጠባ ?	01. <4 02. 4-6 03. 7-12 04. >12		
304	ተጨማሪ ምግብ ለልጅሽ ሰጥተሽዋል? (በመጠየቅ ጊዜ ለሚጠቡ ብቻ)	01. አዎ 02. አልሰጠሁትም		
305	መቼ ነው ለልጅሽ ተጨማሪ ምግብ መስጠት የጀመርሽው ?	01. <6 02. 6 03. 7-12 04. >12		
306	ልጅሽን እንዴት ነው የምትመግቢው ?	01. በጡጦ 02. በስኒ 03. በማንኪያ 04. ሌላ (ይገለጹ)-----		
307	ልጁን ማነው የሚመግቡው ?	01. እራሱን 02. ታላቅ እህት 03. እናት ወይም አባት 04. ሌላ (ይገለጹ)-----		

Declaration

I the undersigned declare that this is my original work and has not been presented in this or any other University and all sources of materials used for this thesis project have been fully acknowledged.

Name principal investigator: Gebre Gelana Gudisa (BSc)

Signature: _____

Date: _____

Place: Addis Ababa University College of Health Sciences School of Allied Health Sciences
Department of Nursing and Midwifery

This thesis project has been submitted for approval to:

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