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Under Nutrition and Associated Factors Among Under Five Orphan Children Living in Orphanages, Addis Ababa, Ethiopia

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UNDER NUTRITION AND ASSOCIATED FACTORS AMONG UNDER FIVE ORPHAN CHILDREN LIVING IN ORPHANAGES, Addis Ababa, ETHIOPIA.

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Abstract

Introduction: Orphans are potentially at greater risk of malnutrition because they are more likely to be extremely poor, receive less medical and social care. They comprise almost 12% of Ethiopia's total child population and half of children below the age of five years are stunted. Inadequate funding to support programs designed for the children, shortage of trained personnel, inadequate skills training that resulted in long care in orphanage challenges in the in Ethiopia. However, there is a little information about the prevalence of under nutrition and associated factors among under five orphan children. Thus the objective of this study was to assess the prevalence of under nutrition and associated factors among under five Orphan children in orphanages in Addis Ababa, Ethiopia.

Methods: Institution based cross-sectional study was conducted in Addis Ababa. Simple random sampling technique was employed to recruit a total of 275 orphan children by using lottery method. Interviewer administered questionnaire was used to collect data by data collectors and the child's nutritional status were assessed anthropometrically. Data was entered using Epi data version 3.1 and analysis was done by WHO Anthro version 3.2.2 and SPSS version 23. Multivariable logistic regression analysis was performed to identify determinants of under nutrition at a p-value of less than 0.05.

Results: In this study the magnitude of wasting, stunting and underweight among orphans were 11.1% (95% CI: 7.7-15.1), 45.8% (95% CI: 39.9-52), and 25.5% (95% CI: 20.3-31) respectively. Orphan who had illness is (AOR = 2.23; 95% CI: 1.41, 12.73), children who received less than 3 meals per day (AOR = 2.11; 95% CI: 1.58, 7.71), and children who was not vaccinated (AOR = 2.86; 95% CI: 2.07, 11.61) were significantly and positively associated factors with stunting. Children who were not vaccinated (AOR = 2.04; 95% CI: 1.29, 9.21) and had inadequate dietary diversity score (AOR =1.32, 95%CI: 1.16, 12.65) were significantly and positively associated with wasting and underweight, respectively.

Conclusion The prevalence of under nutrition was found to be high among orphan children .Meal frequency and vaccination status were factors associated with stunting. Vaccination status and dietary diversity score were factors associated with wasting and underweight, respectively. Therefore, improving meal frequency, dietary diversity, immunization coverage and early treatment during childhood illness will be very important.

Keywords: Under nutrition, Orphan children, Addis Ababa, Ethiopia

Abbreviations and Acronyms

AID	Acquired Immune Deficiency Syndrome
CDC	Center for Disease Control and Prevention
DDS	Dietary Diversity Score
EDHS	Ethiopian Demographic Health Survey
FAO	Food and Agriculture Organization
HAZ	Height for Age Z score
NCHS	National Center for Health Statistics
OVC	Orphan and Vulnerable Children
SPSS	Statistical Package of Social Sciences
UNICEF	United Nations International Children's Fund
WAZ	Weight for Age Z score
WHO	World Health Organization
RDA	Recommended Dietary Allowance

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1. Introduction

1.1 Background

Under nutrition denotes insufficient intake of energy and nutrients to meet an individual's needs to maintain good health (1). It has three causes of under nutrition namely immediate (inadequate diet and disease),underline(unhealthy environment and insufficient care for women and child)and basic cause(political and ideological structure)(2). The report by African orphan generation revealed that because of the high proportion of Sub-Saharan African adults who have been living with HIV/AIDS and the continuing difficulties in expanding access to life prolonging Antiretroviral treatment (ART), the number of orphans in Africa will continue to rise in the years lastly (3).

Under five children are the most vulnerable age groups for under nutrition particularly in developing countries and which is among the most serious health problems facing in Ethiopia (4). Undernourished children have lower resistance to infection and are more likely to die from common childhood illnesses such as diarrheal diseases, febrile illness and respiratory infections (5).

An estimated 17.8 million orphan children in the world had lost both parents (double orphan) and 153 million children in the world are orphans (single orphan) with more than one in seven children orphaned in Sub Saharan Africa (1, 3). In Ethiopia, among 5.5 million children around 6% of the total population are categorized as orphans or vulnerable children .Orphans comprise almost 12% of Ethiopia's total child population and half of under five children are stunted (1, 4).

In the absence of the child's parents; grandparents, or reluctant relatives not willing to take care of the child, orphanage act as an institution to provide care and support for these unfortunate children (6).

Based on National Nutritional program, millions of Ethiopians are still under chronic and acute malnutrition that ranks among the top, both in sub-Saharan Africa and the world. Although the progress and achievements observed so far can be celebrated, the deep-rooted causes of malnutrition in the country call for high-impact, integrated, and coordinated interventions to end hunger (7).

Over the past fifteen years since 2000 the trend of malnutrition in Ethiopia revealed that improvements in prevalence of stunting by 38% (from 58% to 38%) and underweight by 24% (41% to24%). However; there was only a small decline in the prevalence of wasting over the last 15 years from 12% to 10% (10).

Based on reports from Addis Ababa poverty, family disintegration, domestic violence, disability, and social unrest the number of orphans are expected to increase in the next future. These children are most vulnerable and may be at greater risk from child labor, trafficking, prostitution, abduction, stigma, discrimination and they are potentially at greater risk of malnutrition because they are more likely to be extremely poor, receive less medical and social cares. This portion of the population seeks immediate support for their survival and growth despite less number of orphanages compared to the magnitude of orphans and vulnerable children (8, 9)

1.2 Statement of the problem

Malnutrition is affecting highly vulnerable population in several regions of the world. According to the global nutrition report estimation, under nutrition contributes to the death of around 3 million children per year and threatens the futures of hundreds of millions, undermining the healthy development of their bodies, undermines the strength of their societies by preventing children from achieving their full potential (9).

Preschool children in orphanages are nutritionally challenged because majority have never been breastfed or exclusively breastfed. This makes them susceptible to illnesses as they missed the breast milk has all the nutrients that are required for healthy development of children (10). Under nutrition increases the frequency and severity of infections and contributes to delayed recovery. In addition, the interaction between under nutrition and infection can create potentially lethal cycle of worsening illness and deteriorating nutritional status (11).

The children in orphanages had a significantly higher rate of under nutrition than non-orphanages. Consequently, a number of orphan and vulnerable children are still in a difficult situation and seek immediate attention (9, 12).

Orphaned and institutionalized children may experience one or several micronutrient deficiencies, in particular zinc, iron and vitamin A were associated with weakened immune function and a child may contract an infection due in part to poor nutritional status; mostly in institutions where there are poor

sanitary practices, children are vulnerable to infections since they are at risk for a variety of complications, putting their health and development in great trouble (1).

Orphan hood children in Ethiopia are the most prevalent forms of social problems and vulnerable to all form of abuses and exploitations, loss of inheritance right, loss of opportunity for education, basic health care, normal growth and development as well as shelter. Orphans are also at risk of the future incidents of HIV infection (8, 13).

Orphan children faced with many problems including the basic needs such as food, safe water, parental care, supervision and protection. As a result of this, they suffer from malnutrition and poor health. Children living in orphanages tend to be neglected and become malnourished (13, 14).

United nations international children's fund (UNICEF) and World Bank review at New York indicated that the situation of orphans and vulnerable children receives little attention in poverty reduction strategic papers and national strategic plans, despite the large magnitude of the problem existed in some countries (15).

Annual report from former Children and Youth Affairs Organization in Ethiopia showed the problems faced by the orphanages. These include; inadequate funding to support programs designed for the children, shortage of trained personnel, inadequate skills training that resulted in long care in orphanage, lack of psychosocial service, lack of long-term strategic planning.

However, to the best of my knowledge there is no study that indicates under nutrition of institutionalized under five orphaned children in Addis Ababa. Thus, information regarding the nutritional status of orphan and vulnerable children and associated factors is limited in the study setting. Therefore, this study will be helpful to fill the gap by providing information for policy makers, NGO‟s and other stakeholders

1.3. Significance of the study

The findings of this study will be beneficial to stakeholders like ministry of health department of Nutrition, researchers and other agencies working in child health and survival programs. The findings of this study will improve our knowledge on the nutritional status of orphanage children and it will be beneficial to caregivers of the children in orphanages by helping them improve their childcare practices, living standards, and nutrition and health status of children in institutions. The findings will also help governments, policy makers, non-governmental organizations and donors to make decisions to address the needs of institutionalized orphaned children and to provide holistic support for the orphanages as evidenced by limited information on such case.

2. Literature review

2.1. Prevalence of under nutrition in orphan children

Under-nutrition denotes insufficient intake of energy and nutrients to meet an individual's needs to maintain good health [1]. The immediate causes of malnutrition are inadequate food intake and infectious diseases, which in turn, result from a combination of three underlying causes that relate to the nutrition, social and health environment of the child. Inadequate household food security, inadequate maternal and child care, insufficient services and unhealthy environment are the underlying causes, which in turn, result from basic causes; Formal and non-formal institutions, political and ideological superstructure economic structure and potential resources (2)

Different studies in the world revealed that children in orphanages had a significantly higher rate of under nutrition than non-orphanages. Consequently, a number of orphan and vulnerable children are still in a difficult situation and seek immediate attention (8, 16).

Based on the study conducted in India under five children living in orphanage, the prevalence of stunting, wasting and underweight were found in 22.9%, 9.8% and 26 21.3% cases, respectively. However severe stunting, severe wasting and severe underweight were found to be 18 (14.7%), 10 (8.2%) and 13 (10.6%), respectively [41]

Cross sectional study conducted on childcare practices, morbidity status and nutrition status of preschool children living in orphanages in Kenya indicated that the wasting rate was 3.7%, underweight 8.6% and stunting rates of 15.4% (17) Another study done in Kenya revealed that children in orphanage had a significantly higher rate of stunting and underweight. (18).

A study finding in Uganda indicated that about 33.1%, 17.0% and 5.9% of orphaned children were Stunted, underweight and wasted, respectively. These results also showed that maternal orphans (48.2%) are affected more in terms of nutritional indicators at least in the short term than paternal orphans (29.0%) (19).

According to Ethiopian mini Demographic Health Survey (EDHS), 2019 report about 7%, 21% and 37% of under five children were wasted, underweight and stunted, respectively (20). Another study conducted

in Gondar also reported prevalence of 9.9% wasting, 27.8% underweight and 45.7% stunting among under five orphan and vulnerable children was (21).

A study conducted in Hawasa city revealed that 8.9 % children were found to be underweight, 35.1 % of the children under age five were suffering from chronic malnutrition and 7.5 % acutely malnourished (22). The cross sectional survey conducted in rural communities of Tigray region also revealed that, the levels of stunting, underweight and wasting were 42.7%, 38.3% and 13.4%, respectively (23).

2.2. Factors associated with under nutrition among orphaned children

2.2.1. Sociodemographic factors

A cross-sectional analytical study conducted in Sudan and Kenya showed that stunting wasting and underweight were more in boys than in girls. However no significant association was found with respect to underweight (24, 25). Study conducted in India, Nigeria and Ethiopia indicated that stunting was found significantly more among children greater than one year while wasting was significantly more among infantile age group (21, 26, 27).

An institutional based cross-sectional study in Kenya indicated that children whose caregivers were married were more likely to be stunted. But Underweight and wasting did not show any significant relationship with caregivers' marital status (17)

A community based study conducted in Gondar showed that educational status of guardian was significantly associated with stunting and underweight (21). Similarly, orphan care taker whose educational status is primary school were at higher risk of stunting when compared to secondary and above (22).

2.2.2. Length of stay in orphanage

A study done in Bangladesh, Kenya, and Serilanka showed that duration of stay in the orphanage is positively and significantly correlated to the prevalence of underweight and stunting in children in

orphanages (24, 28, 29). In contrary with this, study in north Lebanon showed lack of significant association between duration of stay in the orphanage and increased risk of stunting(17, 30)

2.2.3. Health related factors

Infection and nutritional status of children are interrelated where malnutrition can accelerate disease progression, and Infection worsens malnutrition by weakening the immune system and hindering nutrient intake, absorption, and storage. The children in the orphanages and non-orphanage suffered from various infections whose symptoms included colds/flu, diarrhea, fever and others (vomiting and skin rashes). The morbidity rate was higher among orphanage than non-orphanage children. The orphanage children had significantly higher prevalence of diarrhea and cold/cough compared to the non-orphanage children (31).

A study conducted by FAO showed that one in four children had experienced symptoms of illness including fever, cough, and/or diarrhea in the previous two weeks, and 55% had been ill during the previous 6 months (32).

Another study in kiambu municipality showed lack of relationship between having been ill one month prior to the interview and nutritional status of children (33)). Similarly, a study in Kenya orphanages showed there was no significant relationship between wasting and diarrhea and cough/colds (35). In contrary with this, the study conducted in Kenya showed that presence of illness had a significant relationship with stunting, underweight and wasting. Children who were sick were more likely to be stunted, underweight and wasted respectively (17)

According to the study done in Gondar orphan and vulnerable children who were not ill in 2 weeks prior to the study were 40.2 % lower risk of underweight compared to those who had history of illness (21). A study done in Hawasa revealed that cough was significantly associated with wasting in pre-school age orphan children two weeks prior to the survey (22).

Another study done in Dilla and Gondar indicated that the prevalence of diarrheal disease two weeks prior to the survey had significantly associated with wasting (21, 36). A community based cross sectional studies in Ethiopia revealed that there is no significant association between vaccination and the nutritional status of orphan children (21, 22, 36).

2.2.4. Hygiene related factor

Chronic malnutrition and personal hygiene situations were worse among children in orphanages in comparison with non-orphanage children. The proportion of underweight children was inversely and significantly ($p<0.05$) correlated with children's bathing and washing hands with soap for both boys and girls as shown in the study done in Kenya (14).

Another study done in Addis Ababa showed that children's family having no hand washing facility near the toilet were more likely to be underweight than said having hand washing facility (37). A case control analysis done in Ethiopian among 2010 orphans had showed significantly lower than non-orphans of reporting to have washed their hands or face (38).

2.2.5. Dietary intake

A study done in an orphan child in Anatang of Jammu and Kashmir in Mashakor and Bangladesh showed nutritional intake was deficient for all nutrients when compared to RDA and nutritional status is poor in orphans. It is also indicated that orphan children are deprived of balanced diet (39). Similarly, during 24-hour recall done in Jammu orphanages it was found that orphans were consuming less energy, proteins, fats, vitamins and minerals as per RDA for Indian children. Results indicated that dietary intake of children was deficient for all nutrients when compared to RDA for all the age groups (40). In contrary to this orphan children had better anthropometric measurements and indices than non-orphans (22). Orphan and vulnerable children who consumed higher varieties of food groups had lower risk wasting or thinness compared with those who consumed few varieties of foods (10).

Based on the study in Dilla the odds of wasting for under five years orphans who started complementary food before the age of 6 month was higher than those orphans who started complementary food after the age of 6 month (36).

3.Conceptual framework

The immediate causes of under nutrition are inadequate food intake and infectious diseases, which in turn, result from a combination of three underlying causes that relate to the nutrition, social and health environment of the child. Inadequate household food security, inadequate maternal and child care, insufficient services and unhealthy environment are the underlying causes, which in turn, result from basic causes; Formal and non-formal institutions, political and ideological superstructure economic structure and potential resources (Figure 1)

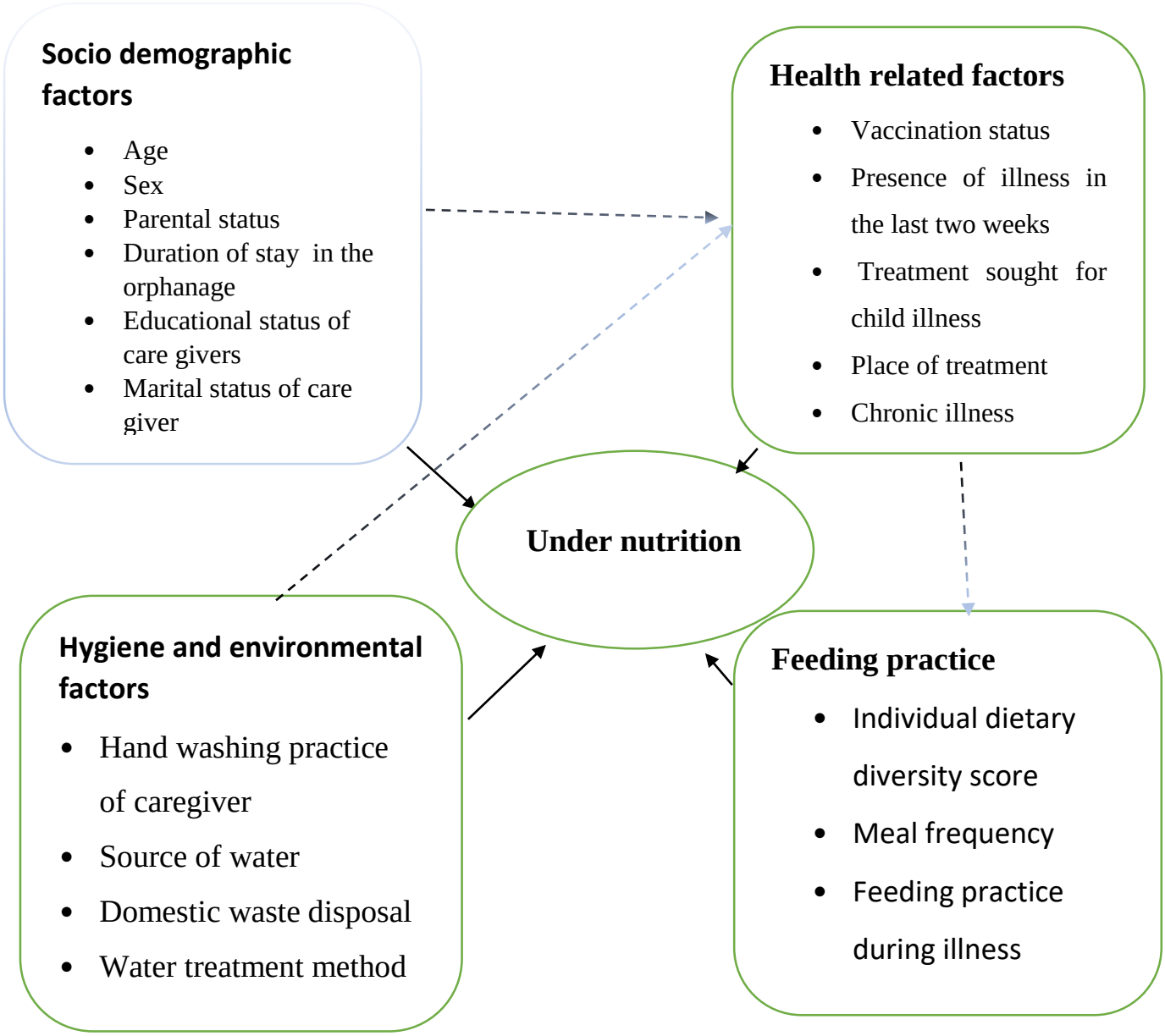

Figure 1. *Operational Conceptual Framework developed for this study summarizing factors related to under nutrition of under-five institutionalized Orphan and Vulnerable Children.* (*Adopted by Principal investigator from different literature. [17, 18, 21, 22, 35 ,41]*

4. Objectives

4.1. General objective

- To assess under nutrition and associated factors among under five orphans in orphanages in Addis Ababa, Ethiopia, 2020.

4.2. Specific objectives

- To determine the prevalence of stunting among under five orphan children.
- To determine the prevalence of underweight among under five orphan children
- To determine the prevalence of wasting among under five orphan children.
- To identify associated factors for stunting among under five orphans
- To identify associated factors for underweight among under five orphan children.
- To identify associated factors for wasting among under five orphan children.

5. Method and materials

5.1. Study design and study area

An institution based cross-sectional study was conducted from February 28 to 28 March 2020 in orphanages in Addis Ababa, the capital city of Ethiopia. There are 8 under-five orphanages in Addis Ababa which are given license by the Addis Ababa women's and children affairs office. These orphanages are devoted for the care and raring of children who lost their parents and some of these orphanages give health care services for the peoples outside the orphanage and give support for the vulnerable and fostered children. There are 406 under five orphan children reared in orphanages (41).

5.2. Population

5.2.1. Source Population

All institutionalized under five orphan children residing in Addis Ababa orphanages.

5.2.2. Study Population

All institutionalized under five orphan children residing in Addis Ababa orphanages**.**

5.3. Inclusion and exclusion criteria

5.3.1. Inclusions Criteria

- All under five orphan who had stayed full time at the orphanages.
- Institutionalized orphan Children in the age range of 6month-59month

5.4. Sample size determination

5.4.1. Sample size determination for the first objective

Sample size for the first objective was calculated by using single population proportion formula assuming 4% of margin of error for stunting, and 2% for wasting and underweight and 95% confidence interval. The prevalence of stunting, wasting and underweight (35.1%, 7.5% and 8.9%), respectively among institutionalized OVC were taken from similar study conducted in Hawasa town (22). Finally, by considering a non-response rate of 10% the highest calculated sample size from the three indicators were taken as the final sample size.

Sample size calculation by using the prevalence of stunting in institutionalized orphan

Where

Z = level of confidence (1.96), P = proportion (35.1%), d = margin of error (4%) n = sample size

$n = Z^2 p (1-p)/d^2 = (1.96)^2(0.351(1-0.351)/ (0.04)^2 = 547$

n=547 by adding 10 % non-response rate, the sample size is 602

By considering population correction formula the final sample size will be 243

Sample size calculation by using the prevalence of wasting in institutionalized orphan

Where Z = level of confidence (1.96), P = proportion (7.5%) d = margin of error (2%), n = sample size

$n = Z^2 p (1-p)/d^2 = (1.96)^2*0.075(1-0.075)/ (0.02)^2 = 666$

n=666 by adding 10 % non-response rate, the sample size is 733

By considering population correction formula the final sample size will be 261

Sample size calculation by using the prevalence of underweight in institutionalized orphan

Where

Z = level of confidence (1.96), P = proportion (8.9%), d = margin of error (2%), n = sample size, $n = Z^2 p (1-p)/d^2 = (1.96)^2*0.089(1-0.089)/ (0.02)^2 = 778$

n=778 by adding 10 % non-response rate, the sample size is 856

By considering population correction formula the final sample size will be 275

By taking the largest sample size the final sample size is **275**

5.5.2. Sample size determination for the second objective

The sample size determination for the second objective of factors associated with under nutrition of under-five orphan and vulnerable children calculated based on double population proportion formula by using Epi info version 7 stat calc programs as summarized in the table below.

Table 1 ***Summary of Sample size calculation for factors associated with under nutrition, 2020****.*

Factors	Proportion among exposed	Proportion among non-exposed	sample size	Final sample size (adding 10% non-response rate)
For stunting				
Parental status(alive/not)	8.4	2.4	446	491
Marital status(married/single)	86.1	96	264	291
Educational status (primary/secondary) [22, 35]	19.2	7.9	288	317
For wasting				
Cough (yes/no)	79.5	63	238	262
Food and nut sup (yes/no)	98.7	92.6	320	352
Diarrhea (yes/no) [21, 22]	83.3	43	46	51
For underweight				
Educational status (primary/secondary) [21]	82	17.6	130	143

The large sample size for the second objective was 491. Since the source population is less than the sample size (491), population correction formula was used and final sample size was 275.

Finally, the sample size for first objective accommodate the second objective, the final sample size was **275 (underweight).**

5.5. Sampling procedure

Simple random sampling technique was used to recruit the study participants from the 406 under five orphan children orphanages. Participants were selected from each randomly from the list of the orphan children.

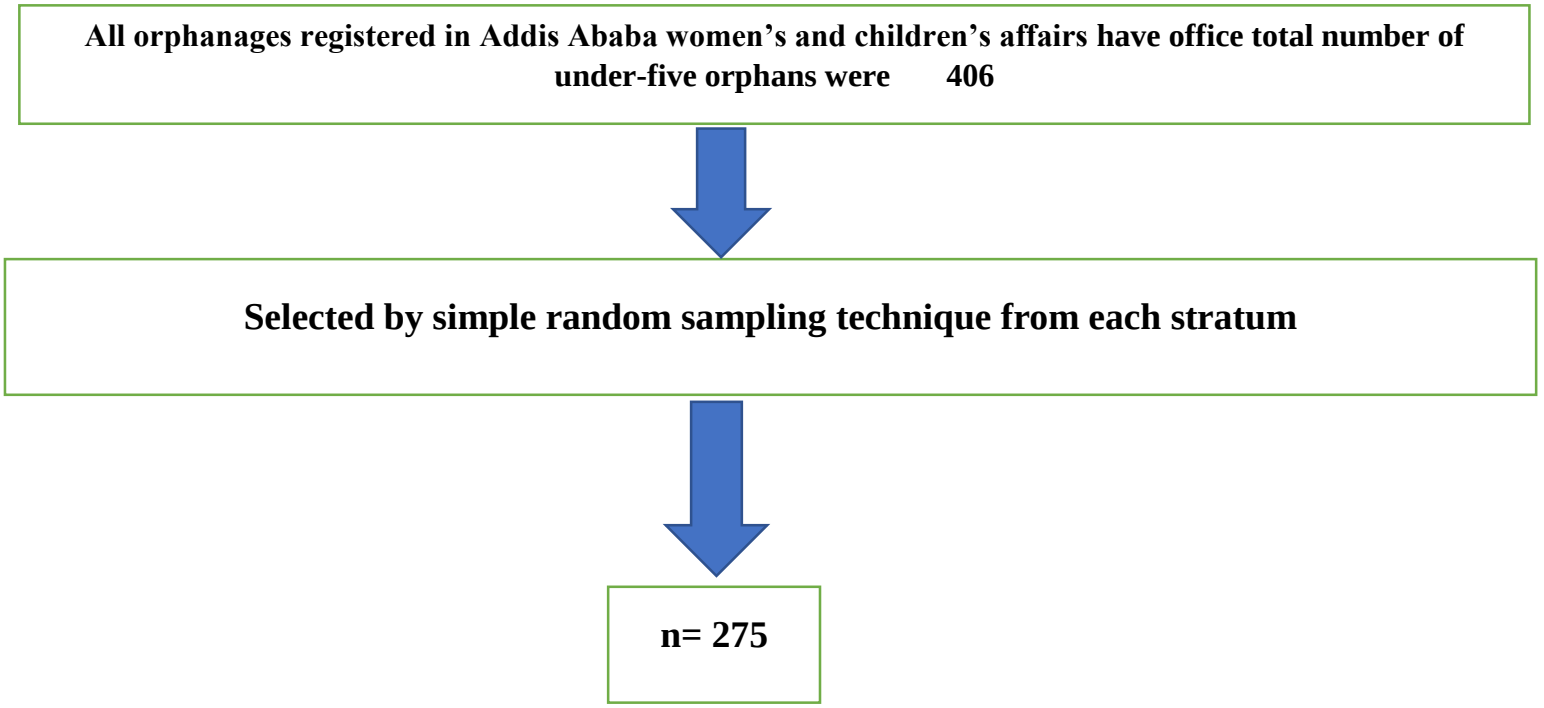

Figure 2; Schematic diagrammatic presentation of the sampling procedure to assess the under nutrition of under-five institutionalized orphan children in Addis Ababa, Ethiopia

5.6. Dependent and independent variables

5.6.1. Dependent variables

- Stunting (Yes/No)
- Underweight (Yes/No)
- Wasting (Yes/No)

5.6.2. Independent variables

Socio-demographic factors: - Age, sex, parental status status, educational status of care giver, marital status of care giver, duration of stay in orphanage.

Health related factors: - presence of illness, treatment sought for the illness, chronic illness, Vaccination status status and .place of treatment.

Hygiene and environmental factors: - hand washing practice, source of water for drinking, domestic waste disposal, water treatment method.

Feeding practice: IDDS, meal frequency, feeding practice during illness.

5.7. Operational definitions and standard definition

- **Stunting:** Height/length for Age Z scores below minus 2 standard deviations (<-2SD) from the median normal child health reference population [37]
- **Underweigh**t: -Weight for age Z scores below minus 2 standard deviations (< -2 SD) from the median normal health reference population [37]
- **Wasting i**s weight-for-height/length below minus two standard deviations (<-2SD) from the median of normal health reference population [37]
- **Meal frequency**: An orphan child said to have good meal frequency if the orphan child whose age 6-8 months fed 2-3 times, whose age 9-23 months fed 3-4 times and whose age above 24 months fed more than 4 times in the previous day (24hours)
- **Vaccination status**: children who have taken all the recommended vaccination schedule termed as fully immunized, if not none immunized.
- **Individual dietary diversity scor**e: children who consume four and greater than four food groups from the seven food groups was adequate, if it is less than four inadequate in the previous 24 hrs.
- **Presence of illness**: was assessed by asking children/care givers of children whether they had symptoms of cough, diarrhea, fever and vomiting in the last two weeks prior to the survey
- **Duration of stay:** number of month children who stay in the institution to get .care in group living arrangement.

5.8. Data collection tools and procedures

5.8 .1. Data collection tools

Data was collected by using interviewer Administered, pretested and structured questioner. The questionnaire composed of socio demographic characteristics, hygiene and environmental, feeding practice, health related variables and anthropometric measurements was used as an instrument to collect data based on WHO standard.

5.8.2. Data collection procedures

Three data collectors who have a minimum of diploma working in health center was recruited and one supervisor who have BSC degree in public health was selected from the health facility .Data collectors and supervisors were trained for two days by the principal investigator on how to collect socio demographic data , data collection instruments and was provided with the basic skills on how to take weight and height measurements of the study participants to increase measurement accuracy the supervisors were also trained on how to check whether the questioners are fill correctly during the data collection period.

The anthropometric measurements: Height and weight were measured by using standard measuring scale using standard operating procedures. Weight of under two years children was measured by spring balance weighing without shoes and in light cloth to the nearest 0.1 kg. Beam balance was used to measure the weight of children above two years.

Length was measured using wooden board in recumbent position while the child barefooted and free of head wearing in children <2 years old to the nearest 0.1 cm and height was measured using wooden board in standing-up position while the child being barefooted and free of any head wearing in children >2 years old and recorded to the nearest 0.1cm. Child was positioned feet together, feet flat on the ground, heels touching the back plate of the measuring instrument, legs straight, buttocks against the backboard, scapula against the backboard and arms were loosely at their side.

These measurements were compared and classified into categories of nutritional status using WHO standard growth curves for under five children and adolescents (WHO 2006). Each of the three nutritional status indicators height for age, weight for age and weight for height was expressed in standard deviation units (Z scores) from the median of the reference population. The use of this reference population is based on the finding that well-nourished young children in all population groups follow very similar growth

patterns. The reference populations are useful for comparison facilitating the examination of differences in the anthropometric status of subgroups in a population and changes in nutritional status over time.

Duration of institutionalization in the orphanage: caregiver was asked to report if they joined other institutions before coming to the current institution. If their answer is 'yes 'they were asked to report how many years they stayed in the former orphanage as well as in the current orphanage. Children's duration of institutionalization was classified as 0-12month, 12m-23m, 24m-36m and >36month based on classifications schemes used by other researchers.

Hygiene: Personal hygiene of the children was assessed by asking hand washing practice of caretaker at five critical times, before eating food, after visiting toilet, before preparing food, before breast feeding and before feeding the child the day before the survey time. If the they wash their hands at least three time from the five critical time it was reported as 'yes', if they didn't wash their hands three time it will be reported as 'no'. In addition to this if the answer to the question for hand washing was 'Yes' they were asked what they used to wash their hands weather it will be with only water or with soap.

Feeding practice during illness: caregiver was asked to report question on children feeding pattern during illness weather they take the' same amount of meal/drink, 'about the same', 'much less than usual', 'more than usual' and 'stopped feeding'

Dietary diversity score: was assessed on the basis of the number of food groups consumed from the seven food groups within the last 24 hours. Accordingly, children were classified as having adequate dietary diversity score if they were consumed four and more from seven food groups.

5.9. Data quality Assurance

Training; - the data collectors and supervisors were trained for two days on data collection procedures by developing manuals relevant to achieve the objectives of this study. They were trained how to approach the study subjects, how to record data, how to control missing data, how to measure anthropometry and more over how to communicate data collectors with supervisors.

Supervision: in addition to the deliver training the supervisors discussed with the principal investigator the way how to supervise the data collectors so as to assure that the data collection activities. Each supervisor were monitored the data collectors assigned to him/her using supervisory check list on each day of the data collection and corrective measures were taken.

Translating and Pre-testing the questionnaire: the questionnaire was prepared originally in English language and then translated into Amharic language and retranslated into English by language expertise. Almost all of the questions were adapted from other previously conducted similar studies with little modification. Pre-test was done before engaging to full implementation of data collection by taking 5% of the sample size (14) in Kidane Mihret orphanage in which participants was not part of the current study but similar setting before beginning the research. During the pre-test, there were questions in which respondents were not able to understand easily and thus, modification was made in the way that every study participant could understood clearly for the final tool.

Quality assurance: Standardization of anthropometric measurements was conducted in a group of 10 children whose ages fall within the pre-established range for this study by giving a sequential identification number for both children and data collectors before the actual measurements are taken .One assistant and one measurer was paired with the child before carrying out the standardization exercise, the supervisor weights and measures (standard measure) each child and record the results without the trainees seeing the results .Then the measurement of each child was started by each measurer (my measure) upon completion of this the supervisor was taking advantage of the standardization exercises to systematically observe each measurers performance using measurement techniques observation form .After all the measurements are completed each of the measurers will calculate the difference between my measure and the standard measure for each measurement then in all cases in which large or medium difference are found ,the respective measurer with the assistance of the supervisor carefully repeat the measurement in order to identify and correct the cause of the difference . the responses of participants was checked by supervisors and the principal investigator by administering the questionnaire at the end of data collection to randomly selected 10% of orphans already visited by the data collectors. Moreover, supervisors checked everything recorded by data collectors in each questionnaire on a daily.

5.10. Data analysis

The Data were entered, cleaned and coded using EPI DATA version 3.1 and then exported to Statistical Package for Social Sciences (SPSS) for version 23 for analysis. Anthropometric indices stunting, underweight and wasting were generated by using WHO Anthro version 3.2.2 and results were classified according to WHO cut-off points. This means children with a Z-score for underweight, stunting or wasting, below -2SD were considered undernourished. Descriptive statistics; frequency, percentages, table, figure, mean and standard deviations were used to present the data. Bivariable logistic regression

analysis were used to identify factors associated with the under nutrition of orphan children. Multiple binary logistic logistics regression analyses was used to address the effect of confounders and a 95% confidence interval were used to estimate the precision of the odds ratio. All covariates with p-value less than two during variable analysis were entered into multivariable analysis to control potential confounding factors. Assumption of goodness of the model was checked by Hosmer–Lemeshow test (p-value 0.12, 0.35 and 0.58 for wasting, stunting and underweight) and multi colinerity was checked using variable inflation factor.

Finally, those variables that showed p-value <0.05 in multivariable analysis were taken as important and independent predictor of under nutrition of under-five orphan children.

5.11 Ethical Consideration

Ethical clearance was obtained from the Ethical Review Board of Bahir Dar University, School of Public Health and were submitted to the management of the orphanages. Caregiver had received adequate information regarding the study, including the procedures, potential risks and benefits of the study. They have been also informed that they have the right to refuse to participate in the study. Confidentiality was assured by assuring, the information will not be used for other purpose and study subjects were in isolated room. Written informed and verbal consent was obtained from the orphanage directors and the care takers.

5.12. Dissemination of the results

The final report will be presented and discussed at Bahir Dar University, College of Medicine and Health Sciences, Institute of Public Health as partial fulfillment of the degree of Master of Public Health. Copies of this paper will be sent to Addis Ababa women's and children affairs office. It will also be disseminated through publication on local or international journals and presentation on scientific conference.

6. Results

6.1 Socio demographic characteristics of study participants

A total of 271 under-five orphan children were involved in this study making the response rate of 98.9%. The minimum and maximum age of children were 6 and 59 months respectively. The mean (±SD) age of the children was 27 (±16.31) months and about 163 (60%) of the participants were male by sex. Among all 90 (33%) of children were in the age category of 36 and above months and two thirds 167 (61.6%) of their care taker were between the age category of 19-35 years with a minimum age of 19 and a maximum of 54 years. About 159 (58.7%) and 196 (72%) of care givers were married and educated. Only 3 (1.1%) of them were transferred from other orphanage and around 157 (60%) had lived for less than five months in the orphanage (Table 2).

Table 2: Sociodemographic characteristics of study participants living in orphanages, Addis Ababa, Ethiopia, 2020 (n= 271)

Variable	Frequency	Percent (%)
Sex of the child		
Male	163	60.10
Female	108	39.90
Age of the child in months		
6-11	52	19.20
12-23	78	28.80
24-35	51	18.80
>=36	90	33.20
Age of the care giver in years		
<20	10	3.7%
21-45	207	76%
>45	54	20%
Educational status of care giver		
Uneducated	75	27.7
Educated	196	72.30
marital status of care giver		
Unmarried	112	41.30
Married	159	58.70
natural parents of the child alive?		
Yes	71	26.20
No	200	73.80
Is the natural mother alive?		
Yes	40	56.30

No	31	43.70
natural father alive? (n= 71)		
Yes	59	83.10
No	12	16.90
orphan transferred from another orphanage?		
Yes	3	1.10
No	268	98.90
Durational stay in orphanage		
<5	157	57.9
>=5	114	42.1

6.2 Health and diet related characteristics of study participants

Regarding receiving vaccination, about 175 (65%) of children under five were vaccinated and of them only 40 (15%) were fully vaccinated. Ninety-two (34%) of them had experienced an illness in the last two weeks. Fifty-six (61%) and 57 (62%) of children had fever and diarrhea respectively in the last two weeks prior to the data collection. About 30 (33%) of sick children get treatment in the health facility of the orphanage. Related to children's dietary status 73 (27%) of them had consumed four and more food groups and 81 (30%) had meal frequency of three and more times in the last 24 hours (Table 3).

Table 3: Health and diet related characteristics of orphaned children living in Addis Ababa ,Ethiopia, 2020 (n= 271**)**

Variable	**Frequency**	**Percent (%)**
child received vaccination		
Yes	175	64.6
No	96	35.4
Vaccination status		
Fully Vaccinated	67	38.3
Not fully vaccinated	204	75
Illness in the last two weeks		
Yes	92	33.9
No	179	66.1
fever for the last 2 weeks		
Yes	56	21
No	215	79
cough in the last 2 weeks		
Yes	44	16
No	227	83.7
faster than usual with short rapid breathing /difficulty of breathing		

Yes	28	10
No	243	89.6
Difficulty of breathing on the chest/blocked runny nose		
Chest only	32	72.7
Nose only	239	88
Diarrhea the last 2 weeks		
Yes	57	21
No	214	13
Type of diarrhea		
Watery	46	17
Bloody	225	83
Fluid intake during diarrhea		
Less than usual	125	46
About the same	146	54
More than usual	5	2
you had diarrhea, how was your feeding pattern?		
Less than the usual	90	33
About the same	150	55
More than usual	31	11
Vomiting in the last 2 weeks		
Yes	32	12
No	239	88
you had vomiting, how was your feeding pattern?		
Less than the usual	56	21
About the same	192	71
More than usual	23	8.4
Do you seek treatment for the above symptoms?		
Yes	62	23
No	30	32.6
chronic illness (TB, Ca, HIV/AIDS)		
Yes	21	7.8
No	250	92.2
(Dietary Diversity Category Score (DDS)) of children		
< 4 food groups	198	73.1
>= 4 food groups	73	26.9
minimum meal frequency of children		
< 2 times/day	190	70.2
>= 3 times/day	96	29.8

6.3 Hygienic and environmental sanitation and care and support related characteristics

Regarding care givers hygienic practice majority 254 (94%) of them had washed their hands whenever they feed the child and 254 (94%) of them had washed their hands after defecating the child, but only 23 (9%) of them washed their hand before breast feed. About 244 (90%) and 236 (87%) of children had washed their hands before preparing food and after visiting the toilet, respectively. Of whom who washed their hands after visiting the toilet, only, 34 (13%) of them washed their hands with water and soap. Almost all 260 (96%) of them their water source for domestic consumption was from pip water source (Table 4).

Table 4: Hygienic and environmental sanitation of children living in orphanages in Addis Ababa, Ethiopia, 2020 (n= 271)

Variables	Frequency	Percent (%)
Wash hands whenever you feed your child?		
No	17	6.3
Yes	254	93.7
Wash hands before preparing food		
No	27	10.0
Yes	244	90.0
Washed hands after visiting toilet?		
No	35	12.9
Yes	236	87.1
What did used to wash hands after visiting toilet		
Water with soap	34	12.6
Only water	202	87.4
Wash hands before breast feeding		
No	248	91.5
Yes	23	8.5
Wash hands after defecating your child		
No	14	5.2
Yes	257	94.8
Main source of drinking water		
Piped water	260	95.9
Piped into dwelling	11	4.1
Main source of water for cooking and hand washing		
Piped water	249	91.8
Piped into dwelling	22	8.2
Make water safer to drink?		
No	13	4.8
Yes	258	95.2

What do you usually do to make the water safer to drink		
Boil	4	1.5
Add Blech /chlorine/water guard	264	97.4
Where do your orphanage dispose domestic waste?		
Open	2	0.7
Pit	269	99.3
Orphanage have a hand washing facility near the dining room and/or toilet area		
No	4	2.8
Yes	267	97.2
Is there any support given to the orphanage		
No	4	1.5
Yes	267	98.5
Type of supports		
Nutritional	32	11.8
Health care	2	0.7
Income generating activities	2	0.7
Some of them	128	47.2
All	103	38.4

6.4 Prevalence of under nutrition (wasting, stunting and underweight)

Among all children taken part in this study (n=271), 11.1% (95% CI: 7.7-15.1) were wasted, 45.8% (95% CI: 39.9-52) were stunted, and 25.5% (95% CI: 20.3-31) were underweight (Figure 3).

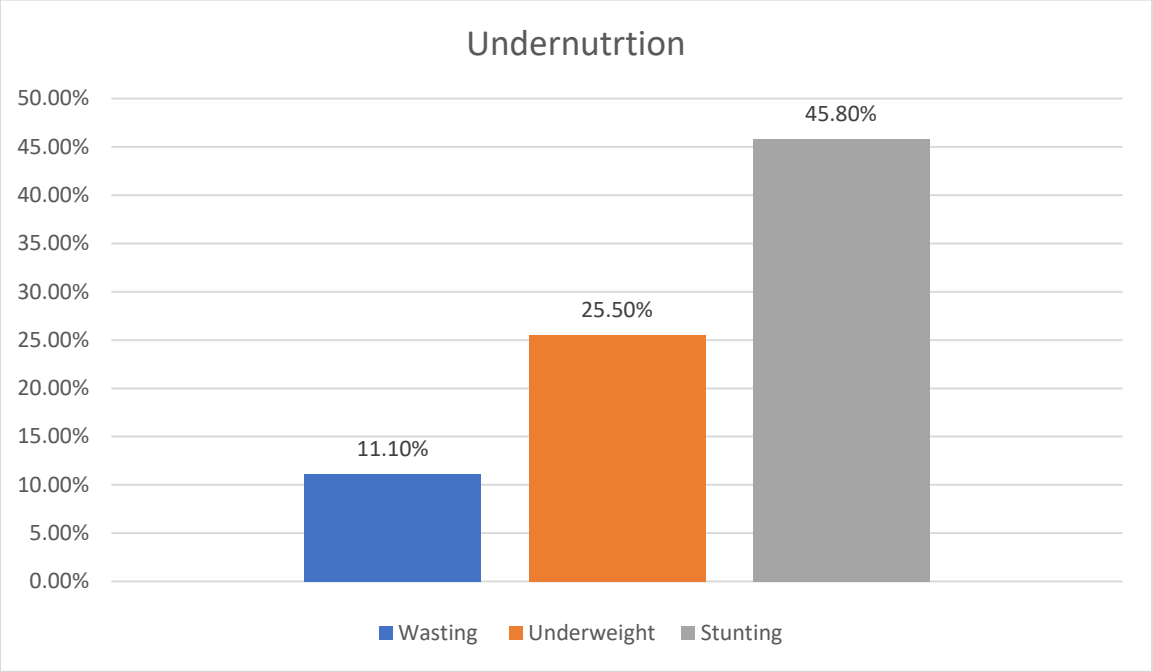

Figure 3 prevalence of under nutrition among children living in orphanage in Addis Ababa,Ethiopia,2020 (n=271)

Factors associated with stunting

The result of bi-variable analysis showed that there was significant association between age of the child, meal frequency, age of the care taker, illness in the last week, marital status of care giver and vaccination status with stunting . But after controlling for possible cofounders the result of multivariable analysis revealed that illness in the last week, meal frequency and vaccination status were significantly associated with stunting (p-value <0.05). Accordingly, orphan children who had history of illness more likely to be stunted (AOR = 2.23; 95% CI: 1.41, 12.73) than those who had not history illness. The probability of being stunted was 2 times higher for children who received less than two meals per day (AOR = 2.11; 95% CI: 1.58, 7.71) than those who received 3 and more meals per day. Similarly, children who was not vaccinate were nearly three times more likely to be stunted (AOR = 2.86; 95% CI: 2.07, 11.61) as compared to those children who were vaccinated (Table 5).

Table 5: Factors associated with stunting among orphan under five children in Addis Ababa, Ethiopia, 2020 (n= 271)

Variable	Stunting		COR(95%CI)	AOR(95%CI)
	Yes(n%)	No(n%)		
Age of the child				
6-11	18(6.6)	34(12.54)	0.55(0.27,1.120	0.38(0.16,5.01)
12-23	27(9.96)	51(18.82)	0.56(0.30,1.03)	0.42(0.22,3.10)
24-35	35(12.920	16(5.91)	2.29(1.54,4.71)	2.15(0.87,7.21)
>=36	44(16.23)	46(16.97)	1	1
Age of the caregiver				
19-35	88(32.47)	79(29.15)	2.10(1.38,3.50)	1.58(0.75,8.31)
36-54	36(13.28)	68(25.09)	1	1
Marital status				
Unmarried	58(21.41)	53(19.56)	1.56(0.93,2.46)	2.11(0.65,4.34)
Married	66(24.35)	94(34.69)	1	1
Illness in the last week				
Yes	28(10.33)	64(23.95)	1.07(1.03,8.22)	2.23(1.41,12.73)*
No	52(19.19)	127(46.86)	1	1
Meal frequency				
<2 times	98(36.16)	92(33.95)	2.25(1.41,4.01)	2.11(1.58,7.71)*
>=3	26(9.59)	55(20.3)	1	1
Vaccination received				
Yes	52(19.19)	44(16.24)	1.70(1.14,2.80)	2.86(2.07,11.61)*
No	72(26.59)	103(38.01)	1	1

NB: 1: reference group, COR: crude odds ratio, AOR: adjusted odds ratio, *Statistically significant at p-value <0.05

Factors associated with wasting

In the bivariable analysis; vaccination received, meal frequency, age of the child and durational stay were associated with wasting. Among those variables only vaccination status was remained independently associated with wasting in the multivariable analysis. The odds of wasting were high among children who were not vaccinated (AOR = 2.04; 95% CI: 1.29, 9.71) than those who were vaccinated (Table 6).

Table 6: Factors associated with wasting among orphan under five children in Addis Ababa, Ethiopia, 2020 (n = 271)

Variable	Wasting		COR(95%CI)	AOR(95%CI)
	Yes(n%)	No(n%)		
Age of the child				
6-11	15(5.54)	37(13.65)	1.25(1.05,5.81)	1.87(0.89,8.56)
12-23	14(5.17)	64(23.62)	0.68(0.27,8.86)	0.41(0.21,7.23)
24-35	11(4.06)	40(14.76)	0.8590.37,5.65)	0.89(0.35,4.53)
>=36	22(8.12)	68(25.09)	1	1
Duration of stay in month				
<5	19(7.01)	99(36.53)	2.48(1.13,5.44)	2.13(0.72,6.78)
>=5	11(4.01)	142(52.4)	1	1
Meal frequency				
<2times	17(6.27)	173(63.84)	0.51(0.39,6.22)	0.32(0.25,6.57)
>=3times	13(4.8)	68(25.09)	1	1
Vaccination received				
Yes	19	156(50.2)	1	1
No	15	81(38.75)	1.52(1.13,2.87)	2.04(1.29,9.71)*

NB: 1: reference group, COR: crude odds ratio, AOR: adjusted odds ratio, *statistically significant at p-value <0.0

Factors associated with underweight

Age category of children, sex of the child, dietary diversity score ,water treatment, illness during the last two weeks prior to the survey were variables with p value of <0.2. Then, all these variables were fitted in to the multivariable analysis and only dietary diversity score of children was statistically significant with underweight. The likelihood of being underweight was 1.32 times higher among children with low dietary diversity score (AOR =1.32, 95%CI: 1.16, 12.65) than those children with adequate dietary diversity score (Table 7).

Table 7: Factors associated with underweight among orphan under five children in Addis Ababa, Ethiopia, 2020 (n= 271)

Variable	**Under weight**		**COR(95%CI)**	**AOR(95%CI)**
	Yes (n %)	No (n %)		
Age of the child				
6-11	16(5.90)	36(13.28)	1.66(0.83,2.49)	1.45(0.23,2.65)
12-23	26(9.59)	52(9.19)	1.87(1.04,3.73)	1.21
24-35	17(6.27)	34(12.55)	1.86(0.86,4.04)	1.31
>=36	19(7.01)	71(26.20)	1	1
Illness in the last week				
Yes	25(9.23)	67(24.72)	2.12(1.42,7.81)	2.36 (0.89,9.18)
No	35(12.92)	144(53.14)	1	1
Sex of the child				
Male	51(26.57)	112(41.33)	1.24(0.64,16.44)	4.25(0.84,17.38)
Female	29(10.70)	79(29.15)	1	1
Water treatment				
Yes	55(20.30)	176(64.94)	1	1
No	15(5.54)	25(9.23)	1.92(0.54,67.23)	3.01(0.77,55.72)
Dietary diversity score				
<4	72(26.57)	108(39.85)	1.67(1.16,4.76)	1.32(1.16,12.65)
>=4	26(9.59)	65 (23.99)	1	1

NB: 1: reference group, COR: crude odds ratio, AOR: adjusted odds ratio, *Statistically significant at p-value <0.05

7. Discussion

The aim of this study was to assess the prevalence of under nutrition and associated factors among children in orphanages. Accordingly, among all children taken part in this study, 11.1% ,45.8%, and 25.5% were wasted, stunted and underweight respectively . Lack of treatment, less meal frequency and lack of vaccination were factors significantly associated with stunting. Likewise, lack of vaccination was associated with wasting and the associated factor for underweight was lower dietary diversity score.

The prevalence of wasting, stunting and underweight in the current study were consistent with a study conducted in Gondar Town, Ethiopia, which reported a wasting prevalence of 10%, underweight 28% and stunting 46% (22) and regional state of Ahmara with wasting prevalence of 9.8 %, underweight 28.4% and stunting 46.3%(42). However, the prevalence of stunting and underweight were more than those reported from India and Kenya (17, 43) This discrepancy might be due to the use of different cut off criteria, life style of institutionalized orphaned children, lack of sufficient number of orphanages and the dietary patterns in the orphanage.

The study report was agreed with other study findings in Ethiopia,(44) However, compared to other studies prevalence of wasting reported by the current study was lower than from Somali region, Ethiopia (6). The reason for this discrepancy might be due the difference between study areas.

Stunting was higher among children who had a meal frequency of below 3 times per day. This finding is also supported by another researches conducted in Aykel town, Ethiopia (45) and Afghanistan (25) in which both study findings showed that most of the children with stunting were those who feed less than three times per day. This might be due to the reason that feeding less frequently for children per day based on their age resulted in inadequate intake of nutrients which is one of the immediate causes of under nutrition. This implied that fulfilling the nutrient requirement of children through age appropriate feeding frequency is crucial to stunting and other forms of malnutrition.

The probability having illness increases the odds of developing stunting by nearly 2 times. This might be related to malnutrition infection cycle. Infection increases the loss of nutrients, reduces appetite and intake of food and finally leads to under nutrition, one of the immediate causes of under nutrition. One of the best solutions to stop the infection or disease is seeking a prompt treatment. Our study finding showed that stunting was significantly higher among those children who were no treated for their illness. This

study report is supported by studies conducted in Gondar Ethiopia and Kenya. Children who were sick were more likely to be stunted, underweight and wasted (17, 44)

Children who did not vaccinated were more likely to be stunted and wasted than those who were vaccinated during their childhood period. Similar study reports were reported from Southern Ethiopia and Indonesia both of which indicated being immunized has decreased risk of underweight than being immunized (46). This may be due to the fact that children lack and/or has weak body defense mechanism which enables them to be infected by several infectious and vaccine preventable diseases. In turn, not being vaccinated means that children will be exposed to and infected by different infectious agents easily which progresses to disease and eventually caused under nutrition.

In this study dietary diversity score was significantly associated with underweight. The odds of underweight among children with low dietary diversity score (< 4) were 3.4 times higher compared to children with adequate dietary diversity score. This finding is supported by evidences from different sources indicated that orphan child nutritional intake was deficient for all nutrients when compared to RDA, are deprived of balanced diet and low dietary diversity score was a significant predictor of underweight (47, 48). Similarly, a study done in Sidama Zone, Ethiopia also reported that dietary inadequacy and low diet quality in terms of diversified diet and availability of micronutrients had a significant association with underweight (47). This could be partially explained by the fact that consumption of poor quality diet restricts the physical growth of children.

8. Strength and limitation of the study

Strength

- Standardization of anthropometric measurements.

Limitation

- Did not take in to account the quantity of food consumed
- Might be prone to social desirability bias in responding to some questions such as the type and frequency of foods given to children
- Recall bias
- Observer bias

9. Conclusion and recommendation

Conclusion

The prevalence of under nutrition was higher among orphan children based on WHO cut-off point for declaring the public importance of under nutrition. History of illness, less meal frequency and lack of vaccination were factors significantly associated with stunting. Likewise, lack of vaccination and lower dietary diversity score were associated with wasting and underweight, respectively.

Recommendations

Orphanage and Addis Ababa city administration

Having in consideration of high impact of stunting, wasting and underweight in institutionalized orphaned children, the orphanage administrator should work to decrease the proportion of under nutrition by improving the diversity of the diet through feeding children from different food groups and optimizing its frequency. It is also very important to improve the immunization coverage. Addis Ababa city administration and health bureau should also provide all rounded support for the orphanage administration.

For policy maker

They should ensure that registered orphanages have adequate resources to adequately take care of the children. And the Ministry of Health should deploy nutritionists to provide nutrition information to caregivers and their children.

The nutritionist should ensure children are regularly growth monitored and that dietary diversity and meal frequencies are improved.

To researchers

Since this study assessed the nutritional status of OVC by anthropometry, further dietary assessment studies need to be conducted to assess the adequacy of macro and micro nutrients intakes in the orphanages and further qualitative studies should be conducted to triangulate the findings.

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11. Appendix

English version information sheet

Participant information sheet and informed voluntary consent for the Directors of the selected orphanages

Good morning (good afternoon)

Hello my name…..……am working with Selam Shegaw. She is a post graduate student at Bahir Dar University Department of Public Health and working a paper to assess the nutritional status of institutionalized under-five orphaned and vulnerable children in selected orphanages in Addis Ababa. Your orphanage has been selected randomly to participate in this study. Since Yours and the child in the orphanage participation is based on your willingness you need to be aware of every detail information regarding the study to declare your agreement concerning the study.

Title of the Study: To assess nutritional status and associated factors among institutionalized under-five orphaned children in Addis Ababa, Ethiopia from March to April 2020.

Purposes of the Study: The study will be done for the partial fulfillment of Master's Degree in Public Health. The research will also be helpful to collect some scientific information about the nutritional status of institutionalized orphan children.

Procedure: The study will be carried out simply by asking the orphaned care takers and child, you and with structured questions.

So you are kindly requested to fill the questionnaire on time. However, if the orphaned child does not want to participate in the study we will put the format upside down on the table and he/she can leave out. Finally, measurement of the child height and weight with minimum clothing and no foot wear will be taken. All this will not take more than 30 minutes Confidentiality: All information given by you and the child will be kept confidential and will not be accessible to any third party, the child and your name will not be registered on the question sheet so that you will not be identified.

Risks, Benefits and Harms: With the child participation in the study, no payment will be given or has no any special privilege for the child, but your willingness to let the child and yourself to participate in the study and giving the relevant information will provide great input to bring change in Nutritional Status of institutionalized orphan and vulnerable children. The procedure does not bear any physical or psychological trauma on the child. Because of his/her refusal will not cause any problem on her/his grades and there will not be any significant harm and risks rather than slight discomfort due to sharing study time of the child / if you may be busy to respond the questions.

Rights: Childs participation in the study will totally be based on your agreement and the child has the right not to participate from the beginning, or may stop participating at any time after starting participation. The Childs refusal have no effect on the orphanage

Contact address for any compliant: If there are any questions or queries any time about the study or the procedure, please contact, Selam Shegaw (the Principal Investigator), Tel. 0910-28-52-61, as well contact to Bahirdar University College of Health Sciences Institutional Research Ethics Review Committee's Chairperson at office phone …….or P.O.Box……, Bahirdar, Ethiopia.

Declaration of Informed Consent by the orphanage Administrators

I have read the participant's information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the

Rights of participating and the contact address for any queries. I and the child in this orphanage have given the opportunity to ask questions for things that may have been unclear. Me and the child in the orphanage have the right to withdraw from the study at any time or not to answer any question that we do not want. Therefore, I declare my voluntary consent to participate in this study with my initials.

Name and signature of the orphanage Director ----------Date---------- Name and Signature of the principal investigator ---------- Date----

An English Questioner Designed to assess the Nutritional Status and Associated factors among institutionalized under five OVC in selected orphanages in Addis Ababa

This was a thesis is conducted by Addis Ababa university Department of Public Health for the partial fulfilment of master degree in public health .The aim of the study was to assess the nutritional status of institutionalized orphan children in selected orphanages in Addis Ababa .The following Questionnaire classified in to five parts as socio-demographic factors, Hygiene and health related factors, Dietary factors ,Care and support and services given in the orphanage and Anthropometric measurements

IDENTIFICATION

NAME OF THE ORPHANGE_____

NAME OF THE INTERVIWER_____

SIGNITURE _____

DATE OF INTERVIEW: ____/_____/

DAY /MONTH / YEAR

RESULT OF INTERVIEW

1- COMPLETED

2- 2- PARTIALLY COMPLETED

3- REFUSED

4- RESPONDENT NOT AVAIALBLE

5- 5-OTHER _____

6- SPECIFY

CHEKED BY SUPERVISOR;

NAME_____SIGNATURE_____DATE

Code	Questions	Coding categories	Skip to
Part one Sociodemographic factors			
Q.101	Sex of the child _____	1. Male 2. Female	
Q.102	Age of the child	_____in month.	
Q.103	Are the natural parents of the child alive	1. Yes 3.unknown 2. No	If no, skip to Q.105
Q.104	Is (NAME)'s natural mother alive?	1. Yes 2. No 3.unknown	
	Is(NAME)'s natural father alive?	1. Yes 2.No 3. unknown	
Q.105	Age of the care takers/ Guardian	_____ years	
Q.106	Sex of the care taker / Guardian	1.male 2.female	
Q.107	Educational status of care taker	1. unable to read and write 2. primary 3. secondary 4. certificate and above	
Q.108	Marital status of the care taker/Guardian	1. Single 2. Married 3. Divorced 4.Widowed	
Q.109	Is (NAME) transferred from other orphanage?	Yes……1 No…… 0	If NO, skip to Q.111
Q.110	How many years /months/days you stayed in that orphanage? _	----------	
Q.111	Childs Total years of staying in the orphanage?	----------(completed years)	
Part two: Health related question			
Q.201	Has the (NAME) receive vaccination?	1. Yes 2. No 3. Don't know	
Q.202	Do you have vaccination card	1. Yes 0.No	If no skip to Q.204

Q.203	What is the vaccination status?	1. completed 2. not completed 3. up to date 4.unknown	
Q.204	Has (Name) has any illness in the last two week?	1. Yes 0.no	If no skip to 216
Q.205	Has (NAME) Fever for the past 2 weeks?	1. Yes 0. No	
Q.206	Has (NAME Cough for the past 2 weeks	1. Yes 0. No	If no skip to 209
Q.207	When you had an illness with the cough did you breathe faster than usual with short rapid breathing or have a difficulty of breath?	1. Yes 0.no	
Q.208	Was the fast or difficulty of breathing due to problem on the chest or blocked runny nose?	1. chest only 2. nose only 3. both	
Q.209	Has (NAME) Diarrhea for the past 2 weeks?	1. Yes 0. No	
Q.210	What is the type of diarrhea	1. Watery 2. Dysentery 3. Persistent Diarrhea greater than week	
Q.211	Now I would like to know how much (name of fluid) was given to drink during diarrhea	1. less than usual 2. somewhat less 3. about the same 4. more 5. Nothing to drink	

Q.212	When you had diarrhea ,were you given less than usual to eat, about the same amount ,more than usual or nothing to eat	1. much less than usual 2. somewhat less than usual 3. about the same 4. more Stopped food /nothing to eat ….5	
Q.213	Has (name) had Vomiting in the last two week?	1. Yes 2. No	
Q.214	When you had vomiting ,were you given less than usual to eat/drink, about the same amount ,more than usual	1. much less than usual 2. somewhat less than usual 3. about the same 4. more	
Q.215	Where do you seek treatment for the above symptoms?	1. health facility of the orphanage 2. health facility outside the orphanage 3. inside their home (orphanage) 4. Don't seek treatment 5. Others (specify)……..	
Q.216	Has (Name) had chronic illness?	1. Yes 2. No	
Q 217		1. Yes 2. no	
Q 218		1. Yes 2. no	
Q 219		1. Yes 2. no	
Q.220	Has (name) had taken any drug for chronic illness	1. Yes 0. No	
Part three : Questions to assess the Dietary factors			

Q.301	Did the child eat any flat bread, biscuits, or any other foods made from cereal (maize, sorghum, millet, wheat, barely or teffe) yesterday?	1. Yes 2. No		
Q.302	Did the child eat any dark green leafy vegetables (kale, Swiss chard, cabbage) and other vegetables (tomato, onion) yesterday	1. Yes 2 . No		
Q. 303	Did the child eat any fruits like ripe mango, papaya, banana, avocado and lemon and orange…) and other fruits yesterday?	1. Yes 2 . No		
Q.304	Did the child eat any flesh meat (beef, lamb, goat, chicken, egg) and any organ meat (liver, kidney, heart) yesterday	1. Yes 2. No		
Q. 305	Did you eat egg yesterday	1. Yes 2. No		
Q.306	Did the child eat any food made from beans like kidney beans, haricot beans, field peas, cow peas, chick peas, nuts, lentils or others yesterday?	1. Yes 2. No		
Q.307	Did the child drink milk and milk products yesterday? (milk, cheese, yogurt or other milk products	1. Yes 2 . No		
Q.308	how many times was the child consumed food in the last 24 hours (Include any snacks consumed)	----------times		
Part four : hygienic related questions and Care and support given to the orphanage and the services given for raring of children (respondent care givers and orphanage administration)				
401	Do you wash your hands Whenever you feed your child?	1.Yes 2.No		

402	What did has (name) used to wash his/her hands before eating food	1.only water 2. water with soap 3. others----------(specify)	
403	Has (name) had washed hands after visiting toilet?		
404	What did has (name) used to wash his/her hands after visitng toilet.	1.only water 2. water with soap 3. others----------(specify)	
Q.405	Is there any support given to the orphanage?	Yes……1 No……2	If no skip to 405
Q.406	What type of Support is Provided by other organizations (persons)? (more than one answer is possible)	1. Nutritional support 2. HealthCare 3. Income generating activities 4. Educational support 5. Psychosocial Support 6. Legal Protection 7. Shelter and Care 8. No support provided 9. Other (specify)…….	
Q.407	If Food and Nutrition, what type of support is provided?	1. Nutritional assessment and supplementary feeding 2. Link to other health and nutrition Interventions 3. Training on Nutrition, Diet and food preparation for caretakers 4. other(specify)	
Q.408	If Health Care, what type of Support is provided?	1. Free access to Health services for OVC and guardian	

		2. Regular home visits to assess health status of the child 3. Training to caregivers on the importance of immunization, hygiene and sanitation, and optimal nutrition 4. other (specify)……	
Q.409	If psychological support	1. providing regular training to care givers on psychosocial support for OVC 2.develope psychosocial support groups to provide support to OVC and caregivers 3.parenting and communication skills for caregivers, support during illness	
Q.410	What is the main source of drinking water for members of your orphanage?	1. Piped water 2. piped into dwelling 3. piped to yard/plot 4. public tap/stand pipe 5. Bottled water 6. Other (specify)----------	
Q .411	What is the main source of water used by your orphanage for other purposes such as cooking and hand washing?	1. piped water 2. piped into dwelling 3. piped to yard/plot 4. public tap/stand pipe 5. Bottled water 6. Other (specify)……..	
Q.412	Do you do anything to the water to make it safer to drink?	1. Yes 0. No	

Q.413	What do you usually do to make the water safer to drink?	1. Boil 2. Add Blech /chlorine/water guard 3. Strain through cloth 4. Bio sand /composite/ceramic pot filter 5. solar disinfection 1. Other (specify)	
Q.414	Where do Your orphanage dispose Domestic waste?	1. Pit 2. Open 3. Municipality Service 4. Other (Specify)	
Q.415	Does your orphanage have a Hand washing facility near the dining room	1. Yes 0. No	
Q.416	Does your orphanage have a Hand washing facility near the toilet area?	1. Yes 0. No	
Q.417	Is there any Dietarian in your orphanage?	1. Yes 0. No	If no skip to 61 Q
Q.418	How many Dietarian are there in your orphanage?		

Part five	**Anthropometric Measurements**	
Q.501	Age of the child	----------(month)
Q.502	Height /Length of the child	----------CM)
Q.503	Weight of the child.	----------(KG)

Thank you for your participation

በፍቃደኝነት የተሳታፊነት መረጃ እና የስምምነትቅፅ

ጤና ይስጥልን እንደምን አደሩ/ዋሉ?

ስሜ----------ይባላል።እኔ እምሠራው ከሠላም ሽጋው (አጥኚው አካል) ጋር ነው። ሠላም ሽጋው በባህርዳር ዩኒቨርስቲ ጤና ሣይንስ ኮሌጅ የድህረ ምረቃ ት/ቤት ሁለታኛ ዲግሪ ተማሪ ስትሆን እርሶ ና በዚህ ማሳደግያ ያሉ እድሜያቸው ከአምስት አመት በታች ያሉ ልጆች በጥናቱ ላይ መሳተፍ በእርሶ የሚወሰን በመሆኑ ከዚህ በታች ያለውን መረጃ በማንበብ ለመፈረሚያ በተዘጋጀው ቦታ ላይ ጥናቱ ላይ ለመሣተፍ ስምምነትዎትን እንዲገልፅሉን በትህትና እንጠይቃለን።

የጥናቱርዕስ፡ እድሜያቸው ከአምስት አመት በታች ባሉ ወላጆቻቸውን በሞት ሳቢያ ላጡ እናተጋላጭ የሆኑ ልጆችን የስነ-ምግብ ደረጃቸውን እና ተዛማጅ ጉዳዮችን ማጥናት ነው።

የጥናቱአላማ፡-ጥናቱ የሁለተኛ ድግሪ የመመረቂያ ፁሁፍ አካል ሲሆን ለጥናቱ እድሜያቸው ከአምስት አመት በታች ያሉ ወላጆቻቸውን በሞት ያጡ እና ተጋላጭ የሆኑ ልጆች የሥነ-ምግብ ደረጃ አሥፈላጊ የሆነ ሣይንሣዊ መረጃ ይሰበስባል።

የተሳትፎ አካሄድና መመርያ፡ የእርስዎ ና ማሳደጊያ ውስጥ የሚኖሩ ልጆች ለጥናቱ መመረጥ በአጋጣሚ ነው። ጥናቱ የሚካሄደው ቀደም ብሎ ለዚህ ጥናት ታሰቦ በተዘጋጀው የጥያቄ መጠይቅ ነው ጥያቄውን ለመሙላት 30 ደቂቃ ያህል ሊወስድ ይችላል ስለሆነም መጠይቁ በሠአት ሞልተው እንድትመልሱልን በትህትና እንጠይቃለን። ሆኖም ግን የልጅ ሞግዚት በጥናቱ ላይ ለመሣተ ፍ ፈቃደኛ ካልሆነ/ች መጠይቁን በጠረጴዛ ላይ ወደታች በመገልበጥ መውጣት ትችላለች/ይችላል። በመጨረሻም የልጅ የሰውነት ክብደት ና አካላዊ ቁመት ይለካል። ይህምከ10 ደቂቃ በላይ አይወስድም፡

ሚስጥር የመጠበቅ ሁኔታ ጥናቱን አስመልክቶ ከእርሶ ና ከልጅ የሚገኘው ማንኛውም መረጃ በሚስጥር የሚጠበቅ በመሆኑ በማንኛውም መንገድ ለሶስተኛ አካል ተላልፎ አይሰጥም ወይም አይገለጥም የእርሶ ልጅ ማንነትም እንዳ ይታወቅ ስሟ በጥያቄው መልስ መስጫ ወረቀት ላይ አይመዘገብም።

የጥናቱ ሰጋት ጥቅምና ጉዳት፡-እርስዎና ማሳደጊያ ውስጥ ያሉ ህፃናት በጥናቱ ላይ በመሳተፋችሁ የሚከፈል ምንም ክፊያ ወይም የተለዩ ጥቅም አይኖርም ነገር ግን በጥናቱ ላይ በመሣተፍ ለሚጠየቀው /ለምትጠየቀው ጥያቄ በዕውቀት ላይ የተመሠረተ ተገቢ መረጃ መሰጠቱ/ትዋ እድሜያቸውከአምስት አመት በታች ባሉ ወላጆቻቸውን

በሞት ያጡ እና ተጋላጭ የሆኑ ልጆችየሥነ- ምግብ ደረጃ ላይ ለውጥ ያመጣል። በጥናቱ ላይ በመሣተፍ ምክንያት ምናልባትም ጥያቄዋችን ለመመለስ የሚተባበሩን ጥቂት የጥናት ግዜ ካለሆነ በስተቀር በእርሶም ሆነ በልጅ ላይ የአካልም ሆነ በአይምሮ ላይ የሚከሠት ምንም ዓይነት ጉዳት የለም። የተሣታፊው/ዋ መብት፡ የልጁ/ቷ በጥናቱ ላይ ለመሣተፊ ሙሉበሙሉ በራስዎፍላጉት ና ፍቃደኝነት ላይ የተመሰረተ ነው። ከመጀመርያው በጥናቱ ላይ ላለመሣተፍ እንዲሁም መሳተፍ ጀምራም በመሐል ለማቋረጥ መብቱ/ዋ ሙሉበሙሉ የተጠበቀ ነው። የልጁ/ቷ በጥናቱ ላይ ለመሳተፍ ፍቃደኛ ብትሆንም ባትሆንም በልጁ/ቷ ላይ ሊያሳደር የሚችለው ተጽዕኖ የለም። ለማታውቀው ጥያቄም መረጃ እንድትሰጥ/ እንዲሰጥ አይገደድም/አትገደድም። ጥናቱን በተመለከተ ማንኛውም አይነት ጥያቄ ቢኖረዎት በሚቀጥለው አድራሻ በመጠቀም መጠየቅ ይችላሉ። በጥናቱ ላይ እና በሂደቱ ጥያቄ ወይም አንዳች እክል ካጋጠመዎት ሀና አደራው(አጥኚውአካል)

ስልክ. ቁ 0910-28-52-61 ወይም በባህረዳር ዩንቨርስቲ የኢንስቲቲውሽናል ሪቪው ቦርድ ክፍል ሃላፊ በስልክ ቁጥር ……, ፖ.ሣ.ቁ ……. ብለው ማግኘት ይችላሉ

የወላጅ/የአሣዳጊ ተሳታፊነት ና የፍቃደኝነት ማረጋገጫ ቅፅ

እኔ ና በዚህ ማሳደግያ ያሉ እድሜያቸውከአምስት አመት በታች ውስጥ ያሉ ወላጅ አልባ ልጆች በጥናቱ ላይ እንድንሣተፍ በጥናት አጥኝው አካል በተሠጠኝ ግንዛቤ መሠረት የእኔ ና በዚህ ማሳደግያ ያሉበት እድሜያቸውከአምስት አመት በታች ያሉ ወላጅ አልባ ልጆች ስም በጥያቄ መልስ መሰጫ ወረቀት ላይ እንደማይፃፍ ና ከእኛ የሚገኘው መረጃ ለሌላ ምክንየት እንደማይውል እና በማንኘውም መልኩ ጉዳት የማያደርስብን ከመሆኑም ባሻገር የሚሰበሰበው መረጃ እድሜያቸውከአምስት አመት በታች ባሉ ወላጆቻቸውን በሞት ያጡና ተጋላጭ በሆኑ ልጆች የሥነ-ምግብ ደረጃ ለውጥ እንደሚያመጣ እና ሌሎች ተያየዥ ጉዳዮች ዙሪያ ማብራሪያ ተደርጎልኛል።

ስለዚህ በጥናቱ ላይ ለመሳተፍ ፈቃደኛ ከሆኑ ፊርማዎትን፡

የማሳደግያው ሀላፊ ስምና ፊርማ ---------- ------ቀን---------- ---

ፈቃደኛ ስለሆኑ አመስግን የመረጃ ሰብሳቢው ስምና ፊረማ ---------- -------ቀን ----------

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እድሜያቸውከአምስት አመት በታች ባሉ ወላጆቻቸውን በሞት ሳቢያ ላጡ እና ተጋላጭ የሆኑ ልጆችን የስነ-ምግብ ደረጃቸውን እና ተዛማጅ ጉዳዮችን ማጥናት የተዘጋጀ የጥናት መረጃ መሰብሰቢያ መጠይቅ

ይህ ጥናት የሚካሄደ በባህርዳር ዩኒቨርስቲ በማህረሰብ ጤና ትምህርት ክፍል ለማስተርስ ዲግሪ ማሟያ ሲሆን የጥናቱ አላማ ከአምስት አመት አድሜ በታች ባሉ በህፃናት ማሳደጊያ ውስጥ በሚኖሩ ወላጆቻቸውን በሞት ሳቢያ ላጡ እና ተጋላጭ የሆኑ ልጆችን የስነ-ምግብ ደረጃቸውን እና ተዛማጅ ጉዳዮችንለማጥናትነው።መጠይቁ አምስትትክፍሎች ሲኖሩት የማህበራዊ እና ስነ ምጣኔ መጠይቆች፣የግልንፅህና፣የጤናሁኔታ፣ምግብ እና የአመጋገብ ሁኔታ ፣ ድጋፍናእንክብካቤ እና አካላዊ ልኬትን ያካትታል።

መለያ

የህፃናትማሳደጊያውስም_____

የቃለመጠይቅአድራጊውስም_____

ፊርማ _____

ቃለመጠይቅየተካሄደበት ……/……/……/ ቀን /ወር_/ዓ.ም

የቃለመጠይቅውጤት:

1- የተጠናቀቀ

2ያልተስማሙ

3 በከፊልየተጠናቀቀ

4- በመጠይቅወቅትያልተገኙ

ያረጋገጠው አስተባባሪ ስም _____ ፊርማ _____ ቀን_____

ተ.ቁ	ጥያቄ	መልስ	ይለፍ
ክፍልአንድ፡-ማህበራዊናየሥነ-ምጣኔመጠይቆች			
ጥ.ቁ101	የህፃኑ/ኗ ጾታ?	1. ወንድ 2. ሴት	
ጥ.102	የህፃኑ/ኗ እድሜ ?	_____ወር	
ጥ.103	የህፃኑ/ኗ ወሊጆች በሕይወት አሉ?	1. አሥ 2. የለም 3. አይታወቅም	የለም ከሆነ ወደ ጥያቄ ቁጥር105
ጥ104	“የልጁወላጅእናትበህይወትአሉ	1.አሥ 2.የለም 3.አይታወቅም	
ጥ.104	“የልጁ ወላጅ አባት በህይወት አሉ	1.አሥ 2.የለም 3.አይታወቅም	
ጥ.105	የሞግዚቱ/ቷ እድሜ?	_____ዓመት	
ጥ.106	የሞግዚቱ/ቷ የትምህርት ዯረጃ?	1. ማንበብና መፃፍ የማይችል 2. ማንበብና መፃፍና የሚችል	

		3. የመጀመሪያ ደረጃ 4. ሁለተኛ ደረጃ 5. ሰርተፍኬትና በላይ	
ጥ.107	የሞግዚቱ/ቷ የጋብቻ ሁኔታ?	1.ያላገባ/ች 2.ያገባ/ች 3. የተፋታ/ች 4. ባሌ/ሚስት የሞተባት	
ጥ.108	ልጁ ወደ ዚህ ማሳደጊያ ከመምጣቱ በፊት ሌላ ማሳደጊያ ውስጥ ይኖር ነበር	1. አዎ 2. አየደለም	መልሱ አይደለም ከሆነ ወደ ጥያቄ ቁጥር 110 ይለፍ
ጥ.109	ልጁ ማሳደጊያው ውስጥ ምን ያህል ቆየ ?	----------	
ጥ.110	ልጁ በአጠቃላይ ምን ያህል ግዜ ማሳደጊያው ውስጥ ቆየ?	----------አመት	
ክፍል ሁለት ፡ የጤና ሁኔታመጠየቂያ			
ጥ.201	ህፃኑ/ኗ ክትባት ወስዶሌ/ሆች?	1.አዎ 2 የለም	
ጥ.202	የህፃኑ/ኗ የክትባት ካርድ አለው?	1.አዎ 2.የለም	የለም ከሆነ ወደጥ.ቁ 204

ጥ.203	ህፃኑ/ኗ የወሰዳቸው የክትባት ደረጃ?	1. የጨረሰ 2. ያልጨረሰ 3.ክትባት ላይ ያለ 4.አይታወቅም	
ጥ 204	ባለፈው ሁለት ሳምንት ውስጥ ልጁ ታሞ/ታማ ያውቃል/ታውቃለች?	1. አዎ 2.አይደለም	የለም ከሆነ ወደ ጥ.ቁ 301
ጥ.205	ባለፉት ሁሇት ሳምንታት ህፃኑ/ኗ ትኩሳት ነበረው/ራት?	1.አዎ 2.የለም	
ጥ.206	ባለፉት ሁለት ሳምንታት ህፃኑ/ኗ ሳል ያለው ህመም ነበረው/ራት?	1.አዎ 2 የለም	የለም ከሆነ ወደ ጥ.ቁ 209
ጥ.207	የሳልበሽታ በነበረበት /በነበረባት ወቅት ከተለመደው ውጭ ቶሎ ቶሎ ትተነፍስ /ሽነበርወይም የመተንፈስ ችግር አጋጥሞት/ሟት ነበር?	1. አወ 2. አይደለም	
ጥ.208	በፍጥነት የሚያስተነፍህ/ሽ ችግር የገጠመማት /መው ደረትህ /ሽ ላይ በተፈጠረ ችግር ወይስ አፍንጫህ በንፍጥ መሞላት ነው ?	1.የደረት ህመም ችግር 2.አፍንጫ ህመም ችግር 3 በሁለቱም ችግር	

ጥ.209	አሁን የሳል ወይም የትኩሳት በሽታ በታማመችህ/መመ ግዜ ስለ ተሰጠው/ጣት ፈሳሽ መጠን ልጠይቅህ /ሽ እወዳለሁ ከተለመደው በጣም ያነሰ ነው	1. ከተለመደው በመጠኑ ያነሰ 2. ከተለመደው ጋር ተመሳሳይ ነው 3 .ከተለመደው የበለጠ 4.ምንም የሚነጻጸር ነገርአለመኖር	
ጥ.210	በባለፈው ሳምንት የተቅማጥ በሽታ አጋጥሞት/አጋጥሟት ያውቃል	1.አዎ 2.የለም	
ጥ.211	በባለፈው ያጋጠማት/ያጋተመው የተቅማጥ በሽታ ምን አይነት ነው	1.ውሃማ 2.ደም የቀላቀለ	
ጥ.212	አሁን ምን ያህል ፈሳሽ ተቅማጥ በታመምህ ግዜ እንዳተሰጠህ /ሽልጠይቅህ/ሽ እወዳለሁ	1.ከተለመደው በመጠኑ ያነሰ 2.ከተለመደው ጋር ተመሳሳይነው 3.ከተለመደው የበለጠ 4.ምንም የሚጠጣ ነገርአለመኖር	
ጥ.213	ተቅማጥ በሽታ ከያዘው/ዛት በኃላ ምግብ አወሳሰዱ /ዋ በአብዛኛው ከምትመገበው/ከሚመገበው በታችነው፣ተመሳሳይነው፣ከሁልጊዜው ይበልጣል፣ምግብ መመገብ ማቆም	1.ከምትመገበው/ከሚመገበው በታች ነው፣ 2.መሳሳይነው፣ 3. ከሁልጊዜውይበልጣል 4.ምግብ መመገብ ማቆም	
ጥ.214	ባለፈው ሁለት ሳምንት ጊዜ የትውከት በሽታ አጋጥሞት /ዋት ነበር	1.አዎ 2.የለም	

ጥ.214	የትውከት በሽታ ከያዘው/ዛት በኃላ ምግብ/ፈሳሽ አወሳሰድህ /ሽ በአብዛኛውከ ምትመገበው /ቢውበታች ነው፣ተመሳሳይነው፣ከሁልጊዜው ይበልጣል፣ምግብ/ፈሳሽ መመገብ ማቆም	1.በአብዛኛውከምትመገበው/ቢ ውበታችነው፣ 2.ተመሳሳይነው፣ 3.ከሁልጊዜውይበልጣል፣ 4.ምግብ/ፈሳሽመመገብማቆም	
ጥ.215	ለህመሙህ /ሽ ህክምና ለማግኘት የትሄድህ/ሽ ?	1.ህጻናት ማሻደጊያ ውስጥ ያለው ጤና ጠቋም 2..ህጻናት ማሻደጊያ ውጪ ያለው ጤና ጠቋ 3.ህክምና አላገኝም 4. ሌላ ካለ ይግለጹ	
ጥ.216	ልጁ/ቷ ለቆየ በሽታ ለረጂም ጊዜ የሚወስደው/የምትወስደው መድሃኒት አለ?	1.አዎ 2.የለም	
ጥ.217	ለጥያቄ ቁጥር 216 መልሱ አወ ከሆነ መሀደሩን በማየት የበሽታን አይነት ፃፍ/ፊ	----------	
ክፍል ሶስት : ምግብና የአመጋገብ ሁኔታ			
Q.301	ትናንት ዳቦ(ቂጣ)፣ ከበቆል፣ ከማሽሊ፣ ከዳጉሳ፣ ከስንዴ፣ ከገብስ ወይም ከጤፍ የተሠራ ምግብ በልቷ/ለች?	1.አዎ 2.የለም	
Q.302	ትናንትከአትክሌቶች፣ዱባ ካሮት፣ቢጫ ስኳርድንች ብቱካን ፣ከድቡልቡል	1.አዎ	

	ድንች፣ ከስኳር ድንች፣ ከሽንኩርት፣ ከሀረግ ቦየ፣ ኮባ፣ ከአንስትና ከሌሎች ስራስሮች የተሠራ ምግብ በሌቶሌ/ሆች?	2.የለም	
Q.303	ትናንት ከአረንጓዴ አትክሌቶች የተሠራ ጎመን ፤ጥቅል ጎመን፤ቆስጣ ፤ቲማቲም ሽንኩርት የተሠራ ምግብ በሌቶሌ/ሆች?	1.አዎ 2.የለም	
Q.304	ትናንት ከፍራፍሬ ለምሳላ ማንጎ፣ ፓፓያ፣ ሙዝ፣ ዘይቶን፣ፓፓያ፤አቮካዶ በሌቶሌ/ሆች?	1.አዎ 2.የለም	
	ትናንት ከስጋ ውጤቶች ለምሳሌ የበሬ ስጋ፤የበግ ስጋ ይፍየሌ ስጋ፣ የዶሮ ስጋ እና ከሆድ ውስጥ ስጋ ለምሳሌ ጉበት ኩላሊት ልብ በሌቶሌ/ሆች?	1.አዎ 2.የለም	
	ትላንትና እንቁላል በልቷል/ች	1.አዎ 2.የለም	
	ትላትና ጥሬ ወይም የበሰለ አሳ በልቷል በልታለች	1.አዎ 2.የለም	
	ትናንት ቦልቄ፣ ከባቄሊ፣ ከአተር፣ ከአኩሪ አተር፣ ከሽምብራ እና ከመሳሰለት በሌቶሌ/ሆች?	1.አዎ	

		2.የለም	
	ትናንት ወተትና የወተት ወጤቶች ለምሳሌ አይብ፤ እርጎ በሌቶሌ/ሆች?	1.አዎ 2.የለም	
ክፍል አራት የግል ንጽህና፤ድጋፍና እንክብካቤ (መላሾችሞግዚቶች እና የማሻደጊያው አስተዳደር			
ጥ.401	ትላንትና ምግብ ከመብላትህ/ትሽ በፊት እጅህን/ሽን ታጥበሃልን/ሻልን?		
ጥ.402	ትላንትና ምግብ ከመመገብህ በፊት እጅህን ለመታጠብ ምን ተጠቅመሀል		
ጥ.403	ትላንትና ከመፀዳጃ ቤት መልስ እጅህን ታጥበሃልን?		
ጥ.404	ትላንትናከመፀዳጃቤት ከወጣህበኋላእጅህንለመታጠብምንተጠቅመሀል		
ጥ.405	የወላጅ አልባ ህፃናት ማሳደግያው የሚያገኛው ድጋፍ አለ	አወ……1 አይደለም……..2	የለም ከሆነ ወደ ጥ.ቁ 409
ጥ.406	የእርዳታድርጅቱየተደረገለትድጋፍምንም ንነበር?	1. የስነምግብ 2. የሕክምና 3. የገንዘብና የገቢ ማስገኛ	

		4. የትምህርት ቁሳቁስ 5. የምክር አገሌግልት 6. የህግ ከለላ 7. የመጠለያና እንክብካቤ 8. ምንም አይነት ድጋፍ የለምYY	
ጥ.407	የምግብድጋፍየሚያገኙከሆነ፣በምንመንገ ድድጋፉንያግኙነበር?	1. የምግብ እጥረትን በመዳሰስ የአሌሚ ምግብ አርዳታ በማድረግ 2 2. .የስነምግብናየጤናፕሮ ገራሞችጋረግንኙነትበ ማጠናከር 3. ለአሳዳጊወች የስነምግብ አያያዘና አዘገጃጀት ስልጠና መስጠት	
ጥ.408	የሕክምና ድጋፍ የሚያገኙ ከሆነ፣በምን መንገድ ድጋፉን ያግኙነበር	1. ነፃየሕክምናአገልግሎት በመስጠት 2. ቤት ለቤት በመሄድ የህፃኑ/ኗጤንነት በማየት 3. ለአሳዳጊወች ስለ ግልንጽህናስልጠናበመ ስጠት.....3	
ጥ.409	በእርስዎ ግምት ድጋፎች በቂ ናቸው ብለው ያስባሉ	1. በቂ ናቸው 2. በቂ አይደሉም	

ጥ.410	የማሳደጊያው ዋነኛ የመጠጥ ውሃ ምንጭ ከየትነው	1. የቧንቧውሃ 2. የተከለለየጉድጓድው 3. ያልተከለለየጉድጓድው ሃ 4. የተከለለየምንጭውሃ 5. ያልተከለለየምንጭው ሃ 6. የታሸገ ውሃ 7. ሌላ ካለ ይጥቀሱ	
ጥ 411	በማሳደጊያውዉስጥበዋናነትለምግብማብ ሰያ፣ለእጅመታጠብያእናለሌሎችተግባራ ትየሚጠቀሙበትዉሃምንድንነዉ	1. የቧንቧውሃ 2. የተከለለ የጉድጓድ ውሃ 3. ያልተከለለየጉድጓድው ሃ 4. የተከለለ የምንጭውሃ 5. ያልተከለለየምንጭው ሃ 6. የታሸገውሃ 7. ሌላካለይጥቀሱ	
ጥ.412	የመጠጥዉሃድህንነቱየተጠበቀእንዲሆንየ ምታደርጉትነገርአለ ?	1.አዎ 2. አይደለም	
ጥ.413	የመጠጥ ውሃ ውደህንነቱ የተጠበቀ እንዲሆን በአብዛኛው ምን ትጠቀማላቹህ	1. ማፍላት 2. ውሃ አጋር 3. በጨርቅ በማጥለል	

		4. የጻሃይ ብርሃን በመጠቀም	
ጥ.414	የህፃናት-ማሳደጊያው-ከማሳደጊያው-የሚወጣው-ንቆሻሻየሚያስወግደውየትነው ?	1. የቆሻሻማጠራቀሚያ 2. ሜዳላይ 3. የቆሻሻማጠራቀሚያ ገንዳ 4. ሌላካለይጠቀስ	
ጥ.415	ከልጆች መመገቢያ አዳራሽ ጎን የእጅ መታጠብያ አለ	1. አወ 2. አይደለም	
ጥ.416	ከመፀዳጃ ቤት አጠገብ የእጅ መታጠብያ አለ	1. አዎ 2. አይደለም	
ጥ.417	በማሳደጊያው ውስጥ የስነምግብ ባለሙያዎች አሉ		የለም ከሆነ ወደ ጥ.ቁ 501
ጥ.4218	በማሳደጊያው ውስጥ ምን ያህል የስነምግብ ባለሙያዎችአሉ	----------	

ክፍል 5 የህፃኑአካላዊልኬት

Q.501	የህፃኑ/ኗ አሁን የጮረሰችበት/በት እድሜ _____ በወር	----------ወር
Q.502	የህፃኑ ቁመት በሴ.ሜ	----------ሳ.ሜ
Q.503	የህፃኑ ክብደት በኪ..ግራም	----------ኪ..ሜ

Declaration form

Annex 1 Candidate's Declaration Form

This is to certify that the thesis entitled "Under nutrition and associated factors among under five orphan childeren" submitted in partial fulfillment of the requirements for the degree of Master of public health in GMPH, Bahir Dar University, is a record of original work carried out by me and has never been submitted to this or any other institution to get any other degree or certificates. The assistance and help I received during the course of this investigation have been duly acknowledged.

Name of the candidate	Signature	Date
Selam Shegaw	_____	20/11/2012

Bahir Dar University

College of Medicine and Health Sciences

School of Public Health

Department of Health Service Manegment And Health Economics

Annex 2 Approval of Thesis for Defense

I hereby certify that I have supervised, read, and evaluated this thesis titled "Under nutrition andassociated factors among under five orphan childeren" by Selam Shegaw prepared under my guidance. I recommend the thesis be submitted for oral defense.

Dr Netsante Fentahun	_____	_____
Advisor's name	Signature	Date
Hunegnaw Anemaw	_____	_____
Co-Advisor's name	Signature	Date
Getasew Tadesse	_____	_____
Department Head	Signature	Date

Annex 3 : Examiners' Approval Form

Bahir Dar University

College Of Medicine and Health Sciences

School of Public Health

Department of General Public Health

Approval of Thesis for Defense Result

As members of the board of examiners, we examined this thesis entitled “Time from ART initiation to development of active TB and its predictors among HIV patients” by Melese Tekaligne. We hereby certify that the thesis is accepted for fulfilling the requirements for the award of the degree of “master”.

Board of Examiners

External examiner name	Signature	Date
_____	_____	
_____	_____	_____
Internal examiner name	Signature	Date
	_____	_____
Chair person’s name	Signature	Date
Getasew Tadesse	_____	_____