

Assessment of the Nutritional Status and Associated Factors of Orphans and Vulnerable Preschool Children on Care and Support from Nongovernmental Organizations in Hawassa Town

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Abstract

Background: United Nation Children's Fund estimates that as of 2010 there were 153 million orphaned children and adolescents living in the world. Thirty six percent of the world's orphans lives in Sub Saharan region. As of 2012, Ethiopia is estimated to have 1,988,731 Orphans of whom 530,630 are orphans due to HIV /AIDS and is one of the largest populations of Orphan and Vulnerable Children in Africa. However there is a little information about the effect of orphan hood and child vulnerabilities on child nutritional status in the study setting. Objective: To assess the nutritional status and associated factors among orphans and vulnerable preschool children on care and support from a nongovernmental organization.

Index terms— nutritional status, orphans and vulnerable preschool children, care and support, hawassa.

1 Introduction a) Background

n estimated 24 million children across the world live without their parents, and numbers of children live outside parental care are. The effects of the loss of parental care on children can be devastating. Children without parental care find themselves at greater risk of discrimination, inadequate care, abuse and exploitation. Inadequate care can impair children's education, emotional and physical development and health. It is widely recognized that the most preferable form of such alternative care is usually care within a family setting such as kinship care or foster care, and that large scale institutional care should be avoided where possible (1).

Poverty and deprivation have a major impact on children's ability to stay with their parents, and may also affect the ability of extended or other families to offer homes for children. Poverty also interacts with other determinants of children's care choices, such as HIV, migration and abuse or neglect in the home (2).

Historically, the fostering of children by extended family members, including aunts, uncles, grandparents, and other relatives, is common throughout sub-Saharan Africa. Extended family members have fostered children for a variety of reasons including the deaths of mothers in childbirth (3). The tradition of fostering by extended family continues today and is a vital coping mechanism in nations with high HIV prevalence and growing orphan populations. Throughout sub-Saharan Africa, an estimated 90% of orphaned children in households live with extended family members (4). The advantages of extended-family fostering are that it is culturally acceptable and assumed to be sustainable throughout a child's development, partially because communities will band together to support these households. In most cases, children can find stability, love, and emotional support in relatives' homes (5).

United Nation Children's Fund estimates that as of 2010 there were 153 million orphaned children and adolescents living in the world. While 13% of the world's children under the age of 18 years live in Sub-Saharan Africa, 36% of the world's orphans lives in Sub Saharan region (6). Approximately 27% of these orphans were orphaned due to HIV/AIDS (7).

With a total population projection of over 86 million, Ethiopia is the second most populous country in Africa, More than half (55.5%) of the population is constituted by children below the age of 18 years (8). Though the

3 LITERATURE REVIEW A) PREVALENCE OF MALNUTRITION IN ORPHANS AND VULNERABLE

national prevalence of HIV in Ethiopia, estimated to be 1.3%, is considerably lower than rates in other sub-Saharan African countries. As of 2012, Ethiopia is estimated to have 1,988,731 Orphans of whom 530,630 are orphans due to HIV /AIDS, one of the largest populations of Orphan and vulnerable children (OVC) in Africa (9).

A number of factors have been suggested to affect both the level of food security at household level and the children's nutritional status, some of which are independently associated with households in which orphans live. These can broadly be classified into child characteristics (e.g., age and gender), household characteristics (e.g., household income, and number of children in the household), parental characteristics (e.g., occupation, education level and age of the household head) and community factors (e.g., water supply and sanitation) (7).

2 b) Statement of the problem

Despite being highlighted as one of the priority development issues under the Millennium Development Goals framework, malnutrition remains an important public health concern and one of the main causes of early child morbidity and mortality in developing countries (10). Many OVC suffer from cycles of poverty as a result of the illness and death of their parents and they are especially vulnerable and are at an increased risk of malnutrition and ill-health (11).

Communities and families in sub-Saharan Africa have been faced with a growing challenge of providing care for orphans and vulnerable children. Over 90% of all orphans not living with a surviving parent are cared for by extended families (12). Malnutrition is among the most serious health problem facing in Ethiopia. The prevalence of child malnutrition that is stunting, wasting and under weight is 44.1%, 7.6% and 28.3% respectively for SNNPR. However, there is little information about the effect of orphan hood and child vulnerability on child nutritional status in study setting and only few evidence examining the nutritional status of Orphans and vulnerable children (OVC) who are on care and support from NGO while children 6 to 59 month is one of the critical window of opportunity for Intervention to address under-nutrition through the Lifecycle Approach as Stated in the National Nutrition Program and moreover OVC are potentially at greater risk of poor health and nutrition because they are more likely to be extremely poor, may receive less care and may themselves be HIV-infected via parent-to-child transmission.

Therefore, this study will address the information gap by estimating the magnitude and identifying the potential factors affecting the nutritional status of OVC who are on care and support from NGO. c) Significance of the study II.

3 Literature Review a) Prevalence of malnutrition in Orphans and Vulnerable

Children Malnutrition is a leading cause of morbidity and mortality among children in the developing world, contributing to more than half of all child deaths (13). Worldwide, nearly one in four children under five ages are stunted, an estimated 101 million children of under five age are underweight and 52 million children are moderately or severely wasted (14).

In Sub Saharan Africa, Malnutrition is a leading cause of morbidity and mortality. More than one third of countries in sub Saharan Africa with high prevalence rates 40% of children are stunted, 25% of children are underweight and wasted (14).

A study conducted on influence of socioeconomic factors on nutritional status of children in a rural community of Osun state, Nigeria revealed that the prevalence rates of underweight, wasting and stunting were 23.1%, 9 % and 26.7% respectively (15).

Nationally, The National Demographic Health Survey conducted by Central Statistic agency (CSA) in Ethiopia in 2011 showed that the prevalence of stunting, Information regarding the nutritional status of orphan and vulnerable children is limited in the study setting and most studies mainly focus on the general population than these segments of population. Currently a number of Non Governmental Organization in Ethiopia are providing different types of care and support to OVC based on the Guideline developed by the Ministries Of Women's Affairs on care and support for orphan and vulnerable children, However; little is known about their nutritional status and therefore determining the magnitude and associated factors affecting the nutritional status of the Orphans and Vulnerable Children will be helpful to provide information for policy maker, NGO's and other stakeholders and the information can be used as a baseline for further research.

wasting, and underweight was 44%,10% and 29% and varies from region to region (8).

A cross sectional study conducted in North West Ethiopia shows prevalence of malnutrition in the community with 28.5% of the children underweight, 24 % stunted and 17.7% wasted (16). A community based cross-sectional survey conducted in West Gojam zone revealed that 49.2 % children were found to be underweight, 43.2 % of the children under age five were suffering from chronic malnutrition and 14.8 % acutely malnourished (17). The cross sectional survey conducted in rural communities of Tigray region also revealed that, the levels of stunting, under weight and wasting were 42.7%, 38.3% and 13.4%, respectively (18). A cross sectional study conducted in Aynalem village in Tigray region, the overall prevalence of stunting, underweight and wasting were 45.7%,43.1% and 7.1% ,respectively (19). According to research conducted in Gimbi district, Oromia region indicated that, 32.4 % stunted, 23.5 % underweight and 15.9% of the children were wasted. Prevalence of severe stunting,

severe underweight and severe wasting respectively were 15.7%, 8.0 % and 5.7% (20). A community-based cross-sectional study conducted in rural kebeles of Haramaya district revealed, the prevalence of stunting, underweight, and wasting were 42.2%, 36.6%, and 14.1%, respectively (21).

The prevalence of stunting, wasting, and underweight reported for SNNPR is 44.1%, 7.6% and 28.3% respectively (8).

4 b) Factors affecting the nutritional status of an OVC

It is clear that 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. Globally, between 1995 and 2005, one in three preschool-age children were deficient in vitamin A due to inadequate dietary intake. A study conducted by FAO shows that one in four 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. Four percent were reported to have tested HIV positive, and HIV infection was suspected in another 2.0 % (23).

In sub-Saharan Africa, AIDS is the leading cause of death among those aged 15-59 years old and 80.0% of them who have lost a parent by AIDS in the developing world are living in this region. Even once the HIV infection rates stabilize or begin to decline, the number of orphans will continue to grow or remain high for many years due to the time lag between HIV infection and death. Orphaned children are at an increased risk for malnutrition and illness in addition to a lack of access to health care (24).

A study conducted in Angolela tera Woreda north Ethiopia revealed that One-third of the participants were found to have a protozoan infection, while 7.1% were found to have a helminthic infection. Approximately 11% of the students were stunted, 19.6% were wasted, and 20.8% were underweight. (25).

5 iii. Child care and OVC

Care affects nutritional status in three ways: through feeding practices such as breast-feeding and the preparation of nutritious foods for weaned infants and others in the household; through health and hygiene practices both within the family and within the community; and through support to the mother, both by the family and by the community, so that she has sufficient time to care for the child. (1) A study conducted about attributes of care giving Reveled that, Caregivers, whose mean age at enrolment was 42.9 (S.D 13.3) years, were predominantly female (87%), and 25% per cent were married. Fifty-five percent were biological parents of the child participants. Forty-five percent of caregivers were known to be illiterate, and the mean number of years of education was 4.9 (S.D 3.7). Forty-five percent of caregivers reported their own health to be fair, poor, or very poor; 24% reported symptoms in the previous two weeks; and 56% reported illness in the previous 6 months (26).

6 iv. Socio demographic variables

A study conducted about poor health in less wealthy country showed the median age at enrolment was 10 (standard deviation, S.D 2.1) years. Fifty-seven percent of the OAC were paternal orphans; 16% were maternal orphans, and 17% were double orphans (27).

Vulnerable children who live in household sizes of 4-6 members and vulnerable children who live with non-relatives had greater odds of inadequate immunization (OR = 1.51, 95% CI: 1.13-2.01, OR = 9.02, 95% CI: 4.62-17.62). Paradoxically, vulnerable children living with non-relative caregivers were at lower risk for inadequate food (OR = 0.19, 95% CI 0.07-0.33). Single orphans with an HIV positive parent were less i. Inadequate Dietary intake Globally, 39 per cent of infants less than 6 months old were exclusively breastfed and only 60 per cent of children aged 6-8 months receive solid, semisolid or soft foods, highlighting deficiencies in the timely introduction of complementary foods in 2011 (14). The study conducted in Nairobi, Kenya prevailed that orphans living in households in informal settlements in Nairobi are indeed more vulnerable with regards to food security than non-orphaned children, most particularly paternal orphans. In preliminary studies completed by UNICEF in Malawi and Jamaica, the percentage of nonorphans who were food insecure was 15%, compared to 39% among paternal and double orphans in the same region (22).

ii. Disease and Malnutrition likely to be fully immunized than single orphans with an HIV negative parent (28).

7 Environmental and hygiene and OVC

Unsafe water, poor sanitation and unhygienic conditions claim many lives each year. An estimated 1.2 million children die before the age of 5 years from diarrhea. Poor urban areas where insufficient water supply and sanitation coverage combine with overcrowded conditions tend to maximize the possibility of fecal contamination (29). Globally, urban dwellers enjoy better access to improved drinking water sources (96 per cent) than do people living in rural areas (78 per cent). Even so, improved drinking water coverage is barely keeping pace with urban population growth; access to an improved water source does not always guarantee adequate provision. Without sufficient access to safe drinking water and an adequate water supply for basic hygiene, children's health suffers (29).

8 Impact of malnutrition in OVC

physical consciences of prolonged states of malnourishment among children are: delay in their physical growth and motor development; lower intelligent quotient (IQ), greater behavioral problems and deficient social skills; susceptibility to contracting disease. Under nutrition and micronutrient deficiencies contribute substantially to the global burden of disease. Under nutrition reduces immunological capacity to defend against diseases, and diseases deplete and deprive the body of essential nutrients. Under nutrition and infectious diseases further exacerbate poverty through lost wages, increased health care costs, and most insidiously impaired intellectual development that can significantly reduce earning potential (30). 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 (Figure 1) (31).

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10 III.

11 Study Objectives a) General objective

To assess the nutritional status and associated factors of orphans and vulnerable preschool children on care and support from a nongovernmental organizations in Hawassa town, Southern Ethiopia.

12 Methods and Materials a) Study period and Setting

The study was conducted from January 27 to April 1, 2014 in Hawassa town administrative council, which is the capital of Southern Nation Nationalities People's Regional state. Hawassa town is found 273 km south of Addis Ababa, the capital city of Ethiopia. Its boundaries are Shashmene town in the north, Wondo-Genet district in the east, Malga district in the Southeast and Hawassa Lake in the west. It has a projected population for 2013/14 was 316,842 people, out of this 163,039 are males and 153,803 are females with the annual population growth rate 4.02. The municipality has 8 sub-city and 32 kebeles (32).

The potential health coverage of the City administration was 92 % in 2013 G.C. There are one referral hospital, one district hospitals, three private hospitals, 10 health centers, 15 health posts, 47 private clinics, 49 drug stores, 11 diagnostic laboratories and 12 pharmacies in the City administration. The total number of OVC on care and support in Hawassa Town was 10,693 and out of this 3000 was under five and there were 28 NGO's that provide care and support for OVC (33).

13 d) Sample size determination

To determine the number of Orphan and Vulnerable Children to be included in the study, the single population formula was used to calculate the sample size for first specific objective and for this proportion the most prevalent form of malnutrition (44.1%) was taken from EDHS 2011GC (8). The sample size is calculated using 372 with 90% response rate $= 372 * 1 / 0.9 = 414$? Since the total population is < 10,000 correction was made and n final was calculated as $n_{final} = n / (1 + n/N) = 414 / (1 + 414/3000) = 364$

14 Sample size for second objective

This is the Main Factors affecting the nutritional status of Children from literature and then the second objective is calculated using OPEN EPI 2.3 version as follows with the (20,21). Assumption 95% CI, power of 80% and Ratio of case to controls 1:4 ? Since the sample size calculated for the first objective could accommodate the second objectives 364 was selected due to representativeness.

15 e) Sampling procedures

All sub cities in Hawassa town were identified by name and then using simple random sampling technique by lottery Methods 4 sub city was selected and the sample size for the sub city was proportionally allocated. The sampling frame was prepared for subjects were identified and household survey was conducted using mother child supporting groups as a guiders at each sub cities who know house the selected orphan and vulnerable children were located.

16 g) Data collection procedures and measurements

The data collection instruments were a structured pretested interviewer administered questionnaire, 24 hours dietary recall measurements at individual level and anthropometric measurements. Questionnaire was adapted from different relevant studies and standards and was prepared originally in English language and then it was translated into Amharic language for data collection purpose and then back to English for reconsideration. Data

were collected from mother/caretakers and measurements from orphan and vulnerable preschool children aged 6-59 month who were on care and support in NGO's during the time of data collection

h) Data quality control

The pretest of the instrument was carried out in Tula Sub city which was not selected for this study in 5% of the sample and pretest ensures validity of the instrument. The pre-tested data were not included as part of the main data of the study.

The data collections were facilitated by 4 enumerators who are diploma nurses and two health officers as supervisors. Enumerators and supervisors were given one day training by principal investigator in Hawassa health center on the objectives of the study, on the contents of the questionnaire, on the methodology of the study, on the issues of the confidentiality of the responses, on the use of instruments and on the procedures how to take anthropometric measurement. All measurements were carried out using standard procedures by explaining the procedure to the mother /care takers.

Anthropometric measurements

Age: were collected from the mother/caretakers and looking up age in official registers for counter check. The in standing-up position while the child being barefooted and free of any head wearing in children >2 years old and was recorded to the nearest 0.1 cm.

Weight: weight was measured using a 25 kg hanging spring scale graduated by 100 g for children while clothes are removed and was recorded to the nearest 0.1 kg. The scale was calibrated immediately before and during each session by placing standard calibration weights of 5 kg iron on the scale to ensure accuracy. MUAC: were measured for children >65cm in height using color coded standard MUAC tape meter by calculating the midpoint of the child's left upper arm by first locating the tip of the child's shoulder and the tip of the elbow through right angle position and measurement was taken in the mid point by straighten the child's arm and read the measurement to the nearest 0.1cm.

Households Food Insecurity Access scale

Was Calculated on the basis of the number of food groups consumed within the 24 hours recall period from the total of 11 food groups. The food group consumption frequency score (FGFS) was calculated by assigning a score of 0 if not consumed during the previous 24 hours, 1 if consumed. For children 6 months to 5 years was scored as high DDS if the score out of the 9 is ≥4 and as low DDS if < 4 (35).

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15th day of the month was used when the date of birth is unknown and if the month of birth was unknown, the midpoint of the year of birth was used. Sex: Was recorded as male and female.

Length/Height: were 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 First code was given to the completed questionnaire and then data was entered and clean up using EPI-info version 3.5.1 software and SPSS analysis statistical package to check for frequencies, accuracy, outliers, and consistencies and missed values and variables and Anthropometric measurement data was entered, clean up using ENA SMART. Any error was identified and corrected.

j) Data Analysis and Presentation

The prevalence of malnutrition among OVC was assessed by calculating the percentages of children 6-59 months using ENA SMART and analysis was made using WHO Standard cut off point below -2 S.D to determine nutritional status as stunting, wasting or underweight using z-scores. Odds ratio with 95%confidence interval was computed to assess the k) Operational Definition An orphan: was a child aged 6 to 59 month whose mother, father, or both have died.

Social orphans: one or both their parents may still be alive but who have been unable to perform parental duties because of illness or acute poverty among other reasons.

Vulnerability: high probability of a negative outcome which results from risky or uncertain events and lack of appropriate means to deal with them. Vulnerable children: were defined as being under the age of 59 month and currently at high risk of lacking adequate care and protection. and Data were then exported to SPSS and Binary and multivariate Logistic analysis was carried out to see the effect of each independent variable on nutritional status. Logistic regression was used to control any confounders at p value 0.05. . Bar graph was used for diagrammatic summarization of categorical variables and tables were used for summarization variables.

22 strength of the association and statistical significance

23 Standard Definition

Stunting which is below -2 S.D from median height for age of reference population, Wasting which is below -2 S.D from median weight for height of reference population Underweight which is below -2 S.D from median weight for age of reference population.

Based on the responses given to the nine questions and frequency of occurrence over the past 30 days, households are assigned a score that ranges from 0 to 27. A higher HFIAS score is indicative of poorer access to food and greater household food insecurity. The lower the score, the most food secured a household was. A score of <17 was classified as food secured and a score of ≥17 classified as food insecure. Household Food Security was assessed during the site assessment using the household level component of HFIAS (34).

24 Individual dietary diversity score l) Ethical consideration

The study proposal was submitted to the ethical Review Board of Mekelle University College of health sciences and was approved. Following the endorsement by ethical Review Board, official permission was secured from Hawassa city administration department Women's, children and youth Affairs through a support letter from the department of public health, college of health sciences, Mekelle University. Selected Sub cities respected service providing organization for management of malnutrition and the result of this study will help us to know the nutritional status of orphans and vulnerable preschool children and to improve services provided by NGO's for Orphans and vulnerable preschool children.

25 m) Dissemination of Information

The results of this study will be communicated to Mekelle University, college of health sciences, the Bureau of women's affairs, the Regional Health Bureau and other concerned bodies through hard copy and presentation. Publication on an appropriate journal will also be attempted.

were parents and female parents constituted 347(96.7%) were females and among the care takers 168(46.8%) were attended primary education. Concerning the occupation of care takers, majority 216(60.2%) was unemployed and majorities of the care takers were married 323(90%) and almost half of them the households were headed by husband/wife of husband (Table -1). were informed about the objective and purpose of the study through a support letter from the Hawassa city administration department Women's, children and youth Affairs. The participants were informed about the objective and purpose of the study and parental informed written consent was obtained from each participant during data collection and anthropometric measurement. Introduction of the study, method of the questioning and confidentiality letters was attached to the cover page of the questionnaires.

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The participants were informed that they have a full right to participate or decline from participating in the study and information was collected anonymously. There was no serious harm to the participants and children who were malnourished using MUAC tape meter during data collection was notified to the V.

27 Results

28 a) Socio-demographic characteristics

A total of 359 aged OVC 6-59 months were participated in the study with an age category 48-59 month accounted 161(44.8%) followed by 36

29 b) Water, sanitation and hygiene characteristics

The source of water for the 200(55%) of the OVC is public stand and the amount of water used per day which was >15L was 323(90%).Majorities 344(95.8%) used Container as a means of water storage. Furthermore, 355(98.9%) of the household had hand washing facilities. Three hundred and forty four (95.8%) of the house hold had access for latrine and nearly half (47%) of latrine was pit type. Over half (57.1%) used municipality service for domestic waste. Hundred and one (28.1%) of the house hold have separated kitchen for cooking (Table 2). Three hundred and sixteen (88%) care takers had ANC follow up during their previous pregnancy and Two hundred and seventy three (76%) of them gave birth at health facilities. over three fourth (76.6%) of the OVC had ever received vaccination and majorities (86.2%) of the OVC were received vitamin A supplementation (Table 4).) and underweight 8.9 % (95% C.I 6.4 -12.3) among orphans and vulnerable children. (Figure 3)

30 g) Factors associated for malnutrition among OVC

The multivariate logistic regression analysis identified children who have parents, marital status and educational status of the care takers, first complementary food the child received as determinant factors for stunting. The

odds of stunting among OVC whose either parent were alive were 3.717 times an increased risk than those who were not alive (AOR 3.717; 95% CI 1.405, 9.804). OVC of married care taker were 74.1% at reduced risk to be stunted than those OVC of single care takers (AOR .259; 95% CI .751,.089). The odds of stunting among OVC care takers whose educational status primary were 2.777 times at an increased risk when compared to OVC of care takers their educational status were secondary and above (AOR 2.777; 95% CI 1.272, 6.063). The multivariate logistic regression analysis identified cough prior to 2 weeks of this survey, HH food security and food and nutritional support from NGO were identified as determinant factors for Wasting. The odds of wasting among OVC who were have cough prior to 2 weeks of this survey were 2.272 times an increased risk than OVC who were not have cough (AOR 2.272; 95% CI 1.997, 5.181). The odds of wasting among OVC from food in secured HH were 2.667 at increased risk than to be those who were from food secured (AOR 2.667; 95% CI 1.072, 6.667). The odds of wasting among OVC who have no food and nutritional support from NGO were 6.251 times at increased risk to be wasted when compared to OVC who do have food and nutritional support. (AOR 6.251; 95% CI 1.427, 9.778). (Table 9). The multivariate logistic regression analysis identified family size and duration of breast feeding as determinant factors for underweight. The odds of underweight among OVC from ≥ 5 family size were 2.78 times at an increased risk than those who family size < 5 (AOR 2.778; 95% CI 1.148, 6.721). the odds of underweight among OVC who were breast feed for 6-12 month were 3.26 times at an increased risk when compared to OVC who were breast feed for ≥ 12 month (AOR 3.257; 95% CI 1.344, 7.891). (Table 10).

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32 Discussion

The present study investigated nutritional status and associated factors of orphans and vulnerable preschool children on care and support from nongovernmental organizations in Hawassa town, southern Ethiopia 2014GC.

33 a) Stunting

In this study, the prevalence of stunting is a bit higher than the studies done among orphans and vulnerable children in Zambia (29%), Nigeria (23.1%), Mongolia (15.6%), Gumberiti (24%) respectively (15,16,36, ???). This might be due to the difference in study period, socioeconomic characteristics, health service delivery, study area and age difference.

However, the magnitude of stunting in the present study was found to be a bit lower than a studies conducted among similar age groups in west Gojjam (43.2%), Tigray (42.7%), Haramaya (42.7%), EDHS (44% & 44.1%) Bangladesh (42%) respectively (8, 17,18,21, ??8). The variation might be due to involvement of special segments of the study subject who are on care and support.

The magnitude of stunting was found to be consistent with the regional prevalence of Dire Dawa (36.3%), Harari (29.8%), Nepal (37%) (8, 39). This might be due to similarities in socio economic characteristics and age categories.

The analysis of this study indicated that children who have parents, marital status and educational status of the care takers, first food the child received were identified as determinant factors.

Although it is generally held that maternal orphans are at greater risk for health problems because of the loss of their primary caregiver, children who had lost a father were more likely to be malnourished than non-orphans, indicating that loss of a father may be at least as significant as loss of a mother. As to the finding of this result, The odds of stunting among OVC whose either parent were alive were 3.717 times an increased risk than those who were not alive (AOR 3.717; 95% CI 1.405, 9.804). More ever, A study conducted on poorer health and nutritional outcomes in orphans and vulnerable young children not explained by greater exposure to extreme poverty in Zimbabwe showed that OVC aged 6-59 months were more likely to be stunted than non-OVC (36).

Concerning marital status, there was significant association between the marital status of the care takers and stunting, OVC of married care taker were 74.1% at reduced risk to be stunted than those OVC of single care takers (AOR .259; 95% CI .751,.089). This could be due to the reason that married caretaker have an opportunities to have economic strengthen and other support from their partner than single caretakers and will have an impact on nutritional status of orphan and vulnerable children. Regarding educational status, there was significant association between the educational status of the care takers and stunting, The odds of stunting among OVC care takers whose educational status primary were 2.777 times at an increased risk when compared to OVC of care takers their educational status were secondary and above (AOR 2.777; 95% CI 1.272, 6.063). Similar findings are reported in other studies in Garhiwali Himalyas and Bostwana respectively ??40, ??1). This could be due to the reason that as the educational level of the caretakers of OVC increase their knowledge to different nutritional program and adherence to nutritional education given by supportive NGOs will increase. So, they can apply it to their children in order to make their children well nourished.

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Concerning first complementary food the child received, there was significant association between first complementary food the child received and stunting, The odds of stunting among OVC whose first food porridge were 2.463 times an increased risk than OVC whose first complementary food were milk (AOR 2.463; 95% CI 1.328, 4.568). This could be due to the fact that in the first six month of life, all the infant's nutritional needs are met by the mother's breast milk, but from the age of six month onwards breast milk alone can't provide the entire nutrient. In the current study it was found that children who began complementary feeding with milk were significantly at reduced risk to being stunted compared to those children who began complementary feeding with porridge. This could be due to the reason that the process of making porridge make the porridge less content in nutrients and May exposes the Orphan and vulnerable children to the risk of infection and malnutrition than making milk.

35 b) Wasting

The magnitude of wasting was found to be more or less consistent with the regional prevalence of Amhara (9.9%), oromia (9.7%) and Harar (9.1%) and among orphans and vulnerable children in Zambia (5%) were wasted respectively 78,32). The figure in this study is however bit higher than Addis Ababa (4.6%). And lower than Dire Dawa (12.3%), Gambella (12.3%), Afar (22.2%) and Southern Sudan (22%) 78, 72). This difference also probably the difference in due to study period, study area, study subjects, socioeconomic characteristic. There was significant association between children who have cough prior to 2 weeks of this survey and wasting, The odds of wasting among OVC who were have cough prior to 2 weeks of this survey were 2.272 times an increased risk than OVC who were not have cough (AOR 2.272; 95% CI 1.997, 5.181). This is due to the fact that 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 which further affect the nutritional status of the child according to the vicious cycle of malnutrition. There was also a significant association between Household food insecurity and Wasting, The odds of wasting among OVC from food in secured HH were 2.667 at increased risk than to be those who were from food secured (AOR 2.667; 95% CI 1.072, 6.667). This could be due to the reason previously demonstrated that household food insecurity is increased among orphans living in households (43). And that orphans are more vulnerable to food insecurity than non-orphans (44). It has also been demonstrated that orphaned children in sub-Saharan Africa tend to have more malnutrition compared to non orphans (45). A similar study conducted in Nigeria revealed that foodinsecure households were five times more likely to have wasted children than food secure households (46). Concerning food and nutrition support from NGO, there was significant association between food and nutrition support from NGO and Wasting. The odds of wasting among OVC who have no food and nutritional support from NGO were 6.251 times at increased risk to be wasted when compared to OVC who do have food and nutritional support. (AOR.6.251; 95% CI.1.427, 9.778). This could be due to the reason that food and nutrition support along with other support from the supportive organization make Orphan and Vulnerable Children will have the access for food and nutrition which enable them to have adequate intake and prevent from being wasted.

36 c) Underweight

The prevalence of Underweight in OVC was 8.9 % (95% C.I 6. ?? -12.3) in this survey. The magnitude of Underweight was found to be consistent with the regional prevalence of DireDawa, Harari and Somalia and significantly varied from other region and might be due similarities in the nature of study setting and involvement of special segments of the study subject respectively (8). The prevalence of Underweight in the current study is lower than a study done among orphans and vulnerable children in Zambia prevailed (19%) (36). this could be due to the difference in the study subject. Where use study was from a town, receiving care and support form NGO and this might contributed to lower underweight compared to national and regional figure by EDHS 2011. . Regarding associated factors of malnutrition, analysis of this study indicated that family size in households and duration of breastfeeding were identified as determinant factors for Underweight. There was also a significant association between family size households and Underweight. The odds of underweight among OVC from ≥ 5 family size were 2.778 times at an increased risk than those who family size < 5 (AOR 2.778; 95% CI 1.148, 6.721). This could be due to the reason that Orphans and Vulnerable Children could not be able to get adequate and balanced food required for their growth and development as the number of family size increase. Thus, larger family sizes have adverse effect on the nutritional status of a child. Moreover when economically inactive members in a household increases relative to the number of economically active members of a household, the limited available food resources will be depleted without satisfying the required nutrition (47).

As to duration of breast feeding, there was significant association between duration of breast feeding and Underweight. the odds of underweight among OVC who were breast feed for 6-12 month were 3.257 times at an increased risk when compared to OVC who were breast feed for ≥ 12 month (AOR 3.257; 95% CI 1.344, 7.891). Currently recommended and preferred infant feeding option in the context of HIV by WHO as well as national ministries of health of most developing countries is; during the first six months of life exclusive

breastfeeding; then after appropriate complementary foods should be introduced at six months of age with continued breastfeeding until nutritionally adequate diet without breast milk can be provided. Early cessation and abrupt weaning of breastfeeding should be avoided (48). In line with this facts, in this study the longer the OVC on breast feeding, the decreased risk to be underweight. health problems in orphans and vulnerable children who were in care and support from nongovernmental organization in Hawassa town, Ethiopia. 2. Parental status, marital status, educational status, and first food the child received was significantly associated with stunting. 3. Identified cough prior to 2 weeks of this survey, HH food security and food and nutritional support from NGO Households were associated with wasting. 4. Having more (≥ 5) Family size in the household and duration of breast feeding Orphan of Vulnerable children were associated with underweight among orphans and vulnerable preschool children in this study.

VII.

Strength

X.

Recommendation

Community based nutrition program targeting

Orphan and Vulnerable Children should be established to tackle the problem of malnutrition at community level depending on the severity of malnutrition identified 2. Nutrition education by supportive organization in coordination with health extension workers should be strengthening to improving the child feeding practice of parents on appropriate infant and young children feeding.

Nutritional Intervention by supportive organization to

improve the food security and care of orphaned and vulnerable children in the community 4. Integrating Food and nutrition support by supportive organization is mandatory to improve the nutritional status of orphans and vulnerable children 5. Continued attention should mandatory to duration of breast feeding practices mothers/caretakers to avoid malnutrition among orphans and vulnerable by supportive organization.

6. Woreda health office should be collaborated with BOWA and supportive organization to improve access health facilities having special attention to Orphan and Vulnerable Children. 7. Further comparative study should be done to see OVC from other segments of population in the study setting that were not included in the present study XI. administration department of womens”, children and Youth affairs, Enumerators and Supervisors and study participants for their cooperation to the successful accomplishment of my research project in the study area. Finally, my special appreciation goes to my friends, MSF national and international staffs, for their valuable feedbacks and support and family who encouraged me morally and supported me during the thesis work. 48. WHO. Guidelines on HIV and Infant feeding 2010, principles and recommendations for infant feeding in the context of HIV and a summary of evidence, 2010.

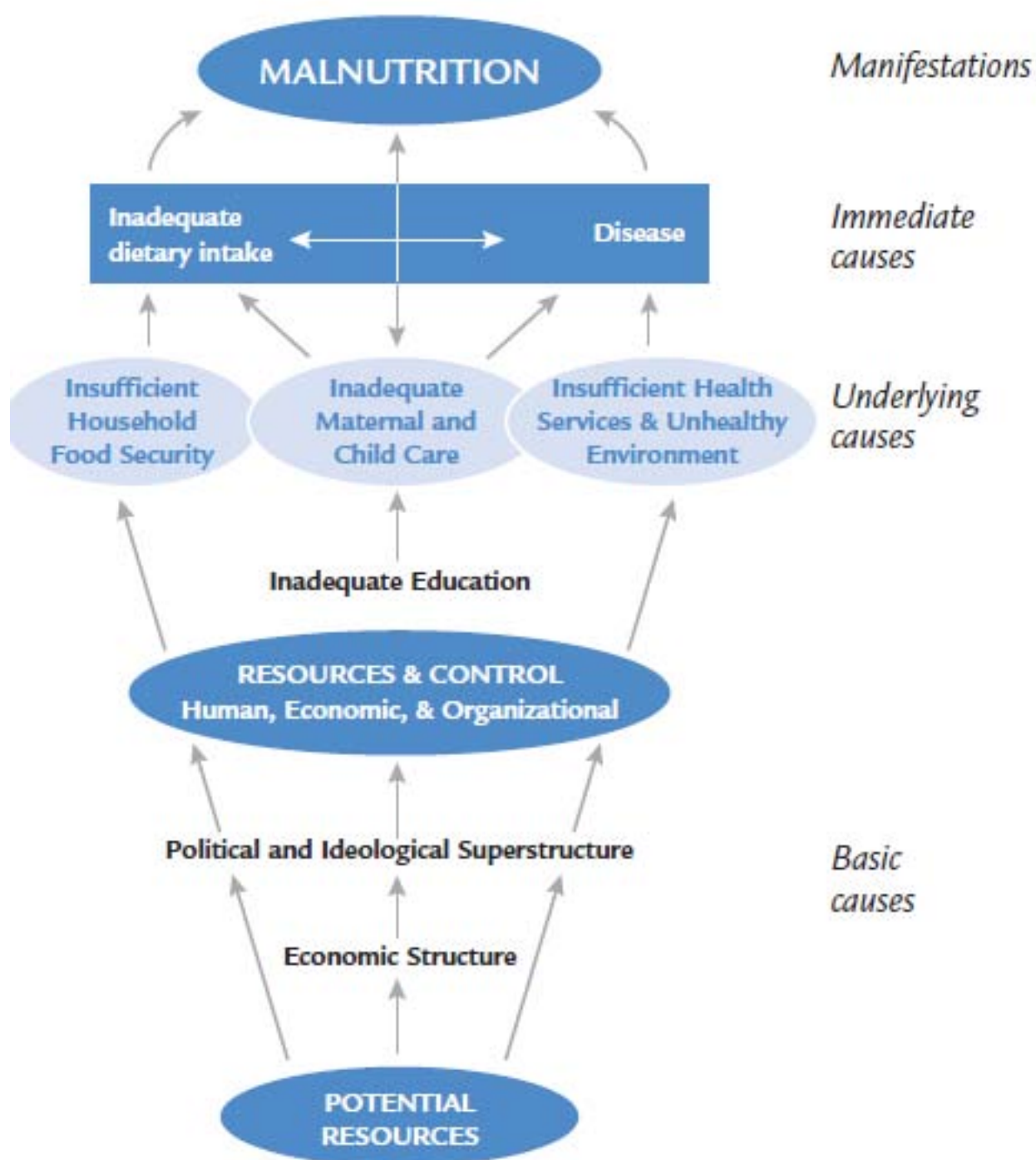
XII.

Acronyms/abbreviations

Annex I: Information sheet

Hello my Name is —————I am a data collector for public health nutrition master’s student project at Mekelle University .The objective of this study is to assess the nutritional status and associated factors among orphans and vulnerable preschool children on care and support from nongovernmental organization in Hawassa town. The information collected from you will be useful for the health care provider, Bureau of women’s affairs, the Regional Health Bureau and other concerned bodies to improve the service given to OVC. An interview question will present to you and anthropometric measurement will be taken from your child. Your child has been selected randomly in this study and you and your child name will not be mentioned in the questionnaire and the information you have given will be kept in confidence. You can quit at any point of interview or you can skip questions. We would like to thank you in advance for participating in our study. For additional information you can contact the principal investigator with the following address: Name of principal investigator: Mr.Bisrat Getaneh Mobile. Cell phone: +251(0)911881252. Email:bisratlove@gmail.com.

As to the information given ahead, I have been informed that the objective of this study is to assess the nutritional status and associated factors among orphans and vulnerable preschool children aged 6-59 months. I have understood that participation in this study is entirely voluntarily and study has no any risk. My name will not be written on this form and the information I give will never be shared to others. I may not answer any questions that I don’t want to answer and I may end this interview at any time I want therefore I am giving my



1

Figure 1: Figure 1 :

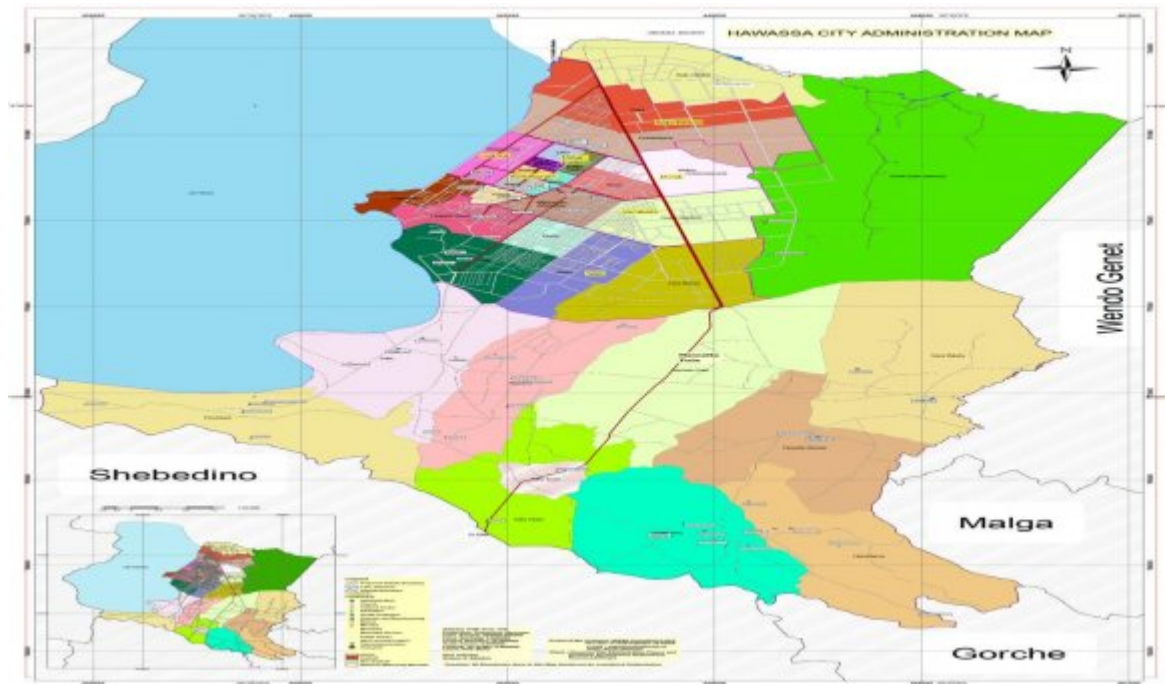


Figure 2:

484 written consent to participate in this study in titled "Nutritional status and associated factors among Orphans
 485 and vulnerable preschool children aged 6^{1 2}

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		8		
Addis ketema sub city N=415 OVC		Bahale Adarash sub city N= 385 OVC		
Year (Z1 -?/2) d		2 *P *(1 -P) = (1.96) 2 Proportional to size allocation 2 *		
2016				
Volume % cases exposed n=112 OVC	? 1000 33.4%	Employed 38% n=104 OVC	Literate 13% n=84 OVC	
XVI				
Issue II				
Ver- sion I				
D D D) L	% controls exposed	<1000 66.6%	Unemployed 62%	No Ed- uca- tion 44%
(
	Sample Size for cases	25	47 N=364 OVC	25
	Sample size for controls	98	186 c	99
	Total Sample size with 90% RR	137	264	137
	selected sub city in Hawassa town depending on registration from sub city and then by using simple random sampling method using random number table			

Figure 3: HH income in birr Employment status Education of mother/caretaker N o orphan children cared for

Mahale	Hayke
sub city	Dar
	sub
	city
N= 313 OVC	N=
	237
	OVC

Using simple random sampling Technique (PPS)

Proportional to size allocation =total number of OVC in each selected sub cities/ the sum of OVC in selected

cities *total sample size f) Study variable Dependent Variable Nutritional status-stunting, wasting, underweight Figure 3: Schematic presentation of sampling procedure Independent Variables Demographic factors (age, sex, ethnicity, education, number of children in HH, marital status), Socio economic variables (income, employment), Child health care (immunization, sickness), Environmental /sanitation factors (source of water, latrine, domestic waste disposal), food in security variables, Dietary intake (breast feeding, Individual Dietary Diversity Score).

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Figure 4: sub cities in Hawassa town Using simple random sampling

1

Variable	Frequency	Percent (%)
Age of the child in Month	(n= 359)	
6 -11	10	2.8
12 -23	42	11.7
24 -35	61	17.0
36 -47	85	23.7
48 -59	161	44.8
Mean age (SD)		
Sex of the child (n=359))	
Male	187	52.1
Female	172	47.9
Under 5 children in HH (n=359)		
<2	294	81.9
>=2	65	18.1
Family members in HH (n=359)		
<5	162	45.1
>= 5	197	54.9

Figure 5: Table 1 :

Care taker	160	44.6
Husband/wife of care takers	186	51.8
Others ***	13	3.6

Figure 6: of the family (n=359)

2

Variable	Frequency	Percent (%)
Source of water (n= 359)		
Pipe		

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Figure 7: Table 2 :

3

Variable

Figure 8: Table 3 :

4

Age Started complementary feeding (n = 359)		
Immediately after birth	20	5.6
Within 1-6 month	75	20.9
Oils and Fats		
Yes	186	48
No	173	52

Figure 9: Table 4 :

Never	59	16.4
Rarely	19 1	63. 6
Sometimes	56	18. 6
Often	53	17. 6
Eat just a		

Figure 10: able to eat the kinds of food you preferred Because of lack of resources? (n= 359)

Never	45	12.6
Rarely	21 2	67. 5
Sometimes	55	17. 5
Often	47	15.0
Eat food that you preferred not to eat		
Because Of lack of resources?	(n=359) 81	22.6
Rarely	192	69 .0
Sometimes	53	19 .0
Often	43	15 .4
Eat a smaller because there were	not	
	enough	
Food? (n=359)		
Never	63	17.5
Rarely	20 1	67 .9
Sometimes	62	20. 9
Often	33	11.1
Eat a fewer meal because there W	ere	
	not	
enough food? (n= 359)		
Never	43	12.0
Rarely	22 2	70. 2
Som etimes	54	17.0
Often	40	12.6
No		

Figure 11: few kinds of food day after Day due to lack of resources ? (n= 359)

Never	147	69 .3
Rarely	151	71.2
Sometimes	49	22.2
Often	12	5 .6

Figure 12: food at all because there were Not enough resources? (n= 359)

5

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Figure 13: Table 5 :

6

Figure 14: Table 6 :

Never
 Rarely
 Sometimes
 Often
 Whole day eating anything because There was
 not enough food? (n= 359)
 Year Never e) OVC care and support characteristics in selected Rarely sub city, Hawassa town, Ethiopia, 2016

the OVC had health care support from the supportive

organization through free health care access as a main

D Variable ANC follow -up (n= 359) Yes No Place of deliver (n= 359) Health facility Home means of sup
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 Who attend the deliver (n= 359)
 TBA
 Health personnel
 Child received Vaccination (n= 359)
 Yes
 No
 Not known
 Type Vacci nation received (n= 315)
 BCG
 Polio
 Measles
 All
 Vitamin A supplementation (n= 359) 17
 Yes
 No

5.7

Diarrhea in 2 weeks	(n=359)	
Yes	54	15 .0
No	305	85 .0
Fever in 2 weeks	(n=359)	
Yes	98	27.3
No	261	72.7

Variable Food and nutrition support (n= 359) No Through Assessment and supplementation Through Link

Health care (n=359) No	189	52.6
Through free access	131	36.5
Through Home visit	48	13.4
Through Training	18	5.0
Economic strengthening (n=359)		
No	192	53.5
Through Vocational training	79	22
Through Income g enerating activities	111	30.9
Through Access to credits	86	24.0
Education support (n=359)		
No	138	38.4
Through Direct assistance	99	27.6
Through Identifying and promoting	91	25.3
Through Training	61	17
Psychological support (n=359)		
No	127	35 .4
Through Training of Psycho social support	86	24.0
Through Support	129	35.9
Through Parenting	41	11.4

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Figure 16: Table 5) . Table 7 :

	5
	0
	stunting
i.	Factors associated for stunting

Figure 17: Table 8 :

Figure 18: Table 9 :

10

Variable	Wasting		COR (95% CI)
Cough	Yes N (%)	No N (%)	
Yes	10(37.0%)	68(20.5%)	2.421(1.072, 6.667) *
No	17(63.0%)	263(79.5%)	1
HH food security			
Food secured	19(70.4%)	287(86.7%)	1
Year Food and nut.	8(29.6%)	44(13.3%)	230(69.5%)
2016 Supp. Yes No	25(92.6%)	101(30.5%)	5.495(1.277,13.811)* 6.251(1.144,33.211) *
Food in secured	2(92.6%)		
Fever			
Volume Yes No Diarrhea	10(10.2%)	88(89.8%)	244(93.5%)
XVI Yes No IDDS	17(6.5%)	48(88.9%)	284(93.1%)
Is- High DD Less	6(11.1%)	229(93.5%)	2.07(0.52,8.21) *
sue DD Measles	21(6.9%)		
II Vaccination Yes	16(6.5%)		
Ver- No	11(9.6%)		
sion	6(11.5%)		
I	21(6.8%)		
D			
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iii. Factors associated for under weight			
Variable	Under weight		COR (95% CI)
Family size	Yes N (%)	No N (%)	
<5	21(65.6%)	141(43.1%)	1
>=5	11(34.4%)	186(56.9%)	2.518(1.176, 5.394) *
Duration breast feeding			
< 6 month	2(7.1%)	12(3.9%)	3.285(.623,17.317)
6-11 month	13(46.4%)	63(20.3%)	3.746(1.654, 8.484) *
>=12 month	13(46.4%)	23.6(75.9%)	1
Vitamin A supp			
Yes	2(4.2%)	46(95.8%)	1
No	30(9.6%)	281(90.4%)	1.47 5(0.52,4.21) *

Figure 19: Table 10 :

50 months on care and support from nongovernmental organization Hawassa town	Year	Please Check box
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Q.102	Q.102
Q.103	Q.103
Q.104	Q.104
Q.105	Q.105
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Q.107	Q.107
Q.108	Q.108
Q.109	Q.109
Q.110	Q.110
Q.111	Q.111
Q.112	Q.112
Q.113	Q.113
Q.114	Q.114
Q.115	Q.115
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Q.118	Q.118
Q.119	Q.119
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Q.305	Q.305
Q.306	Q.306

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[Deininger et al. ()] ‘AIDS-induced orphan hood as a systemic shock: magnitude, impact, and program interventions in Africa’. K Deininger , M Garcia , K Subbarao . *World Dev* 2003. 31 p. .

[Edris ()] ‘Assesement of nuturtional status of preschool children of Gumberit, North West Ethiopia’. M Edris . *Ethiopia .J.Health Dev* 2007. 21 (2) p. .

[Lynne et al. ()] *Assessment of the Nutritional Status and Associated Factors of Orphans and Vulnerable Preschool Children on Care and Support from Nongovernmental Organizations in Hawassa Town 28*, C Lynne , Brian W Messer , Kathryn Pence , Whetten . 2010. Madrid. p. 12. DARA Climate Vulnerable Forum (Association between family composition and the well-being of vulnerable children in Nairobi Kenya, 29. Climate Vulnerability Monitor, The state of the climate crisis)

[Hong et al. ()] ‘Care arrangements of AIDS orphans and their relationship with children’s psychosocial Well-being in rural China’. Yan Hong , Xiaoming Li , Xiaoyi Fang , Guoxiang Zhao . *Health Policy and Planning* 2011. 26 p. .

[Saaka and Shaibu Mohammed Osman] ‘Does Household Food Insecurity Affect the Nutritional Status of Preschool Children Aged 6-36 Months?’. Mahama Saaka , Shaibu Mohammed Osman . *International Journal of Population Research* Hindawi Publishing Corporation.

[Mulugeta et al. ()] *Factors Contributing to Child Malnutrition in Tigray*, A Mulugeta , F Hagos , G Kruseman , V Linderhof , B Stoecker . 2005. Northern Ethiopia.

[Madhavan ()] ‘Fosterage patterns in the age of AIDS: continuity and change’. S Madhavan . *Soc Sci Med* 2004.58. p. .

[Hawassa city town Administrative statics ()] *Hawassa city town Administrative statics*, (Hawassa, SNNPR, Ethiopia) 2013.

[Coates et al. ()] *Household Food Insecurity Access Scale (HFIAS) for Measurement of Household Food Access: Indicator Guide*, J Coates , A Swindale , P Bilinsky . 2006. Washington, D.C.

[Senbanjo et al. ()] *Influence of socio-economic factors on nutritional status of children in a rural community of Osun State*, I O Senbanjo , O O Adeodu , E A Adejuyigbe . 2009. Nigeria.

[Nguyena et al. ()] ‘Intestinal Parasitic Infection and Nutritional Status among School Children in Angolela’. N L Nguyena , B Gelayea , N Aboset , A Kumie , AM , W . *Ethiopia. J Prev Med Hyg* 2012. 53 (3) p. .

[Key facts and figures on nutrition (2013)] *Key facts and figures on nutrition*, April 2013. UNICEF

[Teshome et al. ()] ‘Magnitude and determinants of stunting in children under five years of age in food surplus region of west Gojam zone’. B Teshome , W Kogi-Makau , Z Getahun , G Taye . *Ethiop J Health Dev* 2009. 23 p. .

[Zewdu ()] ‘Magnitude and Factors Associated with Malnutrition of Children Under Five Years of Age in Rural Kebeles of Haramaya’. S Zewdu . *Ethiopia. Harar Bulletin of Health Sciences* 2012. 4 p. .

[Taffesse and Goitom ()] ‘Malnutrition and enteric parasitoses among under five children in Aynalem village of Tigray’. S Taffesse , L Goitom . *Ethiop J Health* 1997. 14 p. .

[Braitstein et al. ()] *Nutritional Status of Orphaned and Separated Children and Adolescents Living in Community and Institutional Environments in Uasin Gishu County*, Paula Braitstein , Samuel Ayaya , M Winstone , Allan Nyandiko , Kamanda . 2013. Kenya.

[Sarker ()] *Nutritional status of Orphans and vulnerable children, Tropical Medicine and International Health*, Ayiek Sarker . 2005.

[Watt et al.] *Poorer health and nutritional outcomes in orphans and vulnerable young children not*, H Watt , S Gregson , S Saito , B Lopman , M Beasley , R Monasch .

[Kebede ()] *Prevalence and Determinants of Child Malnutrition in Gimbi district*, E Kebede . 2007. p. .

[Repositioning Nutrition as Central to Development: A Strategy for Large-Scale Action ()] *Repositioning Nutrition as Central to Development: A Strategy for Large-Scale Action*, 2006. (World Bank)

[Fao ()] *State of food security in the world, Food securities stastics*, Fao . 2008.

- [Strategy for improved nutrition of children and women in developing countries A UNICEF policy review ()]
 ‘Strategy for improved nutrition of children and women in developing countries’. *A UNICEF policy review*,
 (Geneva) 1990. UNICEF
- [The 2007 Population and Housing Census of Ethiopia. Statistical Summary Report at National Level ()] *The
 2007 Population and Housing Census of Ethiopia. Statistical Summary Report at National Level*, 2008. Addis
 Ababa, Ethiopia: Central Statistical Agency. Central Statistical Agency (CSA)
- [The State of the World’s Children Urbanization ()] *The State of the World’s Children Urbanization*, 2012.
 Geneva. UNICEF
- [Fao ()] *The study on the impact of armed conflict on children nutrition*, Fao . 2011.
- [United Nation Children’s Fund, Africa’s Orphaned and Vulnerable Generations Children Affected by HIV/AIDS ()]
*United Nation Children’s Fund, Africa’s Orphaned and Vulnerable Generations Children Affected by
 HIV/AIDS*, 2006. p. 16.
- [United Nation Children’s Fund, Nutrition and health of orphans ()] *United Nation Children’s Fund, Nutrition
 and health of orphans*, 2010.
- [United Nation Children’s Fund, The Evidence Base for Programming for Children Affected by HIV and AIDS in Low Prevalence
*United Nation Children’s Fund, The Evidence Base for Programming for Children Affected by HIV and
 AIDS in Low Prevalence and Concentrated Epidemic Countries*, 2008.
- [United Nation Children’s Fund. Africa’s Orphaned Generations. Children affected by AIDS ()] *United Nation
 Children’s Fund. Africa’s Orphaned Generations. Children affected by AIDS*, 2008.
- [United Nation Children’s Fund. Africa’s Orphaned and Vulnerable Generations Children Affected by AIDS]
 ‘United Nation Children’s Fund. Africa’s Orphaned and Vulnerable Generations’. *Children Affected by AIDS*
- [United Nations Convention on the Rights of the Child ()] *United Nations Convention on the Rights of the
 Child*, 2008. (United Nation)
- [United Nations, the Millennium Development Goals ()] *United Nations, the Millennium Development Goals*,
 2011. (Report)
- [World Health Organization Global HIV/AIDS Response, Epidemic update and health sector progress towards universal Access P
*World Health Organization Global HIV/AIDS Response, Epidemic update and health sector progress towards
 universal Access Progress*, 2011. (Report)