

Assessing the Nutritional Status of Orphaned and Non- Orphaned Children Aged 6-59 Months in Kakamega County, Kenya.

Mary Mutete Muema, Edward Neyole, Ruth Simiyu

Masinde Muliro University of Science and Technology. P.O. Box 190-50100. Kakamega Kenya.

Abstract

Child malnutrition is globally the highest risk factor for illness and death. It contributes to more than half of deaths in children worldwide. Children who lose their parents may face many hardships including food insecurity and poor child care resulting into malnutrition. However, in Kenya and the entire sub-Saharan Africa the problem of orphan-hood is expected to increase in the coming years due to more deaths from HIV/AIDS and other disasters. The objective of this study was to assess the nutritional status of orphaned and non-orphaned children. The study was a cross sectional study where both qualitative and quantitative methods were used. A structured questionnaire was administered to 306 care takers of orphans and non-orphans. The nutritional status of the children was determined by use of anthropometric measurements; weight for age (underweight), height for age (stunting) and weight for height (wasting) and pitting edema. Focus Group Discussions and key informant interviews were also conducted. Statistical package for Social Sciences (SPSS) and Emergency Nutrition Assessment (ENA) were used to analyze the data. Pearson chi-square and t-test statistics were used to test the significance of the relations while ranking was used to compare proportions of occurrence. The prevalence of malnutrition was high in the County (stunting 28.5%, wasting 6.9% and underweight 9.5% with wasting being more pronounced in Kakamega North Sub County. Boys were found to be more vulnerable to underweight (p value =0.025) and children aged 30-41 months were more stunted (p=0.009). However study found that there was no association between child malnutrition and orphan hood and therefore the children had equal chances of becoming malnourished it is recommended that the county and national governments should formulate and implement policies targeting all the children regardless of their orphan hood status. The County Integrated Plans (CIDPs) and national government policies need to stipulate well the nutrition intervention plans for the county.

Key words: Orphan, Malnutrition, Household, Care giver, double orphan, single orphan, paternal orphan, maternal orphan.

Introduction

World over, the number of orphans is growing at an alarming rate and globally, nearly 144 million children are orphaned where, every two seconds, another orphan dies from malnutrition (Bowl, 2008). Every eighth child is an orphan and the orphan crisis is projected to worsen in the coming years (Mishra *et al.*, 2008). Between 1990-2000, the number of orphans in Sub Saharan Africa rose from 30.9 Million to 41.5 Million and projections were that 53.1 Million children would be orphaned by the year 2010 (Mario, 2006). The African orphan crisis exacerbated by HIV and AIDS epidemic will have important negative intergenerational effects (Kathleen *et al.*, 2008). When a child loses one or both parents, different vulnerabilities become evident. Basic needs may not be met hence the risk of malnutrition.

The nutritional status of young children is one of the most sensitive indicators of sudden changes in health status and food availability acting as an early warning sign of distress and a proxy indicator of socio economic development (UNICEF, 1998). It is in view of this that this study was carried out to generate information which could be of use in the efforts of generating and implementing relevant interventions by different stakeholders.

In Sub-Saharan Africa, the prevalence of orphan-hood among children has been greatly exacerbated by the HIV and AIDS pandemic (Kathleen *et al.*, 2008). However, across Africa, AIDS is killing thousands of people and rendering thousands of small children homeless and orphaned. Although the number of children orphaned by all other causes including disease, war, and abandonment has decreased over the past decade in Asia, Latin America and the Caribbean, there has been a substantial increase in the number of orphans due to all causes in Sub Saharan Africa (UNICEF, 2006). Worldwide, there are an estimated 17.8 Million children under the age of 18 who have been orphaned by losing one or both parents to HIV/AIDS which is a large contributor to the worldwide orphan crisis.

In Kenya, the situation of Orphans and Vulnerable Children (OVCs) is also an issue of concern. Currently it is estimated that there are over 3 Million Orphans in the country, 47 percent orphaned as a result of HIV and AIDS and many more remain vulnerable due to several other factors (Afwai, 2013). The statistics surrounding the rising population and the immense suffering of these children can be overwhelming. Over 25% of the populations live on less than \$1 per day and 12-15% of households in Kenya are headed by an orphan sibling. Seven Hundred children are orphaned every day (that is a child every 2 minutes) and 1/3 of these are orphaned due to HIV and AIDS. This means that the number of orphans is set to rise.

Reducing malnutrition among children under the age of five remains a huge challenge in developing countries of the World. It remains a global public health problem considered to be a principal cause of ill-health and premature morbidities. With about 3.1 million Child deaths each year in developing countries, under-nutrition is the single biggest contributor to mortality in under-fives (EU, 2014).

According to the 2015 Millennium development goal (MDG) report, sub-Saharan Africa (SSA) accounts for one third of all undernourished children globally, highlighting that malnutrition still remains a major health concern for children under 5 years in the sub-region, thus buttressing the need for urgent intervention (UN, 2015). Despite marked improvements globally in the prevalence of malnutrition, rates of under nutrition and stunting have continued to rise in Africa where rates of under nutrition and stunting have risen from 24% to 26.5% and 47.35% to 48.5% respectively, since 1990 with the worst increases occurring in the eastern region of Africa (Harolli, *et.al.*, 2009).

Although Kenya has made substantial achievements in providing for the well-being of its citizens, malnutrition in young children remains a matter of concern. A national nutrition survey carried out in 1977, 1979 and 1982 indicate that the situation is particularly severe and is worsening, in Coast, Nyanza and Western Provinces (Susan, *et. al.*, 1991). Comparisons of the results of the current survey (KDHS, 2008) with those from the 2003 KDHS indicated there was no change in the proportion of children who are stunted, wasted and underweight.

1.2 Statement of the Problem

Malnutrition is one of the root causes of illiteracy, disease and mortality of millions of children in developing countries. Many of these children die from a handful of treatable infectious diseases including diarrhea, pneumonia, malaria and measles. They would survive if their bodies and immune systems had not been weakened by hunger and malnutrition (FAO, 2005)

Like many other countries in Africa, Kenya has experienced the problem of malnutrition among young children for many years. Malnutrition in Kenya is still a public health problem which requires attention (Ngare *et al.*, 1999). The Kenya AIDS indicator survey (KAIS) 2007 indicated that HIV and AIDS prevalence among persons aged 15-49 years in the former Western Province of the Republic of Kenya had increased from 4.9% in 2003 to 5.7% in 2007 (GOK, 2008). As these numbers die, together with deaths related to other natural disasters, the problem of orphan-hood is expected to rise in the future and hence increased risk of malnutrition (UNICEF/UNAIDS, 2005).

Over 2 million orphans (many who lost parents to Hiv/Aids) and vulnerable children live in Kakamega County with 90% of them being food insecure (Elite CBO, 2011). It is in view of this that this study assessed the prevalence of malnutrition among orphans and non-orphans aged 5-59 months with an aim of establishing the magnitude of the problem and recommend possible interventions.

1.3 Objective

The overall objective of the study was to assess the nutritional status of orphaned and non-orphaned children aged 6-59 months in Kakamega County.

1.4 Methodology

The study was conducted in Kakamega County which was purposively sampled because of its high levels of poverty. This study adopted a cross sectional study design. The study compared the prevalence of malnutrition among orphans and non-orphaned children. The study targeted 306 of households who had children aged 6 to 59 months who formed the basis of the study. A questionnaire was administered to them and anthropometric measurements of the study children were taken. 306 children were studied.

The study also targeted stakeholders who participated in the study as key informants. A total of twenty key informants were selected for the key informant interviews. Individuals who participated in group discussions were also included in the survey. They included; opinion leaders in Kakamega County, Community Based Organizations (CBOs) leaders, Faith Based Organizations (FBOs) leaders, County administrators, health workers, nutritionists, Non-Governmental Organizations (NGOs) leaders and women group leaders among others. Thirty participants for the FGDs divided into four groups were included in the study.

1.5 Analysis

SPSS and Emergency Nutrition Assessment (ENA) computer packages were used to analyze the data. Means, percentages and standard deviation were used. The independent sample t-test was used to compare continuous dependent variables for two groups of cases (orphans and non-orphans). In order to investigate the association between two categorical variables Chi square test was used. Ranking was also used.

1.6 Results and Discussions

1.6.1 Nutritional status of the children

The study results revealed that the prevalence of underweight in the County was high (9.5%). Among the underweight children, 3.3% were severely underweight while those moderately underweight were 6.2%.

These figures though lower, are comparable to the national averages of underweight prevalence for the country which was 15% in 2008 (KDHS, 2008) and 11% in 2014 (KDHS, 2014). The high rate of underweight in Kakamega County could be attributed to poor growth monitoring practices for the young children. A study in Nepal (Subedi *et al.*, 2012) established that regular growth monitoring of the young children is associated with better feeding practices of children and hence better nutritional status. Underweight could also be attributed to low dietary intakes due to both sudden food shortages and also chronic food shortages.

Stunting rate among the study children was found to be quite high (28.5%). Of the 28.5% stunted children, 11.3% of the children were found to be severely stunted while 17.2% were moderately stunted. This rate of stunting is again slightly low compared to the national stunting rate which was 35% according to the Kenya Demographic Health Survey (KDHS) 2008, report. However, the rate of stunting was slightly higher than 26% which was the national stunting rates in 2014 (KDHS, 2014) report. The prevalence of severe stunting among the study children was higher than the national rate which was 8% (KDHS, 2014) in 2014. These results show that though the rates of stunting in the county were reducing, the County was still lagging behind in the fight against stunting among their children. This could be attributed to many factors like chronic shortage of food in the County over the period.

The study results found that the rate of wasting was 6.9%. These findings are almost similar to findings of Kenya Demographic Health Survey which was 7% (KDHS, 2008). Another study carried out in three villages in Siaya (Bloos *et al.*, 2004) found similar (7%) rates of wasting in the studied community. This rate of wasting is considered medium (UNHRC, 2014). Wasting prevalence, Global Acute Malnutrition (GAM), of 10% to 14% in children aged 0-59 months is generally considered to be a serious emergency (UNHRC, 2014) and therefore wasting in the County was almost reaching emergency thresholds. These findings could be attributed to sudden unavailability of food which could have been caused by several factors among which is decline of food availability within a short period after food harvest in the area.

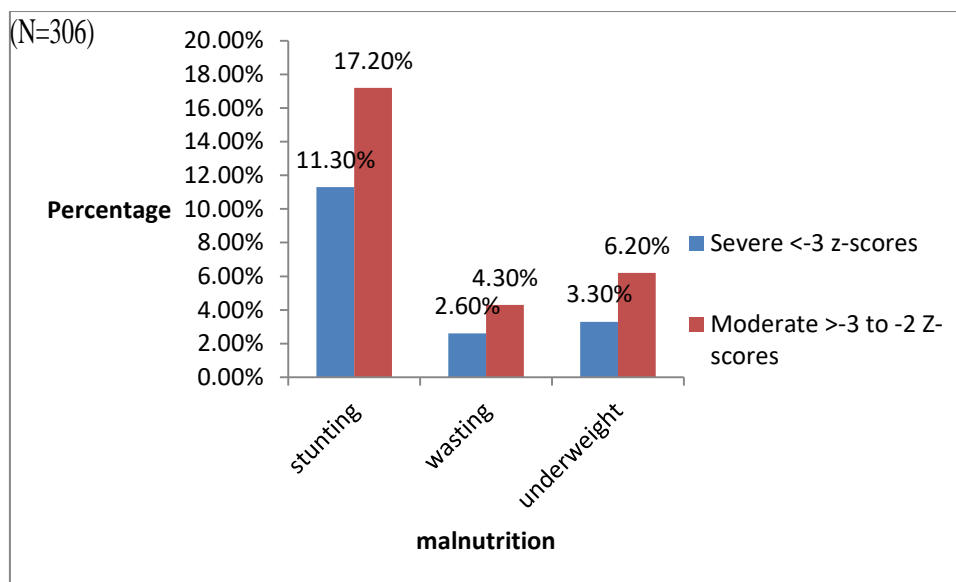


Figure 1.1 Malnutrition among the study children

1.6.2 Prevalence of Malnutrition by Sub Counties in Kakamega County

Stunting was higher in Kakamega East (8.3%) and Mumias (14.1%) sub Counties. The Sub counties were ranked as per the prevalence of stunting and the results ranked Mumias no.1, Kakamega East no. 2 while Kakamega south and Kakamega north tied at number three and hence the worst affected by stunting. In order to establish if there was statistically significant difference; chi-square tests were conducted. The tests did not show (p value > 0.05) statistically significant difference in stunting and underweight in the different sub counties. For wasting chi-square test showed some statically significant difference (P value < 0.05) and therefore the children living in Kakamega North Sub-County were found to be more likely to suffer from acute malnutrition (wasting) than children in the other sub counties. These findings are similar with study results done in Nigeria (Owoaje *et al.*, 2014) where wasting was found to be more prevalent in one of the study districts which was highly densely populated. The high prevalence of wasting in Kakamega North could be attributed to several factors one of them being sugar cane growing which is a major source of livelihood in the Sub county. A study carried out in East-central Uganda (Lwanga *et al.*, 2015) in sugar cane growing communities established that children living in those communities were more likely to become wasted more than the other children.

Table 1.1 Prevalence of Malnutrition by Sub Counties in Kakamega Count

Sub county	levels of Malnutrition					
	Underweight		Stunting		Wasting	
	%	Rank	%	Rank	%	Rank
Kakamega south	1.4	3	1.0	4	1.3	3
Kakamega North	1.4	3	5.2	3	3.0	1
Kakamega East	2.6	2	8.3	2	1.0	4
Mumias	4.3	1	14.1	1	1.7	2
chi-square (p value)	0.398		0.153		0.007	

1.6.3 Distribution of Malnutrition among different age groups of the Study Children

1.6.3.1 Underweight by age

The study results revealed that more underweight was observed in older children who were aged 30-41 and 42-53 as shown in Table 1.2.

Table 1.2 Underweight by Age of the children

Age group	Severe <3-z-scores		Moderate >-3 to -2 z-scores		Normal >-2 z-scores	Total
	scores	Rank	scores	Rank		
6-17	1 (1.4%)	5	4 (5.6%)	3	66 (93.0%)	71 (23.3%)
18-29	3 (6.1%)	1	0 (0%)	4	46 (93.9%)	49 (16.1%)
30-41	2 (3.0%)	3	8 (11.9%)	1	57 (85.1%)	67 (22.0%)
42-53	3 (4.0%)	2	7 (9.3%)	2	65 (86.7%)	75 (24.6%)
54-59	1 (2.3%)	4	0 (0%)	4	42 (97.7%)	43 (14.1%)
Total	10 (3.3%)		19 (6.2%)		276 (90.5)	305 (100.0%)

Source; Field Data, 2015)

A chi-square test was conducted to establish if the observed difference was statistically significant. The results showed that the difference was not significant ($p > 0.05$) in underweight between the different age groups. These results imply that there was no association between age and underweight and therefore the younger and older children had equal chances of becoming underweight.

1.6.3.2 Stunting by age

The study findings revealed that majority of the stunted children were in the age groups, 18-29 (44.9%) and 30-41 (39.4%) as shown in Table 1.2

Table 1.3 Stunting by Age of the children

Age Group	Severe <3-z-scores with or without edema		Moderate >-3 to -2 z-scores		Normal >-2 z-scores	Total
	scores	Rank	scores	Rank		
6-17	5 (7.5%)	4	8 (11.9%)	4	54 (80.6%)	67 (23%)
18-29	10 (20.4%)	1	12 (24.5%)	1	27 (55.1%)	47 (16.8%)
30-41	10 (16.4%)	2	14 (23.0%)	2	37 (60.7%)	61 (21%)
42-53	8 (11.1%)	3	8 (11.1%)	5	56 (77.8%)	72 (24.7%)
54-59	0 (0%)	5	8 (19%)	3	34 (81.0%)	42 (14.4%)
Total	33(11.3%)		50 (17.2%)		208 (71.5%)	291 (100.0%)

Source; (Field data, 2015)

The study findings revealed that majority of the stunted children were in the age groups, 18-29 (44.9%) and 30-41 (39.4%). In order to establish whether this difference was significant, a chi square test was conducted and found that there was a statistically significant difference ($p \text{ value} < 0.05$) in stunting among the different age groups. The results shows that age of the children is positively related to the probability of stunting, implying that other things being equal, older children are more likely to be stunted. This finding is consistent with those of other previous studies in different countries (Sarmistha 1999, Kabubo-Mariara *et al* 2006). This result is plausible considering that many of the younger children are still been breastfed, and chronic malnutrition could set in only after weaning (Babatunde and Qaim, 2010). Studies have shown that foods used to compliment breastfeeding in Kenya are of low nutritive value (Bwibo and Neuman, 2003). The most preferred porridge is made of composite flours causing negative nutrient-nutrient interactions and also causing mal-absorption due to the child's immature gut. Such foods are also high in anti-nutrients such as phytates and tannins that bind available nutrients and thus reduce bioavailability (Bwibo and Neuman, 2003).

Focus group discussions confirmed this by reporting that majority of households fed their children with maize or millet flour porridge as the weaning food.

1.6.3.3. Wasting by Age

The study sought to investigate how wasting among the children was distributed by age of the study children. The results showed that majority of the children were wasted were aged between six and seventeen months compared to the other age groups though severe wasting was almost equally distributed across the different age groups as shown in Table 1.4.

Table 1.4 Distribution of wasting by Age

Age Group	Severe <3 -z-scores	Rank	Moderate >-3 rank to -2 z-scores	Rank	Normal >-2 z-scores	Rank	Total
6-17	2 (2.9%)	2	5 (7.1%)	2	63 (90%)		70 (23%)
18-29	1 (2.0%)	5	4(8.0 %)	1	45 (90%)		50 (16.4%)
30-41	2 (3.0%)	1	2(3.0%)	3	63(94.0%)		67 (22.0%)
42-53	2 (2.7%)	3	2 (2.7%)	4	71 (94.7%)		75 (24.6%)
54-59	1 (2.3%)	4	0 (0%)	5	42 (97.7%)		43 (14.1%)
Total	8 (2.6%)		13 (4.3%)		284(93.1%)		305 (100)

Source; (Field data, 2015)

A chi square test was conducted to find out if the association between wasting and age was significant. The results showed that the different was not significant (p value> 0.05) and therefore the children of different ages had equal chances of becoming wasted. The findings presented in Table 1.4 are reinforced by the findings presented in Figure 1.2 where severe wasting was found to be almost equally distributed across all the age groups of the children.

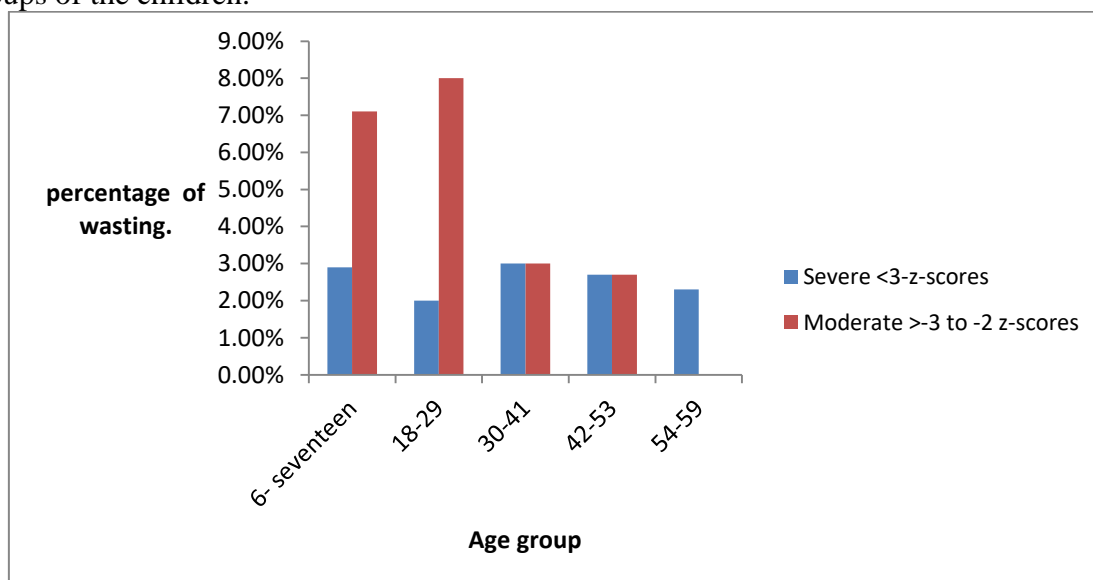


Figure 1.2 Distribution of wasting within different age groups

Source; (Field data, 2015)

The results of this study could be attributed to household chronic poverty among other factors which may cause persistent acute food shortage.

1.6.4 Prevalence of Edema

The study results showed that there were only 3 cases (1%) of the study children who had edema as shown in Figure 1.2.

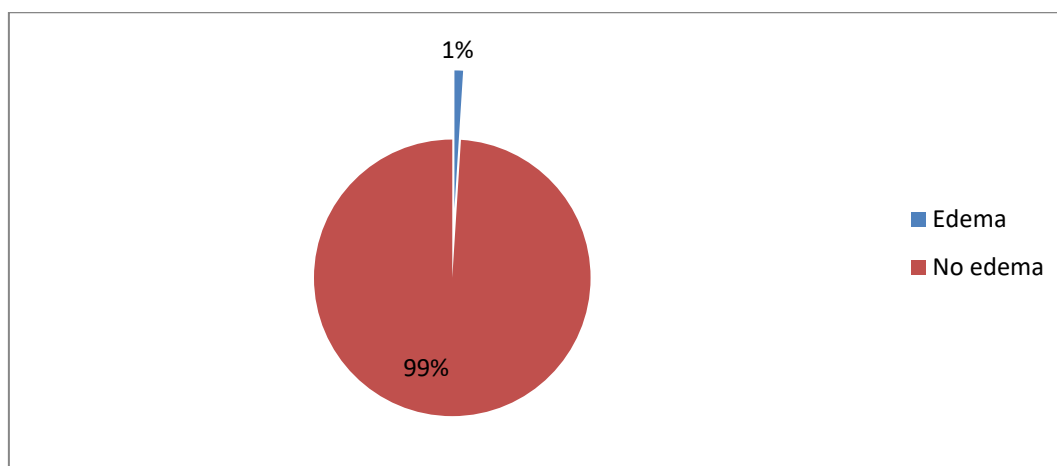


Figure 1.2 Prevalence of Edema among the Study Children

Source; (Field data, 2015)

This confirmed presence of severe acute malnutrition in the study area and the three victims however were referred to the nearest health facility in the area for treatment. The results were close to findings in a study carried out in Nigeria (UNICEF, 2014) where five percent of study children were found to have edema. Whereas the children found to have edema represent one percent of the studied children, this cannot be ignored in this study and in the County as it represents a clear sign that there is a likelihood of severe acute malnutrition in the area. Severe acute malnutrition is the most extreme and visible form of under nutrition and requires urgent treatment for a child to survive. It is an indication that the level of food insecurity and poor dietary intake are a threat and the children are at risk hence increasing the level of vulnerability to the vagaries associated with poor feeding.

1.7 Comparison of Nutritional Status of Orphaned and Non-Orphaned Children

The study sought to compare the nutritional status of the orphans and the non-orphan children. Underweight and wasting were found to be more pronounced in orphaned than in non-orphaned children as shown in Table 1.4.

Table 1.4 Comparison of Nutritional Status of orphaned and non-orphaned children

	Orphan	Not orphan	Chi Square	P-value
Severe Stunting <-3 z-scores	11(7.8%) N=141	22 (14.7%) N=150	3.54	0.170
Severe Underweight <-3 z-scores	8 (5.4%) N=149	2 (1.3%) N=156	4.99	0.083
Severe Acute Malnutrition <-3 scores	6(4.0%) N=149	2 (1.3%) N=156	3.22	0.220
Stunting <-2 z- scores	35 (24.8%) N=141	48 (32.0%) N=150	0.175	0.110
Under Weight <-2 z-scores	15 (10.1%) N=149	14 (9%) N=156	0.106	0.846
Global Acute Malnutrition <2-scores	14 (9.4%) N=149	7(4.5%) N=156	2.86	0.091
MUAC <12.5 cm	6 (4.1%) N=149	9 (5.7%) N=157	2.27	0.158
MUAC <11 cm (Severe)	1 (0.7%)	0 (0%)		

Source; (Field data, 2015)

The results however revealed that severe stunting was more pronounced in non-orphaned children than the orphans as shown in Table 1.4

It was found that there was no statistically significant difference (p values > 0.05) between the nutritional status of orphans and non-orphan children. The children living with both their parents and the orphaned children had equal chances of becoming malnourished as per the findings.

Stunting was more pronounced in non-orphan children while wasting and underweight was more pronounced in the orphaned children as shown in Figure 4.10. However, a chi square test carried out did not show ($p > 0.05$) any statistically significant difference in the malnutrition among the orphans and non-orphans. Therefore there was no association of orphan hood and malnutrition hence the orphans and non-orphans had equal chances of becoming malnourished. These study findings are in line with results of another study done in Kenya by Vinod Mishra *et al.*, 2005 which found no clear pattern of relationship between orphan hood and nutritional status of children. Similar findings were also found in another done in Kampala Uganda (Malabika *et al.*, 2005) which found no relationship between malnutrition and children being orphans. These findings show a clear indication that the extended family system in Kenya still manages to care for young orphans living with them.

1.7.1 Prevalence of Malnutrition in different types of Orphans

Table 1.5 Underweight by type of orphan

Type of orphan	Severe < -3 -z-scores with or without oedema	Moderate > -3 to -2 z-scores	Normal > -2 z-scores	Total
Single orphan	6 (6.4%)	4 (4.3%)	84 (89.4%)	94 (100%)
Double orphan	2(3.6%)	3 (5.5%)	52(90.9%)	55 (100%)
Non orphan	2 (1.3%)	12(7.7%)	142 (91.0%)	156 (100%)

As shown in table 1.5 a higher proportion of the single orphans were underweight. The results could be explained by the fact that double orphans could have been taken in by well off relatives while the single orphans remained in the same family conditions with the living parent. However to establish if the observed difference was statistically significant a chi square test was conducted. The test did not show any statistically significant difference between single and double orphans and therefore they had equal chances of becoming underweight.

1.8 Conclusions

This study concludes that child malnutrition is high and a public health issue in Kakamega County. There is no statistically significant difference in malnutrition between orphaned and non-orphaned children and therefore the children have equal chances of becoming malnourished. This suggests that the surviving orphans living in their communities in Kakamega County were not more vulnerable to malnutrition than the non- orphan children. However the boy child was found to be more vulnerable to malnutrition. The young children also were exposed to under nutrition just after exclusive breastfeeding probably because of poor weaning diets. Wasting was found to be more pronounced in Kakamega north and therefore it is evident children living in different sub counties in the county could suffer malnutrition differently.

1.9 Recommendations

Based on the research findings of this study, the following recommendations were made;

1. Kakamega County, National governments and other relevant stakeholders should come up with appropriate policies, short term and long term strategies that may not need to target orphans

specifically but which will ensure all the children are well nourished. The county and national governments should also increase investments for effective interventions and actions to improve people's diets and nutrition, including in emergency situations; these should be fully funded with national and county resources aligned accordingly.

2. It is evident that the children living in different sub counties suffered malnutrition differently and therefore it is recommended that planning of nutrition interventions need to consider variations in the vulnerability as per different locations in the county. Better weaning practices should also be promoted to ensure good child nutrition even after the age of exclusive breastfeeding.
3. In order to reduce malnutrition vulnerability of the boy child, the communities should be sensitized on the importance of practicing equity as they carry out their child caring practices in the communities.

References

- [1] Afwai F. (2013). *The plight of orphans in Kenya, a perspective of hope children's home*. Kenya
- [2] Babatunde, R. and Qaim, M. (2010). *Impact of Off-farm Income on Food Security and Nutrition in Nigeria*. Food Policy.
- [3] Bloos E., Wainaina f., Bailey R. (2004). *Prevalence and predictors of underweight, stunting, and wasting among children aged 5 and under in western Kenya*.
- [4] Bwibo, N., Neumann C. (2003): The need for animal source foods by Kenyan children. *The Journal of Nutrition*, Volume 133, Issue 11, 1 November 2003, Pages 3941S–3949S
- [5] UNICEF. (1998). *The State of World's children: Focus on Nutrition*. UNICEF, New York. USA.
- [6] FAO. (2005). *The state of food insecurity in the world*. Rome
- [7] FAO. (2008). *The State of Food Insecurity in the World 2008*. Food and Agriculture Organization, Rome.
- [8] G.O.K. (2008). *Kenya Aids indicator survey report 2007*. Nairobi: Government Press Harohali, R. (2009). *Malnutrition*. Kentucky: USA
- [9] Kabubo-Mariara, J., Ndege, G. & Kirii, D. (2006). *Determinants of Children's Nutritional Status in Kenya: Evidence from Demographic and Health Surveys*. Paper Presented at the Centre for the Study of African Economies Conference, University of Oxford.
- [10] Kathleen, Beegle, Deweerdt, Joachim, Dercon, and Stefan. (2006). *Orphanhood and Human Capital Destruction: Is there persistent into Adulthood*.
- [11] KDHS (2008). *Kenya Demographic And. Health Survey report*. Nairobi: Government Press
- [12] Kirsten A., Aldiouma D. (2017). *Boys Are More Stunted than Girls from Early Infancy to 3*
- [13] Lindblade, A., Odhiambo, F., Rosen, D. and Decock, M. (2003). *Health and Nutritional status of orphans less than 6 years cared for by relatives in Western Kenya*.
- [14] Lwanga, F., Wanyenze. R., Matovu. J, Garimoi. C. (2015). *Food Security and Nutritional Status of Children Residing in Sugarcane Growing Communities of East-Central Uganda*. Journal of Food Security 3.2 .
- [15] Malabika S., Christina N., Olaf M. (2015). *Assessing the health status of young AIDS and other orphans in Kampala, Uganda*.
- [16] Mishra, V., Bigram, S. (2008). *Orphans and vulnerable children in high HIV prevalence countries in sub Saharan Africa*. Maryland U.S.A.
- [17] Ngare, D., Mutunga, J. (1999). *Prevalence of Malnutrition in Kenya*.
- [18] Owoaje, E., Oluwadolapo, O., Adeyimika D. (2014). *Family and socioeconomic risk factors for undernutrition among children aged 6 to 23 Months in Ibadan, Nigeria*
- [19] Sarmistha, P. (1999). *An Analysis of Childhood Malnutrition in Rural India: Role of Gender, Income and Other Household Characteristics*. World Development.
- [20] Susan, R. and Kariuki, P. (1991). *Malnutrition and gender relations in Western Kenya*.
- [21] Subedi N, Paudel S, Rana T, Poudyal A. (2012). *Infant and young child feeding practices in Chepang communities*. Nepal Health Res Coun (10(21):141–6
- [22] UNICEF (1998). *The state of World's children: Focus on Nutrition*. New York. USA.
- [23] UNICEF (2006). *Africa's Orphaned and Vulnerable Generations- Children Affected by AIDS*. UNICEF.

- [23] UNICEF/ WHO/ WORLD BANK. (2017). Joint Child Malnutrition Estimates.
- [24] Vinod, M. and Simona, B. (2008). *Orphans and Vulnerable children in high Hiv-prevalence countries in Sub- Saharan Africa*