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# *Cultural Determinants Associated with Malnutrition in Children Aged 6-59 Months in West Pokot County, Kenya*

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## Abstract

***Background:*** Malnutrition is deficiencies or excess nutrients by an individual. Includes under-nutrition and micronutrient-related malnutrition. It causes about half of all fatalities in children below five years; increases the chance of a child dying from common ailments. Cultural determinants are associated with malnutrition of ages 6-59 months.
***Objectives:*** The study sought to establish the determinants contributing to child malnutrition in West Pokot County of Kenya.
***Methods:*** This was cross sectional study. Multistage cluster sampling was applied. Anthropometric measures of 420 children aged 6-59 months in Pokot North Sub-County were assessed. Data was collected from August-September, 2022 using online questionnaire. Pretesting was done for validity and reliability. SPSS v.2022 used for data analysis. Chi-Square and Odds Ratios and Confidence intervals were used to test variables.
***Results*:** Mean (SD) age of the respondents' children was 29.9 (16.0). Over 60% of children were below 35 weeks. Children with 0-11 months had lower representation (15.2%). 82.4% had one younger sibling. Monogamy (76.8%) had fewer malnutrition cases (OR: 0.5; P=0.015). Violence was high and had impact on malnutrition (34.5%). Traditional food restrictions caused malnutrition (OR:1.8; 95% CI:1.2-2.8; P=0.006).
***Conclusion:*** There is evidence that some cultural aspects: types of marriage, caretaker violence and food taboos contribute to malnutrition in children aged 6-59 months in West Pokot County. Awareness on harmful cultural practices should be implemented. More studies should be done to establish why cultural practices still exist.

***Keywords: malnutrition, WHZ, food taboos, cultural practices***

## Introduction

Malnutrition is depicted by deficiencies or excess nutrient and/or energy intake by an individual and includes three major categories of conditions: under nutrition, micronutrient-related malnutrition or micronutrient excess, as well as overweight, obesity, and non-communicable diseases associated with diet [1]. Malnutrition exposes children to a higher risk of dying from common ailments, increases the incidences and severity of infections and is also associated with high mortality rates among children aged between 6

and 59 months [2]. Malnutrition causes about half of all fatalities in children under the age of five; and increases the chance that a child will die from common ailments, which are frequent and severe, and hinders the child's speed of recovery from such ailments. Stunted children never develop to their full cognitive potential [3]. They struggle with learning in school, which could prevent them from achieving their full potential as adults [2].

Malnutrition manifests when the nutrients required in the body and the amount used are not in a balance and appears as wasting (low weight for height), stunting (low height for age) or underweight (low weight for age). It is determined by measurements of anthropometric indicators which include wasting, stunting, and underweight which are all defined by Z-scores of less -2 SD of weight for height, height for age, and weight for age 4. Wasting reflects acute nutritional deficiency and stunting indicates chronic exposures for malnutrition [4].

It is estimated that, about 149 million children aged between 6 and 59 months are stunted and 45 million are wasted and these two variables account for 45% of child mortalities, most of which occur in developing countries [1]. In the Sub-Saharan region, the prevalence of malnutrition in children aged between. 6. and. 59. Months, went up. From, 181. million. in. 2010 to. 222 million in 2016. Despite the incidences of stunting among children having decreased between 2000 and 2017, total absolute number affected rose up from. 50.6 to 58.7 million due to population growth. The prevalence of wasting in 2017 was 13.8 million children, of whom 4 million were severely wasted [5].

In developing countries, childhood malnutrition puts a lot of burden on several households. It directly increases and affects national health and development expenditure due to related sicknesses, hampered cognition on the affected children and indirect deaths among these children [1]. Malnutrition in Kenya has remained a major public health concern for both the government and the development partners due to its adverse effects on the health of children as has been shown by many national surveys. A national health survey in Kenya revealed that 20% of children, aged between 6 and 59 months, were stunted, 5% were wasted, and 10% were underweight [6]. Children between 18 and 23 months were at 28%, with stunting in rural areas having prevalence of 20%. In West Pokot County, a rural pastoralist community in Kenya, a survey dubbed SMART was undertaken by Action Against Hunger (AAH) and other partners funded by UNICEF showed that the prevalence of malnutrition was still high. Stunting was estimated at 42.8%, wasting at 11.9% underweight was at 30.7% and overall malnutrition was at 11.9% [7]. The survey also found that the major determinants of malnutrition in the County included gender, whereby, there were more boys than girls who were stunted. However, the study did not specify the cultural practices influencing the variations of nutrition status in the either gender.

Worldwide, a number of cultural. factors. have been associated. with. childhood. malnutrition. Malnutrition. has. also. been. associated. with. alcohol. consumption. A study in South Africa found that mothers who abuse alcohol and tobacco had infants who were malnourished while another study elsewhere -showed that fathers who consume alcohol had children who showed a higher prevalence of malnutrition up to 57.9% [8]. Exclusive. breastfeeding. is. regarded. as. the. best. form. Of . feeding. which. curbs. malnutrition. However, it. has. been. shown. that. some. cultural. practices. and. beliefs. have. hampered. this. practice, leading. to. malnutrition. In. a study, it was found. that. members. of. some. ethnic. groups. believed. that. the. a mother's. milk. became. unclean. when. they. engage. in. extra. marital. relationship. with. men. who. are. not. the. child's. father [9]. Another study reported. that in Nigeria. Lactating. mothers. we're not. allowed. to. enter. houses. where. other lactating. Mothers were. It was believed that the action protected. the. mother. and. the. child. from. Evil The study further. quoted. that. the. subjects. believed. that. there. were. "evil. eyes". which. prevented. the. mothers. from. breastfeeding. The. child. was. eventually. denied. breast. milk. for. the. fear. of. that. "evil. eye" [10].

Violence. within. household. has. been. reported. to. have. some. influence. in. a children's. nutritional. status. A study in Nairobi reported. that. parental. violence, especially. to. the. mothers. increased. the. risk. of. a. child. getting. stunted. and . wasted. by. about. 11% [11]. A

systematic review. found. that. women. who. have. faced. any. form. of. violence. have. a. higher. tendency. of. terminating. child. breastfeeding. at. the. first. or. the. second. month. of. life [12]. Children. whose. mothers. experienced. intimate. partner. violence. were. having. a. higher. chance. developing. malnutrition. because. they. received. less. of. minimum. acceptable. diet. compared. to. children. whose. mothers. were. not. exposed. to. partner. violence [13].

Similarly, food. taboos. have. been. reported. in. some. communities. Food taboos are intentional avoidance of certain food item for reasons other than a basic distaste stemming from food preferences [14]. These are a set of rules which are systemized and determines what food and individual cannot consume. Children. between. the. ages. of. six. months. and. two. years. encounter. overlapping. food. taboos. pertaining. to. basic. food. nutrients. study. further. revealed. that. mothers-in-law. were particularly. keen.in egg-related. taboos. when. it. came. to. child. feeds. Related. eggs. with. gastric. irritation. and. acquisition. of. language which could have been different in study setting [15].

The main objective of this study was therefore to find out the cultural factors that influence malnutrition in children aged between 6 and 59 months in West Pokot County of Kenya. This would inform studies aimed at reduction of childhood malnutrition in rural pastoralists communities.

## Methods

This was a descriptive cross-sectional study based in Pokot North Sub-County of West Pokot County. This is a western frontier Sub County that borders Uganda with a largely pastoralist population. The research study targeted households with children aged between 6-59 months regardless of their nutritional status. All the children aged between 6 and 59 months in a chosen house hold were assessed for their nutritional status. The respondents were the mothers or immediate caregivers of the said children. The data collection was undertaken between August and September 2022.

The sample size was estimated based on Fischer's formula $N=(Z^2pq)/d2$ where Z is the critical value associated with level of significance usually 1.96 corresponding to 95%, P is proportion of target population estimated to have a particular characteristic, i.e. 46% (0.46), d is the margin of error i.e., 5%=0.05 and q=1-p. The population census of 2019 with a growth factor of 0.03 which estimates the number of children aged between 6-59 months in Pokot North Sub County to be 22,820 [15]. The Kenya Health and Demographic Survey of 2015estimated the prevalence of malnutrition among children aged between 5 and 59 months in the West Pokot County to be at 46% [16]. Therefore, the sample size was 420 children with a 10% non-response consideration.

Multistage cluster sampling was used in this research. This is because the study involves a wide and spanning geographical area. Clusters were formed based on the 6 existing administrative units called wards within the sub-county. Each ward has several other smaller units called Community Health Units as per the County's Community Health Services (CHS) Act [17]. The total number of the Community Health Units (CU) in the Sub-County is 70 [6]. In each cluster, the sample was estimated proportionately to the number of households per ward. The numerator was the total number of households in a given ward (Suam 5638, Kodich 4477, Kapchok 2540, Kasei 3568, Kiwawa 3895, and Alale 6128), while, the denominator was the total number of the households in the entire Sub-County (26246). The result was multiplied by 420 (total sample) to get the proportionate sample per ward. The sample was thus distributed to the wards as follows; Suam 90, Kodich 72, Kapchok 41, Kasei 41, Kiwawa 62, and Alale 98. To obtain the number of children sampled per CU, the proportionate sample per ward was further divided by the number of CUs in that ward (Saum 7, Kodich 11, Kapchok 8, Kasei 12, Kiwawa 15, and Alale 9).

Households were then conveniently sampled as guided by the Community Health Volunteers (CHV) based on their knowledge of the houses that had children under the age of five. All children within households who are aged between 6-59 months were eligible to be assessed after their caregivers consented. The schematic presentation of the sampling procedure is shown in the Figure 1 below.

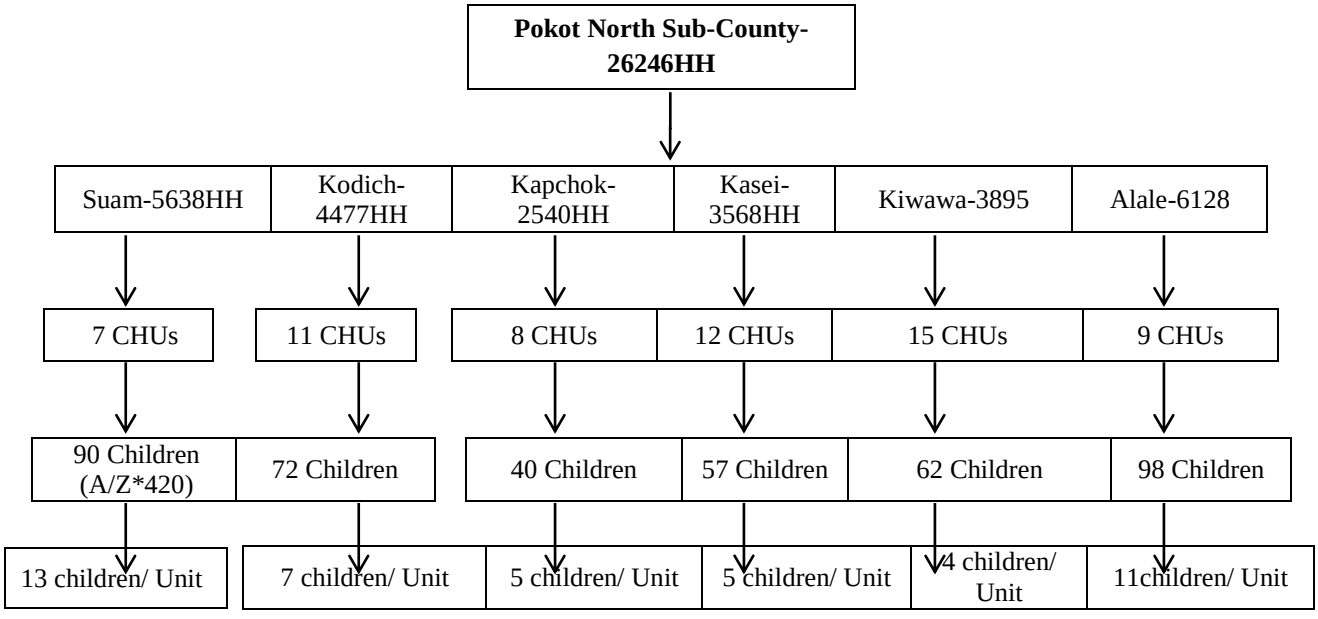



***Figure 1: Schematic Presentation Multistage Cluster Sampling Procedure***

All children within households who were aged between 6-59 months were eligible to participate through the anthropometric measures. Their mothers or the immediate caregivers also consented to be study respondents.

Mothers or caregivers with children who have a notable cause of malnutrition for example chronic illnesses like renal failure, hepatic disease or congenital heart diseases were not included to the study. Mothers or caregivers whose children are aged between 6-59 months who reported to have been admitted in the hospital within one week preceding the study were not included because illness affect feeding habits of the child hence exposing them to malnutrition. A structured KoBo Collect based questionnaire with both open and close ended questions was used to collect the data from the respondents. KoBo Collect is s an open-source Android-based app used in gathering of survey data [18]. The questionnaire was made up of three sections; Demographic data, anthropometric measures and cultural practices and it had a total of 26 questions. The questionnaire was pre-tested for its validity and reliability in Central Pokot sub-county. Central Pokot was selected for pretesting because it has almost similar demographic population with North Pokot, as well as similar climatic conditions. The results were used to edit the questionnaire appropriately to suit the current research. The research assistants were selected from within the community in the sub-county. They were assisted by CHVs from each CU who guided them to the households with under-five children. The research assistants were nurses working in outpatient Mother and Child Health (MCH) clinics who are well versed with taking anthropometric measures. They were trained for 2 days on data collection methods using the Kobo Collect data toolkit. The anthropometric measurement was done as stipulated for children who are between 6 and 24 months, the weight of the child was measured by weighing the mother and the child together, and then the mother was weighed separately and the differences in weight in kilograms (kgs) were taken as the weights of the children [19]. Children between 25 and 59 months who were able to stand upright were weighed alone. The height/length of the child was also determined using a height board. The height for children over 2 years was measured in centimeter while upright and without shoes while for children under 2 years their lengths was measured in centimeters when the child was in

horizontal position on the height board. The Mid Upper Arm Circumference MUAC was measured in centimeters using a MUAC tape on the left or less dominant hand, at the midpoint between the tip of the elbow and the scapula while the arm is at a right angle [19]. The equipment was sourced from the Nutrition Department of the County. These included the weighing scale, the height board and the MUAC tape. The weighing scale, A Seca®, was portable with precision to ±100g. The wooden height board had an accuracy of ±2mm.

During the anthropometric measurements, one assistant, aided by the CHV took part in weighing and taking the height of the child, while the other assistant counterchecked and keyed the values in to the online based questionnaire on the KoBo Collect data tool. After the anthropometry was completed, the research assistant then interviewed the mother and the responses were recorded in the same way. The demographic and cultural practices parts of the questionnaire had a total of 20 questions. The response rate was 100 based on the validations and skip logics as set in the KoBo Collect form used.

Data collected was analyzed using SPSS software Version 20. WHO Anthro-Software Version 3.22 was used to analyze anthropometric data to obtain the Z-scores [4]. Chi-Square test was used for statistical inference with P value threshold of ≤0.05 for significant difference in proportions and OR and 95 CI used to estimate the magnitude of the difference.

Permissions for this survey were sought from Internal Ethics and Review Committee (IERC) of Masinde Muliro University of Science and Technology (MMUST), approval number MMUST/IERC/065/2022. Research license was obtained from National Commission of Science, Technology and Innovation (NACOSTI), license number NACOSTI/P/22/18069. Community entry requirements were sought from County and Sub County health administrators.

Informed. consent. is. the. cornerstone. of. ethical. Research. Participants. were. fully. informed. of. what was to be asked of them, how the data was to be used, and the consequences that could be there. The participants. were. requested. to. provide. signed. consent. before. participating. in the research. Beneficence was considered during data collection**.** A malnourished or any sick child irrespective of the condition identified during the process was referred to the nearest health facility for management. Respect to human dignity was attained by treating participants as independent agents. All participants had a right to withdraw from the study without any prior notice if they deemed fit to do so without losing their dignity. Confidentiality was maintained throughout all the phases of research. There was no writing of names, identification numbers or any form of coding which may expose or otherwise compromise the identity of the research participants. No inference has made to individuals in the collected data and the analysis report.

## Results

The results were based on the analysis of the collected data from children aged between 6 and 59 months. There were 420 sampled children with 100% response rate.

Most of the caregivers were females (98%) with 53% being above 30 years and 93% married. Majority (88.6%) of the caregivers were married when they were of legal consenting age even though 15% had their first pregnancy when they were below 18 years.

The mean (SD) age of the children was 29.9 (16.0) months. Age was regrouped into 5 age groups of approximately 12 months each. The age group with the least representation in the sample is 0 to 11 months (15%) and 12 to 23 months had the highest representation (25.7%). Most of the sampled under-fives had other siblings with 50%having older siblings, 38% having both older and younger siblings and 3.3% having younger siblings. The mean (SD) number of other siblings is 4 (2). Most of the under-fives (82.4%) had one younger sibling the rest had more than 1 younger sibling as shown in table 1.

*Table 1: Socio-Demographic Characteristics of the Under-Fives in West Pokot County*

| Socio-demographic aspect | | Frequency | Percent |
|---|---|---|---|
| **Age group** | 0 -11 months | 64 | 15.2 |
| | 12-23 months | 108 | 25.7 |
| | 24-35 months | 89 | 21.2 |
| | 36-47 months | 74 | 17.6 |
| | 48-59 months | 85 | 20.2 |
| **Child sex** | Male | 214 | 51.0 |
| | Female | 206 | 49.0 |
| **Child birth position** | Up to 3rd | 202 | 48.1 |
| | More than 3rd | 218 | 51.9 |
| **Child has other siblings** | Yes | 372 | 88.6 |
| | No | 48 | 11.4 |
| **Child has older siblings** | Yes | 209 | 49.8 |
| | No | 211 | 50.2 |
| **Child has both older and younger siblings** | Yes | 162 | 38.6 |
| | No | 258 | 61.4 |
| **Child has only younger sibling** | Yes | 14 | 3.3 |
| | No | 406 | 96.7 |
| **Number of older siblings** | More than 5 | 270 | 64.3 |
| | Up to 5 | 150 | 35.7 |
| **Number younger siblings** | Up to 1 | 346 | 82.4 |
| | More than 1 | 74 | 17.6 |
| **Age immediate older sibling** | More than 5 years | 229 | 54.5 |
| | Up to 5 years | 130 | 31.0 |
| **Age difference older sibling** | More than 24 months | 267 | 63.6 |
| | Less than 24 months | 92 | 21.9 |
| **Age immediate younger sibling** | Up to 30 months | 134 | 31.9 |
| | More than 30 months | 28 | 6.7 |
| **Age difference immediate younger sibling** | 24 months and above | 93 | 22.1 |
| | Less than 24 months | 69 | 16.4 |

The child's nutritional status was determined using anthropometric measures: Mid Upper Arm Circumference (MUAC); height for age; weight for age and weight for height. Apart from MUAC, the rest of the measures were converted to z-scores using the WHO survey analyzer [20] thus their interpretation was based on the recommendations on inferring to the scores. The figures are shown in table 2.

*Table 2: Distribution of Nutritional Status in West Pokot County:*

| Nutritional Status Measure | Grouping characteristic | Frequency | Percent |
|---|---|---|---|
| **Length for Age Z-score (LAZ)** | Normal | 271 | 64.5 |
| | Moderate stunting | 92 | 21.9 |
| | Severe stunting | 57 | 13.6 |
| **Weight for Age Z-score (WAZ)** | Normal | 300 | 71.4 |
| | Moderate underweight | 67 | 16.0 |
| | Severe underweight | 53 | 12.6 |
| **Weight for Length Z-score (WHZ)** | Normal | 314 | 74.8 |
| | Moderate Acute Malnutrition | 55 | 13.1 |
| | Severe Acute Malnutrition | 51 | 12.1 |

Stunting was classified based on WHO standard of nutritional survey analyzer for length/height for age Z-scores (HAZ). Prevalence of stunting is indicated by a HAZ of < -2, while moderate stunting is portrayed by HAZ between ≥ -3 and < -2. Severe stunting is demonstrated by a HAZ of < -3. Age groups 24 to 35 months and 36 to 27 months were less likely to be stunted than the other age groups, (20.2%; OR:0.4; 95% CI:0.2-0.7; P<0.001) and (20.3%; OR:0.4; 95% CI:0.2-0.7; P=0.002), respectively. Stunting was significantly higher in children aged 12 to 23 months (50%; OR: 2.3; 95% CI: 1.5-3.6; P<0.001) and 48 to 59 months (48.2%; OR: 2; 95% CI: 1.2-3.2; P=0.005) with a demonstrable risk of at least twofold as compared to other age groups. The figures are shown in the table 3.

*Table3: Distribution of Stunting by age in West Pokot County*

| Age | | Stunting | | OR | 95% CI | P Value |
|---|---|---|---|---|---|---|
| | | Yes | No | | | |
| **6 - 11 Months** | Yes | 21(32.8) | 43(67.2) | 0.9 | .5-1.5 | 0.37 |
| | No | 128(36) | 228(64) | | | |
| **12 - 23 Months** | Yes | 54(50) | 54(50) | 2.3 | 1.5-3.6 | <0.001 |
| | No | 95(30.4) | 217(69.6) | | | |
| **24 - 35 Months** | Yes | 18(20.2) | 71(79.8) | 0.4 | .2-.7 | <0.001 |
| | No | 131(39.6) | 200(60.4) | | | |
| **36 - 47 Months** | Yes | 15(20.3) | 59(79.7) | 0.4 | .2-.7 | 0.002 |
| | No | 134(38.7) | 212(61.3) | | | |
| **48 - 59 Months** | Yes | 41(48.2) | 44(51.8) | 2 | 1.2-3.2 | 0.005 |
| | No | 108(32.2) | 227(67.8) | | | |

Weight for age Z-scores (WAZ) were used to classify underweight parameters. Prevalence of underweight is illustrated by WAZ of < -2, moderate underweight is represented by WAZ between ≥ -3 and < -2 while severe underweight is demonstrated by a WAZ of < -3. Underweight was distributed across under-five age groups. There was a more than 2-fold risk of underweight among those aged between 12 to 23 months (42%; OR:2.4; 95% CI: 1.5-3.8; P<0.001) as compared to the other age groups (23.7%). The age group of 36-47 months had a lesser risk of underweight (5.4%; OR:0.1; 95% CI: 0.1-0.3; P<0.001) in comparison to the rest of the groups. Table 4 the distribution of underweight by age sets.

*Table 4: Distribution of Underweight by Age sets in West Pokot County*

| Age | | Underweight | | OR | 95% CI | P Value |
|---|---|---|---|---|---|---|
| | | Yes | No | | | |
| **6 - 11 Months** | Yes | 24(37.5) | 40(62.5) | 1.6 | 0.9-2.8 | 0.061 |
| | No | 96(27) | 260(73) | | | |
| **12 - 23 Months** | Yes | 46(42.6) | 62(57.4) | 2.4 | 1.5-3.8 | <0.001 |
| | No | 74(23.7) | 238(76.3) | | | |
| **24 - 35 Months** | Yes | 20(22.5) | 69(77.5) | 0.7 | 0.4-1.2 | 0.095 |
| | No | 100(30.2) | 231(69.8) | | | |
| **36 - 47 Months** | Yes | 4(5.4) | 70(94.6) | 0.1 | 0.1-0.3 | <0.001 |
| | No | 116(33.5) | 230(66.5) | | | |
| **48 - 59 Months** | Yes | 26(30.6) | 59(69.4) | 1.1 | 0.7-1.9 | 0.368 |
| | No | 94(28.1) | 241(71.9) | | | |

Weight for height Z-scores (WHZ) were used to classify malnutrition using the WHO standard of nutritional survey analyzer. Prevalence of wasting is illustrated by WHZ of < -2, moderate acute malnutrition (MAM) is demonstrated by WHZ between ≥ -3 and < -2 while severe acute malnutrition is demonstrated by a WHZ of < -3. Wasting in the sampled population was 25.2% with boys having a significantly higher risk (29%) than girls (21.4%), (OR: 1.5; 95% CI: 1-2.3; P=0.046). 13% of the population sampled had moderately acute malnutrition (MAM). Severe acute malnutrition (SAM) was 12.1% with a more than 2-fold risk among the boys (15.9%) compared to the girls (8.3%), (OR:2.1; 95% CI:1.1-3.9; P=0.012). Table 5 shows the distribution of wasting by age in West Pokot County.

*Table 5: Distribution of Wasting by Age in West Pokot County*

| Age Groups | | Wasting | | OR | 95% CI | P Value |
|---|---|---|---|---|---|---|
| | | Yes | No | | | |
| **6 - 11 Months** | Yes | 19(29.7) | 45(70.3) | 1.3 | .7-2.4 | 0.229 |
| | No | 87(24.4) | 269(75.6) | | | |
| **12 - 23 Months** | Yes | 38(35.2) | 70(64.8) | 1.9 | 1.2-3.1 | 0.005 |
| | No | 68(21.8) | 244(78.2) | | | |
| **24 - 35 Months** | Yes | 19(21.3) | 70(78.7) | 0.8 | .4-1.3 | 0.209 |
| | No | 87(26.3) | 244(73.7) | | | |
| **36 - 47 Months** | Yes | 7(9.5) | 67(90.5) | 0.3 | .1-.6 | <0.001 |
| | No | 99(28.6) | 247(71.4) | | | |
| **48 - 59 Months** | Yes | 23(27.1) | 62(72.9) | 1.1 | .7-1.9 | 0.380 |
| | No | 83(24.8) | 252(75.2) | | | |

Table 6 shows the association between cultural practices and child malnutrition. Predominant marriage type was monogamous marriage (79%) and those under-fives in households of monogamous marriage had significantly fewer malnutrition cases (OR: 0.5; 95% CI: 0.3-0.9; P=0.015).

*Table 6: The Association between Cultural Practices and Acute Malnutrition in Children Aged between 6 and 59 Months in West Pokot*

| Cultural Characteristic | | Malnutrition | | OR | 95% CI | P Value |
|---|---|---|---|---|---|---|
| | | Yes | No | | | |
| **Marriage type** | Monogamous | 77(23.2) | 255(76.8) | 0.5 | 0.3 - 0.9 | 0.015 |
| | Polygamous | 23(37.7) | 38(62.3) | | | |
| **Human waste disposal** | Pit Latrine | 33(17) | 161(83) | 0.4 | 0.3 - 0.7 | <0.001 |
| | Bush | 73(32.3) | 153(67.7) | | | |
| **Dietary diversification** | Diversified | 10(18.9) | 43(81.1) | 0.7 | 0.3 - 1.4 | 0.165 |
| | Not diversified | 96(26.2) | 271(73.8) | | | |
| **Person served first in the family** | Children | 21(14.7) | 122(85.3) | 0.4 | 0.2 - 0.7 | <0.001 |
| | Household head | 85(30.7) | 192(69.3) | | | |
| **Caregiver experienced any form of violence** | Yes | 53(37.1) | 90(62.9) | 2.5 | 1.6 - 3.9 | <0.001 |
| | No | 53(19.1) | 224(80.9) | | | |
| **Child experienced any form of violence** | Yes | 45(51.7) | 42(48.3) | 4.8 | 2.9 - 7.9 | <0.001 |
| | No | 61(18.3) | 272(81.7) | | | |
| **Tradition restrict children from eating some foods** | Yes | 51(32.5) | 106(67.5) | 1.8 | 1.2 - 2.8 | 0.006 |
| | No | 55(20.9) | 208(79.1) | | | |

Dietary diversification did not have a significant influence on acute malnutrition (18.9%, OR: 0.7; 95% CI: 0.3-1.4; P=0.165). Prioritization of household head in meal serving predicted a higher occurrence of acute malnutrition among the under-fives (30.7%; OR: 2.3; 95% CI:1.5-4.4; P<0.001). This is a situation whereby the head of the household is served meals ahead of everyone else, especially children.

Violence, either against the caregiver or the under-five was high and had a significant impact on the nutritional status of the under-five, (34.5%; OR: 2.5; 95% CI:1.6-3.9; P<0.001) and (34%; OR:4.8; 95% CI:2.9-7.9; P<0.001), respectively. The spouse and parents were the sole perpetrators of violence against the caregiver and child, respectively.

Traditional restrictions on some foods for children was associated with child malnutrition (32%; OR:1.8; 95% CI:1.2-2.8; P=0.006). As shown in figure 2, eggs and chicken represented the highest percentage of restricted foods, 49% and 34%, respectively. Upon cross tabulation, children from households where eggs were prohibited for children had higher risk of acute malnutrition compared to those where there was restriction (38%; OR:2.7; 95% CI:1.3-5.7; P=0.006). Some of the reasons as to why children were restricted some foods were not explanatory such as 'children are not allowed to eat eggs by tradition' (41.2%). Some of the household just practiced the restriction without knowing (12.6%) or asking (13.4%). Figure 3 shows the reasons as to why households restrict some foods.

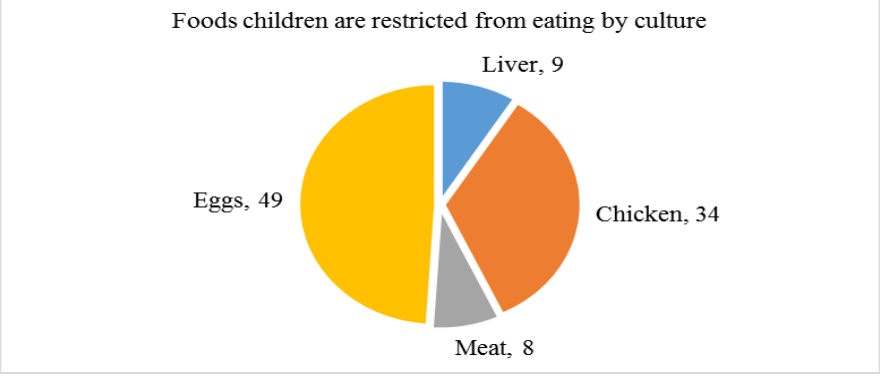



*Figure 2: Foods Children are Restricted form Eating*

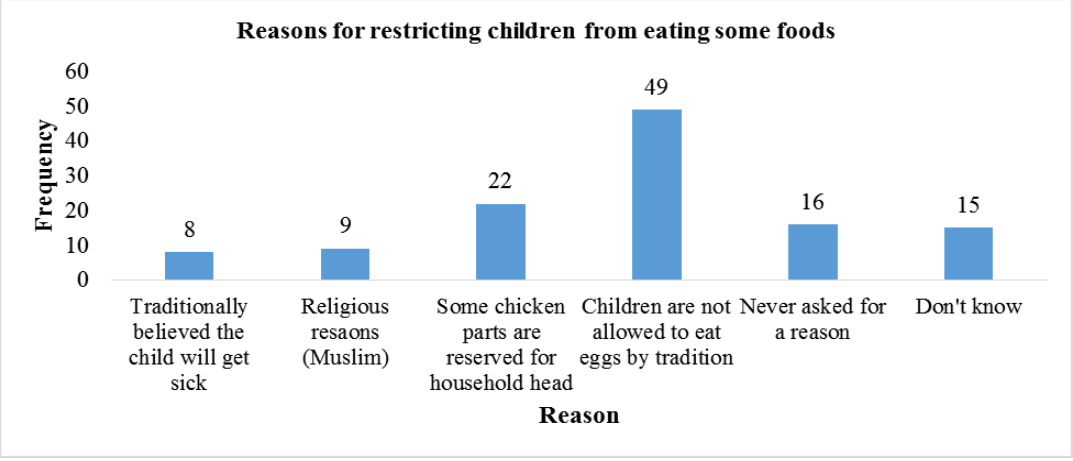



***Figure 3: Reasons for Restricting Children from Eating Some Foods***

## Discussion

The study aimed at finding out the cultural determinants that are associated with malnutrition in children aged between 6 and 59 months in West Pokot County. The study found that there are many aspects of culture which have an influence on child's nutritional status. These include type of marriage, meal service prioritization, violence and food taboos. The findings will be used by the County policy makers in prevention of malnutrition. The results will also be used as the baseline literature to guide other researchers. Through this research, the government and other stakeholders will be able to offer social protection to the members of the community, geared towards the reduction of malnutrition of children aged 6-59 months in the county.

The study found that the predominant marriage type was monogamous. However, children living in polygamous household had a higher risk of developing malnutrition (38%) compared to 23% risk in children who lived in monogamous household. According to a study, increased risk of malnutrition is connected with polygyny (polygamy) prevalence [21]. The same results were posted in a study of 35 sub-Saharan countries which found that in comparison to children from monogamous homes and mothers who had only one union, children from polygamous families and mothers who had several unions experienced a 5% increase in stunting [22]. Polygamy may be associated with less autonomy among the co-wives and competition for household resources, leading to poor nutritional outcomes on the children [23]. Children's nutrition is being impacted by polygamy due to larger families, early marriages, and household investments in children's health. It is also suggested that polygamy leads to child malnutrition because co-wives tend to have competition, generating inefficiencies in allocation of resources, which generally leads to poor nutritional outcome in children of the affected outcome [24].

Prioritization of adults during meal service was also noted to be a cultural factor associated with child nutrition. In the study, the households which serve the household head first had 30.7% of the children being malnourished compared to 14.7% of children in the households which serve the children first before the household head. This is similar to a study where, focused group discussions held where the mothers said that they always serve the father first, and that the best portion of the food, fish and meat is reserved for the father, or their portions removed first [25] This means that the food left for the child may not be adequate or less nutritious, leading to child malnutrition.

Violence against women appears to be an acceptable cultural norm in many countries. Violence within the household has also been known to influence child's nutritional status. In the study, violence was linked to increased level of child malnutrition. Whereby, 37.7% of children living in households which experienced violence had malnutrition. Further, 51.7% of children who

experienced malnutrition had faced any form of violence compared those who did not face any form of violence (18.3%). 65% of women who faced partner violence in Ethiopia had their children malnourished [12] The results are also in tandem with those of other studies which found that children from mothers who experienced partner violence had at least one form of malnutrition [26,27]. Partner violence contributes child malnutrition in many ways. One study which reviewed 132 articles in five databases found that partner violence of any form, especially to the mother, forces the mother to cease breastfeeding earlier than recommended [28]. Another potential mechanism to which partner violence causes child malnutrition is that the assaulted mother may be stopped from seeking medical services, including antenatal and child welfare clinic [11] This may predispose the child to illness which is a predictor of child malnutrition. Partner violence can also be extended to the child, whereby the child receives the violence which may cause injuries and illness, ultimately hampering feeding capability and thus malnutrition.

Food taboos is described as the deliberate avoidance of some food items for no apparent reason other than simple and obvious dislike [16]. In current study, children who were restricted from consuming certain foods or food items reported 32.5% chances of developing malnutrition compared to 20.9% in children who had no food restrictions. Among the children whose caregivers reported element of food restriction, most (49%) reported denying their children eggs, and 34% chicken meat. The results of this current study agree with other studies [29,30].

The reasons range from general traditions; some foods being reserved for the households. Interestingly, about 31% of the children who were malnourished had caregivers who had no reason or did not know why they deny their children specific foods. However, some are that most mothers did not feed their children on eggs because they believed that eggs will make children speak late, while others believed that giving children eggs may lead to stomach upsets These reasons given by those mothers are however misleading since it has been reported in a randomized clinical trial that introducing eggs early in the complimentary feed reduces stunting rates among children [31]. Furthermore, such dietary limits reduce the quantity of proteins, vitamins, and minerals that can be consumed, all of which are crucial for growth and development [25]. The child's nutritional status is also impacted by these eating behaviors.

## Conclusion

Cultural practices also contributed to child malnutrition. Food taboos, polygamous marriages and violence all were seen to have a negative impact on child's nutritional status. General community awareness on the harmful cultural practices should be implemented as these have been shown to have a negative impact on child malnutrition.

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## Conflict of interest

The authors declare that they have no conflict of interest financially or otherwise.

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## Authors' contributions

The corresponding author took part in the conceptualization of the study, proposal writing, data collection, analysis and writing of the study. The author also solely funded the entire study. The two other authors took part in coaching in the entire process and in fine tuning the final draft of the study.

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