

## Nutrition Knowledge of Caregivers and Feeding Practices of Children 6-59 Months in Rural Kajiado Central, Kenya

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### ABSTRACT

Childhood malnutrition remains a critical public health concern, particularly in developing countries. This study explores the nutrition knowledge of caregivers and its association with feeding practices among children aged 6-59 months in the Maasai community of Rural Kajiado Central, Kenya. Traditional practices and cultural norms significantly influence daily life in this community, emphasizing the need to understand caregivers' nutritional knowledge and its association with child-feeding practices. The study aims to determine the association between nutrition knowledge of the caregivers and feeding practices among children aged 6-59 months in rural Kajiado Central, Kenya. A cross-sectional mixed study design was employed, with data collected from caregivers (N=294) using a pre-tested questionnaire. Nutrition knowledge was assessed through a nutrition test, and feeding practices were evaluated using a 24-hour recall and dietary diversity score. Focus Group Discussions provided qualitative insights. Data were analysed using SPSS V26, Nutri-survey software, and qualitative thematic analysis. Caregivers demonstrated high nutrition knowledge (60.9% high, 3.4% very high), yet feeding practices revealed challenges. Most children consumed three meals daily, but dietary diversity was limited, focusing on cereals, milk, and fats. Despite high knowledge levels, there was no significant association between nutrition knowledge and several feeding practices ( $p>0.05$ ). Improving dietary diversity requires addressing infrastructural barriers alongside nutrition education. The study emphasizes the complex interplay between nutritional practices, socio-economic factors, and educational opportunities, highlighting the need for holistic interventions. Infrastructure support is crucial to improving food accessibility in rural areas. Nutrition education alone may not suffice to enhance feeding practices and nutritional status.

**Keywords:** *Caregivers, Children, Feeding practices, Nutrition Knowledge*

## INTRODUCTION

Nutrition is a fundamental determinant of child health and development. Undernutrition is the primary cause of poor health in developing countries and continues to be a major public health problem (Delisle & Batal, 2016). Its crisis is implicated in over half of child deaths worldwide and so in the developing world where it causes 45% of child deaths, resulting in 3.1 million deaths annually (Black et al., 2013). Optimal infant and young child feeding (IYCF) practices are critical to the nutritional status and survival of young children. Poor feeding practices among children contribute to a third of the cases of malnutrition worldwide (WHO and UNICEF 2021). Feeding practices are highly influenced by nutrition knowledge (Bulirani, 2018; Sukandar et al., 2015). In children, caregivers influence shaping the dietary habits and overall nutritional well-being of infants and young children. (Chege & Kuria, 2017) highlighted the importance of understanding the nutritional knowledge of women emphasizing that women often play a central role in shaping family dietary practices. In the context of the Maasai community in Rural Kajiado Central, Kenya, where traditional practices and cultural norms significantly influence daily life, understanding the nutrition knowledge of caregivers and its impact on the feeding practices of children aged 6-59 months is imperative.

In Kenya, the rates of undernutrition among children have gradually been decreasing. The prevalence of stunting has decreased exceptionally since 1993, from 40% to 18%, wasting from 7% to 5% and underweight currently at 10% (KDHS, 2022). However, in Kajiado, the figures are higher compared to national figures and if measures are not taken, malnutrition may cause a major menace in the region. The 2022 Demographic and Health Survey (DHS) has well documented that Stunting is higher among children in rural areas (20%) than children in urban areas (12%). In Kajiado County, a smart survey conducted in 2018 indicated that 25.3% of children 6-59 months were stunted and 22.5% were underweight (UNICEF, Feed the Children, NIA, 2018).

Historically, the Maasai people have sustained their communities through traditional dietary practices centred on livestock products and locally available resources. The pastoralist lifestyle, characterized by the reliance on livestock for sustenance, introduces unique dietary patterns that may influence the nutritional status of children. However, with changing socio-economic dynamics and increased access to external influences, there is a need to explore how these shifts impact caregivers' nutrition knowledge and subsequently affect feeding practices for young children. Though studies have shown that poor feeding practices and undernutrition are a prevailing burden in low-resource settings, there is limited current literature that has assessed the association of nutrition knowledge and feeding practices among children in rural Kajiado which is mostly inhabited by the pastoralists. Therefore, this study seeks to determine the association between nutrition knowledge of the caregivers and feeding practices among children aged 6-59 months in rural Kajiado Central, Kenya

## METHODOLOGY

### Research Design

The study adopted a cross-sectional mixed-study design. This design was used as it gathers data at a single point in time.

### **Study Location**

The study was conducted in two randomly selected rural units; Sajiloni and Kiloriti in Kajiado Central, Kenya. Kajiado was purposely chosen because of its significantly higher levels of stunting and underweight; 25.3% and 22.5% respectively (UNICEF, Feed the Children, NIA, 2018).

### **Population**

The study population comprised caregivers with a child aged 6-59 months and had lived in Kajiado Central for more than 6 months.

### **Sample size**

A sample size of 294 caregivers was computed using the Cochran formula. Out of the 294 caregivers, 40 were randomly selected to participate in Focus Group Discussion.

### **Sampling Techniques**

147 Caregivers who met the inclusion criteria were randomly selected from each sub-division. Further 20 caregivers from every sub-division were randomly selected to participate in the focus group discussion. 2 Focus Group discussions comprising 10 caregivers were done in each sub-division.

### **Data Collection Instruments and Procedures**

Data was collected using a pre-tested semi-structured questionnaire which was divided into 2 sections. Section A, focused on the social-demographic and socio-economic characteristics of the caregiver while section B collected data on the caregiver's nutrition knowledge and feeding practices. The questionnaire was validated by using a panel of research nutrition professionals along with a field test. The validation was done by assessing whether the questionnaire was well structured to ensure it would collect data on what was intended to measure, it would be appropriate for caregivers and would be detailed enough to collect all the information needed to achieve the objective of the study. To test for reliability, a pilot study was conducted on a sample of 30 caregivers from a nearby sub-location. A Cronbach's alpha value of 0.83 was obtained, which is an indicator that the tool was reliable.

The nutritional knowledge of caregivers was determined through a nutrition test with a set of 20 questions given to the caregivers. The questions focused on breastfeeding, complementary feeding, frequency of feeding, dietary diversity, food groups, food balance, responsive feeding and actions taken when the child is sick. The scores were rated as a percentage; 0 - 20 (very low), 21 - 40 (low), 41 - 60 (moderate), 61 - 80 (high), and > 81 (very high).

Feeding practices were assessed using a 24-hour recall. In addition to the 24-hour recall, food diversity score was conducted by analysing the number of food groups consumed by the child from a set of 12 food groups. A dietary diversity score cut-off-point of 6 food groups was used as per the WHO guidelines.

A focus group discussion guide was used to collect more information on the feeding practices and barriers to proper feeding practices.

### Data Analyses

Data was cleaned and coded before analysis. The qualitative data from FGDS was transcribed and coded and themes were identified and interpreted. The quantitative data was analyzed using SPSS version 26. Nutrition knowledge was analysed using a Likert scale with a 5-point score. The percentage of correct answers per caregiver was ranked on this scale. Nutri-survey software was used to analyse dietary data to determine the amount of energy, protein, vitamin A and iron consumed per day. Nutrient intake was compared to recommended dietary allowances (RDAs) by age and sex to those recommended by FAO (FAO, 2001) to determine the adequacy of the child's nutrient intake. Chi-square was used to assess the relationship between nutritional knowledge and age and education level of the caregivers while Pearson product-moment correlation ( $r$ ) was used to determine the relationship between nutritional knowledge level and feeding practices. The level of significance was at  $p < 0.05$ .

### Ethical Considerations

Ethical clearance to conduct the study was obtained from the Kabarak University Institute of Scientific & Ethics Review Committee (ISERC) and the National Commission for Science, Technology and Innovation (NACOSTI). In addition, all participants consented and assured of privacy and confidentiality before enrollment into the study.

## RESULT

### Socio-Demographic Characteristics of the Caregivers

Results show that the majority (98.6%) of the caregivers were female. The ages of the caregivers ranged from 18 to 51 years. A majority (51.3%) were between the ages of 18-29 years. The study noted a statistically significant association between nutritional knowledge level and the age of caregivers ( $P$  value =  $< 0.001$ ). Most (68.4) of the caregivers were married and a majority (66.3%) had secondary education. The study also noted a statistically significant relationship between nutritional knowledge level and the level of education of caregivers ( $P$  value =  $< 0.001$ ). A majority (34%) had more than 5 children in the household. (Table 1)

**Table 1:**

*Socio-demographic characteristics of the Caregivers of Children aged 6-59 months in Kajiado Central, Kenya*

Variables	N (294)	N. %
Gender of the caregiver		
Female	290	98.6
Male	4	1.4
Age of the caregiver in years		
18 - 29	151	51.3
30 – 39	103	35
40 – 49	39	13.3
> 50	1	0.3
Marital status		

Married	201	68.4
Single	69	23.5
Separated	21	7.1
Widowed	3	1
Education level		
University	5	1.7
Secondary	195	66.3
Primary	89	30.2
Never attended	5	1.7
Number of children in the household		
>5	100	34
4	67	22.8
3	55	18.7
2	42	14.3
1	30	10.2

### Nutrition Knowledge Level of the Caregivers

A majority (60%) of the questions on nutrition knowledge assessment focused on complementary feeding and dietary diversity. Food preparation (20%), hygiene practices (10%) and health-seeking behaviour (10%). The caregivers were being given health training including nutrition promotion by the trained community health promoters. The nutritional knowledge level among the caregivers was high (60.9% high and 3.4% very high), with 26.5% having moderate and only 8.5% with a low level of knowledge and less than 1% with very low. (Table 2). The mean nutritional knowledge score was  $61.0 \pm 1.2$  SD.

**Table 2:**

*Nutrition Knowledge Score of the Caregivers*

Score, %	N (294)	N.%
0 - 20 (very low)	2	0.7
21 - 40 (low)	25	8.5
41 - 60 (Moderate)	78	26.5
61 - 80 (high)	179	60.9
> 81 (very high)	10	3.4

### Feeding Practices of the Caregivers to the Children Aged 6-59 Months

The majority of the children, 83% consumed 3 meals per day. The average number of meals consumed was  $3.08 \pm 0.05$  with most (78.6%) children consuming 3 food groups. The food groups mainly consumed were milk (100%), cereals (91.8%) and fat (97.6%). Meat, Fruits and vegetables were rarely consumed. Only 4.8% consumed more than the recommended 6 food groups (Table 3). The mean dietary diversity score (DDS) was  $3.15 \pm 1.2$ .

The average consumption of energy, protein, vitamin A and iron, was  $1820 \pm 129$  SD,  $15.3 \text{ g} \pm 3.24$  SD,  $311 \text{ } \mu\text{g RE} \pm 54$  SD and  $4.82 \pm 0.01$  SD respectively. Compared to the recommended intake of 1800 kcal, 16g, 400  $\mu\text{g RE}$  and 7mg, for energy, protein, vitamin A and iron respectively. From the findings, it was evident that there was an adequate intake of energy and a low intake of micronutrients. Most of the children (87.1%) consumed adequate kilocalories while only 10.2% and 18.7% of the children consumed the RDAs for vitamin A and iron respectively.

**Table 3:**  
*Feeding Practices of the Caregivers of Children Aged 6-59 Months*

Variables	N (294)	N. %
<b>Number of meals consumed</b>		
2	10	3.4
3	244	83
4	24	8.1
5	16	5.4
<b>Number of food groups consumed</b>		
2	15	5.1
3	231	78.6
4	17	5.8
5	17	5.8
6	10	3.4
7	4	1.4
<b>Food Group</b>		
Cereals	270	91.8
Roots	10	3.4
Tubers	5	1.7
Milk and Milk products	294	100
Meat and meat products	24	8.1
Nuts	3	1
Eggs	5	1.7
Vegetables	15	5.1
Fruits	17	5.7
Sugar	55	18.7
Fats and Oils	287	97.6
Condiments & Spices	17	5.8
<b>Children who consumed the recommended Nutrients amount</b>		
Energy, kcal	256	87.1
Protein, g	236	80.3
Vitamin A, RE	30	10.2
Iron, mg	55	18.7

### Association Between Nutrition Knowledge and Feeding Practices of the Caregivers

Regression analysis of correlation shows a positive statistically significant association ( $P < 0.05$ ) between the nutritional knowledge score of the caregivers and energy intake, and protein intake of the children. However, on the association between the nutritional knowledge of caregivers and feeding practices on the number of meals consumed, dietary diversity score, frequency of fruit consumption, frequency of vegetable consumption, Vitamin A and iron intake, it was noted there was no significant association (Table 4).

**Table 4:**  
*Association between Nutrition Knowledge and Feeding Practices of the caregivers*

Variables	r	P Value
Number of meals	0.264	< 0.053
Dietary diversity score	0.303	< 0.091
Frequency of fruit consumption	0.466	< 0.071
Frequency of vegetable consumption	0.321	< 0.081
Amount of energy consumed	0.438	< 0.001
Amount of protein consumed	0.401	< 0.003

Amount of vitamin A consumed	0.413	< 0.061
Amount of iron consumed	0.416	< 0.071

### Qualitative Findings

The qualitative findings of the study complemented and expanded upon the quantitative results, providing an understanding of the dietary practices and challenges faced by caregivers in the community. The predominant observation was that children typically consumed three meals a day – Breakfast, Lunch and Dinner, with an emphasis on milk, porridge and ugali (a mixture of maize flour and boiled water). However, a notable concern emerged regarding the low dietary diversity, primarily revolving around three main food groups: cereals, milk, and fat. The respondents revealed that the limitation in dietary diversity was not due to a lack of nutritional knowledge. Participants expressed awareness of the importance of providing a variety of food groups, including fruits and vegetables, for optimal child nutrition. However, they underscored a significant challenge—limited food availability. This was attributed to the absence of nearby markets, poor road infrastructure, and the impracticality of obtaining perishable items in large quantities due to the risk of spoilage.

In the participants' own words, the constraints on acquiring diverse foods were vividly illustrated. One caregiver emphasized the impracticality of walking long distances to purchase fruits and vegetables, stating, "Yes, I know I am supposed to give my child fruits and vegetables daily, but now, how do I walk for 5 kilometres to go and buy fruits? It does not make sense; if I buy in large quantities, they will get spoiled." Another caregiver suggested a willingness to sell portions of milk to finance the purchase of fruits and vegetables if they were more readily available.

On socio-demographic characteristics, caregivers highlighted positive shifts in education. The introduction of free primary education and nearby CDF secondary schools enabled increased school attendance. Caregivers reported proficiency in Kiswahili and English, emphasizing improved communication skills. The narratives reflected a shift away from early marriages, with parents supporting education and allowing young mothers to continue their schooling. Additionally, the availability of CDF secondary schools facilitated education up to the secondary level, and the prospect of further education was expressed if colleges were more accessible.

### DISCUSSION

The study revealed that a majority of caregivers were female and fell within the age range of 18 to 29 years, aligning with the period when individuals are likely to have children below 5 years. This demographic distribution is understandable and corresponds with life stages and also most of the caregivers being women is not surprising in this setup as tradition has often bestowed the responsibility of child-caring on women, especially in the rural areas. Comparable findings have been noted in other studies focusing on similar populations (Ameyaw et al., 2023; Motebejana et al., 2022; Opwora et al., 2011). However, it's important to note that this age distribution may vary based on cultural and regional factors.

Regarding education levels, the study found that most caregivers had attained a secondary level of education, which can be attributed to the implementation of the free education system in Kenya. This finding contrasts with a study finding by (Chege & Kuria, 2017), conducted before the introduction of free education, which documented low education levels among caregivers in

Kajiado. This disparity underscores the transformative impact of policy interventions, such as free education, on educational attainment within the community.

A significant association between nutrition knowledge and education level was observed, echoing findings from a study by (Egg et al., 2020) that demonstrated a positive correlation between education and nutrition knowledge. This association is plausible, given the incorporation of basic nutrition education in the Kenyan education system, starting from the primary level. Such educational initiatives likely contribute to heightened nutrition awareness among caregivers with higher education levels.

Despite the reported high levels of nutrition knowledge, the study noted no significant association between nutrition knowledge and the number of meals  $P=0.053$ , dietary diversity score  $p=0.091$ , frequency of fruit consumption  $p=0.071$ , frequency of vegetable consumption  $p=0.081$ , intake of Vitamin A  $p=0.061$  and iron intake  $p=0.071$  at a significant level of  $p<0.05$ . This was attributed to poor road infrastructure, impacting food availability. The findings align with similar studies emphasizing the multifaceted nature of nutrition interventions (Burchi et al., 2011; FAO, 2006). These insights contribute to the ongoing discourse on effective strategies to promote optimal nutrition practices and, consequently, improved nutritional status which impacts health not only at that point in time but also across the lifespan and possibly for future generations. It's noteworthy that this finding emphasizes the need for holistic interventions, beyond knowledge dissemination, to address structural barriers affecting dietary choices.

The study also revealed that caregivers provided three meals a day, correlating with children attending school and subsequently having fewer snacking opportunities. While this adheres to the recommended three well-balanced meals and snacks, it underscores the influence of external factors, such as school schedules, on dietary practices (Abdelhafez et al., 2020; Mukanu et al., 2022).

## **Conclusion**

The study suggests that improving dietary diversity necessitates not only enhancing nutrition knowledge but also addressing infrastructural challenges that hinder food availability. The findings shed light on the complex interplay between nutritional practices, socio-economic factors, and educational opportunities in the community. The expressed challenges centred on food availability rather than a lack of nutritional knowledge, highlighting the need for interventions that address infrastructural barriers to improve dietary diversity among children in the community.

## **Recommendation**

This study recommends infrastructure support to improve food accessibility and availability in rural areas as nutrition education as a strategy to improve behavioural change on feeding practices alone is not adequate to improve the nutritional status.

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## **Conflict of Interest**

There are no conflicts of interest



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