

Prevalence of malnutrition and community perceptions of women's barriers to child growth: Case study in Kilindi District, Tanzania

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Abstract

Introduction : Everyday lives of children depend on interactions with their parents, especially on care and feeding practices, which are essential to their development, health, and overall well-being.

Objectives: This paper aimed to examine the prevalence of undernutrition and barriers facing women during the growth of children between the ages of 6 and 23 months among crop farmers and agro-pastoralists in Kilindi District.

Methods: About 136 agro-pastoralist women and 209 crop farmers were chosen using multistage random sampling and participated in a cross-sectional survey. A structured questionnaire was used to gather the data during the face-to-face interview. A length board and a weighing scale were used to measure length and weight, respectively. IBM SPSS Statistics version 20, NVivo software version 8, and WHO Anthro 3.2.1 were used to analyze the data. Significant differences in the distribution of nutritional status were determined using the Mann-Whitney U test. Significance was considered at 5% when $P \leq 0.05$.

Results: Approximately 94.2% of crop farmers' children and 91.8% of agro-pastoralists' children were breastfed and given complementary food. The main women's barriers to child growth were food insecurity, workload, inadequate health facilities, culture, and inadequate nutritional knowledge. Crop farmers had a higher prevalence of stunting (37.1%), underweight (16.3%), and wasting (7.7%) than agro-pastoralists, who had a prevalence of stunting (28.5%), underweight (13.8%), and wasting (4.4%).

Conclusion: The crop farmers' children are more malnourished than agro-pastoralists. Income-generating activities, such as crop and livestock production, adequate health services, labor-saving equipment, and nutritional knowledge, have to be put into consideration by policymakers at the household level in order to improve the nutritional status of children.

Key words: breastfeeding, complementary food, food insecurity, stunting

Introduction

In the context of daily family life, parent-child interactions pertaining to feeding and caring are vital to children's development, well-being, and health (Daniels, 2019). Parental care and feeding practices may either improve a child's health or lead to malnutrition (FAO 2004). Malnutrition involves overnutrition and undernutrition (Shetty, 2003). Stunting, wasting, underweight, and micronutrient deficiency are indicators of undernutrition (Shetty, 2003; Vijayalakshmi and Muvandimwe, 2014). Globally, 7.3% of children under the age of five are wasted, and 21.9% are stunted (UNICEF, 2020). The prevalence of stunting in East Africa is 35.2%, and wasting is 6.0% (UNICEF, 2020).

The primary public health problem in Tanzania among children under the age of five is undernutrition (DAC, 2020; TNNS, 2014). In Tanzania, stunting or chronic malnutrition is 31.8%, and

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underweight is 14.6% in children under the age of five (0-59 months) (MoHCDGEC *et al.*, 2018). The prevalence of stunting exceeded 30 percent in fifteen (15) out of the twenty-six (26) regions in Tanzania, which is regarded as "extremely high" (MoHCDGEC *et al.*, 2018). There is a great difference in the prevalence of stunting in various regions of Tanzania, in which the leading regions are Njombe (56%), Rukwa (47.9%), and Iringa (47.1%), while the lowest regions are Dar es Salaam (20.1%) and Kilimanjaro (20%) (MoHCDGEC *et al.*, 2018). Tanga Region has moderate underweight (13.8%) and severe underweight (1.8%), while 34% of children are stunted, more than the country average (MoHCDGEC *et al.*, 2018).

Undernutrition leads to health care costs, loss of productivity, and impairment of the immune system (UNICEF 2019; COHA 2019; Soliman *et al.*, 2021). The impaired immune system increases the risk of infectious diseases and causes premature mortality and low birth weight (UNICEF 2019; COHA 2019; Soliman *et al.*, 2021). Pregnancy and childhood undernutrition have several detrimental effects on the long-term health and survival of the fetus (USAID, 2018). Undernutrition has significant effects on productivity in the economy, human resources, and the entire development of a nation (USAID, 2018). Globally, an estimated 2.7 million children who die per year, or 45 percent (45%) of all child mortality, are linked to undernutrition (WHO, 2023). Between January and November of 2021, there may have been 262,500 deaths in East Africa due to severe malnutrition (Save the Children, 2021). Tanzania faces several challenges, one of which is undernutrition. Poor nutrition is thought to have contributed to the deaths of over 600,000 children under the age of five during the previous ten years (Twaweza, 2021).

Undernutrition can result from a number of factors, including poor care for women and children, food insecurity, diseases, low dietary intake, unhygienic environments, low levels of technology, environments such as soil and climate, division of labor, policies, beliefs, and cultural preferences (UNICEF 1993). In Tanzania, disease and dietary factors are the immediate causes of undernutrition, while underlying causes include food insecurity, inadequate caring capacity, and inadequacy of essential services like health services, education, safe water, sanitation, and hygiene (United Republic of Tanzania, 2016). Basic causes include ignorance brought on by low education and nutrition-unfriendly customs and traditions, income inequality, and general political governance (United Republic of Tanzania, 2016). A study done by Aloyce (2018) revealed that inadequate breastfeeding leads to stunting, while underweight in children is caused by the mother's or caregiver's recognition of the child's fullness during feeding.

Malnutrition and its causes in cultural context and gender are complex and differ from one socio-economic group to another. This study aimed to examine the prevalence of undernutrition and women's barriers to growth of children aged 6–23 months among crop farmers and agro-pastoralists in Kilindi District, Tanzania.

Material and Methods

Study Area and Population

A total of 398,391 people live in Kilindi District (NBS, 2022). Maize and beans are mostly grown as crops for sale and food. Livestock kept includes cattle, poultry, and goats. The ethnic groups are the Masai, Nguu, Zigua, Kaguru, Kamba, Iraqw, Burunge, Chagga, Pare, Meru, and Sambia. With different cultural traits that are typical of most Tanzanian ethnic groups, Kilindi District has cosmopolitan people that are crop farmers and livestock keepers.

This study focused on three target populations: males aged 18–45 and 46 years and above among crop farmers and agro-pastoralists, women of reproductive age (15–49 years), and children aged 6–23 months. Households who were willing to participate in the study and had children between the ages of 6 and 23 months were included; however, those who were not agro-pastoralists or crop farmers, had children younger than 6 months or older than 23 months, did not reside in the village permanently, or had children with disabilities that could make it more challenging to measure height and weight were excluded.

Study Design

A cross-sectional study design was employed in this research for quick data gathering and affordability.

Sampling Techniques and Sample Size Determination

Multistage random sampling was employed to choose study participants; six wards were selected based on location, agricultural practices, and ethnic groups. Purposive sampling was used to choose one hamlet in each ward, where the majority of people live as crop farmers and agro-pastoralists. The sub-village chairpersons of the chosen six villages provided the lists of all eligible participants. Then, 209 crop farmers and 136 agro-pastoralists at Negero, Vyadigwa, Kweikivu, Chamtui, Mkindi, and Gombero B village were obtained using proportionate stratified random sampling. To prevent bias, a single child was chosen randomly from a household with multiple children. The $z^2 \times ((p(100-p))/d^2)$ formula was used to estimate the sample size (Taherdoost, 2018), where the 95% confidence level for z . The percentage maximum error (d) was 5%. In the Tanga Region (P), the prevalence of stunting was 34% (MoHCDCGEC *et al.*, 2018).

About 345 households made up the necessary sample size for this study. Several participants who share common characteristics such as expert knowledge and experiences, age, sex, and socio-economic groups (crop farmers and agro-pastoralists) were selected to participate in the focus group discussions. Eight subgroups of ten participants were formed, in which two subgroups involved female crop farmers and two subgroups involved female agro-pastoralists with age categories of 15-35 and 36-49 years. For their male counterparts, according to the age categories of 18-45 and 46 years and above, two subgroups exclusively for male farmers and two subgroups for male agro-pastoralists were formed. At least one subgroup was allocated using the lottery method to a particular selected village for focus group discussion.

Procedures for Data Collection

Anthropometric measurements, a tape recorder, and a focus group checklist were used to collect the data. Anthropometric measurements were conducted at homes, schools, and dispensaries, while focus group discussions were conducted at village offices. An assistant researcher was trained before actual data collection. The child was weighed using a Salter-type baby weighing scale while wearing light clothing. The weight was recorded as being closest to 0.1 kg. The length was measured to the closest 0.1 centimeters (cm) using a length board. During measurement, the child laid down with their

head resting against the board's base, their feet flat against the foot piece, and their arms relaxed and straight.

In-depth information on the obstacles mothers face in raising their children was gathered through focus group discussion. Participants in the focus group discussion were asked to gather at the village office on a specific day. Focus group sessions were facilitated by one trained research assistant per ward. Each focus group session lasted for around an hour. Throughout the discussions, the participants' conversations were noted by the research assistant (facilitator). All focus group conversations were tape-recorded in order to allow for verbatim transcription. Finally, the researcher (interviewer) and research assistant (facilitator) moderated the focus group talks that were noted in the notebook with members of the focus group discussion in order to enhance validity.

Data Processing and Analysis

IBM SPSS Statistics version 20 was used to analyze data after data editing and coding. Weight, height, and age (months) were converted into a weight for age, height for age, and weight for height using WHO Anthro 3.2.1 software. Significant differences in the distribution of nutritional status were determined using the Mann-Whitney U test. Descriptive analysis, such as percentages, was used to analyze the prevalence of undernutrition and child feeding practices. Chi-square was used to determine the relationship between child undernutrition and feeding practices. Significance was considered at 5% when $P \leq 0.05$. Data from the tape recorder was transcribed and backed up with data from the notebook. Data was organized through a coding process using NVivo software version 8 and analyzed using qualitative thematic analysis techniques.

Results

Child Feeding Practices

Results in table 1 show that 81% of mothers who belong to crop farmers eat three meals per day as compared to 86.1% of agro-pastoralists. There was no significant difference in the number of meals eaten by mothers between crop farmers and agro-pastoralists ($p = 0.203$). Eighty-eight percent (88%) of children belong to crop farmers, and 88.3% of agro-pastoralists eat complementary food three times per day. Consumption patterns of complementary food among children of crop farmers and agro-pastoralists are statistically different ($p = 0.011$). Crop farmer children (73.6%) and agro-pastoralist children (67.9%) were fed by their mothers. Feeding methods of children among crop farmers and agro-pastoralists are not statistically different ($p = 0.187$). Crop farmers' children (94.2%) and agro-pastoralists' children (91.8%) were breastfed and given complementary food. There were no statistically significant differences in complementary and breastfeeding practices between crop farmers and agro-pastoralists ($p = 0.408$) (Table 1).

Table 1: Child feeding practices

	Agro-Pastoralists(N=137) n(%)	Crop Farmers(N=208) n(%)	All(N=345) n(%)	P-value
Number of meals eaten by mother				0.203
1 meal per day	1(0.7)	0(0)	1(0.3)	
2 meal per day	25(18.2)	29(13.9)	54(15.7)	
3 meals per day	111(81)	179(86.1)	290 (84)	
Number of complementary feeding eaten by child per day				0.011*
Feeds twice per day	7(5.1)	21(10.1)	28(8.1)	
	2192			

Feed thrice per day	121(88.3)	183(88)	304(88.1)	
Feed more than thrice per day	8(5.8)	3(1.4)	11(3.2)	
Never give complementary food (Only Breastfed)	1(0.7)	1(0.5)	2(0.6)	
Feeding methods				0.187
Fed by Mother (bottle feeding)	93(67.9)	153(73.6)	246(71.3)	
Eat alone	35(25.5)	50(24)	85(24.6)	
Fed by mother and eat alone	8(5.8)	4(1.9)	12(3.5)	
Never (Breastfeeding only)	1(0.7)	1(0.5)	2(0.6)	
Complementary and breast feeding practices				0.408
complementary and breast feeding	129(94.2)	191(91.8)	320(92.7)	
breast feeding only	1(0.7)	1(0.5)	2(0.6)	
complementary feeding only	7(5.1)	16(7.7)	23(6.7)	

Mann Whitney U test, * Significant at $p \leq 0.05$

Prevalence of Undernutrition

The nutritional status of children is shown in Table 2 and Figure 1. Generally, about 33.6% of children were stunted, 15.6% underweight, and 6.4% wasted in surveyed communities. Crop farmers had 37.1% more stunted children than agro-pastoralists (28.5%). Crop farmers and agro-pastoralists have no significant differences in stunting ($p=0.060$). Crop farmers had a 16.3% greater risk of underweight children than agro-pastoralists (13.8%). Between crop farmers and agro-pastoralists, there is no significant difference in underweight ($p = 0.533$). Crop farmers had a 7.7% greater rate of wasted children than agro-pastoralists (4.4%), but there is no significant difference in wasting among crop farmers and agro-pastoralists ($p = 0.229$).

Table 2: Prevalence of undernutrition

Nutritional status	Agro-Pastoralists(N=137) n(%)	Crop Farmers(N=208) n(%)	All(N=345) n(%)	P- value
Weight for Age				0.533
Normal	118(86.1)	174(83.7)	292(84.6)	
Moderate Underweight	14(10.2)	25(12)	39(11.3)	
Severe Underweight	5(3.6)	9(4.3)	14(4.1)	
Overall underweight	19(13.8)	34(16.3)	52(15.6)	
Weight for Length				0.229
Normal	131(95.6)	192(92.3)	323(93.6)	
Moderate Wasting	4(2.9)	14(6.7)	18(5.2)	
Severe Wasting	2(1.5)	2(1)	4(1.2)	
Overall wasting	6(4.4)	16(7.7)	22(6.4)	
Length for age				0.060
Normal	98(71.5)	131(63)	229(66.4)	
Moderate Stunting	30(21.9)	49(23.6)	79(22.9)	
Severe Stunting	9(6.6)	28(13.5)	37(10.7)	
Overall stunting	39(28.5)	77(37.1)	116(33.6)	

Mann Whitney U test, * Significant at $p \leq 0.05$

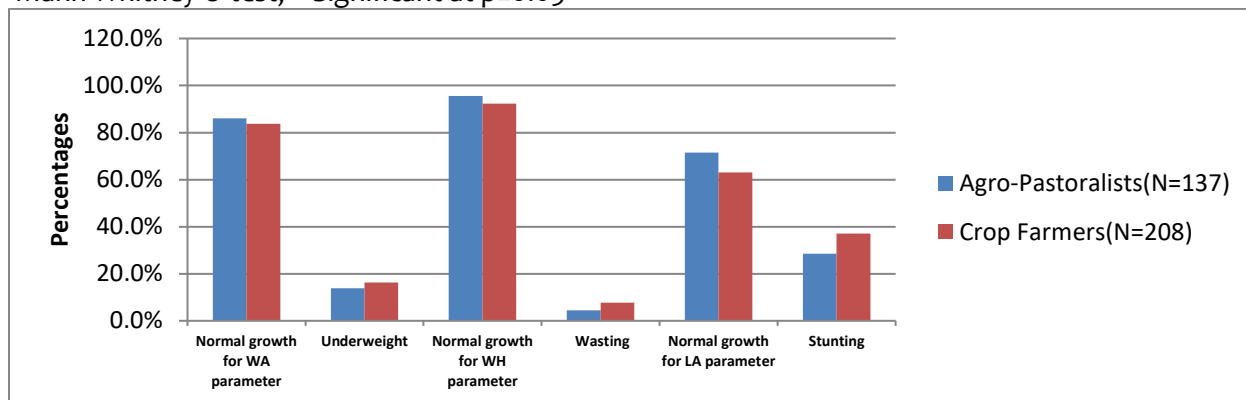


Figure 1: Prevalence of undernutrition

Relationship between Child Undernutrition and Feeding Practices

Only the number of meals eaten by the mother per day was significantly associated with stunting ($p = 0.043$) among agro-pastoralists. Other feeding practices, including the number of complementary feedings, feeding methods, breastfeeding, and complementary feeding practices, were not associated with stunting and underweight among crop farmers and agro-pastoralists (Table 3).

Table 3: Relationship between child undernutrition and feeding practices

Independent Variable	Crop Farmers						Agro-Pastoralists					
	Stunting			Underweight			Stunting			Underweight		
Feeding Practices	n	%	P-value	n	%	P-value	n	%	P-value	n	%	P-value
Number of meal eaten by mother/lactating mother			0.126			0.697			0.043*			0.617
1 meal per day	0	0.0		0	0.0		1	2.6		0	0.0	
2 meal per day	7	9.1		4	11.8		11	28.2		2	33.3	
3 meals per day	70	90.9		30	88.2		27	69.2		4	66.7	
Number of complementary feeding eaten by child per day			0.185			0.829						0.562
Feeds twice per day	4	5.2		3	8.8		3	7.7		1	16.7	
Feed thrice per day	71	92.2		31	91.2		32	82.1		5	83.3	
Feed more than thrice per day	1	1.3		0	0.0		4	10.3		0	0.0	
Never give complementary food (Only	1	1.3		0	0.0		0	0.0		0	0.0	
Feeding methods			0.233			0.770			0.706			0.372
Fed by Mother	56	72.7		23	67.6		29	74.4		5	83.3	
Eat alone	20	26.0		10	29.4		8	20.5		0	0.0	
Fed by mother and eat alone	1	1.3		1	2.9		2	5.1		1	16.7	
Never (Breastfeeding only)	0	0.0		0	0.0		0	0.0		0	0.0	
Complementary and breast feeding practices			0.421			0.563			0.817			0.822
Complementary and breast feeding	70	90.9		30	88.2		37	94.9		6	100	
Breast feeding only	1	1.3		0	0.0		0	0.0		0	0.0	
Complementary feeding only	6	7.8		4	11.8		2	5.1		0	0.0	

Chi-Square

*Significant at $p \leq 0.05$

Community Perception of Women's Barriers to the Growth of Children

Four themes emerged from the focus group discussions, and they describe the obstacles women face in ensuring that children aged 6 to 23 months have normal growth. The themes included cultural influences, the burden of work and other responsibilities, food insecurity in households, limited medical resources and staff (poor health services), and a lack of nutritional knowledge. Below is a detailed explanation of these themes.

Culture

Crop farmers expressed their concerns about how culture influences women's roles in the growth of children aged 6–23 months. Female crop farmers mentioned that men are the ones who control family resources, including maize produce and income. Myths or bad beliefs about young children were also mentioned by male crop farmers as a factor causing poor child growth.

The quotes from crop farmers included below demonstrate how culture influences women's roles in the growth of the children.

“In our society, husbands participate in marketing where they control all income and flee the family if the money runs out, which leads to inadequate funds to buy food for family members and children, which hinders child growth in most households” (A female crop farmer aged 15-35 years).

“In our society, cultures or myths cause the majority of women to give their children to grandmothers at an early age for care, which sometimes stops breastfeeding and sometimes prevent child growth” (A male crop farmer aged 46 years and above).

Household's Food Insecurity

Crop farmers and agro-pastoralists expressed their concerns about how food insecurity in the household influences women's roles in the growth of children aged 6–23 months. Female agro-pastoralists mentioned barriers to child growth such as low maize productivity and poverty in the households, while female crop farmers reported poor family relations such as lack of transparency in spending money and poor cooperation between husband and wife, which contribute to households' food insecurity. Male agro-pastoralists mentioned low income, in which they are unable to buy food, while male crop farmers reported inadequate food in the household due to low productivity.

The quotes from crop farmers and agro-pastoralists included below demonstrate how household food insecurity causes an impact on women's roles in the growth of children.

“I am poor, and I have low productivity; hence, I cannot afford to buy balanced food for my children.” (A female agro-pastoralist aged 15–35 years).

“In our society, there is poor participation or cooperation between wife and husband in the household, which causes a lack of a family budget, transparency, and misuse of family funds. During rainy seasons, most men claim to be ill and thus do not attend farming operations; instead, they engage in non-farm activities such as playing cards and loitering in the street, which leads to inadequate food to feed children and income to buy food and other expenses” (A female crop farmer aged 15–35 years).

"I have a low income, and I am unable to afford balanced complementary food, which sometimes impairs the growth of my children" (A male agro-pastoralist aged 18–45 years).

"I have inadequate food due to low productivity. Sometimes the situation is worse during the dry season." (A male agro-pastoralist aged 46 years and above).

Women's Burden of Work and Other Responsibilities.

The female agro-pastoralist reported a heavy women's workload in farming, grazing, and domestic chores, while female crop farmers mentioned walking long distances searching for water, their husbands' not caring for children, and a lack of time for uptake of health services as a barrier for child growth. Male agro-pastoralists also mentioned lack of time for child care and feeding among women as hindrances to child growth.

The quotes from crop farmers and agro-pastoralists included below demonstrate how women's burdens of work and responsibilities cause an impact on women's roles in the growth of children.

"I have heavy workloads such as grazing, farming, and household chores, which sometimes prohibit me from the provision of appropriate care and feeding practices for my children, which may impair child growth" (A female agro-pastoralist aged 15–35 years).

"I don't have enough time to care for and prepare food for my children because of farming activities and more domestic chores. My children sometimes do not get balanced complementary foods, and I breastfeed my baby less" (A female agro-pastoralist aged 36–49 years).

"I walk long distances to get water, which reduces the amount of time available for proper care and feeding practices for my children" (A female crop farmer aged 15–35 years).

"My husband is not caring for the children, which is left as a woman's job; I don't have enough time for the uptake of health services" (A female crop farmer aged 36–49 years).

"Many women in our society have a heavy workload on the farm, sometimes they have a limited amount of time to care for and feed their children, which sometimes hinders child growth" (A male agro-pastoralist aged 46 years and above).

Poor Health Services

Female agro-pastoralists mentioned walking a long distance for health care, while male agro-pastoralists reported insufficient health facilities and personnel, and male crop farmers mentioned insufficient medical facilities, which led to childhood diseases.

The quotes from crop farmers and agro-pastoralists included below demonstrate how poor health services cause an impact on women's roles in the growth of children.

"I walk long distances to the nearest hospital, and sometimes medical facilities and vaccinations are few" (A female agro-pastoralist aged 15-35 years).

"We have insufficient health facilities and personnel" (A male agro-pastoralist aged 18-45 years)

"We have inadequate medical facilities" (A male crop farmer aged 46 years and above).

Lack of Mother's Nutritional Knowledge

Crop farmers expressed their concerns about how lack of nutritional knowledge among women in the household influences women's roles in facilitating the growth of children aged 6–23 months. Female crop farmers mentioned the lack of knowledge about breastfeeding, such as exclusive breast feeding

and early initiation breastfeeding, as well as complementary feeding. Another female crop farmer mentioned women's lack of knowledge on how to prepare a balanced diet.

“The majority of women lack nutritional knowledge about early initiation of breastfeeding, exclusive breast feeding and complementary feeding practices (A female crop farmer aged 15-35 years).

“The majority of women lack nutritional knowledge on how to prepare balance diet” (A female crop farmer aged 36 -49 years).

Discussion

The finding revealed that eighty-eight percent of children belong to crop farmers, and agro-pastoralists ate complementary food thrice per day or in 24 hours. The majority of children aged 6-23 months in Kilindi District consume three meals/complementary foods per day; for instance, in the morning, they drink milk, porridge or tea, lunch, and dinner (ugali or rice and other staple food). Consumption of three meals daily by majority of children in Kilindi District is due to customs and tradition. A similar finding was reported by Kibona (2019) in the Mvomero District in Tanzania, which showed that the children belonging to crop farmers and pastoral communities eat around three meals in a 24-hour period. Crop farmers and pastoral communities in the Mvomero and Kilindi districts share similar social-economic activities, economic zones, ethnic groups, and cultures. Two studies had almost similar sample sizes, social-economic activities and sampling techniques.

Tadesse (2018) in Ethiopia reported similar finding, which indicate that three meals were eaten daily by eighty-eight percent of children. The finding from this study are not similar to the finding from the study done by Nicodemas *et al.* (2019) in Tanzania, which showed that eighty-seven percent of children aged 6-59 months were fed two, three, or six days each week. Pierre-Louis *et al.* (2007) in Mali revealed that children were fed breast milk and only had two meals a day—they skipped breakfast or dinner. Food consumption patterns of children may differ depending on age group, ethnic group, culture, social-economic activities and income status of the parents, and geographical location.

In regard to feeding methods used during complementary feeding practices, the results showed that seventy-three percent of children of crop farmers and sixty-seven percent of agro-pastoralists were fed by their mothers/caregivers (bottle/cup feeding). Knowledge about the feeding practices of children aged 6-23 months by mothers and alloparental care facilitated bottle/cup feeding practices. The finding was not similar compared to findings obtained by Mekonnen *et al.* (2021) in Ethiopia, which showed that seventy-seven percent of mothers used bottles to feed their children. Hailu *et al.* (2021) in Northwest Ethiopia revealed that 21 percent of mothers were feeding their babies by using bottles. Sampling techniques, cultures, and differences in socio-economic activities contributed to contextual differences.

The results showed that ninety-four percent (94%) of crop farmers' children and ninety-one percent (91%) of agro-pastoralists' children were breastfed and given complementary food. The majority of mothers breastfed and gave complementary food to their children due to nutritional education they obtained from health centers and cultural influence, especially for agro-pastoral tribes such as the Masai, where some of the women have to breastfeed for up to three years.

The percentage of breastfeeding from this study is lower than those provided by the Ministry of Health in Tanzania, which revealed that breastfeeding was reported to have occurred for ninety-six percent (96%) of children aged 0 to 23 months (MoHCDGEC *et al.*, 2018). A possible reason for the differences is that although the current study was limited to one rural district (Kilindi), the survey from the Ministry of Health was a statewide investigation, including a large sample size that included both urban and rural locations. There is a higher percentage of women in the crop farming community (94.2%) and a lower proportion of agro-pastoralist women (91.8%) who continue breastfeeding up to 2

years as compared to the study done by Kibona (2019) in Mvomero District, Tanzania, which revealed that, up to the age of two, seventy-four percent (74%) and ninety-two percent (92%) of the children in crop-farming and pastoralist groups, respectively, were breastfed. Numerous factors, including family financial situation, age of the mother, nature of the economic activity or employment, mother feeding patterns, and the presence of older siblings, may affect breastfeeding practices.

Crop farmers' children were more stunted, underweight, and wasted than children belonging to agro-pastoralists. The agro-pastoral community consumed cow's milk more frequently as compared to crop farmers, especially when it was added to porridge or drunk as a beverage. Plant-based food was preferred by crop farmers compared to animal-based food. A decreased incidence of stunting was also linked to increasing milk consumption (Megersa *et al.*, 2021). Children who regularly ate dairy had lower rates of stunting (10%) and underweight (12%) than children who did not consume dairy, who had rates of stunting of 21.4% and underweight of 18.0% (Nguyen *et al.*, 2018). The findings corroborate the finding from the study done by Kibona (2019) in Mvomero, Tanzania, who revealed that the rate of stunting among crop farmers was 34 percent (34%) higher than that of pastoralists (32.7%). Similarities in findings were due to the same sample size, study population, culture, data collection, and analysis techniques.

According to findings from this study, the prevalence of underweight and wasting was high in crop farming communities as compared to agro-pastoralists, which contradicts the finding obtained by Kibona (2019), in which children from the pastoralist group had greater rates of underweight (14.2%) and wasting (4.4%) than the children from crop farmers, who had underweight twelve percent (12.2%) and wasting two percent (2%). Location and nature of economic activities could be the reason for discrepancies in the results. According to Gonfa (2019), inadequate infrastructure and utilities, as well as recurrent droughts, wars, floods, and food shortages, are the characteristics of pastoral regions.

Stunting was associated with the number of meals that breastfeeding mothers consumed each day in agro-pastoralist communities. The majority of agro-pastoralist women in the study area work as heads of the family due to polygamy practices; once a mother has a pregnancy, her husband has to leave the house, and he will come back after weaning. These women suffer from heavy workload, food insecurity and poverty; they eat inadequate food (1-2 meals per day), which results in undernutrition and insufficient breast milk volume and nutrient composition.

According to Segura *et al.* (2016), the mother's food consumption or her nutrient reserves are the sources of the nutrients in breast milk. ENRICH (2019) revealed that lactating mothers who are eating meals four times a day have both good health and enough milk for the infant. The food consumed by the lactating mother has a direct contribution to the composition of breast milk (Carretero-Krug *et al.*, 2024). It has been noted that an infant's main source of nutrients in their body is human milk (Carretero-Krug *et al.*, 2024). An increased risk of malnutrition among children might be caused by inadequate breastfeeding (Ibrahim *et al.*, 2015). The number of meals eaten by mothers is associated with maternal undernutrition, which affects the health of the baby (Wubetie and Mekonen, 2023).

Women's contributions to children's growth and development between the ages of 6 and 23 months are still hindered by cultural norms. Despite the significant role that women play in generating food and cash for their families, participants noted that men dominate the family's resources, including maize production and revenue. Men typically control the majority of the income and other resources in the household, but they rarely go toward purchasing food for the family members and children, which causes families to consume meals that are not balanced or lack other household necessities like clothing or medical care. A similar finding was obtained by James and Opiah (2019) in Nigeria, which revealed that the person who controls the finances has a negative influence on the nutritional status of children.

Myths or false beliefs were also highlighted as being harmful since it is culturally expected of women to give their young children to their grandmothers for care, which sometimes result in the cessation of breastfeeding and consumption of unbalanced complementary foods. Poor child feeding is identified as a risk factor for undernutrition (Girma *et al.*, 2019). The findings from this study are similar to the findings obtained by Nankumbi and Muliira (2015) in Rwanda, who revealed that culture causes improper care and feeding practices, which result in poor child growth. The finding does not corroborate the observation of Chinyelu (2015) in Nigeria, which revealed religious and cultural practices that result in poor nutritional status in children, including the rejection of colostrums, the idea that mothers transmit suffering to their children through breast milk, and the denial of certain protein-rich foods like eggs, meat, and fish. Differences in procedure for data collection and cultures account for the variation in findings.

Crop farmers and the agro-pastoralist community also reported food insecurity as the women's barrier to the provision of care and feeding practices to young children, which results in impairment of their growth. Food insecurity in the household in the study area was due to improper spending of household income, family conflict, poor partner relations, low maize productivity, and poverty (FAO, 2008; Gebre, 2021; Honarvar *et al.*, 2023). A similar finding was reported by a study done by Ahishakiye *et al.* (2019) in rural Rwanda, who reported difficult circumstances, such as women's poverty, have been identified as obstructing newborn and early child feeding practices. Inadequate health facilities, women's workload, and insufficient nutritional knowledge were also mentioned by participants as the biggest hurdles for the care and feeding practices of the children aged 6–23 months, which results in poor child growth. The finding from this study is supported by several studies' findings from East Africa.

Kibona (2019) in Tanzania discovered that newborn and early child feeding habits are hindered by poor usage of prescribed doses and ignorance, as well as inadequate use of medical services and facilities. A study by Nankumbi and Muliira (2015) in Rwanda reported similar findings of main barriers to the use of appropriate infant and young child-feeding practices as women's burden in the household and caregivers' awareness of breastfeeding and complementary feeding. Most of African society's women share almost the same barriers or challenges regarding child care and feeding practices.

Conclusion and recommendations

Children from crop farmers' families were more malnourished than agro-pastoralists' children. Food insecurity, heavy women's workload, insufficient health facilities, and inadequate nutritional knowledge were the major barriers to child growth. The number of meals eaten by the lactating mothers per day was associated with stunting in the agro-pastoralist community.

The prevention of malnutrition in children between 6 and 23 months calls for quick action from a number of stakeholders, including increasing agricultural and animal produce through agricultural extension services, building sufficient health facilities, providing labor-saving equipment, and providing adequate nutritional education among women. A wide variety of sectors that may have either a direct or indirect impact on children's health must be included in the formulation of policies to address malnutrition (stunting, underweight, and wasting) in children between 6 and 23 months.

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