Maternal Perception of Child Feeds With Medicinal Value in Marsabit County, Kenya

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Abstract

Medicinal foods are important for enhancing children's health and preventing common illnesses. However, there is a lack of comprehensive understanding regarding how mothers perceive these foods and their effectiveness in child nutrition. Therefore, this study aimed to determine maternal perception of medicinal foods used in child feeding. This study adopted a cross-sectional study design. Three-stage sampling technique was used to randomly select 278 eligible households with children aged 6-24 months, for assessment of their perception of child feeds with medicinal value. A questionnaire was used to gather quantitative data. Focus Group Discussion and Key Informant Interview guides were used to collect qualitative data. Univariate analysis was used to obtain the frequency distribution of maternal perception of medicinal foods. The study concludes that maternal perception of medicinal foods has a significant effect on child-feeding practices in Marsabit County, Kenya. Based on the findings, the study recommends that the Marsabit County government conduct scientific research and clinical trials to assess the efficacy and safety of local plants, fruits, and foods used by mothers to treat childhood illnesses and integrate

evidence-based findings into community health education. This initiative should involve collaboration between the local health authorities, research institutions, and traditional knowledge holders.

Introduction

In recent years, the importance of incorporating medicinal foods into children's diets has gained attention, particularly in regions with limited access to formal healthcare (Goldbohm *et al*., 2016). Some mothers view certain foods as preventive against childhood illnesses, such as diarrhea, respiratory infections, and malnutrition (IPC,2021). However, maternal knowledge and perceptions about the medicinal value of specific foods vary widely. It is mainly influenced by factors such as education, socio-economic status, and exposure to modern health information. This variance in perception can lead to varying feeding practices, some of which may benefit the child's health, while others may have limited or harmful effects (USAID,2018).

Complementary foods should be adequate, to mean, they should be given in consistent, amounts, frequency, and variety, to cover the nutritional needs of the growing child while maintaining breastfeeding for two years and beyond (WHO, 2015). The WHO recommends that an infant should receive the minimum dietary diversity (MDD) of at least four food groups out of seven to maintain proper growth and development (WHO, 2008). Globally, however, less than one-fourth of infants aged 6-24 months meet the recommended criteria for dietary diversity, and only 1 in 5 of the children in resource-limited settings receive MDD (WHO/ UNICEF, 2018).   An analysis of 80 national surveys in the LMICs indicated that only one in six children consumed the minimum acceptable diets while 1 in 4 consumed adequately diverse diets (Gatica et al., 2020). In Kenya, only 22% of breastfed children 6-24 months received a minimum acceptable diet (KNBS et al., 2015), while 59% do not consume a sufficiently diversified diet indicating restriction in access to quality diets. A study in Marsabit showed poor infant feeding practices in that less than a quarter of the children (23.9%) were fed on the required MDD (Mutuku et al., 2020).

The period between 6-24 months is a vulnerable period. It is the time when undernutrition starts in many children, the underlying cause being poor complementary feeding (KNBS et al. 2015). According to the UNICEF conceptual framework (1992), Child feeding practices are considered one of the determinants of malnutrition in under-fives. Inadequate feeding practice is often a greater factor of malnutrition than lack of food (Emily, 2010).

Globally, 1 in 3 children under the age of five are not obtaining adequate nutrition and thus are not growing well (UNICEF, 2019). Data indicate that the burden of malnutrition is much higher in South Asia and Africa relative to other parts of the world (Duran et al., 2006). Inadequate infant and young child feeding practices contribute to high rates of malnutrition in Kenya (USAID, 2018). In ASAL regions as well, the main driver of acute malnutrition is poor dietary intake exacerbated by reduced milk production and consumption, which forms the main diet for children (IPC, 2021).

However, amidst these poor child-feeding behaviors, there are a few positive deviant mothers who use uncommon practices to ensure their children remain healthy even in adversity. This concept of the Positive Deviant (PD) approach points out best care practices from mothers of well-nourished children and transfers such positive practices to mothers of malnourished children in the same setting (Mc'Nulty, 2005). It aims to promote multiple behavior changes which include the development of new skills and refining caregivers' current practices (Lapping et al., 2002, Piroska and Bullenm, 2011). A study in a rural South Atlantic identified positive practice from the PD mothers, which included exclusive breastfeeding for six months, kitchen gardening, keeping cooked foods covered, the addition of lime and orange juice to flavor the child's food (Padilla, 2018). These practices have the potential to help children from resource-limited settings grow healthily. Caregivers who provided fish as animal protein in addition to other feeds had a high positive deviance score of 91.7% and consequently, their children had good health status compared to their counterparts whose caregivers had low scores (Merita et al., 2017). In a different study in India, 52.3% of positive deviant children had dietary diversity compared to their underweight counterparts (Saha and Nambiar, 2018). Other studies have shown that some caregivers offer nutritious foods that have medicinal value and are locally available and cheaper than modern medicine to their children to boost or fasten recovery from ailments (Popovic et al., 2016; Merita et al., 2017). These medicinal foods are widely used to treat diseases and to improve and maintain good health (WHO, 2018). In India for instance, mothers offer their children turmeric milk mix every day at bedtime because they know turmeric is anti-inflammatory and boosts immunity (Ritika et al., 2021). It is of great importance, therefore, to ensure mothers have the required knowledge on healthy child feeding behaviour which they can translate to practice to promote child health. Promoting appropriate caregiver behaviour and providing adequate and high-quality child's diet results in improved health outcomes (Le Roux et al., 2010). In resource-limited settings, the presence of children with good health and nutritional status could be attributed to caregivers successfully applying positive deviant child-feeding practices. According to social cognitive theory, these positive child-

feeding practices can be learned. The theory suggests that people can learn by observation, imitation, and positive reinforcement of beneficial behaviors that other people are practicing (Bandura, 1989).

Over the years, child malnutrition at the population level has received attention and recognition in developing countries, especially in resource-limited settings. Poor areas are often considered to be lacking food resources, ASAL regions in Kenya for instance. Poor nutrition status reported across the ASAL counties is majorly due to poor dietary intake coupled with inappropriate feeding practices. Marsabit County, in particular, poor feeding practices because of food insecurity brought about by prolonged drought contribute to the limited availability of varieties of food in the community. Such situations continue to undermine the health and nutrition status of young children. Although exclusive breastfeeding rates are very high in Marsabit, (84.54%), malnutrition rates are very high. According to Standardized Monitoring and Assessment of Relief and Transitions (SMART) survey findings conducted annually in the county, varying trends of undernutrition prevalence have been reported in different sub-counties. There are areas where malnutrition is very high whereas other areas are relatively low. In the year 2022 for instance, severe acute malnutrition prevalence in Laisamis was 5.5%, in North Horr it was 4.4%, in Moyale it was 2.2% and in Saku sub-county, it was 1.2%. However, in the same sub-counties, within the same environment, there are children with optimal health and nutrition status. This could be attributed to caregivers successfully applying positive deviant child-feeding practices that the caregivers of undernourished children are not practicing. Therefore, this study aimed to determine maternal perception of child feeds with medicinal value in Marsabit County, Kenya.

Methods

A cross-sectional study design was used to collect data. Both quantitative and qualitative approaches were employed. The study population consisted of mothers/ caregivers of children aged between 6 to 24 months from a total population of 77,495 caregivers in Marsabit County.

The sample size was determined by the formula used by Fisher et al., 1998:

$$n = \frac{z^2 p(1-p)}{d^2}$$

Where: n = Sample size

z = Level of confidence interval (usually 1.96 corresponding to 95%)

p = Estimated proportion of mothers on timely introduction of complementary foods (79.2% as reported in a study done in Marsabit County, Mutuku, 2020).

d = Relative desired precision (5.0%)

Therefore; $n = \frac{1.96^2 0.792(1-0.792)}{0.05^2}$

n=253

To provide for additional allowance to cater to potential non-response subjects, a 10% allowance was added to the minimum sample size of 253 (Bujang, 2021).

Non-response rate = 10% of n

$$= \frac{10}{100} * 253$$
$$= 25$$

Therefore, n= nonresponse rate + n

$$=25+253$$
$$=278 \text{ participants}$$

Table 1: Sample Size Distribution Table

Sub-county/population	Wards	Villages	Sample size	Percentage
Saku	Sagante/Jaldesa	Lorora	1	0.4
		Manyatta	1	0.4
Moyale	Sololo	Funanyatta	16	5.8
		Gimbe	11	4.0
		Hadesa	21	7.6
	Butiye	Hulahula	100	36.1
		Iladhu	20	7.2
		Kulapesa	12	4.3
	Obbu	Lemara/Manyatta	2	0.7
		Manyatta Lemora	4	1.4
		Manyatta Lomera	1	0.4
		Manyatta Lorara	1	0.4
North Horr	Dukana	Manyatta lorora	4	1.4
		Sidaimwita	3	1.1
		Thahaleyo	5	1.8
		Upane	8	2.9
	Maikona	Mayata	1	0.4
		Odda	19	6.9
		Qalaliwe	13	4.7
Laisamis	Loiyangalani,	Sambamba	13	4.7
		Sidaimuri	11	4.0
	Logologo	Soweto	11	4.0
Total	**8**	**22**	**278**	**100.0**

Table 1 presents the sample size distribution table indicating the sampled wards, villages and number of households proportionate to study participants.

Data collection tools were pretested in Archers Post which was not included in the study. A total of 10% (27) of data collection tools were used (Perneger et al., 2014). This was done to check on the consistency of the

collected data with the expected results and to also help reframe the questions.

Qualitative data from recorded FGDs was transcribed to texts by a local translator. The transcripts were then translated back to English. Two coders read the text files and then developed codes from the patterns found in the data independently. Differences in coding were discussed and resolved by consulting other researchers with experience in qualitative research. Data was managed using SPSS version 25 (IBM Corp, 2017). Descriptive data was analyzed using means, standard deviations, frequencies, and percentages. Inferential statistics was conducted through the use of correlation and regression analysis to show the relationship between the independent variables and the dependent variable.

Results
Maternal perception of child feeds with medicinal value

The objective of the study was to determine maternal perception of child feeds with medicinal value in Marsabit County, Kenya. The respondents were requested to indicate their level of agreement on maternal perception of child feeds with medicinal value in Marsabit County, Kenya. The results are shown in the subsequent sections.

Common community childhood illnesses

Table 2 indicates the common childhood illnesses in the community as reported by the mothers. These include 63.9% diarrhea, 55.2% Pneumonia, 35.1% malnutrition, 35.7% malaria, 35.7% anemia, and 24.2% common cold. A significant relationship (x^2=26.414, df=6, P=0.010, CI=95%) was established between common community childhood illness and child feeding practices.

Table 2: Common childhood community illnesses

Common community illness	Frequency/ percentage N=278	Known cause of the community illness	Severity (frequency/percentage		
			Most severe	Moderate	Mild
Diarrhea	177(63.9%)	Yes, 177(63.9%) No, 101(36.1%)	100(56.5%)	42(23.7%)	35(20%)
Malaria	100(35.7%)	Yes, 100(35.7%) No 178(64.3%)	38(38.3%)	12(12.2%)	49(49.5%)
Pneumonia	153(55.2%)	Ye, 153(55.2%) No, 125(44.8%)	37(24.1%)	43(28.2%)	73(47.7%)
Malnutrition	97(35.1%)	Yes, 97(35.1%) N0. 181(64.9%)	17(17.5%)	61(62.9%)	19(19.6%)
Anemia	99(35.7%)	Yes, 99(35.7%) No, 179(64.3%)	9(9.1%)	13(13.1%)	77(77.8%)
Common cold	67(24.2%)	Yes, 67(24.2%) No, 211(75.8%)	22(32.8%)	18(26.7%)	27(40.5%)

Foods for medicinal purposes

Figure 1 shows that 56% of the respondents offered food for medicinal purposes to their children during sickness and in good health. There was no significant relationship (x^2=6.429, df=1, P=0.073, CI=95%) between offering foods for medicinal purposes and child-feeding practices.
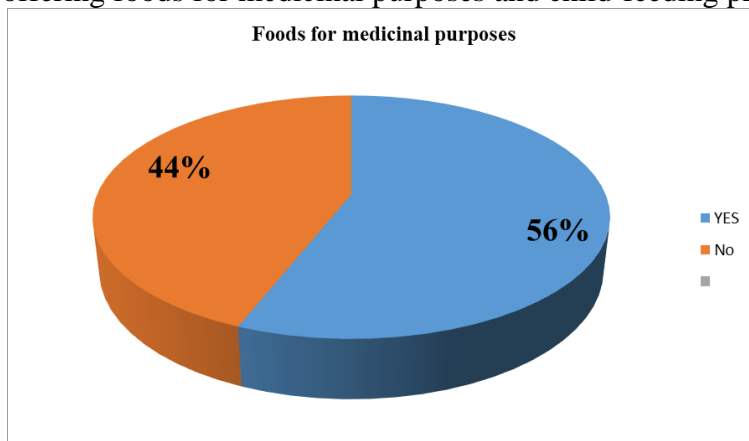

Figure 1: Foods for medicinal purposes

Traditional plants/ fruits /foods used for treatment in children

Table 3 shows that 75.5% of the respondents used plants/fruits/foods for medicinal purposes while 24.5% used none. There was a significant relationship (x^2=7.001, df=1, P=0.000, CI=95%) between traditional plants/fruits/foods for treatment of sick children and child feeding practices.

Table 3: Traditional plant/fruit/food used for the treatment of ailments in children

Traditional plant/fruit/food	Treatment ailment	Effectiveness		
		1-Very effective	2-Moderate	3-least effective
Honey	**Common cold**, 33(16.2%)	13(39.4%)	15(45.5%)	5(15.2%)
	Measles 22(10.7%)	5(22.7%)	10(45.5%)	7(31.8%)
Fito	**Wound healing** 76(37.3%)	60(78.9%)	10(13.2%)	6(7.9%)
	Healthy baby growth 48(23.5%)	38(79.2%)	5(10.4%)	5(10.4%)
	Weight gain 44(21.6%)	14(31.8%)	25(56.8%)	5(11.4%)
	Treats infections 39(19.2%)	9(23.1%)	10(25.6%)	20(51.3%)
Lemon	**Common cold** 29(14.2%)	3(10.3%)	10(34.5%)	16(55.2%)
Idepe	**Malaria** 9(4.4%)	1(11.1%)	3(33.3%)	5(55.6%)
	Pneumonia 5(2.5%)	4(80.0%)		1(20.0%)
learoni	**Malaria** 9(4.4%)	3(33.3%)	4(44.5%)	2(22.2%)
	Stomachache 1(0.5%)	1(100.0%)		
kiloriti	**Good health, diarrhea** 5(2.5%)	1(20.0%)	2(40.0%)	2(40.0%)
Seketet, Ndavuko	**Stomachache** 3(1.5%)		3(100.0%)	
mpopongi	**Headache and chest pain** 5(2.5%)	3(60.0%)	1(20.0%)	1(20.0%)
lordo	**Pregnancy, appetizer** 4(2.0%)		2(100.0%)	
ngornoo	**Malnutrition** 9(4.4%)	5(55.6%)	4(44.4%)	
ldedine	**Stomach bloating** 10(4.9%)	3(30.0%)	3(30.0%)	4(40.0%)
lkiviial	**Stomachache** 5(2.5%)	1(20.0%)	3(60.0%)	1(20.0%)

Wanga	**Mouth sores, 27**(3.4%)	13(48.1%)	7(25.9%)	7(25.9%)
	Infections, 35(17.2%)	20(57.2%)	5(14.3%)	10(28.6%)
Iddi crugga	**Infections** 8(3.9%)	2(25.0%)	4(50.0%)	2(25.0%)
Tangawizi	**Cough** 7(3.4%)	2(28.6%)	3(42.8%)	2(28.6%)
Ithigaga	**Infections** 3(1.5%)		1(33.3%)	2(66.7%)

Mothers are quite knowledgeable of the fact that the food they offer to their children helps them stay healthy and strong apart from the satisfaction of hunger. (Table 4)

> *'Normally if a child is properly fed, the body will be able to fight diseases, for example, the difference between a child who is well fed and one who is not well fed is that the latter might even die because of the common cold while the other one will be able to recover easily after falling ill. The same applies even to adults, without food you will easily get ill compared to a well-fed person'*

Table 4: Major/Common medicinal foods discussed during the nine FGDs

Type of food	Preparation method	Disease
Moringa leaves	Mixed with food	Reliefs constipation, boosts immunity
Teinadhami'/ 'Qadhala'	Boiled with milk or leaves crushed and put in drinking water	Stomach discomfort, common cold, body pains (pain after child immunization or chicken pox)
Fenugreek seeds	Boiled with milk or water +Onions, or roasted and grounded	Reliefs constipation, stomach discomfort, diarrhoea, and common cold.
Mixture of lemon, ginger, garlic, honey, and fenugreek seeds	Boiled	Treat common cold
Salt and water	Boiled	Managing diarrhoea
Cerelac	Mixed with milk	Boosts appetite
Pumpkin seeds	Roasted	Deworming, bloating, stomach discomfort
Rice soup	Boiling rice to a thick paste	Stops vomiting

Correlation Analysis

This research adopted Pearson correlation analysis to determine how the dependent variable (child feeding practices in Marsabit County, Kenya) relates with the independent variable (maternal perception of medicinal foods), (Table 5).

Table 5: Correlation Coefficients

		Child Feeding Practices	Maternal Perception of Medicinal Foods
Child Feeding Practices	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	278	
Maternal Perception of Medicinal Foods	Pearson Correlation	.806**	1
	Sig. (2-tailed)	.002	
	N	278	278

The results also revealed that there was a very strong relationship between maternal perception of medicinal foods and child-feeding practices in Marsabit County, Kenya (r = 0.806, p-value =0.002). The relationship was significant since the p-value of 0.002 was less than 0.05 (significant level). The findings are in line with the findings of Shariatpanahi (2018) who indicated that there is a very strong relationship between maternal perception of medicinal foods and child-feeding practices.

Regression Analysis

Multivariate regression analysis was used to assess the relationship between the independent variable (maternal perception of medicinal foods) and the dependent variable (child feeding practices in Marsabit County, Kenya), (Table 6).

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.877ª	.769	.768	.10412

a. Predictors: (Constant), maternal perception of medicinal foods.

The model summary was used to explain the variation in the dependent variable that could be explained by the independent variables. The r-squared for the relationship between the independent variables and the dependent variable was 0.769. This implied that 76.9% of the variation in the dependent variable (child feeding practices in Marsabit County, Kenya) could be explained by the independent variable (maternal perception of medicinal foods).

The ANOVA was used to determine whether the model was a good fit for the data. F calculated was 510.14 while the F critical was 2.405. The p-value was 0.002. Since the F-calculated was greater than the F-critical and the p-value 0.002 was less than 0.05, the model was considered a good fit for the data. Therefore, the model can be used to predict the influence of maternal perception of medicinal foods on child-feeding practices in Marsabit County, Kenya. (Table 7).

Table 7: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	102.028	1	25.507	510.14	.002[b]
Residual	13.653	276	.0500		
Total	115.681	277			

a. Dependent Variable: child feeding practices in Marsabit County, Kenya
b. Predictors: (Constant), maternal perception of medicinal foods

The regression model was as follows (Table 8):

$$Y = 0.335 + 0.328X_1 + \varepsilon$$

Table 8: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.335	0.085		3.941	0.000
Maternal Perception of Medicinal Foods	0.328	0.087	0.329	3.770	0.002

According to the results, maternal perception of medicinal foods has a significant effect on child-feeding practices in Marsabit County, Kenya β1=0.328, p value= 0.002). The relationship was considered significant since the p-value of 0.002 was less than the significant level of 0.05. The findings are in line with the findings of Shariatpanahi (2018) who indicated that there is a very strong relationship between maternal perception of medicinal foods and child-feeding practices.

Discussion
Maternal Perception of Child Feeds with Medicinal Value
The study also concludes that maternal perception has a significant effect on child-feeding practices in Marsabit County, Kenya. Maternal perception of a child's feed with medicinal value has a potential impact on the identification, prevention, and treatment of childhood illnesses. The current study identified common childhood illnesses and common plants/fruits/foods that are used to treat childhood illnesses. It's important for the authorities to determine the efficacy of these fruits/plants/foods with medicinal value.

Recommendation
The study also recommends that the Marsabit County government should conduct scientific research and clinical trials to assess the efficacy and safety of local plants, fruits, and foods used by mothers to treat childhood illnesses and integrate evidence-based findings into community health education. This initiative should involve collaboration between local

health authorities, research institutions, and traditional knowledge holders. By validating the medicinal value of these natural remedies, the authorities can ensure that safe and effective treatments are recommended for childhood illnesses.

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