



## **Dietary Practices, Health and Nutrition Status Of Infants Born To Adolescent Mothers In Transmara West, Narok County, Kenya**

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### **Abstract**

Infant and young child feeding practices contribute to the growth and development of infants as well as preventing the occurrence of common illnesses. Infants of young mothers are at risk of malnutrition because they are unprepared for child care. The purpose of this study was to determine dietary practices, health and nutrition status of infants born to adolescent mothers in Transmara West, Narok County. A descriptive cross-sectional study design was adopted. The research questions were answered by enrolling adolescent mothers in the selected health facilities. Most of the adolescent mothers were young between the ages of 16 to 17 years. The most commonly consumed foods among their infants were Vitamin A rich foods and dairy products. The study alluded to the existing of malnutrition among infants of young mothers. There was also an association between breastfeeding, meal frequency and infant illness. The government and other stakeholders should formulate policies that govern the health care and feeding practices of infants of adolescent mothers. Similar research should be replicated to compare the nutrition status of infants of adult mothers with that of young mothers in the same study area.

**Keywords:** Feeding practices, health, Nutritional status, infant, adolescent mother.

### **1. Introduction**

Globally, approximately 12.8 million girls aged 15-19 years and two million girls under the age of 15 give birth every year putting themselves and their infants at risk due to complications of child birth and pregnancy (WHO, 2018). Infants born to adolescents who are considered young mothers are likely to have low birth weight, which can have an effect on their health and development (WHO, 2018). Globally, approximately 22% of children under the age of five years were stunted, 5.6% overweight and 7.5% wasted globally while in Sub-Saharan Africa the prevalence of the three forms of malnutrition is stunting 5.6% overweight 21% and wasting is at 9% (WHO, 2018).



Early conceptions and childbearing have been associated with stress and negative mental health which impacts negatively in the development of their children (Huang, 2014). Most of the adolescent mothers may not be formally employed and are from low socioeconomic status which may affect the health outcomes of their infants (Godbout, Goldsberry, & Franklin, 2016). They also deal with individual, social and personal changes which make it hard for them to properly take care of their infants (Chen et al., 2014). The Kenya Demographic Health Survey (KDHS, 2014) reported that; 26% of children below the age of five years in Kenya are stunted, 4% wasted and 11% underweight based on WHO 2006 reference growth standards. In addition, 18% of young women aged 15-19 years have begun childbearing, 15% have already had a live birth and an additional 3% are pregnant with their first child (KDHS, 2014). According to the survey young women with no education (33%) are much more likely to have begun childbearing compared to those with secondary or higher education (12%). This makes it difficult for them to take care of their infants because of economic challenges (Population Reference Bureau, 2015). In urban residents of Kenya, adolescent mothers with primary education had their first child early than those with secondary education (Mumah, Kabiru, Izugbara, & Mukiira, 2014).

In Narok County, global acute malnutrition prevalence remained poor as compared to that of June 2013 ( *Narok County SMART Survey Report - February 2018*, n.d.). The levels of malnutrition were as follows; underweight and stunting levels were at 18.9% and 27.2% respectively. Stunting levels was classified as medium that is 1 in 4 children in the county are stunted (*Narok County SMART Survey Report - February 2018*, n.d.). Additionally, Narok County has relatively higher levels of adolescent childbearing nationally.

## 2. The Problem

Despite adequate nutrition being a basic human right, newborns of adolescent mothers have been found to have poorer nutritional status as compared to their adult counterparts (Nguyen et al., 2017). Adolescent mothers have social, economic and maturity challenges that are unique to them which may in turn affect their health outcomes and that of their children (Godbout et al., 2016). Early marriage and child birth continue to increase in low and middle income countries. There is a rise in adolescent motherhood in Kenya with those with lower education and living in rural areas (26%) having their child below the age of 18 years putting their children at risk of under nutrition (KDHS, 2014). In Transmara West County, there were high pregnancies that led to a high number of teenage girls dropping out of school which was so far the highest in the County (*NATIONAL ADOLESCENTS AND YOUTH COUNTY*, 2017). Further, a research by Okeyo (2019) in Transmara East established that there is low coverage of advice on healthy dietary diversity, exclusive breast feeding, nutrition supplementation, food fortification and complementary feeding which can create risks of under nutrition to the infants of these young mothers.

Under nutrition among their infant's increases the risk of morbidity and other serious health problems early in life. In addition, evidence has shown that young mothers struggle with different barriers such as the lack of autonomy in decision making and child care, the knowledge on proper infant feeding, embarrassment that is associated with public breastfeeding and the lack of support from the health care team (Jama et al., 2018). It has also been suggested that this is as a result of the stigma and perceived lack of support from the family, community and health care team.

Despite the rise in early motherhood in Kenya, there is a paucity of scientific data on dietary practices, health and nutritional needs of their infants. If no intervention is provided



to these young mothers, the outcome may be associated with intergenerational malnutrition and poverty (Wanjohi et al., 2017). These young mothers are vulnerable, immature and not mentally prepared for child care. They have been found to be depressed and to have low self-esteem as a result of child marriage (Marangu *et al.*, 2017). Also the return to school of the teenage mother leaves their infants vulnerable to under nutrition as the caretakers lack the proper motherly care and support. Narok County has high level of teenage pregnancies with poor malnutrition levels (*Narok County SMART Survey Report - February 2018*, n.d.).

The health and nutrition status of these infants of young mothers has received little attention and therefore merits further research especially in developing countries where dietary practices are rarely reported. To address this gap, this study aimed at determining dietary practices, health and nutritional status among infants of adolescent mothers in Transmara West Sub County.

### 3. Objectives

The main objective of this research paper was to assess the dietary practices, health and nutrition status of infants born to adolescent mothers in Transmara West Sub County, Kenya.

The specific objectives were as follows: -

1. To assess the demographic and socio-economic characteristics of mother-infant pair
2. To determine the dietary practices of infants born to adolescent mothers
3. To establish the health status of infants born to adolescent mothers
4. To assess the nutrition status of infants born to adolescent mothers
5. To establish the relationship among demographic, socio-economic, dietary practices, health and nutrition status of infants belonging to adolescent mothers

### 4. Literature Review

#### 4.1 Adolescent mother demographic and socio economic status in relation to infant nutritional status

It is estimated by WHO (2018), that 2.5 million girls aged 16 years of age have given birth in low resource countries by the age of 18 years. In the same study by World Health organization, 90% of the adolescent births are among 15-19 year olds and occur within marriage. Adolescent pregnancy accounts for 28% in Sub-Saharan Africa with women aged 20-24 years giving birth before the age of 18 years. The increase in child marriages is more common in areas with low socioeconomic status leading to an increase in adolescent births (Campbell, Martinelli-heckadon, & Wong, 2013).

Early marriages and lower education among the adolescent mothers has been associated with poor health, unemployment and violence in adolescent mothers which leads to depletion of nutrients contributing to a low birth weight for the infant and inadequate breast milk (Raj et al., 2010). A number of studies have shown that infant nutritional status is associated with maternal education (Aparicio, Gioia, & Pecukonis, 2018; Fadare, Id, Mavrotas, Akerele, & Ogunniyi, 2019; Islam, Islam, Bharati, Aik, & Hossain, 2016). Categorically, post-natal environments in low and middle income countries, inexperienced young mothers, lack of autonomy among adolescent mothers and poor health seeking behaviours contribute to poorer nutritional status and stunting among their children (Wu, Li, Kuo, Chiang, & Lee, 2016).



The growth and development of their children have been impacted by high mental stress which is associated with lack of social support (Huang *et al.*, 2014). Studies have shown that these young mothers lack autonomy in decision making and most of them are from low socioeconomic status contributing to malnutrition which impacts negatively on the health and development of their children (da Costa *et al.*, 2018; Nguyen *et al.*, 2017).

In Kenya, 66% of school dropout was associated with unintended teenage pregnancies with 59% of this pregnancies occurring among girls aged 15-19 years (Walgwe, Termini, Birungi, & Undie, 2016). Further, a study by (Concerns, 2017) in Kajiado suggests that young mothers are not equipped to take care of their children and thus poor health outcomes of their children. Despite these effects of young motherhood on demographic and socio-economic characteristics on the infant's nutrition, studies showing the effects among infants below one year among adolescent mothers are limited.

#### 4.2 Infant feeding practices

Infant feeding practices for the first year should be multidimensional and be able to support the growing requirements of the infant. These dimensions include initiating of breastfeeding within one hour of birth, exclusive breastfeeding for the first six months of life and safe introduction of age-appropriate feeding of solid, semi-solid and soft food from 6 months of age. Optimal breastfeeding practices and complementary feeding could prevent one fifth of under 5 child mortality (UNICEF, 2013). Inappropriate feeding has contributed to 55% of diarrhea and respiratory infections among infants (WHO, 2018)

Results of studies on infant feeding among adolescent mothers have shown that inappropriate feeding practices poses a lot of challenges because the mother is not mature enough to make the right decision for herself and both for her infant (Smith *et al.*, 2012; Jama *et al.*, 2018 and Tucker *et al.*, 2012). In a comparison between infant feeding practices among adolescent mothers and adult mothers, the infants of adolescent mother were found to have poor infant feeding practices than their counterparts (Hong *et al.*, 2017).

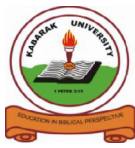
### 5. Methodology

#### 5.1 Research Design

The study employed a descriptive cross-sectional study design to assess dietary practices, health and nutrition status of infants of adolescent mothers. This study design was used because it provides a snapshot of information about the situation at hand at one specific time and the characteristics of the status of study population. It also follows a systematic way of investigation with questions that have measurable variables with the aim of explaining, predicting or controlling (Nckliceck, 2012).

#### 5.2 Location, Participants and Duration

The study was conducted in Transmara West Sub County which is divided into six divisions; Kilgoris, Keyian, Kirindon, Angata and Pirrar. Transmara West Sub County is within Narok County. The sub county was purposively selected because of the high teenage pregnancies and also poor nutrition status of the infants (County health report, 2018). Infants who were aged between 0-11 months at the time of study and were born to an adolescent mother were included in the study. The adolescent mother was also aged 12-18 years and



was attending the selected health facility. They were residents of Transmara West Sub-county and assented to participate in the study. The study was undertaken between the months of February and April 2019.

## 6. Results

### 6.1 Demographic and socio-economic characteristics of households

Most of the mothers were aged between 16 to 18 years with the youngest and oldest mothers being 14 and 18 years respectively (Table 1). The mean age of the adolescent mothers was  $16.78 \pm 1.020$ . The study revealed that half (52%) of the respondents were single whilst the rest were either married (37 %) or cohabiting (7%). About half of the mothers had primary level education (44.7%) and another half (44.7%) had completed secondary education while (3.7%) had no formal schooling. Most of the mothers (41.5%) stated pregnancy as the reason for leaving school, lack of fees (39%), marriage (2.4%) and (3.3%) started working. The mean household size was  $2.16 \pm 2.11$  with a maximum of 33 and minimum of 1. Most of the respondents (44.7%) lived with their parents while the rest (35.4%) with their spouse, with friends (3.7%), relatives (14.2%) and (2%) were staying alone. Examination of the respondent source of income occupation revealed that most (74.4%) of the adolescent mothers depended on their families for financial support. Additionally, Table 1 further shows that about 17.8% of the mothers used their savings from casual jobs. Notably, 4.0% depended on their spouse for support. Over a half (56.9%) of the infants were girls while (43.1%) were boys.

Table 1. Respondent characteristics

Characteristic (n=246)	Frequency	%
Maternal age in Years		
14	7.0	2.8
15	15	6.1
16	74	30.1
17	80	32.5
18	70	28.5
Marital status		
Married	91	37
Single	128	52
Separated	7	2.8
Cohabiting	20	8.1
Highest academic qualification		
Primary	110	44.7
Secondary	110	44.7
Tertiary	17	6.9
No formal education	9	3.7
Reason for leaving school		



Started working	8	3.3
Lack of fees	96	39
Pregnancy	102	41.5
Married	6	2.4
Household size		
1-2	64	26
3-4	109	44.3
5 and above	73	29.7
People you live with		
Parents	110	44.7
Spouse	87	35.4
Friends	9	3.7
Relatives	35	14.2
Staying alone	5	2

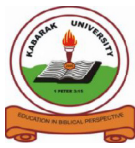
## 6.2 Infant feeding practices

The study findings showed that overall majority (95.5%) of the children were still breastfeeding at the time of study. Half of the adolescent mothers (50.0%) were exclusively breastfeeding their infants at the time of the study. However, an analysis of the distribution of breastfeeding by age groups of the infant showed a decrease in exclusive breastfeeding rates. It was highest (48.8%) for infants below six months and lowest (24%) for those aged 6 – 8 months. In this study, most of the adolescent mothers reported that infants were initiated to breast milk within the first hour (62.2%) while (37.8%) were initiated after one hour of birth (Table 2). The mothers who initiated after one hour (37.8%) reported no milk (9.8%) and cultural influence (1.6%) as the reasons for late initiation.

Table 2. Infant feeding practices

Breast feeding practices(n=246)	Frequency	%
<b>Early initiation of breastfeeding (1-12months)</b>		
After one hour	93	37.8
Within the first one hour	153	62.2
<b>Foods given in the first hour</b>		
Plain water	19	7.7
Salt and water	4	1.6
Sugar and water	18	7.3
Cow's milk	1	.4
Nothing given	239	97.2
<b>Reason for giving other fluids before 6 months</b>		
The baby was crying	7	2.8
I had no milk	24	9.8





I was advised by the health worker	5	2.0
Cultural/religious reasons	8	3.2
Reason not given	202	82.2
<b>Exclusive breastfeeding under six months</b>		
Yes	123	50.0
No	123	50.0

### 6.3 Prevalence of malnutrition among the infants

The prevalence of malnutrition among infants was measured using the indicators of weight-for-height, height-for-age and weight-for-age. The infants who fall below -2SD were considered undernourished and those with less than -3 SD severely wasted. The prevalence of wasting, stunting and underweight were 17.1%, 22.0% and 22.0% respectively (Table 3). From the findings, no bilaterally pitting oedema cases were found among the assessed infants. In all three forms of malnutrition (stunting, wasting and underweight), boys had a higher prevalence than girls.

Acute malnutrition was presented as severe, moderate and total wasted. More boys (17.9%) had low weight for their length (wasting) than girls (9.3%) while wasting was highest in the age group of 6-8 months

More boys (15.1%) were short for their age than girls (9.3%) while stunting was highest in the age group 1-6 months (17.5%)

About 22.0% of all the children in the study had a low weight for their age with only 17.9% originating from boys. In addition, the age group 9-12 months had the majority of severely undernourished children (7.5%) of the featured groups

Table 3. Malnutrition status of infants

By gender		Gender of the infant		
		Female(n=140)	Male(n=106)	Total wasting
Normal $\geq -2SD$ to $<+2SD$	F	123	81	204
	%	87.9%	76.4%	82.9%
Moderately wasted $\geq -3SD$ to $<-2SD$	F	13	19	<b>32</b>
	%	9.3%	17.9%	<b>13.0%</b>
Severely wasting $< -3SD$	F	4	6	<b>10</b>
	%	2.9%	5.7%	<b>4.1%</b>

By gender		Gender of the infant		
		Female(n=140)	Male(n=106)	Total stunting
Normal $\geq -2SD$ to $<+2SD$	f	118	74	192
	%	84.3%	69.8%	78.0%
Moderately stunted $\geq -3SD$ to $<-2SD$	f	13	16	<b>29</b>
	%	9.3%	15.1%	<b>11.8%</b>



<b>Severely stunted &lt; -3SD</b>	f	9	16	<b>25</b>
	%	6.4%	15.1%	<b>10.2%</b>
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	<b>Gender of the infant</b>		<b>Total</b>	
<b>By gender</b>	<b>Female(n=140)</b>		<b>Male(n=106)</b>	
			<b>underweight</b>	
Normal	f	107	66	173
	%	76.4%	62.3%	70.3%
<b>Moderately underweight</b>	f	23	19	<b>42</b>
	%	16.4%	17.9%	<b>17.1%</b>
<b>Severely underweight</b>	f	4	8	<b>12</b>
	%	2.9%	7.5%	<b>4.9%</b>
Overweight	f	6	13	19
	%	2.9%	8.5%	7.7%

#### 6.4 Determinants of malnutrition among the infants

In this study, the three indices (underweight, wasting and stunting) showed a significant relationship with meal frequency (p- value 0.00, 0.000 and 0.011 respectively).

There was no significant relationship between dietary diversity and nutritional status based on underweight, wasting and stunting. Most infants were still breastfeeding but met the recommended 4 or more food groups

There was a significant relationship between exclusive breastfeeding and nutritional status based on underweight, wasting and stunting. Most infants (50%) were exclusively breastfed for a period of six months (chi-square test; p = 0.000)

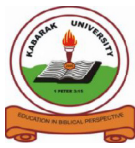
Illness affects feeding practices thus causing the depletion of the nutrition status. The decreased intake of the food is as a result of the illness which causes lack of appetite. A paired t-test showed that there were an association of child illness two weeks to the study and underweight ( $\chi^2=43.409$ , P=0.001, df=32), stunting ( $\chi^2=34.515$ , P=0.005, df=16) and wasting ( $\chi^2=27.012$ , P=0.041, df=16).

Young maternal age, maternal education level and marital status play a very crucial in infant nutrition status according to (Islam et al., 2016). There was no relationship between mother’s age, education level, marital status and the child’s nutrition status. All the three forms of malnutrition did not show a significant relationship with education (P>0.05)

## 7. Recommendations and Areas for further study

### 7.1 Policy Recommendations





- i. The Ministry of Health to categorize infants belonging to adolescent mothers among children under special circumstances and accord them the necessary provisions provided for the children under such circumstances.
- ii. This can be done by adopting a family approach that focuses on creating awareness not just for adolescent mothers, but also for fathers and mothers-in-law who are strong household influencers of infant feeding behavior. This will help to curb the challenge of early introduction of pre-lacteal foods.
- iii. In order to contribute to improved health and nutrition for the infants in the study area, support groups should be strengthened that provide peer counseling with a focus on promoting, protecting and supporting breastfeeding.
- iv. The Ministry of Health should provide ongoing training of the community and especially young mothers on IYCF. This will acquaint them with knowledge and skills to provide IYCF education and support to adolescent mothers in the study area and contribute to improved uptake of exclusive breastfeeding.
- v. There is need to encourage more home visits by community health workers to follow-up and support infant and young child feeding practices to adolescent mothers in the study area.

### *7.2 Recommendations for future research*

- i. This study focused on the following indicators of feeding practices; breastfeeding, meal frequency, dietary diversity and acceptable diet. There is need to conduct a similar study with a focus on caloric adequacy of the diet and food frequencies in the same study area.
- ii. This study looked at malnutrition among infants of young mothers. It would be beneficial to have a similar study that compares the feeding practices and nutritional status of infants belonging to adolescent mothers with those of adult mothers.

## **8. Conclusions.**

The results of this study showed that most of the respondents were young teenage women of primary level of education. Most of them had dropped out of school because of pregnancy and lack of school fees. They depended on their families as their main sustenance and others did casual jobs to fend for themselves and their infants. The majority of the adolescent mothers could be classified as of low socio-economic backgrounds which were based on socio-economic backgrounds and their source of income. The majority of infants were still breastfeeding at the time of study.

Early initiation of breastfeeding (within 1 hour) was prevalent among the infants. About half of the infants less than 6 months old were exclusively breastfed. The majority of the infants 6-8 months old had been introduced to solids, semi-solids and soft foods. The majority of the breastfed children 9-11 months old met the recommended meal frequency. The non-breastfed children 6-11 months old met the recommended meal frequency. The study has demonstrated that dietary diversity of the infants was generally good. Despite the good dietary diversity reported most of the infants had poor nutritional status. Morbidity incidence among the infants was noted to be low. Additionally, the importance of exclusive breastfeeding was highlighted through the positive association between exclusive breastfeeding and nutrition status.



The morbidity burden was not very high among the infants. The most prevalent illnesses were malaria and common cold. Health seeking behavior by mothers for their sick infants was appropriate with the majority of them seeking assistance from health facilities within 24 hours of the child falling sick.

The prevalence of under nutrition among the infants 1-12 months old was as follows; wasting 17.1%, underweight 22.0% while stunting was 22.0%. Compared to the Kenya National rates for infants 1-12 months, the three indices in this study was higher (KDHS 2014). Infant feeding practices showed a positive significant relationship with nutritional status (underweight); that is exclusive breastfeeding and meal frequency. Infants who attained the minimum meal frequency and those who achieved the minimum acceptable diet were less likely to be underweight. Maternal education was the only significant caregiver characteristics that showed a relationship with nutrition status

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