

## FEEDING PRACTICES OF INFANTS, HEALTH AND NUTRITION CHALLENGES FACED BY ADOLESCENT MOTHERS

**Bridgid Chebet**  
Postgraduate Student  
Department of Nutrition,  
Kabarak University  
[bkotut@kabarak.ac.ke](mailto:bkotut@kabarak.ac.ke)  
KENYA

**Dr. Wesley Bor**  
Lecturer  
Department of Nutrition  
Kabarak University  
[wbor@kabarak.ac.ke](mailto:wbor@kabarak.ac.ke)  
KENYA

**Dr. Jane Naliaka Situma**  
Lecturer  
Department of Nutritional Sciences,  
Masinde Muliro University of Science and Technology  
[jsituma@mmust.ac.ke](mailto:jsituma@mmust.ac.ke)  
KENYA

### ABSTRACT

Proper nutrition is critical in the first year of a child's life for growth and development. Inadequate nutrition could lead to impaired physical and cognitive development and poor economic productivity (UNICEF, 2013). Poor maternal care practices, breastfeeding, complementary feeding status coupled with morbidity status are the proximate causes of malnutrition (Kimani-murage et al., 2015). This is a review on the status of adolescent motherhood, infant dietary practices, health status and infant nutritional status, among adolescent mothers in order to identify the gaps.

### General overview of Literature

Infant malnutrition represents under-nutrition. The 12 month interval between 6 and 12 months is reported to be especially of importance due to the introduction of solid and semisolid foods to complement breast milk (Dewey, 2013). In the early life, under-nutrition is directly because of poor feeding practices (breastfeeding and complementary feeding) coupled with high morbidity (Kimani-Murage et al., 2011). 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. It is therefore important to establish the nutritional status of the children delivered to adolescent mothers and the factors associated with it. This information will provide feedback on the effectiveness and relevance of the existing responses in meeting the basic needs of the infants of the adolescent mothers.

### **Infant feeding practices among infants**

Child feeding practices for the first years 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, 2005). Inappropriate feeding has contributed to 55% of diarrhea and respiratory infections among infants (World Health Organization., 2006).

Infant feeding among adolescent mothers poses a lot of challenges because the mother is not mature enough to make the right decision for both herself and her infant. 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).

### **Breastfeeding practices**

Breastfeeding for all mothers should continue exclusively for six months without the introduction of any other solid foods or water. After the age of six months, complementary foods should be introduced as well as continued breastfeeding for a period of 2 years (UNICEF, 2013). The breastfeeding duration of young mothers has been found to be short since most of them lack the proper breastfeeding knowledge and are confused about motherhood (Smith, Coley, Labbok, Cupito, & Nwokah, 2012).

Adolescent mother's choice of breastfeeding has been reported to be related to attitudes, knowledge on breastfeeding, the perceived benefits, the problems associated with nipple pain and the experience of breastfeeding (Tucker, Wilson, & Samandari, 2011). Difficulties in latching and low milk supply were associated with early introduction of liquids than solids among adolescent mothers in the Durham region (Report, 2015).

### **The status and benefits of exclusive breastfeeding**

In a separate study, nipple pain, fatigue and soreness was found to be a contributing factor to low levels of breastfeeding (Camarotti, Nakano, Pereira, Medeiros, & Monteiro, 2011). A cross-sectional study adolescent mothers had a frequency of exclusively breastfeeding at the sixth month similar than adult mothers, unlike what is reported in most published studies. With the rise in adolescent motherhood in Kenya, there is a need to be able to provide an educative environment for these young mothers in order to reduce infant morbidity and mortality.

In a study by Jama 2016, infants of adolescent mothers were found to be at risk of malnutrition and diarrheal disease because of early introduction of other foods besides breast milk. In the same study, financial support was withdrawn from teen mothers who were found to be autonomous in their infant feeding decisions. In a study by Godbout (2016), parents of the adolescent mothers have been found to influence their infant feeding choices leading to low levels breastfeeding and early introduction of bottle feeding.

Feeding practices have been associated with parental schooling, low socio-economic status and poor knowledge of the adolescent mother (Godbout *et al.*, 2016). Unlike other studies parents of adolescents have been found to contribute to long term exclusive breastfeeding of the adolescent mother (Nesbitt *et al.*, 2012). The mothers in the same study expressed the fact that their own nutritional status affected how they fed their infants. They also lacked knowledge on the duration of breastfeeding and were unable to know when their baby was full. However, grandmothers of the adolescent mothers have also been found to contribute to low levels of breastfeeding (da Costa *et al.*, 2018).

The decision by the adolescent mothers to stop breastfeeding was influenced by inadequate knowledge, inadequate support from the health care team and early painful experience that they were unprepared for (Smith *et al.*, 2012). In Kenya, 61% of infants aged 0-6 months are exclusively breastfed (KDHS, 2014) compared to 13% in 2003 (KDHS, 2003). There is a dearth of data on adolescent mother breastfeeding practices in Kenya, and very little information is available.

### **Early initiation of breastfeeding**

Globally, 140 million live births in 2015 and 77 million infants had to wait for long a time before being put to the breast. Only 45% of newborns were safeguarded from infant mortality by being put to the breast within the first hour of life. New evidence suggests that infants who were put to breast within the first hour established a life saving practice of exclusive breastfeeding. These new findings also confirm that getting an early start to breastfeeding increases child survival that benefits the child beyond one month up to six months (WHO, 2018). The highest rates of early initiation have been in Eastern and Southern Africa with also the highest infant mortality rates (WHO, 2018). In Hoima Uganda, 60% of adolescent mothers initiated

breastfeeding within one hour after birth (Kabwijamu et al., 2016). On the other hand, 85% of the adolescents initiated breastfeeding as compared to adult mothers at 92% (Durham region, 2015).

### **Complementary feeding**

The World Health Organization (WHO) recommends that infants begin eating solid, semisolid or soft foods at 6 months of age to ensure that their nutrient intake is enough to promote their developing brains and bodies. Globally, only 1 in every 6 children under the age of five has received a minimum acceptable diet. An estimated 250 million children under five in low- and middle-income countries are at risk of suboptimal development due to poverty and stunting. In low- and middle-income countries, inadequate diets possess a health risk of stunting and micronutrient deficiencies (WHO, 2018).

It is therefore important that infants are introduced to their first foods on time, at 6 months of age. Introducing foods too late denies children of the important nutrients their bodies demand and leaves them at risk of malnutrition. In contrast, an analysis of 14 countries found that children 6–8 months old who eat solid foods have a reduced risk of both stunting and underweight. Globally, more than one quarter of infants between 4 and 5 months of age have been introduced to solid or semi-solid foods (WHO, 2018).

To meet the minimum meal frequency as defined by World Health Organization (WHO), breastfed children aged 6-8 months need to consume at least two meals or snacks a day, and those 9-23 months of age need to eat at least three meals or snacks a day. The children who are not breastfed should eat more often: at least four times a day from 6 months of age. Half of all children aged 6-23 months are not being fed the minimum number of times a day during this important period for growth and development. The three regions where height for age rates are highest, namely South Asia, West and Central Africa and Eastern and Southern Africa, have the lowest rates of all (WHO, 2018).

Minimum diet diversity is lowest among the youngest infants in the age group for whom it is most critical. To provide just the minimum level of diversity, as defined by WHO, children aged 6–23 months should eat food from at least four of the following food groups a day: grains, roots and tubers; legumes and nuts; dairy products; meats and fish; eggs; vitamin-A rich fruits and vegetables; and other fruits and vegetables. As such, the period between 6 months and 11 months of age is typically one of the most challenging times for meeting micronutrient needs. Timing is crucial: current evidence found that children who consumed the minimum diet diversity or an iron-rich diet at 6 months of age were taller and less wasted at 18 months than children who did not. Between 6 months and 23 months of age, little or no consumption of nutrient-dense foods such as eggs, dairy products, fruits and vegetables is associated with stunting (WHO, 2018).

The minimum acceptable diet is a composite indicator for feeding practices among 6–23 month olds which is measurable at the population level but appropriate feeding practices involve much more. A child who eats frequent meals of thin, watery porridge is not getting the nutrition she or he needs, nor is a child who only eats one meal a day, even if it contains the minimum number of food groups. Even a child who eats a sufficient number of healthy meals each day is

vulnerable to infection and under nutrition if those meals are prepared with unwashed hands, mixed with unsafe water or served in a dirty bowl (WHO, 2018).

Early introduction of complementary foods among infants of adolescent mothers has determinant factors of low schooling and low socioeconomic levels, in addition to inadequate maternal and prenatal nutrition food intake as part of feeding practices; it was found that adolescents offered more sweets, sugars, and salty foods to their infants. In the same study it was observed that the intake of fruit and vegetables was very low and there were inadequate food intake patterns during the complementary feeding of their infants (Costa et al., 2018).

### **Nutritional status of infants born to adolescent mothers**

Globally in 2017, 151 million children under the age of five years (22%) were stunted (too short for their age), with three quarters of such children living in the WHO South East Asia Region or WHO African Region. High levels of stunting has been associated with childhood morbidity and mortality risks, learning capacity and NCDs later in life therefore negatively affecting the development of countries due to its association. In 2017, 51 million children under the age of five (7.5%) were wasted (too light for their height), while 38 million (5.6%) were overweight (too heavy for their height) (WHO, 2018).

In a study in Ghana among adolescent mothers, children under 5 years were found to have increased risk of stunting, wasting underweight when compared to similar children of adult mothers (Wemakor, Garti, Azongo, Garti, & Atosona, 2018). Children of the adolescent have been found to have low weight at birth due to environmental factors such as poor socioeconomic factors and the mother's level of education (Fanzo *et al.*, 2012).

According to Raj (2010), low maternal age and poor socioeconomic status among young mothers contributed to high infant mortality and malnutrition among their children. Their children were found to be malnourished due to the competitive nutrients between them and their infant (Hong *et al.*, 2017). In a study by Finlay (2017), it was found that young maternal age, short birth intervals contributed highly to poor nutritional status and infant mortality and morbidity especially to the first born infants.

According to Kenya Demographic Health Survey (2014), 26% of children are stunted while 8% were severely stunted in Kenya. Children residing in the rural areas had higher levels of stunting at 29% than those in the urban areas at 20%. Stunting was found to decrease with increase in education of the mother.

In Narok County, the level of stunting was found to be at 27.2% and underweight was 18.9% being highest among boys than girls due to socio-cultural factors. The caregivers were found to have good nutritional status and were healthy. Severe stunting for caregivers was 0.4% and moderate malnutrition was 5.6% (County, 2013).

According to Tankoi (2016), low socioeconomic status, being a house wife, number of children in household, poor access to water, sanitation and hygiene and poor infant feeding practices led to a high level of under nutrition in Transmara East Sub County. In the same study, the levels of under nutrition among children were 22%, 31% and 8% for underweight, stunting and wasting

respectively. However, this information is for adult mothers only and their children, the children of the adolescent mothers were not studied despite the fact that the County has levels of teenage pregnancies. Therefore there is need to examine the nutritional status of their infants in the study area.

### **Infant morbidity status**

Children below the age of two years are prone to infections and hence the need to prevent this to enhance proper growth and development. According to WHO (2018), acute respiratory infections, diarrhea and malaria were the leading causes of death in 2016 among children under five years of age. An estimated one third of deaths among children under age 5 years were attributed to under nutrition and severe morbidity such as pneumonia, diarrhea, malaria, HIV and AIDS and measles (UNICEF, 2013). Serious infectious diseases in early childhood such as measles, diarrhea, pneumonia, meningitis, and malaria can affect acute wasting and have long-term effects on the height of the child. In a community based survey in low-income countries, stunting increased each day with increase in diarrhea among children aged 24 months (Black et al., 2013).

### **Diarrheal Disease**

Globally, diarrhea kills approximately 525,000 children under the age of five years each year and estimates that 50 per cent of under nutrition is associated with infections caused by unsafe water, poor sanitation and unhygienic practices. In the same survey by WHO, it was established that infants aged 6-11 months have the highest incidence because they are in the transition from breast milk to solid foods (WHO, 2018).

In the Kenya Demographic Health Survey (2014), 15% of children under age five had diarrhea two weeks before the survey accounting for (27%) among children aged 6-11 months. Among those who seek treatment, (58%) of the children were taken to health facility while 11% received no treatment (KDHS 2014). According to the Narok County Health report (2018), the children with diarrhoea were (12.6%) and the caregivers who sought treatment in the public clinic was (50.5%) and (43.6%) in the private clinic respectively.

### **Acute Respiratory Infections**

Globally, pneumonia accounts for 16% of all deaths of children under 5 years old, killing 920 136 children in 2015 (WHO 2019). According to (KDHS, 2014), 9% of children under age five had symptoms of acute respiratory infections (ARI) in the two weeks before the survey. According to the Narok County Health report (2018), acute respiratory infections were at 34.6% and those that sought treatment the public clinic (50.5%) or private clinic (43.6%).

### **Malaria**

Globally, approximately 216 million cases of malaria occurred in 2016, compared with 237 million cases in 2010, and 210 million cases in 2013 (WHO, 2018). In Kenya, approximately, 26% of children under age 5 had a fever in the two weeks preceding the survey. Fever was least common among children under age 6 months (17 percent) and most common among children age 6-23 months (30-31 percent). In Narok County, 22.6% of the children in the sampled households had fever and had been sick 2 weeks prior to the survey.

### **Maternal health seeking behavior**

In a study by Marangu (2017), it was established that most adolescents do not regularly go to health centers for postnatal care due to the high cost associated with accessing the hospitals. Adolescent mothers need support after delivery from the healthcare providers and also from their families. Healthcare workers have been found to impact the knowledge on the mothers on the proper infant feeding. In a qualitative descriptive research by (Nesbitt *et al.*, 2012), adolescent mothers expressed that health care providers enhanced their confidence in breastfeeding through the hands on support that they gave them. A study by Kimani-Murage, (2017); found out that women deliver at substandard health facilities where they don't receive counseling from health providers on infant feeding. In Hoima Uganda, adolescent mothers who stayed longer in the hospitals learnt how to take care of their new borns (Kabwijamu *et al.*, 2016). In a study by Jama (2018), teen mothers in Kwazulu Natal were knowledgeable about the benefits of exclusive breastfeeding as a result of the counseling they received from the ANC. In the same study, adolescent mothers were living with extended family and hence were unable to make decisions on their own. They are forced to engage in activities that put themselves and their infants at risk (Kimani-murage *et al.*, 2015). There is a dearth of knowledge on the adolescent mothers infant care practices among those in the rural areas in Kenya.

### **Water, sanitation and Hygiene among adolescent mothers**

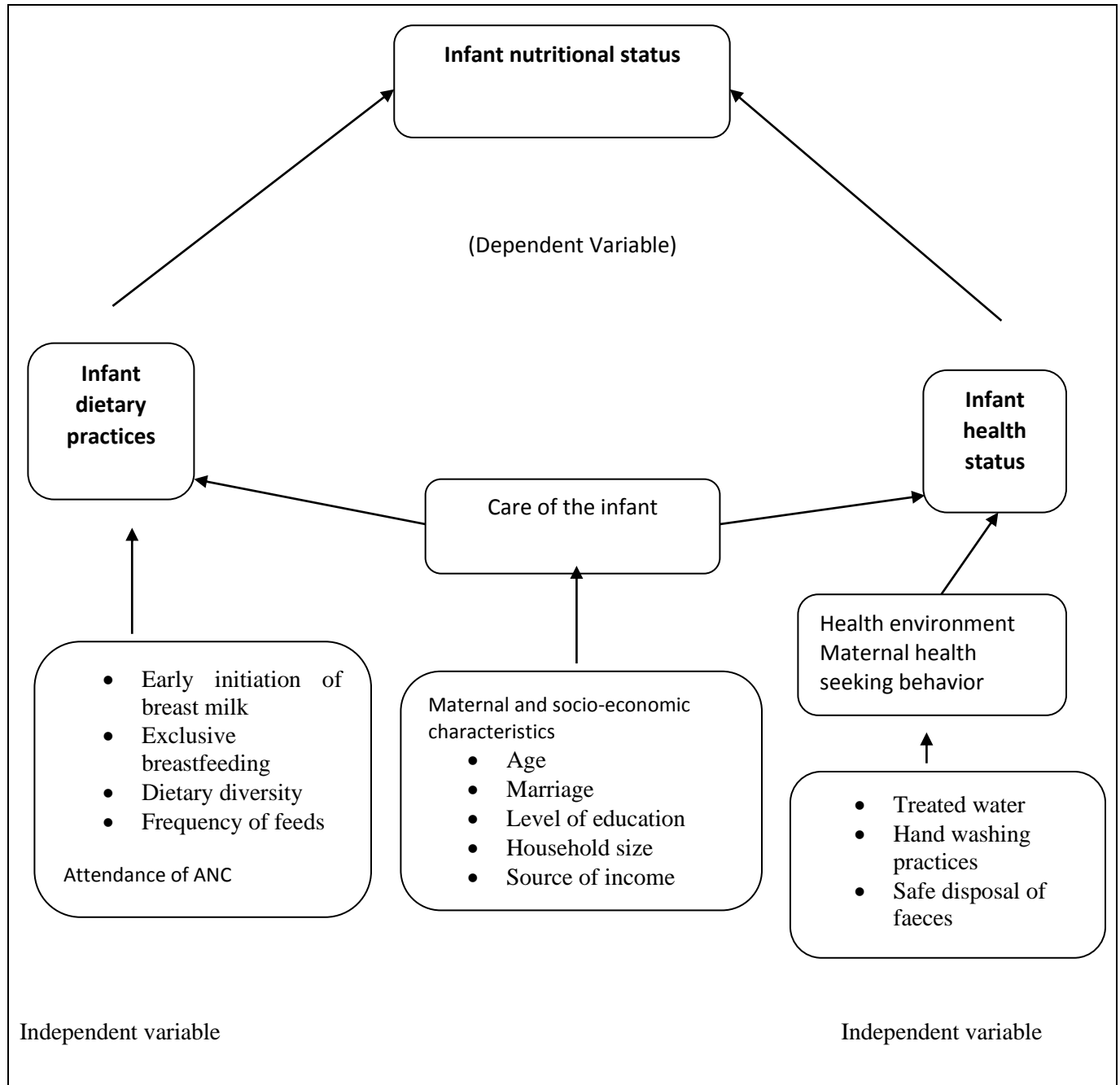
Inadequate safe drinking water, safe sanitation and lack of hygiene remain important causes of death, with an estimated 870,000 associated deaths occurring in 2016 (WHO,2018). According to UNICEF 2013, in order to have healthy environments and reduce the prevalence of infectious diseases, it is vital to improve water, sanitation and hygiene as well as housing. These is not limited to immunization, improving sanitation by creating environments free of open defecation, hand washing practices with soap, access to treated drinking water and use of insecticide-treated mosquito nets to treat malaria, and treatment of pneumonia with antibiotics (UNICEF 2013).

According to KDHS 2014, most households in Kenya (71%) obtain drinking water from an improved source, while 27 percent use un-improved sources. Approximately 66% of rural Kenyans usually use latrines, most commonly a pit latrine without a slab or an open pit (48 percent) and 17% use a shared facility of which it is a pit latrine with a slab (KDHS, 2014). There is a dearth of knowledge on the adolescent mother's water, sanitation and hygienic practices among those in the rural areas in Kenya.

### **CONCLUSION**

The increase in adolescent motherhood puts their children at risk of malnutrition, morbidity and mortality. The paucity of data regarding nutritional status and the factors associated with it is a hindrance in making decisions regarding policies and coming up with that govern the care of adolescent mothers. It is critical to improve the feeding practices and the nutritional status of lactating adolescent mothers and their children (WHO 2018). The UNICEF 2013 conceptual framework has been used to indicate the interplay of factors affecting the nutritional status of the infant. The independent variables include; immediate causes of under nutrition which is the dietary intake and infant health status. While inadequate care by the adolescent mothers, poor socioeconomic status, household food insecurity, and inaccessibility to health facilities are the underlying factors affecting the child's nutritional status. Malnutrition related morbidity such as;

Diarrhea, Malaria, upper respiratory tract infections and measles are likely to recur among infants of adolescent mothers. Their feeding and care practices that falls short of a child’s needs is likely to deprive them of important nutrients and minerals, which would result in poor immunity that trigger illness in addition to appetite loss.



**Figure 1: Conceptual framework adopted from UNICEF 2013 on dietary practices, health and nutrition status of infants of adolescent mothers**