MATERNAL FACTORS, FEEDING PRACTICES AND MORBIDITY STATUS OF CHILDREN AGED 0-6 MONTHS ATTENDING KWANZA HOSPITAL'S WELL-BABY CLINIC, TRANS-NZOIA COUNTY, KENYA

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE (FOOD, NUTRITION AND DIETETICS) IN THE SCHOOL OF HEALTH SCIENCES OF KENYATTA UNIVERSITY

JUNE, 2025

DECLARATION

This thesis is my original work and has not been presented for the award of any degree in any other university.

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DEDICATION

I dedicate this work to my parents Absolom and Janetrix, and to my siblings for their continuous encouragement, support and prayers.

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I thank God for blessing me with good health and the grace to undertake the study and write this thesis.

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LIST OF ABBREVIATIONS AND ACRONYMS

CHP Community Health Promoter

EBF Exclusive Breastfeeding

EIBF Early Initiation of Breastfeeding

ERF Exclusive Replacement Feeding

FGD Focus Group Discussion

HCWs Health Care Workers

KDHS Kenya Demographic and Health Survey

KII Key Informant Interview

MF Mixed Feeding

SDG Sustainable Development Goal

SPSS Statistical Package for Social Sciences

UNICEF United Nations International Children's Emergency Fund

WBC Well Baby Clinic

KSCH Kwanza Sub-County Hospital

KNBS Kenya National Bureau of Statistics

OPERATIONAL DEFINITION OF TERMS

Caregiver: Mother or family member who takes care and feeds the baby.

Feeding practices: Strategies employed while feeding children aged 0 to 6 months.

Exclusive breastfeeding: Breastfeeding a child aged 0- 6 months without use of other foods, fluids or any source of nourishment except prescribed medicine.

Exclusive replacement feeding: Techniques of feeding and introduction of other feeds to a child aged 0- 6 months who is not receiving any breast milk at all.

Mixed feeding: Use of both formula milk and breast milk interchangeably for children who are supposed to be exclusively breastfed (0 to 6 months).

Morbidity status: State of having an illness within the past two weeks.

Optimal feeding: Start of breastfeeding within an hour of birth and continuing it exclusively for the first 6 months, based on infant and young child feeding guideline.

Sub optimal feeding: Inadequate feeding practices that may put the child's health at risk as a result of inadequate care practices and provision of nutrients.

Partial breastfeeding: Introduction of other feeds alongside breastfeeding in the first six months.

Predominant breastfeeding: A feeding technique where a child aged 0-6 months receives most of the feeds from breast milk and sometimes other fluids provided.

Prelacteal feeds: Fluids that are given to babies before initiation of breastfeeding.

Responsive breastfeeding: Refers to breastfeeding on demand.

Maternal factors: Factors that influence the mother's and child's health and development prior to, during and following pregnancy.

ABSTRACT

Good nutrition in early life is key to building the body's immunity and good health in later years. For children aged 0- 6 months, exclusive breastfeeding (EBF) is widely advocated as the optimum practice with great benefits. In Kenya, 15% of children aged 0 to 6 months are on partial breastfeeding, 10% on mixed feeding and 10% on predominant breastfeeding. These sub-optimal feeding practices contribute to 11.6% of child morbidities. Numerous research has been done on feeding practices among older children (6-59 months), but there is minimal data on children aged 0 to 6 months who are assumed to be on EBF. In Kenya, every child under the age of five experiences diarrhea in a year, while malaria contributes up to 20% of child deaths in the country. Most studies have looked at health-seeking behavior and prevalence of a particular disease among the under-five population, with less focus on other co-morbidities that could be present in the 0 to 6 months age group. The purpose of this study was to determine the maternal factors, feeding practices and morbidity status of children aged 0 to 6 months, attending well baby clinic at Kwanza Hospital, Trans-Nzoia, Kenya. The study used a cross-sectional analytical design. A sample size of 151 caregivers with their children aged 0 to 6 months was targeted. The respondents were selected using systematic sampling. A structured questionnaire was utilized to collect data on maternal factors, feeding practices, morbidities, socio-demographic and socio-economic characteristics. Two focus group discussions were conducted separately. Information on foods given, breastfeed initiation and maternal factors were obtained. Key informants comprised of community-based health care workers who gave information on maternal awareness and problems encountered while breastfeeding. SPSS software version 28 was used for data analysis, and descriptive statistics were employed. Chi-square test was used to establish associations between maternal factors and child's breastfeeding status. Odds ratio was used to establish associations between maternal factors and breastfeeding frequency, maternal factors and use of prelacteal feeds. Correlation and linear regression were done to establish relationships and evaluate the strength of the relationships, respectively. Majority (63.5%) of the children under study were aged 0-3 months, close to half (43.9%) being female. Nearly a third (29.7%) of the caregivers were aged 25-29 years. More than half (52%) of the children were on EBF, over a quarter (26.2%) were given prelacteal feeds and nearly half (41.2%) were reported to have been sick. The findings revealed associations between mode of delivery with breastfeeding status (p value 0.0001), marital status with breastfeeding status, maternal illness with use of prelacteal feeds, morbidity status with monthly income. The study concludes that feeding practices among children aged 0-6 months were inadequate in relation to WHO standards. Nearly half of the children suffered from childhood morbidities. Breastfeeding status and frequency of breastfeeding are influenced by marital status of the caregiver. The study recommends health institutions to strengthen education on child feeding during child clinic visits, routine screening and prompt management of maternal illnesses during and after delivery.

CHAPTER ONE: INTRODUCTION

1.1 Background information

Good health in early life is important for lifelong well-being (Shonkoff et al., 2021). Child morbidity is a global problem with under-fives bearing the brunt, where 75% of deaths occur within the first year, as a result of childhood morbidities (Wambui et al., 2018). The common childhood morbidities in developing countries include respiratory diseases, diarrhoea, pneumonia, fever and malaria contributing to approximately 760,000 morbidities yearly (Tampah-Naah et al., 2019; Wambui et al., 2018). For children 0 to 6 months, in order to provide the best possible growth, development and health, World health organisation (WHO) promotes exclusive breastfeeding (EBF) globally (WHO, 2020).

Worldwide, EBF is at 43.5%, 16.6% mixed feeding (MF), and 9.4% exclusive replacement feeding (ERF) (Gardner & Kasseb/aum, 2020). Between 2000 and 2018, Sub-Saharan Africa had a 34% prevalence of EBF (Pretorius et al., 2020). In Kenya, EBF lies at 60% (KDHS, 2022) with varying data from different parts of the country. In Naivasha, mothers who work exhibited a low prevalence of EBF (Ickes et al., 2021). In Trans-Nzoia County, there is very limited data on EBF trends. Mothers' self-efficacy can influence feeding practices (Santacruz-Salas et al., 2020) where sub-optimal practices are attributed to a variety of maternal and child-related issues (Jama et al., 2020). These practices have tremendous effect to the child's health including increased morbidity and mortality (Dharel et al., 2020).

Maternal education remains an important determinant of child health outcomes (Paul et al., 2022). In a study done in Ethiopia, exclusive breastfeeding was influenced by maternal factors such as maternal education, maternal age and mode of delivery (Muluneh, 2023). Similarly, maternal factors including mothers age, level of education

and marital status significantly determined exclusive breastfeeding in Pumwani hospital, Nairobi (Kibiru et al., 2022). In Trans-Nzoia County there's limited data on maternal factors influencing the feeding practices and morbidity status of children aged 0-6 months.

While many pieces of research have focussed on feeding practices in children aged 6 and 59 months, there is limited data on children aged 0-6 months as most of them are assumed to be on exclusive breastfeeding . Regarding child morbidities, more focus is on health-seeking behavior with regard to specific morbidities among the under-fives.

1.2 Problem statement

Optimal nutrition in early childhood promotes long-term health (Motee & Jeewon, 2014). On the other hand, inadequate feeding practices contribute to 11.6% of child morbidities. This is a setback to the third Sustainable Development Goal that attempts to lower morbidities and end preventable deaths (Alebel et al., 2018). Optimal feeding upholds SDG 3 (Diouf, 2019) and also aligns with the Breast Milk Substitute Regulations Act (2012) which seeks to uphold breast milk amongst other feeds. Breast milk is characterized by immunological properties (Nigatu et al., 2019) that prevent infectious and chronic diseases (Mututho et al., 2017).

Worldwide, EBF is estimated at 44% (Shofiya, Sumarmi & Ahmed,2020). This is below the WHO aim of achieving at least 50% of EBF by 2025 (Gardner & Kassebaum, 2020). In Sub-Saharan Africa, where mothers continue to use infant formula even after the government ceased providing free bottles, EBF is still low (Chakona, 2020). A study done in Wajir revealed deeply rooted cultural practices and believes that babies cannot live without water (Mohammed, Ochola & Owino, 2020). In most developing nations, poor feeding practices are attributed to a variety of maternal and child-related characteristics like domicile, age, and the frequency of births (Jama et al., 2020).

Ideally, as recommended, children aged 0-6 months should be on EBF (WHO, 2020). EBF enhances the lives of millions of children and prevents under five deaths annually (Senghore et al., 2018). In Kenya, rates of EBF are still low as seen in Wajir at 45.5%, contributing to 11.6% of child morbidities (Mohammed, Ochola & Owino, 2020), hence need to be addressed. In Trans-Nzoia County,17.8% of under-five children presented with fever in the previous 2 weeks (KDHS, 2022). Under-nourishment among the under-fives was strongly correlated with maternal characteristics including marital status and maternal education (Magaju, 2018.) Regarding the 0-6 months age group, there is a paucity of literature on feeding practices and child morbidity status in Trans-Nzoia County. This necessitates the investigation of feeding practices, maternal factors and morbidities among the children aged 0 to 6 months.

1.3 Justification of the study

To lower child morbidity and improve quality of life among children, WHO recommends exclusive breastfeeding worldwide. In Kenya, EBF rates have gradually dropped from 61% (KDHS, 2014) to 60% (KDHS, 2022). There is a paucity of literature on EBF rates, feeding practices and morbidity status of aged 0-6 months in Trans-Nzoia County. This study provided data on feeding practices, maternal factors and morbidity status of children aged 0 to 6 months who visited the well baby clinic at Kwanza Hospital, Kwanza Sub-County, Kenya. The data gathered from this investigation may be helpful to the field of nutrition and dietetics professionals, aiming towards achievement of EBF targets, to the Ministry of Health and decision makers on morbidity prevention programs.

1.4 Purpose of the study

The study's goal was to ascertain the maternal factors, feeding practices and morbidity status of children 0 to 6 months of age who visited Kwanza Hospital's well baby clinic (WBC), Trans-Nzoia County.

1.5 Specific objectives

1. To determine demographic characteristics of children aged 0 to 6 months visiting the well-baby clinic at Kwanza Sub-County Hospital (KSCH), Kenya, the socio-demographic and socio-economic characteristics of their caregivers.
2. To determine the feeding practices of children aged 0 to 6 months attending WBC at Kwanza Sub-County Hospital (KSCH), Kenya.
3. To establish maternal factors associated with feeding practices among children aged 0 to 6 months attending WBC at Kwanza Sub-County Hospital, Kenya.
4. To determine morbidity status among children aged 0 to 6 months attending WBC at Kwanza Sub-County Hospital, Kenya.
5. To determine the relationship between feeding practices, maternal factors and morbidity status of children aged 0-6 months attending WBC at Kwanza Sub-County Hospital, Kenya.

1.6 Hypotheses of the study

H_{O1}. There is no relationship between caregivers' sociodemographic traits and the feeding practices of children aged 0 to 6 months attending WBC at Kwanza Sub-County Hospital (KSCH).

H_{O2}.There's no relationship between socioeconomic characteristics of caregivers and morbidity status of children aged 0 to 6 months attending WBC.

H_{O3}. There is no relationship between feeding practices and morbidity status of children aged 0 to 6 months attending WBC at Kwanza Sub-County Hospital.

H_{O4}.There is no relationship between maternal characteristics and feeding practices among children aged 0 to 6 months attending WBC at Kwanza Sub-County Hospital.

1.7 Significance of the study

The study generated important information to the field of nutrition and dietetics professionals, aiming towards achievement of EBF targets. To the Ministry of Health and decision makers on morbidity prevention programs, to informing the community on maternal factors influencing feeding practices, to informing future research and enhancing good health.

1.8 Limitation of the study

Data was gathered only once in time and did not consider other seasons for instance seasonal variations for occurrence of disease among children aged 0-6 months. This represented a snapshot of the population and did not allow the study of trends over time.

1.9 Conceptual framework

Mosley Chen's theory identifies five determinants of child health and survival, amongst them are maternal factors and nutrient deficiency (Mosley & Chen, 1984). Maternal factors such as early marriage can influence the child's health status. On the other hand, lack of essential nutrients in the child's diet, particularly during early childhood, can increase susceptibility to diseases (Li et al., 2021).

The study examined maternal factors, feeding practices and morbidity status of children aged 0-6 months . Factors in consideration were children's (0-6 months) demographic characteristics,socio-demographic and socio-economic characteristics of caregivers.

Childhood morbidities are a challenge to the developing countries and a leading cause of death among the under-fives (Takele et al., 2019). The study examined fever, diarrhoea, malaria and pneumonia morbidities in the past 14 days. Socio-economic factors of caregivers such as occupation and income level can affect child morbidities

(Arthur, 2019) and feeding practices (Kimani-Murage et al., 2015). Child morbidity status can as well be influenced by child's demographics and caregivers' socio-demographics. Maternal factors such as illnesses, awareness of child feeding and breast complications can determine a child's feeding practices (Mututho et al., 2017). Consequently, suboptimal feeding practices can influence morbidity status of children aged 0-6 months.

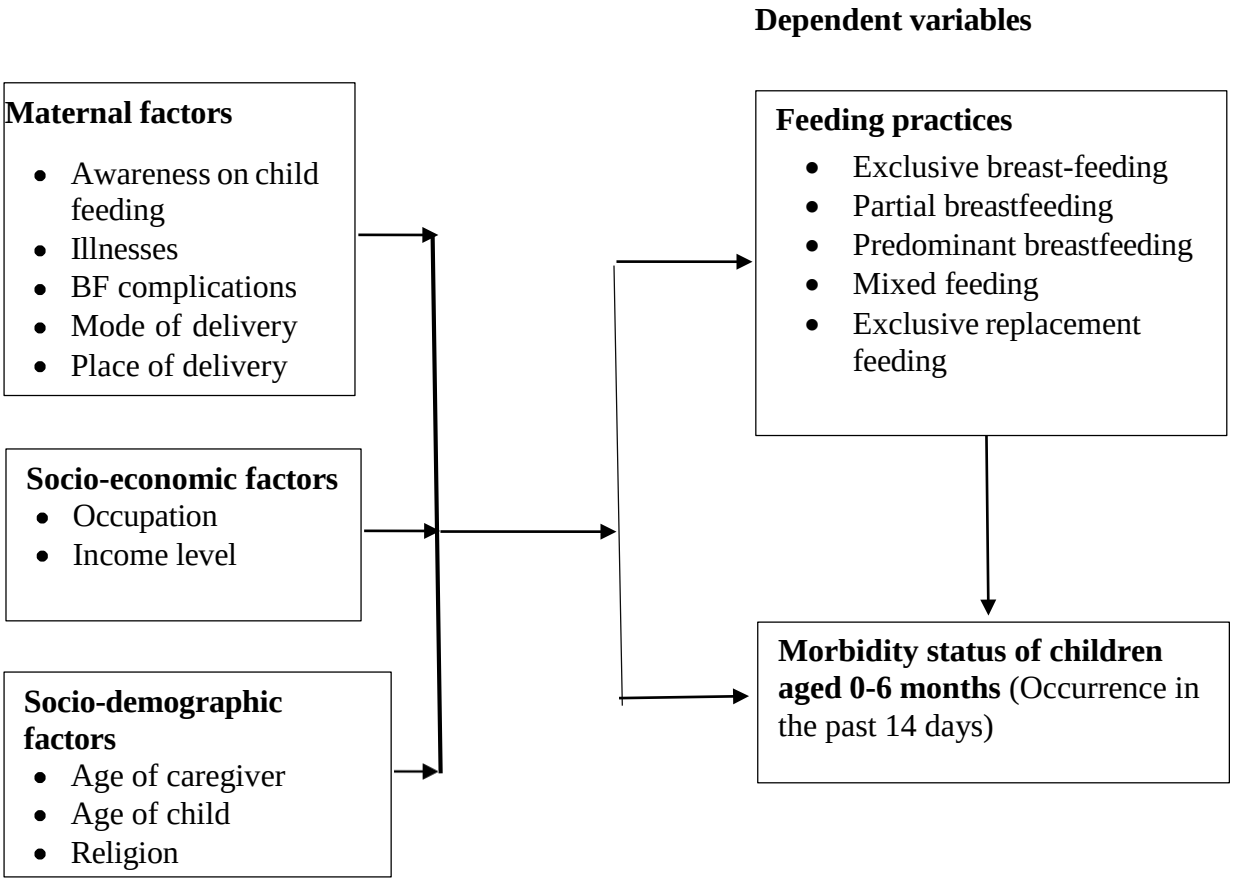

Figure 1.1 Conceptual framework on factors affecting feeding practices and morbidity status of children aged 0-6 months

Source: Modified and adapted from Warsame (2016)

In chapter two, an overview of the prior research on maternal factors,feeding practices and morbidity status of children aged 0-6 months is provided.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews previous literature relevant to the study. The chapter is organized into various sections according to the study objectives.

2.2 Socio-economic status of caregivers and child's morbidity status

Poverty affects utilisation, access of food as well as health services of the household members (Nankinga et al., 2019), most importantly the vulnerable groups such as the lactating mothers. In a study done among 31 African countries, Adedokun & Yaya (2020) found similar results with a high prevalence of morbidity among poor households. Kimani-Murage et al., (2015) reports how household food insecurity influences breastfeeding practices, where mothers claim to be lacking enough milk as a result of inadequate dietary intake.

Exclusive breastfeeding, globally known to be the best practice, contributes to good health and immune function in children aged 0-6 months (Nigatu et al., 2019). EBF is largely affected by socio-economic factors. Most working mothers introduce other feeds other than breast milk while women who don't work are less likely to do so (Mawa et al., 2019).

Besides poor hygienic conditions and poor sanitation, diarrhoea morbidity has been linked to low socio-economic position among mothers and caregivers in Asian countries (Anwar et al., 2015). A study done in Kenya relates low economic status to poor health care seeking as a result of low finances as opposed to parents from high economic status. This increases risks of childhood morbidities and mortalities (Arthur, 2019).

In Homabay County, lack of money influenced poor health care seeking among children facing diarrhoea (Orora, 2017). In Nairobi informal and slum settlements,at least one

incident of diarrhea, fever, coughing or coughing with rapid breathing was reported in 24.64% of the children (De Vita et al., 2019).

While national trends in the socioeconomic position of caregivers and child morbidity status have been established, the effect of socioeconomic position on child's (0-6 months) morbidity status in Trans Nzoia County has not been established. This study intended to provide more insight on the socioeconomic status of caregivers attending WBC at Kwanza Sub-County Hospital and its influence on morbidity status of the child.

2.3 Feeding practices of children aged 0 to 6 months

The optimal feeding practice recommended by WHO for the child's first six months is exclusive breastfeeding (EBF), involving breast milk alone without any other food (WHO, 2020).Current ongoing initiatives by the Ministry of Health to address determinants of infant feeding include implementation of the national maternal, infant, and young child nutrition (MIYCN) policy, as well as the Baby Friendly Hospital Initiative (BFHI). MIYCN policy is a comprehensive framework designed to improve the nutrition of mothers, infants, and young children (Codjia et al., 2022). BFHI is a strategy that aims at protecting and promoting breastfeeding in hospitals through the implementation of the 10 steps to successful breastfeeding. However, the BFHI is not yet implemented in all hospitals offering maternal and newborn care services.(Fauziah & Riono, 2021).

Breast milk has many benefits, including, proper growth and development, good health for the mother, it is cost-effective, prevents childhood obesity and non-communicable diseases (Nguyen et al., 2020).

Early breastfeeding initiation is encouraged to prevent use of prelacteal feeds, which contributes highly to partial breastfeeding (Dharel et al., 2020). Alongside

breastfeeding, responsive breastfeeding technique promotes optimum feeding and growth (Theurich et al., 2021).

Despite the numerous benefits of EBF, there are many suboptimal breastfeeding practices amongst children aged 0 to 6 months (Galante et al., 2022). Partial breastfeeding involves introduction of other feeds alongside breast milk while predominant breastfeeding involves introduction of water and other sweetened fluids alongside breastfeeding (Dharel et al., 2020). Mixed feeding is defined as use of both formula feeds and breast milk, while ERF is when there is no breast milk at all (Dagnew et al., 2019).

Globally, EBF is at 43.5%, which is below the 50% target, with 16.6% MF and 9.4% ERF (Gardner & Kassebaum, 2020). A study done in Thailand showed increased prevalence of mixed feeding because of COVID-19 (Piankusol et al., 2021). In Africa, EBF prevalence lies at 34% (Pretorius et al., 2020) and 60% in Kenya (KDHS, 2022). In Meru County, 13% of children aged 0 to 6 months were introduced to liquids other than breast milk, 10% were on predominant breastfeeding and 27% cumulative EBF in mother to mother support groups having education and income-generating activities (M'LIRIA et al., 2020).

In Nyando district, based on 24-hour recall, continuous EBF was higher (44%) among parents who underwent couple counselling and lower (33%) in maternal counselling (Ogada, 2014). A study done among HIV exposed infants in Kiambu level 4 hospital revealed EBF rate of 71.4%, 10.4% exclusive replacement feeding and 18.2% of mixed feeding (Andare et al., 2019).

There is limited data on EBF trends in Trans-Nzoia County. The suboptimal feeding practices have a significant effect on child's health including increased risk of mortality. Mututho et al., (2017) attributes 11.6% of under-five deaths to sub-optimal

breastfeeding practices. Other effects include stunting and increased infections especially where hygiene is not observed (Dharel et al., 2020).

Since it is expected that children aged 0-6 months are exclusively breastfed, numerous studies have focused on feeding practices among older children (6-59 months) with little information available on children aged 0-6 months. Furthermore, there's lack of evidence of previous literature on the prevalence of EBF in Kwanza Sub County, Trans-Nzoia. This study sought to ascertain feeding practices, including EBF among children aged 0 to 6 months attending WBC at Kwanza Sub County hospital.

2.4 Maternal factors and morbidity status of children aged 0 to 6 months

Maternal factors can greatly influence the morbidity status outcome of the child. Lack of social support, food insecurity and maternal depression are among the key contributing factors to childhood diarrhoea and acute respiratory diseases (Ullah et al., 2019). Maternal mental support services can help promote optimal child care practices, hence contributing to good health (Kumar et al., 2020).

Children from younger mothers are more at risk of facing health complications as compared to those from older mothers (Adedokun & Yaya, 2020). According to (Hviid et al., 2017), children born to both older and younger mothers have higher overall morbidity as compared to children born to mothers 25–29 years old.In Ethiopia, mothers' work status and marital status are related to child fever disease. Children from separated and single mothers are highly associated with fever disease as opposed to those who are married (Takele et al., 2019a). Consequently, high rates of breastfeeding are largely reported among those who are married, hence influencing the morbidity rates since breast milk is known to have immunological properties (Mututho et al., 2017). Mothers who encounter breastfeeding complications, such as sore nipples and

cracked nipples, have higher chances for early breastfeeding stoppage and even early introduction of other meals (Mututho, et al., 2017).

Those who have had caesarean deliveries are more likely to have the introduction of prelacteal feeds to their infants and even delayed initiation of breastfeeding. This may interfere with the duration of breastfeeding and even encourage continuation of mixed feeding (Kiani et al., 2018) .

Despite numerous efforts through the SDG 3 to improve on child survival, morbidity rates are still high in Kenya (Mulatya & Mutuku, 2020). Previous studies have been done on factors affecting morbidity status of children, majorly under-fives but there have been inconsistencies on maternal factors (Adedokun & Yaya, 2020); (Hviid et al., 2017), with minimal information on children aged 0-6 months. This study sought to establish maternal factors affecting morbidities in younger children (0-6 months old).

2.5 Morbidity status of children aged 0 to 6 months

Child morbidity is when a child's health negatively impacts their overall development (Chou et al., 2016). Early childhood morbidity is a major challenge facing developing countries and the leading cause of under-five deaths (Takele et al., 2019b).

SDG 3 is fighting to eradicate and reduce the effects of child morbidity (Alebel et al., 2018). WHO (2022) reports pneumonia, diarrhea, and malaria among the main contributors to under-five mortalities. Other than contributing to mortalities, childhood morbidities can lead to delayed growth, development, and even disabilities among the population (Khalil et al., 2018).

The worldwide burden of disease highlights lower respiratory diseases as one of the contributing factors to under-five deaths. It is responsible for over 2.4 million deaths in 2015 with pneumonia as the most common (Troeger et al., 2018).

In Africa, besides fever and Malaria (Simen-Kapeu et al., 2021), diarrheal diseases are highly prevalent among the under-fives causing up to 330,000 deaths yearly (Reiner Jr et al., 2018).

In Kenya, like other developing countries, childhood morbidities remain to be a challenge where every child under the age of five experiences diarrhoea in a year (Mutama et al., 2019) while malaria contributes up to 20% of child deaths in the country (Kapesa et al., 2018; Milner et al., 2020).

In Nairobi informal settlements,16.6% of young mothers'children had diarrhoea and 16.3% observed among older mothers (Ngomi et al., 2022). Most hospitalised cases of Malaria at the Coast (70%) involved children between the ages of 6 months and 4 years (Kamau et al., 2020).

In Trans-Nzoia County, 17.8% of under-five children presented with fever (KDHS,2022). Most studies have looked at health-seeking behaviour and prevalence of a particular disease among the overall under-five population with less focus on other co-morbidities in the initial 6 months. Therefore, this study purposed to determine the morbidity status of 0 to 6 months children visiting the WBC at Kwanza Sub-County Hospital.

2.6 Relationship between child's morbidity status, caregiver's socio-demographics and child's demographic characteristics.

Morbidity status of the child can be affected by the mother's socio-demographics and child's demographic characteristics. Morbidity is more prevalent in early days and decreases with increased age (Takele et al., 2019b). This is contrary to Belachew et al., (2018) where a higher prevalence of exclusive breastfeeding is observed in early days and a low prevalence in older days, which consequently impacts the morbidity status.

A study done in 31 African countries found a substantial link between children's morbidity status and birth order among the children where children of first order births (first borns) were less susceptible to morbidity unlike those with higher order births (Adedokun & Yaya, 2020).

Mother's educational background and employment situation can affect morbidity status of the child. Children whose mothers have higher educational attainment were less prone to fever as opposed to those with low educational attainment (Takele et al., 2019b). Children from well-educated mothers tend to have improved health as a result of better income and informed decisions on child feeding practices (Nankinga et al., 2019). However, this contradicts with Zhao et al., (2017) claiming that well educated mothers typically wean their children earlier as compared to those with low educational attainment.

Mother's age is a contributing factor to the child's health where children from older mothers tend to be healthier (Laksono et al., 2021) as opposed to those from young mothers. While several studies have addressed morbidity status in older children, little is known on how caregiver and child demographics influence morbidity status in children aged 0-6 months. The goal of this study was to determine morbidity status of children aged 0-6 months and to ascertain the socio-demographics of caregivers and child's demographics.

2.6.1 Relationship between child feeding practices and morbidity status

Child's feeding practices are key in determining morbidity status of the children, where EBF is widely attributed to many benefits, including its protective effect against diseases (Nguyen et al., 2020). Early adoption of complementary feeds is characterized by increased risk of diarrhoea, fever, acute respiratory infection or at least one of childhood morbidity cases unlike children who remain on EBF for 6 months (Nigatu et

al., 2019). According to Khan & Islam (2017), lack of EBF increased acute respiratory diseases, fever, and diarrhea by 8.94%,13.24% and 27.34% respectively in children under 6 months. In Pakistan, EBF was compared to other feeding practices including formula milk and it revealed the effect of breast milk on bringing out the best health outcome for young children (Saeed et al., 2020).

In Africa, early initiation of breastfeeding and EBF is advocated as it is identified with preventive measures among countries with high diarrhea morbidity among young children (Ogbo et al., 2017). In Kenya, similar results were found among Kenyatta Hospital nurses where EBF uptake was associated with low child morbidity (Queenter et al., 2021). A study done in Kangemi peri urban settlement found no relationship between EBF and child morbidity patterns (Ayisi and Wakoli, 2014).

Feeding practices have largely been associated with diarrhoeal morbidity with less information on the impact of feeding practices on other co-morbidities and multiple morbidities that may occur. Moreover, a great deal of research has been done on feeding practices and morbidities in children aged 6-59 months, but less is known about children aged 0–6 months. The purpose of this study was to determine the child's morbidity status and feeding practices between the ages of 0 and 6 months.

2.7 Summary of literature review

From literature review, numerous studies on child feeding practices and morbidity status have been conducted with a focus on children aged 6 to 59 months. Many studies have also shed light on factors associated with the feeding practices. Regarding socio-demographic factors, there is information gap on the effect of socio-demographics of children aged 0-6 months on their morbidity status.

With regard to feeding practices, more focus is on older children (6-59 months) with little information available on children aged 0-6 months. There's also lack of evidence of previous literature on the prevalence of EBF in Kwanza Sub County, Trans-Nzoia. Previous studies have been done on factors affecting morbidity among children, majorly under-fives but there have been inconsistencies on maternal factors and low information on children aged 0-6 months. The study sought to explore more on maternal factors, socio-demographics and socioeconomic characteristics.

Most studies have looked at health-seeking behavior and prevalence of a particular disease among the overall under-five population with less focus on other co-morbidities in the first 6 months. Furthermore, morbidities have widely been investigated on children above 6 months with less focus on children aged 0-6 months.

Having had varied findings widely across the globe, regionally and in Kenya, this study focused on Kwanza Sub County, Trans-Nzoia County, since it may have its unique characteristics and new revelations when it comes to child feeding practices and morbidity status. The study also filled the gaps existing amongst children aged 0 to 6 months who are assumed to be well nourished on breastfeeding. The study's methodology is stipulated in chapter three.

CHAPTER THREE: METHODOLOGY

3.1 Research design

An analytical cross-sectional design was used to determine maternal factors, feeding practices and morbidity status of children aged 0-6 months in Kwanza Sub County Hospital, Kenya. This design allows data from a group of participants to be gathered once in time, allowing for the measurement of associations and establishing relationships between various components within a defined population (Wang & Cheng, 2020). The design was preferred to provide description of the variables and establish relationships between maternal factors, feeding practices and morbidity status.

3.2 Study Variables

The study included two dependent and three independent variables. Maternal factors, demographics of children 0 to 6 months old, socio-economic and sociodemographic traits of caregivers were the independent variables. Feeding practices and morbidity status of children aged 0 to 6 months were the dependent variables. This enabled the researcher to understand how an independent variable impacts a variety of diverse dependent variables. It also allowed numerous study questions.

3.3 Study area

The research was carried out in Kwanza Sub-County Hospital, Kwanza constituency, Trans-Nzoia County. Kwanza Sub County has a population of 4172 children aged 0-11 months, 2089 male and 2083 female (KNBS, 2019). It has food poverty estimate of 28.1% of its population. The percentage distribution of household consumption patterns includes 82.1% (purchase/stock),11.3% (own production) and 6.6% (gifts) (KNBS, 2021). Kwanza Sub-County has an approximate of 25,376 hectares of agricultural land where 26,223 of the population practice crop production and 18,991 practice livestock production, maize being the leading crop production. According to the Kenya Health Information System (Ministry of Health, 2022) , 11.87% of children under five in

Kwanza sub county received treatment for diarrhea. Kiminini sub county recorded 4.25%, Saboti sub county reported 7.42%, and Cherangany sub-county reported 9.82%.

3.4 Study population

3.4.1 Target population

Children aged 0 to 6 months who visited WBC at Kwanza Hospital, Trans Nzoia County from 1/9/2023 to 29/9/2023 were the target population for this study. Their caregivers participated in the study as respondents to determine the maternal factors, feeding practices and morbidity status of the children. This age group (0 to 6 months) is the one commonly affected by the researcher's variables including different feeding practices such as mixed feeding and exclusive replacement feeding.

3.4.2 Accessible population

The accessible population included caregivers-child pair (0 to 6 months) attending the Kwanza Sub County Hospital's well-baby clinic, Trans Nzoia County within the one-month period of data collection (from 1st September 2023 to 29th September 2023).

3.4.3 Inclusion criteria

Caregivers and their children (0 to 6 months) who attended WBC at Kwanza Sub County Hospital from 1st September 2023 to 29th September 2023 and willing to be part of the study.

3.4.4 Exclusion criteria

Caregivers and children (0 to 6 months) who were ill during the study period, and those who declined be part of the study.

3. 5 Sampling techniques

Kwanza Sub County Hospital was purposively selected for the study. Being a public facility, and the only level 4 facility in the entire Kwanza Sub-County, it is accessible by a wider population as it offers a wide range of services at an affordable cost. According to the hospital's 2022 records, the estimated number of 0 to 6 months children attending well baby clinic was 220 in a month. The subjects were chosen using systematic sampling to guarantee that every unit had a probability of being chosen. To get a sampling interval, the monthly attendance (220) was divided by the sample size (152) that resulted to an interval of 1.4. This was approximated to 2 children. A random starting point was selected by choosing either 1 or 2 on a piece of paper to arrive at the first study subject for each day. Every 2nd caregiver-child pair was then selected until the sample size (152) was achieved.

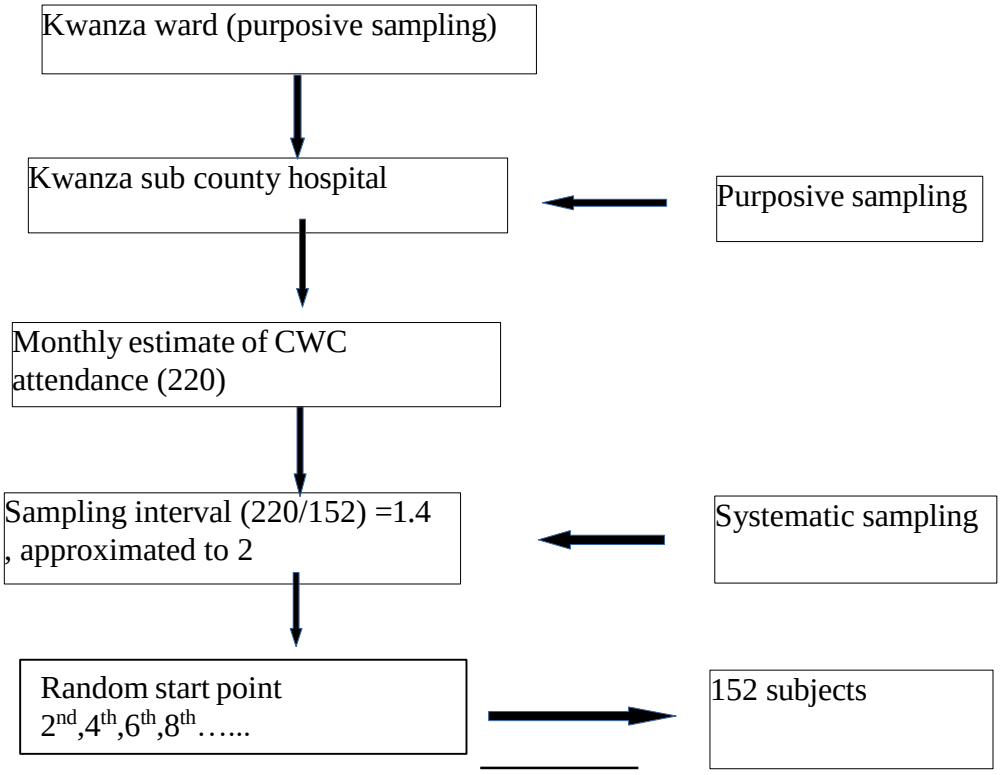

Figure 3.1 Flow chart for the sampling process.

3. 6 Sample size determination

Fisher's formula (Fisher et al., 1998) was employed to ascertain the appropriate sample size. EBF being the most common among other feeding practices for the first 6 months, a national EBF prevalence rate of 60% (KDHS,2022) was used.

$$n = \frac{Z2pq}{e2}$$

Z = 1.96 at 95% confidence interval, p = the projected rate of child feeding practices on the target population when the population approaches 10,000

$$n = \frac{(1.96)(1.96)(0.60)(0.40)}{(0.05)(0.05)} = 369$$

Fisher et al., (1998) formula was used for populations under 10,000:

nf = n/1+ (n/N)

In the event that the people are fewer than 10,000, nf is used. If they exceed 10,000, then n is used. N= Projected monthly population of infants aged 0 to 6 months enrolled in WBC

nf = 369/1+369/220= 138

The sample size was raised by 10%, making a total of 152 to cater for those who did not respond.

3.7 Research instruments

3.7.1 Questionnaire

Appendix B was utilized to collect data on feeding practices, maternal factors and morbidity status of children aged 0 to 6 months. Section 1 contains information on child's demographics and feeding practices, section II has data on maternal factors while section III contains data on child morbidity status. Information on socio-demographic characteristics of the caregiver is contained in section IV while section V has information on socio-economic characteristics of the caregiver.

3.7.2 Focus group discussion (FGD)

Two FGDs were conducted separately to enable collection of information on foods given to children aged 0-6 months, breastfeed initiation and maternal factors hindering EBF following the FGD guideline (Appendix C). Each FGD comprised of 10 participants where one included health care workers while the other comprised of caregivers of children (0- 6 months). They were purposely chosen based on their clinic appointment dates and availability.

3.7.3 Key Informants Interview Guide

Information on maternal awareness on feeding practices, maternal illness and problems encountered while breastfeeding were collected following the KII guide (Appendix D). It comprised of 8 participants. They were purposely selected based on area of expertise to include community based health care workers (Community health promoters, Public health officer, community health assistant).

3.8 Pre-testing of research instruments

Research tools were pre-tested in Kapsara Sub-County Hospital to assess clarity of the instruments, approximate time taken to administer the tools and taking note of confusing, sensitive and annoying items to the respondents. The facility was chosen since it has comparable characteristics to one included in the main study. The features considered were accessibility to the public, availability of a well-baby clinic and being a level 4 hospital. 10% of the researcher's sample size (an approximate of 15 caregiver-child pair) was used for the pre-test study. The results were key to guide the researcher on additional information to be included, subtractions, corrections and modification of the tools to achieve the intended objectives of the actual study.

3.9 Reliability of data collection instruments

Consistency of an instrument throughout time, across different forms and items defines its reliability (Mueller & Knapp, 2018). The same set of respondents were administered an identical questionnaire after an interval of five days, and a comparison was done between the answers that were provided on both occasions. According to Taber (2018), the Cronbach's alpha method was adopted to obtain the correlation coefficient. The questionnaire was deemed sufficient after a reliability coefficient of 0.78 was obtained.

3.10 Validity of data collection instruments

An instrument's validity depends on its capacity to measure the things it was designed to assess in terms of content, criteria and construct (Taherdoost, 2016). For content validity, care was taken to make sure that all items under investigations were catered for through consultation and feedback consideration. To determine construct validity, the instruments were subjected to Kenyatta university specialists in food and nutrition to check for clarity of items on maternal factors, feeding practices and morbidity status. The tools were updated with the comments. The instruments were assessed by Kenyatta university ethical review committee to ensure proper language use and protection of human rights.

3.11 Training of research assistants

The primary researcher recruited and trained the research assistants for three days as guided by the training programme (Appendix E). The team consisted of four research assistants comprising of two females and two males with bachelor's degree qualification in Food, nutrition and dietetics. The team was purposively selected to find those with a nutrition background. They were introduced to the purpose and objectives of the study. Key areas emphasized included sample population, geographical location,

methodology, use of instruments, role plays, safe keeping of completed questionnaires as well as going over the questionnaire and deciding on a common approach for questioning the respondents in Kiswahili or local language. This helped in achieving quality data and minimizing variations in data collection procedures.

3.12 Data collection procedure

Data was collected from 1st September 2023 to 29th September 2023. Questionnaires, KII and FGD were employed to obtain data on various variables. After the caregivers signed the consent form, they were interviewed using a researcher-administered questionnaire. This enabled interpretation of sections where the respondents required clarity. The questionnaires were completed in the Child Welfare Clinic as the mothers waited to be seen. Each day, the accuracy and completeness of the data was verified.

KI interview was conducted on 27th September 2023 at the facility hall, comprising of 8 participants. Information on maternal awareness of feeding practices and maternal illness was collected. The responses were recorded.

Two FGDs were conducted on two separate clinic days on 28th and 29th September 2023 at the facility hall. The participants were made aware of the study, and with their approved consent, invited to participate. They sat around the table where the researcher facilitated the discussion. The session was recorded by one of the research assistants after obtaining verbal consent from the respondents. Non-verbal communication was observed, paying key attention to ensure that each participant had an equal chance to give his or her views.

3.13 Data analysis

Data was verified, cleaned and coded. Version 28 of the Statistical Package for Social Sciences (SPSS) was used for data entry and analysis. Table 3.1 presents a summary of data analysis. Descriptive statistics such as percentages and frequencies were computed for feeding practices, maternal factors, morbidity status, demographic, and socioeconomic factors.

Using the chi-square test, the connections between the variables were discovered. Binary logistic regression was used to find variables and morbidity status predictors at a 95% confidence level. Tables and graphs were used to present descriptive statistics. Qualitative data was analysed using thematic analysis technique where recurrent themes were identified and coded. They were then utilized to complement quantitative information

Table 3.1 Summary of data analysis

Objective	Variable and indicators	Variable nature	Data collection method	Statistical test	Measure
1. To identify the socio-demographic and socioeconomic characteristics	Age, Income level, occupation, religion, Education	Continuous Categorical	Questionnaire	Descriptive statistics; percentages and frequencies	Amount of monthly income from all sources ,farming types, employment status, level of education attained
2.To determine the feeding practices of children aged 0 to 6 months	EBF, ERF, mixed feeding and partial breastfeeding Data from FGD	Categorical Qualitative	Questionnaire FGD	Descriptive statistics; percentages, frequencies, theme generation, coding and conclusions	Time of breastfeed initiation, prelacteal feeds, introduction of other feeds alongside breast milk.
3.To establish maternal factors associated with feeding practices	Maternal awareness on feeding, education, health, parity, marital status, employment, age	Categorical Continuous	Questionnaire	Chi-square test, Odds ratio	Mode and place of delivery, information received on child feeding, problems encountered while breastfeeding, maternal illness in the previous 2 weeks
	FGD and KII data	Qualitative	FGD KII	Generation of themes, coding and conclusions	Perception on the factors and feeding practices
4.To determine morbidity status among children aged 0 to 6 months	Respiratory diseases, diarrhoea, pneumonia, fever, malaria	Categorical	Questionnaire	Descriptive statistics; percentages, frequencies	Type of illness the child suffered from in the previous 2 weeks
5.Establish relationship between feeding practices, maternal factors and morbidity status	Feeding practices, maternal factors, morbidity status	Categorical Continuous	Questionnaire	Inferential statistics; (Pearson correlation and binary logistic regression analysis)	The effect of one variable to the other.

3.14 Ethical considerations

Kenyatta University Graduate School granted permission to carry out the research, and ethical clearance issued by Kenyatta University Ethics Review Committee (Appendix G). The National Commission for Science, Technology, and Innovation (NACOSTI) permitted to conduct the study (Ref No: 510336). Additionally, consent was sought from Kwanza Sub-County Hospital's management.

Before distributing questionnaires, a written consent (Appendix A) was sought from the respondents who were made aware of the goals of the research and guaranteed the privacy of any information disclosed.

COVID-19 safety protocols were implemented to safeguard the health and safety of both participants and researchers. This included social distancing and wearing face masks.

The respondents were voluntarily allowed to be part of the research and those unwilling to participate were not discriminated in any way. Relevant information on the outcome of the study was noted to bring out the findings as stipulated in chapter four.

CHAPTER FOUR: RESULTS

4.1 Introduction

The study results are presented in this chapter in line with the objectives. The findings are on socio-economic and socio-demographic characteristics of caregivers, demographics and feeding practices of the study children, maternal characteristics of the mothers and morbidities among children (0 to 6 months). Information was gathered from 148 respondents representing 97% of the study's entire intended sample size with 3% non-response.

4.2 Socio-demographic and socio-economic characteristics of the study population

Table 4.1 presents child's demographics, socio-demographic and socio-economic characteristics of the caregivers. More than two thirds (63.5%) of the study children were aged 0-3 months while over a third (36.5%) were aged 4-5 months. More than half (56.1%) were male. Majority (95.9%) of the children were non-twins and a small number (4.1%) were twins.

Regarding socio-demographics of the caregivers, nearly a third (29.7%) had 25-29 years and 20-24 years (29.1%). Nearly a quarter (23.6%) of the caregivers were aged 15-19 years while a minority (17.6%) had 30 years of age and above. Majority (73.6%) of the caregivers were married and over a quarter (26.4%) were single. More than half (56.1%) had achieved secondary education, and nearly a quarter (23.6%) had achieved primary education. Minority (17.6%) had tertiary education and a small number (2.7%) had no education at all.

Majority (97.3%) of the caregivers were Christians while Muslims were a minority (2.7%) as indicated on table 4.1. Concerning the main income earner, more than two thirds (64.2%) were fathers, nearly a quarter (22.3%) were mothers and a small number

(12.8%) were grandparents. Over a third of the caregivers were unemployed (43.3%), nearly a third (29.7%) were self-employed and employed (27.0%). Close to half (47.5%) of the caregivers were engaged in mixed farming, more than a third (30.3%) in subsistence farming and minority (14.8%) practised livestock farming.

Over a third (40.5%) of the caregivers' monthly income from all sources was less than Ksh. 2,000, a quarter (25.0%) had income between Ksh. 2,000 –Ksh. 5,000, nearly a quarter (21.6%) earned Ksh. 5,001-Ksh. 10,000 and a small number (12.9%) earned over Ksh. 10,000 in a month. With regard to the main sources of food, over half (58.1%) had food from their own farms, over a third (40.5%) of the caregivers bought their food while a small number (1.4%) got their food from other sources including food coupons and donations.

Table 4.1 Socio-demographic and socio-economic characteristics of the study population

Variable	N=148	N	%
Child age (months)	0 – 3	94	**63.5**
	4 - 5	54	36.5
Child's gender	Male	83	**56.1**
	Female	65	43.9
Child's birth order	1-3	122	**82.4**
	4-7	26	17.6
Birth characteristics	Non-twin	142	**95.9**
	Twin	6	4.1
Care-givers age (years)	15-19	35	23.6
	20-24	43	29.1
	25-29	44	**29.7**
	>/=30	26	17.6
Marital Status	Married	109	**73.6**
	Single	39	26.4
Highest education level	No education	4	2.7
	Primary	35	23.6
	Secondary	83	**56.1**
	Tertiary	26	17.6
Religion	Christian	144	**97.3**
	Muslim	4	2.7
Main income earner	Father	95	**64.2**
	Father & Mother	1	0.7
	Mother	33	22.3
	Grandparent	19	12.8
Working	Employed	40	27.0
	Not employed	64	**43.3**
	Self-employed	44	29.7
Farming types (N=122)	Subsistence farming	37	30.3
	Cash crop farming	18	14.8
	Mixed farming	58	**47.5**
	Livestock farming	4	3.3
	*****Other	5	4.1
Income per month	<Ksh 2,000	60	**40.5**
	Ksh 2,000 – 5,000	37	25.0
	Kshs50001-10,000	32	21.6
	>Ksh 10,000	19	12.9
Main sources of food	Buying	60	40.5
	Own farm	86	**58.1**
	*****Other	2	1.4

Other farming types included; aquaculture and Co-op farms

Other sources of food included; donations, food coupons

4.3 Feeding practices of children aged 0-6 months attending Kwanza Hospital's well baby clinic

4.3.1 Child breastfeeding practices at Kwanza Hospital's well baby clinic

Figure 4.1 illustrates the breastfeeding practices of children (0-6 months). Majority (94.6%) of them were on breastfeeds while a small number (5.4%) were not breastfeeding. More than two thirds (61.9%) of the children were initiated into breastfeeding immediately after birth, nearly a quarter (20.1%) had breastfeeding initiated after more than an hour and a minority (17.9%) were initiated between thirty minutes and one hour. A small number (0.6%) of children were never initiated to breastfeeding. This was supported by FGD qualitative data that as much as most children were still breastfeeding, a few never get to breastfeed at all." *Some of the young mothers we attend to never want to initiate breastfeeding as they may want to go back to school once they are stable," (participant3 FGD 2 2023).* With regards to breastfeeding time, majority (90.8%) of the children were breastfed on demand while a small number (9.2%) had scheduled time to breastfeed.

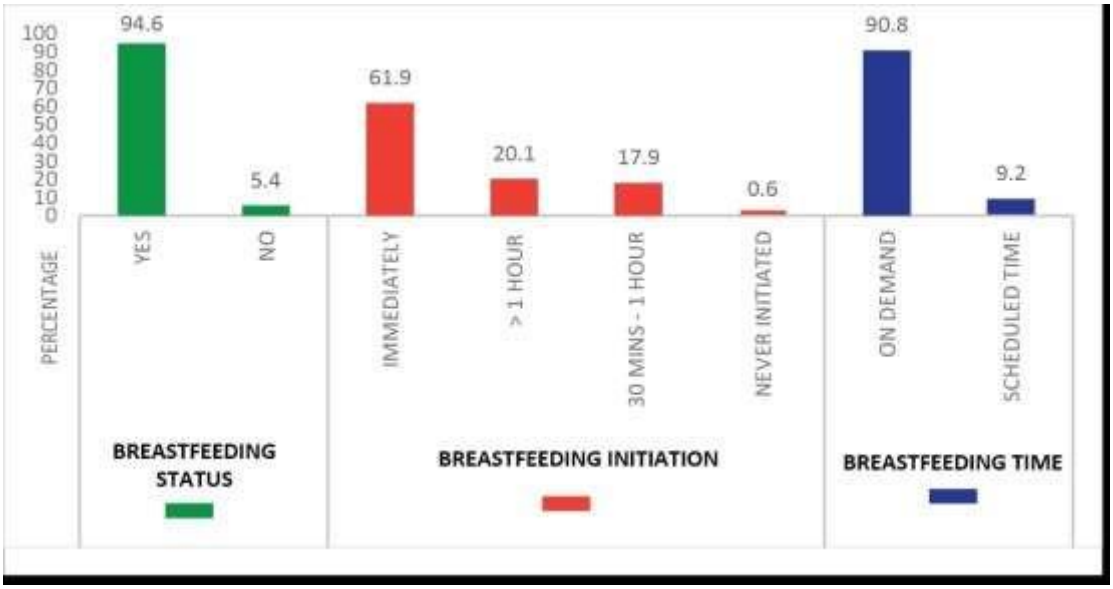

Figure 4.1 Child breastfeeding practices

4.3.2 Use of prelacteal feeds among children aged 0-6 months

Table 4.2 presents use of prelacteal feeds among children aged 0-6 months. Over a quarter (26.2%) of the children were given other fluids before breastfeed initiation. Over half (51%) were given sugar/glucose water, nearly half (42%) were given plain water and a small number (7%) were given infant formula. For reasons as to why prelacteal feeds were used, over half (56.4%) of the mothers said they had no milk, nearly a third (28.2%) had a crying baby and a small number (7.7%) were advised by a health worker. Maternal instability after delivery and delays on initiation of breastfeeding also contributed to use of prelacteal feeds*," When I got my baby, I had so many complications and felt so weak. I don't remember exactly what was given to my baby but I was told that he was on glucose water. I breastfed the baby after two days when I was somehow stable," (participant2 FGD 1 2023).*

Table 4.2 Use of prelacteal feeds among children aged 0-6 months

Variable	N		n	%
Introduction of other fluids before breastfeeding	148		39	**26.2**
Types of prelacteal feeds used	39	Plain water	16	42.0
		Sugar/Glucose water	20	**51.0**
		Infant formula	3	7.0
Reasons for use of prelacteal feeds	39	Crying baby	11	28.2
		Inadequate breastmilk	22	**56.4**
		Health professional advice	3	7.7
		Traditional beliefs	3	7.7

4.3.3 Exclusive breastfeeding and introduction of other feeds to children aged 0-6 months

Table 4.3 presents information on exclusive breastfeeding and introduction of other feeds besides breast milk. More than half (52%) of the children were exclusively breastfed within the last 24 hours while close to half (48%) were offered other foods

and fluids. More than two thirds (62%) of the children had other foods or fluids introduced at 13-16 weeks, nearly quarter (22.5%) at 0-4 weeks and a small number (11.3%) were introduced at 9-12 weeks and 5-8 weeks (4.2%). With regards to why the foods and fluids were introduced, over a third (30.6%) had a hungry/thirsty child and nearly a quarter (24%) gave reasons of working mothers. Minority among the mothers had reasons including an old enough baby (15.8%), individual preference (12.2%), family/traditional advice (8%), other reasons (5.2%), sick child (2.2%) and mother's illness (2%). Results from the qualitative data further gave reasons that the mother didn't have enough milk, the baby wasn't satisfied with breast milk or got advice from grandmothers and other family members, "*My mother advised me to introduce porridge at 3 months because I didn't have enough milk and the baby was crying a lot.," (participant2 FGD1 2023).*

Table 4.3 Exclusive breastfeeding and introduction of other feeds to children aged 0-6 months

Variable	**N**		**n**	**%**
Foods/fluids given within the last 24 hours	148	Breastmilk only	77	**52.0**
		Other foods/fluids	71	**48.0**
When other foods/ fluids were introduced	71	0-4 weeks	16	22.5
		5-8 weeks	3	4.2
		9-12 weeks	8	11.3
		13-16 weeks	44	**62.0**
Reasons for introduction of other foods/fluids	71	A thirsty/hungry child	22	**30.6**
		individual preference	9	12.2
		A sick child	2	2.2
		Baby old enough	11	15.8
		Family/traditional advice	6	8.0
		Mother's illness	1	2.0
		Working mother	16	**24.0**
		*Other	4	5.2

**Other reasons included; School going mothers and baby rejecting breastfeeds*

4.4 Maternal factors

4.4.1 Maternal awareness on child feeding at Kwanza Hospital's well baby clinic

Table 4.4 presents information on maternal awareness on child feeding. The benefits of exclusive breastfeeding were known to more than half of the mothers (53.4%). This was confirmed from the qualitative data with a consensus that exclusive breastfeeding was the best practice*," With this rising economy, breastfeeding the baby is easier and cheaper than buying milk or other feeds. I prefer carrying my baby along as I do my activities so that he can breastfeed other than leaving him with prepared feeds at home," (participant1 FGD1 2023).* Nearly a quarter (20.2%) were aware of when to start breastfeeding the baby. Majority (78.5%) of the mothers were fully satisfied that they had enough information on choice of child feeding. Based on FGD qualitative data, majority of the participants concurred that mothers receive adequate information on child feeding at the hospitals," during *clinic days, I often give health talks to the mothers regarding breastfeeding and other health matters before they are served," (participant 3 FGD2 2023).* Minority (11.4%) were partially satisfied and wished to get more information while a small number (7.6%) expressed dissatisfaction with information received on choice of child feeding.

Table 4.4 Maternal awareness on child feeding at Kwanza Hospital's well baby clinic

Variable	N		n	%
Awareness on child feeding	N=148		79	**53.4**
Child-feeding information received	N=79	Advantages of EBF	59	**74.6**
		When to start breastfeeding	16	20.2
		Other child feeding choices	1	1.3
		Benefits and risks of child feeding options	1	1.3
		Other/specify	2	2.6
Satisfaction-with information received	N=79	Yes, fully satisfied	62	**78.5**
		Partially satisfied	9	11.4
		No	6	7.6
		Don't know	2	2.5

4.4.2 Maternal factors associated with breastfeeding of children aged 0-6 months

Table 4.5 presents maternal factors associated with feeding practices of children aged 0-6 months. Majority (73.6%) of the caregivers were married and had vaginal deliveries (95.0%). Majority (91.4%) of the mothers delivered at the hospital while minority (6.4%) were at home and in motion (2.2%). A small number (19.3%) of mothers were sick in the previous 2 weeks. Minority (17.1%) encountered problems while breastfeeding where more than half (52.2%) had insufficient breast milk, nearly quarter (21.8%) had breast discomfort and a small number (13%) reported the baby rejecting breast milk.

Further information on problems encountered by breastfeeding mothers were breast complications such as engorgement, sore nipple, inverted nipple and cracked nipples," I *had a mother who had full breasts but she was unable to attach the baby in the first three days. After consultation, she was assisted and the problem was resolved,*" *(participant2 KII 2023).* The problems encountered affected breastfeeding in over a third

(37.5%) of the mothers. Other factors that affected breastfeeding among mothers included myths, employed mothers, illness of the mother, school girls going back to school and maternal death, “T*here is a time we once lost a mother during child birth and had to introduce infant formula to the baby. Once the baby was discharged, the family introduced cow’s milk as the formula is too expensive for them,” (participant1 KII 2023).*

A significant number (95%) of children whose mothers had undergone vaginal delivery were breastfeeding (P-value 0.0001). Similarly, a significant number (73.6%) of children whose mothers were married were breastfeeding (P-value 0.0001). No associations were found between place of delivery, maternal illness and child breastfeeding status.

Table 4.5 Maternal factors associated with breastfeeding of children aged 0-6 months attending Kwanza Hospital's well baby clinic

Maternal factors associated with current breastfeeding status					
Variable	**Is the child currently breastfeeding? N=148**	**Total**	**%**	X^2 **(df)**	**p-value**
	Yes	No			
Marital status(N=148)					
Married	108	1	109	**73.6**	16.294(1)	**0.0001***
Single	32	7	39	26.4		
Mode of delivery(N=140)					
Vaginal	130	3	133	**95.0**	17.037(1)	**0.0001***
Cesarean	4	3	7	5.0		
Place of delivery(N=140)					
Hospital	120	8	128	**91.4**	1.321(1)	0.516
Home	9	0	9	6.4		
While moving	3	0	3	2.2		
Maternal illness(N=140)					
Yes	15	12	27	19.3	2.803(1)	0.094
Breast feeding Problems (N=140)					
Yes	23	1	24	17.1	0.086(1)	0.769
Breast feeding Problems encountered(N=23)					
Insufficient breast milk	12	0	12	**52.2**	4.352(1)	0.500
Baby rejects breast	3	0	3	13.0		
Breast discomfort	5	0	5	21.8		
Breast issues (sore nipple, cracked nipple, engorgement)	3	0	3	13.0		

***Significant at p<0.05*

4.4.3 Maternal factors associated with breastfeeding frequency and use of prelacteals at Kwanza Hospital's well baby clinic

Table 4.6 presents information on maternal factors associated with breastfeeding frequency and use of prelacteals. Marital status was significantly associated with frequency of breastfeeding (OR 5.23,95% CI 1.90-14.36, p-value 0.001). Maternal

illness in the past two weeks was significantly associated with use of prelacteal feeds (OR 6.41,95% CI 1.98-20.73, p-value 0.002).

Table 4.6 Maternal factors associated with breastfeeding frequency and use of prelacteals at Kwanza Hospital's well baby clinic

Breastfeeding frequency				
Variable	**OR**	**95% CI**		**p-value**
Marital status		Lower	Upper	
Married	5.226	1.902	14.360	**0.001***
Single	1			
Highest education level				
Primary	7.499	0.644	87.393	0.108
Secondary	5.275	0.570	48.806	0.143
Tertiary	6.035	0.511	71.347	0.154
Use of prelacteal feeds				
Maternal illness in the previous 2 weeks		Lower	Upper	
Yes	6.412	1.983	20.732	**0.002***

***Significant at p<0.05*

4.5 Morbidity status among children aged 0 to 6 months attending Kwanza Hospital's well baby clinic

Table 4.7 presents the morbidity status of children aged 0-6 months. Nearly half (41.2%) of the children were reported being sick within the two weeks prior to the day of the survey. Over a third (37.7%) were reported to have been sick with fever and watery diarrhoea (31.1%). Minority (13.2%) were reported to have suffered from other symptoms including flu, coughs and upper respiratory tract infections. A small number suffered from difficulty and fast breathing (9.8%), malaria (4.9%) and bloody diarrhoea (3.3%).

Table 4.7 Morbidity status among children aged 0 to 6 months attending Kwanza Hospital's well baby clinic

Variable	N		n	%
Child sick in the previous 2 weeks	148		61	**41.2**
Type of sickness	61	Fever	23	**37.7**
		Watery diarrhoea	19	31.1
		Bloody diarrhoea	2	3.3
		Difficulty and fast breathing	6	9.8
		Malaria	3	4.9
		*****Others	8	13.2

*****_Others included; Flu, coughs and upper respiratory tract infections_

4.6 Relationships between feeding practices, maternal factors and morbidity status amomg children aged 0-6 months attending Kwanza Hospital's well baby clinic

Table 4.8 shows relationships between maternal factors, feeding practices and child's morbidity status. There was a relationship between monthly income and the likelihood of a child being sick (p=0.036). The researcher went further to check on the strength of the relationship and it was a weak positive relationship (r=0.063, r^2=0.004). No relationship was found between current breastfeeding status and the likelihood of the child being sick (p=0.069) as indicated on table 4.8 below.

Table 4.8 Relationship between maternal factors, feeding practices and morbidity status of children aged 0-6 months attending Kwanza Hospital's well baby clinic

Variable	**Dependent Variable (Morbidity Status)** **Observations = 148** **Model: Logistic Regression using Maximum Likelihood Estimation**		
	Child sick	**Child not sick**	**P- value**
Income			
<= 2000	28	31	**0.036**
2001 - 5000	15	23	
5000 – 10 000	10	21	
Above 10, 1000	8	12	
Stats			
R	0.063		
R-Squared	0.004		
Adj R-squared	-0.003		
F-statistic	0.58		
Current breastfeeding status			
Yes	56	84	0.069

*****_Significant at p<0.05_

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The study's findings in light of earlier research is given in this chapter. Additionally, it offers summary of the findings, conclusions, recommendations, and suggestions for future study, practice, and policy.

5.2 Discussion

5.2.1 Socio-demographic and socio-economic characteristics of the study population

Child's demographic characteristics are key in determining feeding practices as well as morbidity status of the child. Morbidity is more prevalent in early days and decreases with increased age (Takele et al., 2019b). Similarly, a higher prevalence of exclusive breastfeeding is observed in early days and a decrease of exclusive breastfeeding with increase in age. Consequently this impacts on the morbidity status (Belachew et al., 2018). The study was among caregivers of 0-6 months old children where more than two thirds (63.5%) of the children were aged 0-3 months and the gender was well distributed, with female close to half (43.9%). Majority (95.9%) of the children were non-twins and a small number (4.1%) were twins.

According to (Laksono et al., 2021), mother's age is a contributing factor to the child's health where children from older mothers tend to be healthier. Most of the caregivers were young as only a small number (17.6%) were more than 30 years of age, majority (73.6%) being married and of the Christian religion (97.3%).

Caregiver's education attainment contributes to child's morbidity. According to Nankinga et al., (2019) ,children from well-educated mothers tend to have improved

health as a result of better income and informed decisions. Over half (56.1%) of the caregivers had completed secondary education.

Socioeconomic characteristics of caregivers are important for this study as they can affect access of food and poor health care seeking as a result of low finances. This increases the risk of childhood morbidities (Arthur,2019). Out of the total respondents, 56.1% had completed secondary schooling. Their monthly income was less than Ksh 2,000, and just 12.8% of them made more than Ksh 10,000 total from all sources.

Household food insecurity negatively influences breastfeeding practices (Kimani-Murage et al., 2015) and hence, food security is key among lactating mothers. Close to half (47.5%) of the respondents practiced mixed farming to earn a living and as a source of food where more than half (58.1%) of the respondents got food from own farm.

5.2.2 Feeding practices of children aged 0-6 months

It is a good practice that majority (94.6%) of the children (0-6 months) were on breastfeeds. However, a small number (5.4%) of the children were not breastfeeding, some of whom had already stopped breastfeeding while some had never breastfed. This is against the WHO recommended practice of breastfeeding exclusively in the first six months and introduction of complementary feeds alongside breastfeeding for up to two years or beyond (WHO, 2020). This may deprive the child the many benefits of breast milk including proper growth and development (Nguyen et al., 2020).

Early breastfeeding initiation is encouraged as it prevents use of prelacteal feeds which contributes highly to partial breastfeeding (Dharel et al., 2020). Most (79.8%) children were breastfed within the first hour. This is above the 50% prevalence of early initiation of breastfeeding (EIBF) in many developing countries (Takahashi et al., 2017). However, nearly a quarter (20.1%) of the children had breastfeeding initiated after more

than an hour. According to Dharel et al., (2020), use of prelacteal feeds is encouraged when breastfeeding is delayed. This contributes to partial breastfeeding.

A small number (0.6%) of children were never initiated to breastfeeding. Instead, they were put on exclusive replacement feeding (ERF). This rate is lower than the global exclusive replacement rate of 9.4% (Gardner & Kassebaum, 2020). A study done in Kiambu level 4 hospital also observed a higher prevalence of ERF (10.4%) among HIV-exposed infants (Andare et al., 2019). Majority (90.8%) of the children were breastfed on demand. This is the best recommended practice as the flow of milk produced is influenced by the baby's desire (Fallon et al., 2023).

Over a quarter (26.2%) of the children were given prelacteal feeds before breastfeeding was initiated. This rate was lower compared to a study done in Kilifi county where over a third of the mothers gave prelacteal feeds, home remedies and traditional medicines (Talbert et al., 2020). With regards as to why prelacteal feeds were used, over half (56.4%) of the mothers said they had no milk.

On conducting a 24-hour recall of the foods and fluids offered, over half (52%) of the children were exclusively breastfed without offering any other foods or fluids. This rate (52%) is above both the global rate and Africa rate where EBF is at 43.5% and 34% respectively (Gardner & Kassebaum, 2020; Pretorius et al., 2020). In addition, this EBF rate (52%) is above the cumulative EBF rate (27%) among mother to mother support groups in Meru County (M'liria & Kimiywe, 2020) and continuous EBF (44%) among parents who underwent couple counselling in Nyando district (Ogada, 2014). However, the rate is below the national EBF prevalence rate of 60% (KDHS, 2022). Kwanza's low EBF rates in comparison with the national rate may be due to maternal factors such

as maternal awareness on child feeding, socioe-economic factors and other contributing factors.

Nearly half (48%) of the children were offered other foods and fluids besides breastfeeding. More than two thirds (62%) of the children having other foods or fluids introduced at 13-16 weeks. With regard as to why other foods and fluids were introduced, over a third (30.6%) had a hungry/thirsty child and nearly a quarter (24%) reported that they had to go to work. Various factors may have contributed to introducing feeds more frequently at 13-16 weeks. This might include recommendations from other mothers or family, a feeling that the baby is old enough, a feeling that the baby is not getting enough milk, among other factors.

5.2.3 Maternal factors associated with child feeding practices

Pertaining maternal awareness on child feeding, over half of the mothers (53.4%) had received information on child feeding. Majority (74.6%) knew the advantage of exclusive breastfeeding while nearly a quarter (20.2%) were aware of when to start breastfeeding the baby. Majority (78.5%) of the mothers were fully satisfied that they had enough information on the choice of child feeding while a small number (7.6%) were dissatisfied.

Children whose mothers were married were significantly more likely to be breastfed on demand compared to children whose mothers were single (OR 5.23,95% CI 1.90-14.36, p-value 0.001). The finding agrees with Tigka et al., (2022). Probably, this commitment of married mothers compared to single mothers may be due to family support and support from the spouses.

The study revealed an association between maternal illness and use of prelacteal feeds. Children whose mothers had reported illness in the last two weeks were significantly more likely (OR 6.41,95% CI 1.98-20.73, p-value 0.002) to be given other feeds before

initiation of breastfeeding. Prelacteal feedings may shorten the time a baby breastfeeds and encourage continuation of mixed feeding, according to Kiani et al., (2018).

A significant number of children whose mothers had undergone vaginal delivery were breastfeeding (P-value 0.0001). This agrees with Kiani et al., (2018) and a finding in Wajir County where mothers who had cesarean delivery reported initiating pre-lacteals early, delays in breastfeed initiation which interfered with EBF (Mohamed et al., 2020). However, this finding is contrary to Magnano San Lio et al., (2021) where no associations were found between mode of delivery and breastfeeding status.

A significant number of children whose mothers were married were breastfeeding (P-value 0.0001). This is in agreement with Flaherman et al. (2019). The finding also agrees with a study done in Nyeri County where marital status was associated with breastfeeding on demand (Murithi,2017).

5.2.4 Morbidity status of children aged 0 to 6 months

The findings contribute to the growing scientific consensus including Mutama et al., (2019) on childhood morbidities in Kenya. Nearly half (41.2%) of the children were sick in the previous two weeks. Over a third (37.7%) had fever. This rate is above the Trans-Nzoia County rate (17.8%) of children presenting with fever among the wider under-five population (KDHS,2022). This suggests that among the under-five population presenting with fever, the younger population could be the most affected. Over a third (31.1%) of the children presented with watery diarrhoea. This rate is above the general under-five population in Nairobi informal settlements where 16.6% presented with diarrhoea (Ngomi et al., 2022). This finding also concurs with Reiner Jr et al., (2018) that diarrhea is among the high prevalent childhood morbidities.

5.2.5 Relationship between maternal factors, feeding practices and child morbidity status

There was a relationship between monthly income and the likelihood of a child being sick (p=0.036). It is widely known that socioeconomic factors affect child morbidity status in Africa (Amugsi et al., 2015). This agrees with Adedokun & Yaya (2020), De Vita et al., (2019) as well as Orora (2017) where poverty and low socioeconomic status is related to poor health care seeking in Homabay County. However, it is contrary to studies by Piotrowski (2019), Nankinga et al., (2019), Anwar et al., (2015) and Arthur (2019) that found no connection between caregiver's socio-economic status and child's morbidity status.The difference in findings may be due to variations in methodology, sample population , context of the research or other unknown factors.

The researcher went further to check on the strength of the relationship and it was a weak positive relationship (r=0.063, r^2=0.004). The low R-Squared means that the model did not account for much variance in the relationship between caregiver's income and child's morbidity status. This suggests weak associations between caregiver's income and the likelihood of the child being sick. This implied that 0.4% of the child's morbidity was a result of the caregiver's socio-economic status while 99.6% of child's morbidity was due to other factors.

No relationship was found between child's breastfeeding status and the likelihood of a child being sick (p=0.069). This finding is contrary to Khan & Islam (2017). It also contradicts Queenter et al., (2021) where EBF uptake was associated with low child morbidity in Kenyatta Hospital. The finding agrees with Ayisi and Wakoli (2014) where EBF was not related to child morbidity patterns in Kangemi peri urban settlement. EBF may not have shown any significant relationship with child morbidity in this set up due to difference in sample size, recall bias or other confounding factors.

5.3 Conclusions

The following are the study's conclusions.

More than two thirds of the study children were aged 0-3 months and the gender was well distributed with female close to half. Majority of the children were non-twins. Majority of the caregivers were young with a small number (17.6%) aged 30 years and above. Majority were married, of the Christian religion and more than half had achieved secondary education. More than two thirds of the main income earners were fathers and over a third of the caregivers were unemployed. Close to half were engaged in mixed farming with over a third having a monthly income of less than Ksh. 2,000. More than half had food from their farms.

There are inadequate feeding practices among children aged 0-6 months in relation to WHO recommended standards.Majority of the children (0-6 months) were on breastfeeds, more than two thirds were initiated into breastfeeding immediately after birth and majority were breastfed on demand. However, a small number (0.6%) of children were on exclusive replacement feeding and were never initiated to breastfeed. Over a quarter of the children were given prelacteal feeds with over half reporting use of sugar/glucose water. For reasons as to why prelacteal feeds were used, over half of the mothers said they had no milk. On 24-hour recall, over half of the children were breastfed exclusively without offering any other foods or fluids. More than two thirds had other foods or fluids introduced at 13-16 weeks. With regards as to why the foods and fluids were introduced, over a third had a hungry/thirsty child.

More than half of the mothers had received information on child feeding. However, a small number were partially satisfied and dissatisfied. They wished to get more information. Majority of the mothers had vaginal delivery and gave birth in the hospital.

Nearly half of the children were reported to have been sick with over a third suffering from fever and watery diarrhea.

The study's findings revealed associations between mode of delivery with breastfeeding status, marital status with breastfeeding status, maternal illness in the past two weeks with use of prelacteal feeds. No associations were found between place of delivery, maternal illness and child breastfeeding status. No associations were found between mode of delivery, place of delivery and breastfeed initiation.

There was a weak positive relationship between child's morbidity status and caregiver's monthly income. No relationship was found between child's morbidity status and breastfeeding status.

H_{O1}. There is no relationship between caregivers' sociodemographic traits and the feeding practices of children aged 0 to 6 months attending WBC at KSCH; the null hypothesis is **rejected**

H_{O2}.There's no relationship between socio-economic characteristics of caregivers and morbidity status of children aged 0 to 6 months attending WBC; the null hypothesis is **rejected**

H_{O3}. There is no relationship between feeding practices and morbidity status of children aged 0 to 6 months attending WBC at Kwanza Sub County Hospital(KSCH); the null hypothesis is **not rejected**

H_{O4}. There is no relationship between maternal characteristics and feeding practices among children aged 0 to 6 months attending WBC at Kwanza Sub County Hospital*;* the null hypothesis is rejected

5.4 Recommendations

The following recommendations are given in light of the study's findings.

5.4.1 Recommendation for practice

1. Health institutions could strengthen education and counselling sessions on various aspects of child feeding during the child welfare clinic visits. This might increase maternal awareness on the importance of EBF and dangers of early introduction of complementary feeds
2. Health institutions to educate, counsel, and support mothers having children before marriage, during their antenatal clinic visits. This might build their confidence and commitment to breastfeed their children on demand.

5.4.2 Recommendation for policy

1. Health institutions to ensure routine screening and prompt management of maternal illnesses during and after delivery. This might scale up and improve breastfeeding among mothers.
2. Companies, institutions and independent contractors could set up a supportive and well-equipped workplace where breastfeeding is permitted on demand

5.4.3 Recommendation for further research

1. A study on differences in morbidity between exclusively breastfed and non-breastfed children aged 0 to 6 months in Kwanza Sub-County.
2. A longitudinal study to determine causality in morbidity and feeding patterns.

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APPENDICES

APPENDIX A: Informed Consent

Cheloti Nasambu Sophy is my name. As a Kenyatta University postgraduate student, am researching on "maternal factors, feeding practices and morbidity status of children aged 0-6 months attending well baby clinic at Kwanza Hospital, Trans-Nzoia County Kenya." The outcome might be important to the field of nutrition and dietetics professionals aiming towards achievement of exclusive breastfeeding targets, to the Ministry of Health and decision makers on morbidity prevention programs, to informing future research and enhancing good health.

Procedures to be followed

To take part in this study, I'll need to ask some questions to determine maternal factors, feeding practices and morbidity status children aged 0-6 months**.** The information will then be recorded in a questionnaire.

Voluntarism

Participation will be optional, consented, and if for any arising personal commitment or for any other reasons, one wishes not to participate, they will choose not to. The study is open for your inquiries at any time, and you are free to withdraw from an interview at any point by declining any questions. The study is yours to exit whenever you choose, not affecting in any way the services you obtain from the clinic or any other organization.

Discomforts and risks

Some of the personal questions you'll be asked can make you feel uneasy. In such a case, you are free to opt out of responding to these questions. The interview can be ended at any time. You might also have to spend 15- 30 minutes on the interview before receiving normal services. The nature of the research will not be intrusive and trained field assistants will be used to prevent any potential harm.

Benefits

No reward will be offered to one who wishes to take part in this study. However, the hospital and stakeholders who are keen on improving child feeding practices and child's health may find the study's conclusions to be significant. It may be key to improving child breastfeeding practices, child services and reduce morbidity among children and future generations. Ultimately the whole thing will be for the good and benefit of the community as a result of improved services, improved feeding practices, a healthy and happy community.

Rewards

If you take part, you won't receive any payments or incentives.

Confidentiality

The questionnaires will be kept safe and the information will only be used for study purposes and no personal information of the participants will be disclosed for any other purpose.

Contact information

If you have any questions, please get in touch with Professor Elizabeth Kuria on 0721433619 or Dr. Joseph Kobia on 0783544085.The investigator's Tel. No. is 0702768464.

Participant's statement

I am aware of the information stated above,the opportunity to raise questions has been provided, and I have received satisfactory responses. Participation in this study is entirely voluntary on my side. I understand I have the right to withdraw at any time and that my data will be kept private. Even if I decide not to continue with the studies, I am aware that I will continue to get the same services, and that my choice will have no bearing on the level of service I receive from the clinic.

Name of participant……

_____ _____

Signature Date

Investigator's statement

In a language they can understand, I, the undersigned, have explained to the volunteer the protocols that will be followed in the study as well as the risks and benefits associated.

Name of interviewer……

_____ _____

Signature Date

APPENDIX B: Information On Maternal Factors, Feeding Practices And Morbidity Status Of Children Aged 0-6 Months In Kwanza Hospital

SECTION 1: CHILD'S DEMOGRAPHICS AND FEEDING PRACTICES

(I have a few questions for you regarding feeding of your child)

Date of interview:_____/____/

Questionnaire checked by:

1.1 Child's age (months) 1=0-3, 2=4-5 []

1.2 Birthdate _____/ _____/ _____

1.3 Sex 1= Male, 2=Female, 3=Others []

1.4 Order of birth for the child _____

1.5 Birth intervals from the previous child_____(months)

1.6 Birth characteristics 1=Non-twin 2=Twin 3=Triplet 4=Others

1. Is (**child's name**) breastfeeding at the moment?
    1) Yes
    2) No (Skip to 7)

2. After giving birth,when did you begin breastfeeding?
    1) Immediately
    2) 30 mins-1 hour
    3) > 1 hour
    3) Never initiated_____

3. Did you give this child anything else before you started breastfeeding?
    1. Yes
    2. No (Skip to 6)

4. What did you offer the child before breastfeeding?
    1) Ordinary water
    2) Infant formula
    3) Water with sugar or glucose
    4) Other/specify _____

5. Why did you offer other feeds before breastfeeds?
    1) Crying baby
    2) Inadequate breastmilk
    3) Health professional advice
    4) Cultural beliefs
    5) Other /specify_____

6. When does (**name of the index child**) receive breastmilk?
    1) On demand
    2) Scheduled time
    3) Other /specify_____

7. What among the following did you offer (**name of the index child)** in the previous 24 hours?

Feeds	**Yes**	**No**
water	1	2
Water with sugar	1	2
Fresh milk from animals	1	2
Porridge	1	2
Breast milk	1	2
Infant formula	1	2
Others (specify)		

8. When did you begin administering additional foods or liquids?__(weeks/*months where applicable*)

9. What was the reason for introducing other foods/liquids? (*One or tworesponses if applicable)*

1) Baby old enough to begin consuming various foods and liquids
2) Working mother
3) Individual preference
4) Advice from health professionals
5) Family or traditional advice or custom
6) Mother's illness
7) A sick child
8) a thirsty or hungry child
9) a sobbing child
10) Mother and child separated
11) Other: Please specify...

SECTION 11: MATERNAL FACTORS

(To be asked to only biological mothers and guardians excluded)

Question	**Response**	**Code**
What was the mode of delivery for your baby?	1)Vaginal 2)Caesarean	
Place of delivery?	1)Hospital 2)Home 3)While moving	
Have you ever gotten any information about feeding your child?	1) Yes 2)No	
If any, what details on child feeding did you receive?	1) Advantages of EBF for mothers 2) Importance of EBF to the baby 3) Other child feeding choices 4) Advantages and disadvantages of alternative feeding options 5)Other/specify _____	
Were you satisfied that you had enough information on choice of child feeding practice?	1) Yes, completely satisfied 2) Slightly satisfied, additional details would have been nice 3) No 4) Unknown	
Have you ever had problems breastfeeding your child?	1) Yes 2)No	
If so, What problems have you encountered?	1-Insufficient breast milk 2-A baby who rejects breastfeeding 3-Breast discomfort 4-Breast issues (sore nipple, cracked nipple, engorgement) 5-Other (specify) ……	
Have the problems affected breastfeeding ?	1)Yes 2)No	
If yes, how have the issues		

affected breastfeeding ?		
Have you (mother) had any illness in the previous two weeks?	1)Yes 2)No	
If yes, Did/ has the illness interfered the baby from being breastfed?	1)Yes 2)No	
How did the illness affect breastfeeding ?		

SECTION 111: CHILD MORBIDITY STATUS

Question	Response	Code
Since 2 weeks ago, including today, has your child been sick?	1) Yes 2)No	
If yes, what illness was the child suffering from? (Describe the major signs)	1) Fever 2) Watery diarrhea 3) Bloody diarrhea 4)Difficulty and fast breathing 5)Malaria 6)Others (specify)…… …	

Thank you for your participation

(I will now ask you some questions about you)

SECTION 1V: SOCIO-DEMOGRAPHIC CHARACTERISTICS

Question	**Response**	**Code**
Age (*years*)	1) 15-19 2) 20-24 4) 25-30 5) Above 30	
Status of marriage	1) Married 2) Unmarried 4) Separated 5) Bereaved 6) Others-Specify…….	
Educational attainment	1) No education 2) Primary 4) Secondary 5) Tertiary	
Religion	1) Christian 2) Muslim 3)Other(specify)_ _____	

SECTION : SOCIO-ECONOMIC CHARACTERISTICS OF CAREGIVERS

Question	**Response**	**Code**
Main income earner	1) Father 2) Mother 3) Grandparent 4) Other_____	
Working	1) Employed 2) Not employed 3)Self-employed (specify)_____ 4) Farmer 5) Other (specify)	
Farming types(where applicable)	1) Subsistence farming 2) Cash crop farming 3) Mixed farming 4) Livestock farming 5)Other(specify)	
Monthly income from all sources	1) <Kshs 2 000 2) Kshs 2 001 – 5 000 3) 5 001 – 10 000 4) Above 10 000	
Main sources of food	1) Buying 2) From own farm 3)Other(specify)	

APPENDIX C: Focus Group Discussion (FGD) Guide

(To ensure I accurately capture the conversation, I would like to record this session. The recording will be used solely for research purposes and will remain confidential. Do I have the permission to proceed?)

1. Which foods are given to children from 0-6 months?
2. What do you think about exclusive breastfeeding?
3. What is the community's opinion on exclusive breastfeeding?
4. When do mothers start breastfeeding after birth?
5. Before breastfeeding, are the babies given anything else?
6. What are the maternal barriers to exclusive breastfeeding?
7. What other factors hinder exclusive breastfeeding?

Thank you for your participation

APPENDIX D: Key Informant Interview Guide

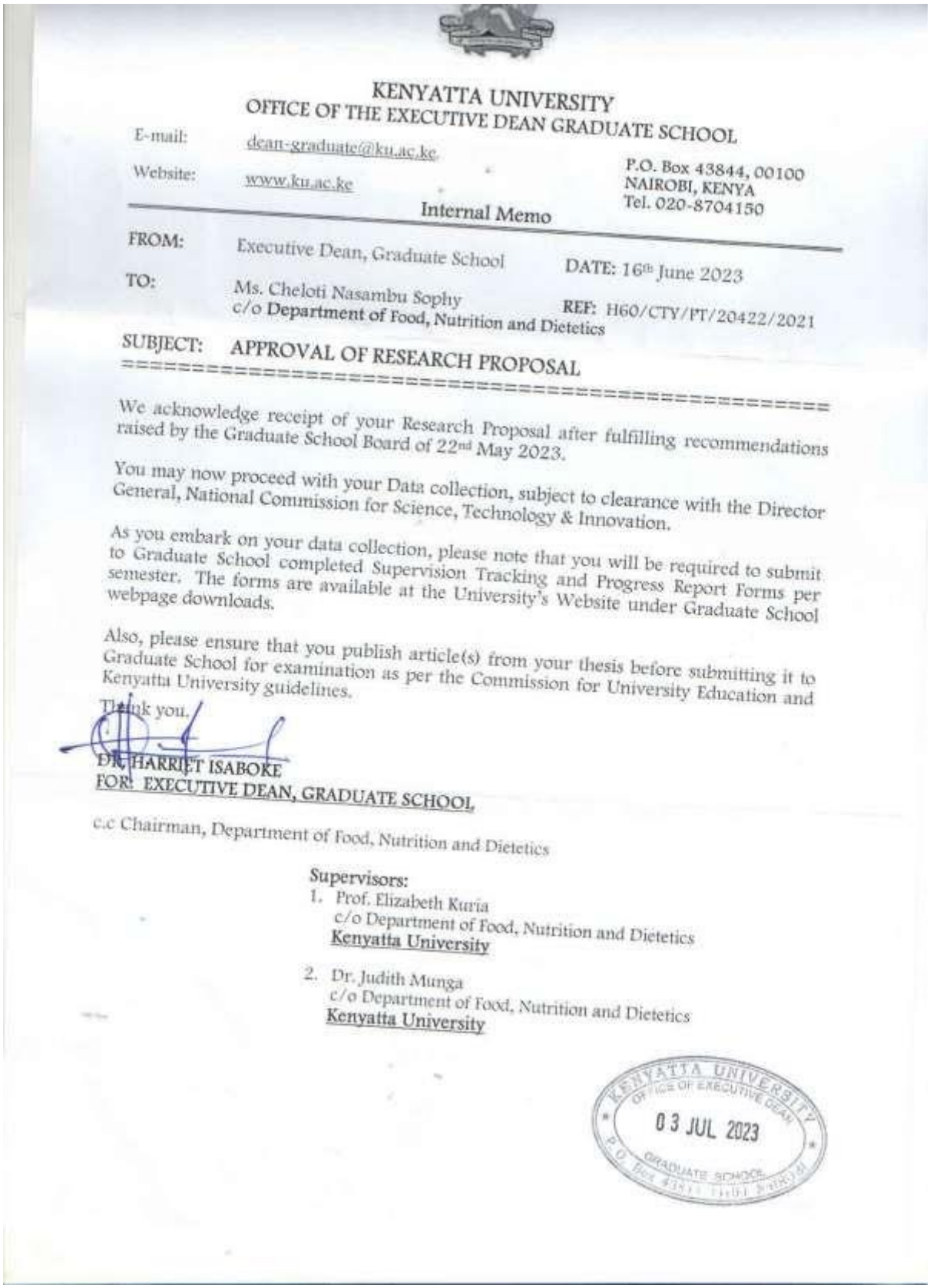
1. How old is a child ready to be fed?
2. Do mothers get appropriate information on feeding practices?
3. What do mothers think about exclusive breastfeeding?
4. Do mothers practice exclusive breastfeeding?
5. Do mothers experience difficulties while breastfeeding?
6. How do the problems interfere with breastfeeding?
7. Why do mothers introduce other feeds before 6 months?
8. How do maternal illnesses affect child feeding?

Thank you for your participation

APPENDIX E: Training Programme for Research Assistants

	CONTENT
Day one	Background, purpose and objectives of the study Sample population Geographical location of respondents
Day two	Methodology and data collection Drill on the use of instruments Have role plays alternating the role of respondents and interviewer
Day three	How to establish rapport with respondents and other ethical issues Checking the completeness of the questionnaires; for errors and omissions Safe keeping of completed questionnaires

APPENDIX F : Approval of Research Proposal from Kenyatta University Graduate School



KENYATTA UNIVERSITY
OFFICE OF THE EXECUTIVE DEAN GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 020-8704150

Internal Memo

FROM: Executive Dean, Graduate School
DATE: 16th June 2023

TO: Ms. Cheloti Nasambu Sophy
c/o Department of Food, Nutrition and Dietetics
REF: H60/CTY/PT/20422/2021

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

We acknowledge receipt of your Research Proposal after fulfilling recommendations raised by the Graduate School Board of 22nd May 2023.

You may now proceed with your Data collection, subject to clearance with the Director General, National Commission for Science, Technology & Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and Progress Report Forms per semester. The forms are available at the University's Website under Graduate School webpage downloads.

Also, please ensure that you publish article(s) from your thesis before submitting it to Graduate School for examination as per the Commission for University Education and Kenyatta University guidelines.

Thank you.

DR. HARRIET ISABOKE
FOR: EXECUTIVE DEAN, GRADUATE SCHOOL

c.c Chairman, Department of Food, Nutrition and Dietetics

Supervisors:
1. Prof. Elizabeth Kuria
   c/o Department of Food, Nutrition and Dietetics
   Kenyatta University
2. Dr. Judith Munga
   c/o Department of Food, Nutrition and Dietetics
   Kenyatta University

KENYATTA UNIVERSITY
OFFICE OF EXECUTIVE DEAN
03 JUL 2023
GRADUATE SCHOOL

APPENDIX G: Ethical Approval

KENYATTA UNIVERSITY
CENTRE FOR RESEARCH ETHICS AND SAFETY

Fax: 8711242/8711575
Email: chairman.kuerc@ku.ac.ke
Nairobi, 00100

P. O. Box 43844,

Tel: 8710901/12

Website: www.ku.ac.ke
Our Ref: **KU/ERC/APPROVAL/VOL.1**

Date: 11th August, 2023

Sophy Cheloti
P.O Box 43844, 00100
Nairobi.

Dear Ms. Cheloti,

APPLICATION NUMBER: PKU/2770/I1895- MATERNAL FACTORS ,FEEDING PRACTICES AND MORBIDITY AMONG CHILDREN AGED 0-5 MONTHS ATTENDING WELL-BABY CLINIC AT KWANZA HOSPITAL,TRANS-NZOIA COUNTY, KENYA

This is to inform you that ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** has reviewed and approved your above research proposal. Your application approval number is **PKU/2770/I1895.** The approval period is **11th /08/2023 to 11th/08/2024**

This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE***
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.

vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.

vii. Submission of an executive summary report within 90 days upon completion of the study to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE***

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

To serve you better, researchers are kindly requested to access and complete a customer feedback form and sent it back online as you continue with research and upon completion of data collection found on the following website link; ;(https://docs.google.com/forms/d/1ytWefDwvyz5h1oz_VIn0xbxg3uGdlDzMXFWNDsMrRPQ/edit?usp=sharing

Yours sincerely

Prof. Judith Kimiywe

Director: Centre for Research Ethics and Safety

APPENDIX H: Nacosti Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **510336**

Date of Issue: **24/August/2023**

RESEARCH LICENSE

This is to Certify that Ms.. sophy Nasambu cheloti of Kenyatta University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Transnzoia on the topic: Maternal Factors, Feeding Practices And Morbidity Among Children Aged 0-5 Months Attending Well-Baby Clinic At Kwanza Hospital, Trans-Nzoia County, Kenya for the period ending : 24/August/2024.

License No: **NACOSTI/P/23/28788**

510336

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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See overleaf for conditions