FACTORS INFLUENCING EXCLUSIVE BREASTFEEDING IN BUNDIBUGYO DISTRICT, UGANDA

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DECLARATION:

I Rita Ntegyereize hereby declare that the work submitted in this dissertation is original and a result of my own study except where otherwise acknowledged. This has not been submitted for another degree award in this or any other University or institute.

Sign: _____ Date_____

SUPERVISOR

Dr. Alex Mokori

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LIST OF ACRONYMS

ANC	Antenatal Care
BFHI	Baby Friendly Hospital Initiative
EBF	Exclusive Breastfeeding
IYCF	Infant and Young Child Feeding
MPH	Master of Public Health
PNC	Postnatal Care
PNFPs	Private Not for Profit
PFP	Private for Profit
SEM	Socio-Ecological Model
UBOS	Uganda Bureau of Statistics
UCU	Uganda Christian University
UNICEF	United Nations Children's Fund
WHO	World Health Organization

OPERATIONAL DEFINITIONS.

Breastfeeding in this study is the way of providing young infants all the required nutrients they need in the form of breast milk directly from the mother's breast for their healthy growth and development (WHO, 2014)

Exclusive breastfeeding (EBF) is defined as giving an infant only breast milk from birth up to six months of age, without giving other liquids or solids, not even water, except for oral rehydration solution or drops/syrups of vitamins, minerals or medicines [WHO, 2003; Jolly, 2008; Kong *et al*., 2004]. For this study Exclusive breastfeeding was assessed for all mothers of children within the range of 0 to 6 months at the respective age of the child at the time of the study.

Midwives: Are trained professionals with expertise and skills in supporting women to maintain healthy pregnancies and have optimal births and recoveries during the postpartum period (WHO, 2014). They provide women with individualized care uniquely suited to their physical, mental, emotional, spiritual, and cultural needs (WHO, 2014).

Women's experiences: in this study refers to the satisfaction regarding the usefulness of the counselling session, relevant knowledge and explanation, adequate time given by midwives during the prenatal and postnatal period.

Postnatal mother: In this study, it refers a woman who has delivered a live baby and who is residing in the postnatal ward.

ABSTRACT

Background: Immediate and exclusive breastfeeding have been recognised by the WHO and UNICEF as important and necessary public health practices that can help prevent child morbidity and mortality, and to satisfy sustainable development goal (SDG) 2.2 “end all forms of malnutrition by 2030”. Despite this realisation, efforts to promote and embrace immediate and exclusive breastfeeding have achieved limited success in Bundibugyo district.

Problem: While many parts of Uganda including Bundibugyo district have a culture of breastfeeding, exclusive breastfeeding has remained low at 44% as compared to the national average of 66%.

Objectives: The study established prevalence of exclusive breastfeeding in children within the age range of 0-6 months and the factors that influence exclusive breastfeeding among mothers in Bundibugyo district.

Methods: The study used a cross-sectional mixed methods design. Both qualitative and quantitative approaches were used to collect data.

Findings: The prevalence of exclusive breastfeeding among the study participants was at 47%, which is below the national average of 66%. The prevalence of exclusive breastfeeding declined as the children grew older. Majority of the mothers reported having initiated their children on breast milk in the first hour after birth. Majority (75%) of the mothers delivered from a health facility. The study found statistically significant association between health facility delivery, ANC 4+(4 or more ANC Visits), baby age, and exclusive breastfeeding. Mother’s characteristics like age, level of education, marital status, mother knowledge and attitude, influenced exclusive breastfeeding.

Conclusion and recommendations: The study findings point to important individual level, interpersonal, and institutional/organizational level factors that influence EBF. Several misconceptions about EBF such as child’s refusal of other feeds in future exist and are a barrier to sustainable EBF practice in Bundibugyo. Strategies to increase mothers’ knowledge, improve attitude towards ANC and facility deliveries are recommended.

CHAPTER ONE

1.0 Background

Breastfeeding is an unmatched strategy for providing all the required nutrients for the proper growth and development of infants. World Health Organization recommends that infants be exclusively breastfed for the first six months of their lives so as to achieve optimal growth, development and health (WHO, 2019). The United Nations Development agenda puts health among the top priorities for development; sustainable development goal number three (Good health and well-being) target 3.2 calls on countries to end all preventable deaths under 5 years of age by 2030 (UNDP, 2015).

Exclusive breastfeeding (EBF) is one of the evidence-based interventions for child survival (WHO, 2003). Engebretsen et al (2010:1) argues that, "*Breastfeeding has the potential to save neonatal, infant and young child lives and to reduce morbidity*". EBF could prevent eight per cent of global annual child mortality (Bhutta, 2008). Infants who have been breastfed correctly, have reduced risk of common childhood illnesses such as gastrointestinal and respiratory infections, otitis media, atopic eczema, and allergy during childhood and chronic non-communicable diseases such as obesity, diabetes mellitus, and cardiovascular diseases (WHO, 2014). A 2012 World Health Organization report asserted, *"Indeed, of the 6.9 million under-five children who died globally in 2011, an estimated 1 million lives could have been saved by simple and accessible practices such as exclusive breastfeeding*"

Besides being an important public health strategy for reducing infant and child morbidity and mortality, acting as a natural method of family planning, promoting sensory and cognitive development in babies and young children, and decreasing the risk of obesity, breastfeeding contributes to the reduction of maternal morbidity (such as ovarian and breast cancers) and associated mortality (WHO; 2003; UNICEF 2019). Therefore, the role of breastfeeding in ensuring a healthy childhood and survival for both children and their mothers cannot be underestimated (WHO; 2014) especially in developing countries.

The World Health Organization (WHO) and United Nations Children's Fund (UNICEF) recommend that all mothers should breastfeed their children exclusively for the first 6 months and after six months; mothers should start complementary feeding while continuing to breastfeed for two years and beyond (WHO,2007; 2014; GoU-MoH 2007).

Although breastfeeding is usually considered a natural process, it is still a skill that is learned through counseling and practice (WHO 2013). However, some women associate professional breastfeeding support with pressure, unreachable counselors, and sometimes contradictory information Backstrom et al (2010). Following the World Health Organization guidelines, Uganda's Ministry of Health has shown commitment to the practice of immediate and exclusive breastfeeding. Several interventions are in place for supporting and encouraging exclusive breastfeeding among mothers in Uganda. This is evidenced by the launch of the Baby-friendly Hospital Initiative (BFHI) in Uganda that was launched through the Ministry of Health, WHO and UNICEF in 1991. The government has undertaken other initiatives with the help of media platforms to educate mothers on how to successfully breastfeed an infant and how best men can be mobilized to take part in ensuring that children are immediately and exclusively breastfed (Bbaale, 2014). The recent Uganda Employment Amendment Bill that has been in parliament since 2019 proposes further reforms in workplace terms and conditions to support pregnant women and lactating mothers to have protected time and place for breastfeeding to encourage exclusive breastfeeding.

The study focused on establishing the factors that influence exclusive breastfeeding in Bundibugyo district. Bundibugyo district is reported to have high percentage of adolescent mothers (Asiimwe, Nyegenye, & Muyingo, 2019). One in every four adolescents have ever given birth with higher risks of infant deaths. Several studies have associated low age of mother with low rates of exclusive breastfeeding (Biondi, et al., 2011). In Bundibugyo and Kabale region, the prevalence of exclusive breastfeeding is 44% which is below national level of 66% according to Uganda Demographic and Health Survey 2016 (Asiimwe, Nyegenye, & Muyingo, 2019).

Although most infants in Uganda are breastfed, the rate of exclusive breastfeeding per WHO recommendations is still low at 66% (UDHS, 2016). In some parts of Uganda,

mothers are expected to breastfeed but find it hard to achieve it due to several factors. However, there is evidence that women who have received breast-feeding counselling and support do breastfeed their babies for a longer period (Tesfaye, Gerbaba, & Belachew, 2011; UNICEF, 2017). While the benefits of exclusive breastfeeding to the newborns and infants are well documented, non-adherence to exclusive breastfeeding is common and is often associated with increased episodes of diarrhea, fever, acute respiratory infections, stunting, wasting and underweight in infants (Nuruzzanman Khan & Mofizul 2017; WHO 2019).

Bundibugyo district in western Uganda, like many other districts in the rural part of Uganda has been reported to have one of the highest rates of child stunting at 45% way above 38% national average (UDHS 2016). The practice of exclusive breastfeeding and early initiation of breastmilk in the district is reportedly among the lowest in the country, lower than national average of 66%. It is reported that children as young as less than 6 months are introduced to supplementary foods such as cassava and mashed plantain which compromise healthy infant growth. It is therefore important to understand the enabling factors and barriers to exclusive breast feeding in Bundibugyo district to inform maternal newborn and infant health policy and programming in the district.

1.1 Problem statement

Despite the existence of extensive health programs and information on the benefits of exclusive breastfeeding to the baby and the mothers in the first six months of a child's life in Uganda, only six in 10 children are exclusively breastfed (UBOS, 2016). In addition, only six in 10 babies are initiated on breastmilk within the first hour after birth. High infant mortality rates associated with diarrhoea, acute respiratory infections and poor responses to vaccinations are reported to be consequences of inadequacies in exclusive breastfeeding (WHO, 2019). Besides, mortality among non-exclusively breastfed children was found to be higher than those exclusively breastfed. (Asiimwe, Nyegenye, & Muyingo, 2019; UDHS, 2016).

While almost all mothers (96%) initiate breastfeeding, 52% offer their children water and other liquids or foods in the first month (Nabunya, Mubeezi, & Phyllis, 2020). This

practice is reported to increase the risks for infections and diseases like diarrhoea, pneumonia, and malaria (UNICEF, 2017). According to the Uganda demographic and health survey 2016, 22% of under five deaths in Uganda are attributed to diarrhoea and Uganda is reported to have the worst mortality rate related to diarrhoea in the East African region (Omona, Malinga, & Opira, 2020) of children under five years who experience diarrhoea, malaria, and pneumonia. In Bundibugyo district, children have 61.0% life expectancy at birth and the main causes of death among neonates and general under-fives is malaria, diarrhoea, and acute respiratory disease all of which are a result poor breastfeeding practice. A study in Western Uganda that assessed under-five child nutrition status found 43.0% of them stunted and this was attributed to the low rates of exclusive breastfeeding (Biondi, et al., 2011). The introduction of others food to infants below six months has been termed as matter of public health concern as it increases the risks for disease and resultant child mortality from diarrhoea, malaria, and acute respiratory infections (WHO, 2014), and for children that survive past five years, inadequacies in breastfeeding lead to adverse effects on their growth and cognitive abilities.

The low prevalence of exclusive breastfeeding and early initiation of breast milk in Bundibugyo district, amid high infant mortality rates of 48 in 1,000 live births, is an issue that needs immediate attention (UBOS, 2017). However, this can only happen if all stakeholders have a clear understanding of the factors that facilitate exclusive breastfeeding. This study fills the gap in literature regarding the factors that facilitate or hinder exclusive breastfeeding in Bundibugyo district recognising that these factors range from the individual mother and her family, the community, the hospital environment, and existing policies on breastfeeding in the country as informed by the socio-ecological theory.

1.3 General objective.

The main objective of the study was to establish the prevalence of exclusive breastfeeding and identify the factors influencing the practice among mothers of children within the age range of 0 to 6 months in Bundibugyo district to inform appropriate interventions.

1.3 .1 Specific objectives

1. To determine the prevalence of exclusive breastfeeding in children 0-6 months in Bundibugyo district.
2. To establish factors that influence exclusive breastfeeding in children 0-6 months in Bundibugyo district
3. To explore the influence of mothers' knowledge on exclusive breastfeeding in children 0-6 months in Bundibugyo district.

1.3.2 Research Questions

1. What is the prevalence of exclusive breastfeeding in Bundibugyo sub-population?
2. What factors influence exclusive breastfeeding practice in Bundibugyo?
3. What is the level of knowledge of mothers about exclusive breastfeeding in Bundibugyo?
4. What is the relationship between mother knowledge and exclusive breastfeeding?
5. At what age do majority of mothers in this sub-population initiate supplementary feeds to babies below 6 months of age?

1.4 Significance of the study

The study estimated the prevalence of EBF and generated information on factors influencing exclusive breastfeeding for children 0 to 6 months in this sub-population of Uganda. The findings will be useful to the Ministry of Health and other organisations working in child nutrition and survival programs to design interventions to improve the practice of exclusive breastfeeding in the district and other similar contexts. The findings will also contribute to the general body of knowledge on exclusive breastfeeding.

1.5 Theoretical Framework

Breastfeeding practices and behavior differ in different communities due to different factors (Hibah, O. et al.2009). Lama, E., Livia,W. (2009). The variations in breastfeeding practices is often influenced by socio-economic, cultural beliefs and values, ethnicity, mother characteristics such as education, urbanization gender roles, social support,

attitudes of friends and family towards breastfeeding, and care provided by the health workers (Paine, P., Dorea, J. 2001). One of the ways to understand mothers' breastfeeding choices is by understanding the ways mothers interact within their communities and environments in order to determine why they do what they do in this regard. This study therefore benchmarked the Socio-ecological theory or model (SEM-Figure 1) that was developed in 1970s by a sociologist Urie Bronfenbrenner that portrays the multifaceted nature of personal and environmental factors that determine behaviours (Nothando, N. et al. 2021). The theory helped us understand how the different components of the model interact to influence exclusive breastfeeding in Bundibugyo district.

The SEM considers five levels namely; individual mother level (such as mother age, marital status, education, mother occupation, mother attitude and mother knowledge about exclusive breastfeeding), interpersonal level (such as formal and informal support including support from spouse to ensure exclusive breastfeeding, support from other family members and friends), community level (such as community beliefs and cultural values or norms about breast feeding), organizational level (such as ANC and delivery place, provision of breastfeeding information to mothers, health worker attitude and support regarding breastfeeding, and provision of breastfeeding counseling at facility).

Figure 1: The Socioecological model

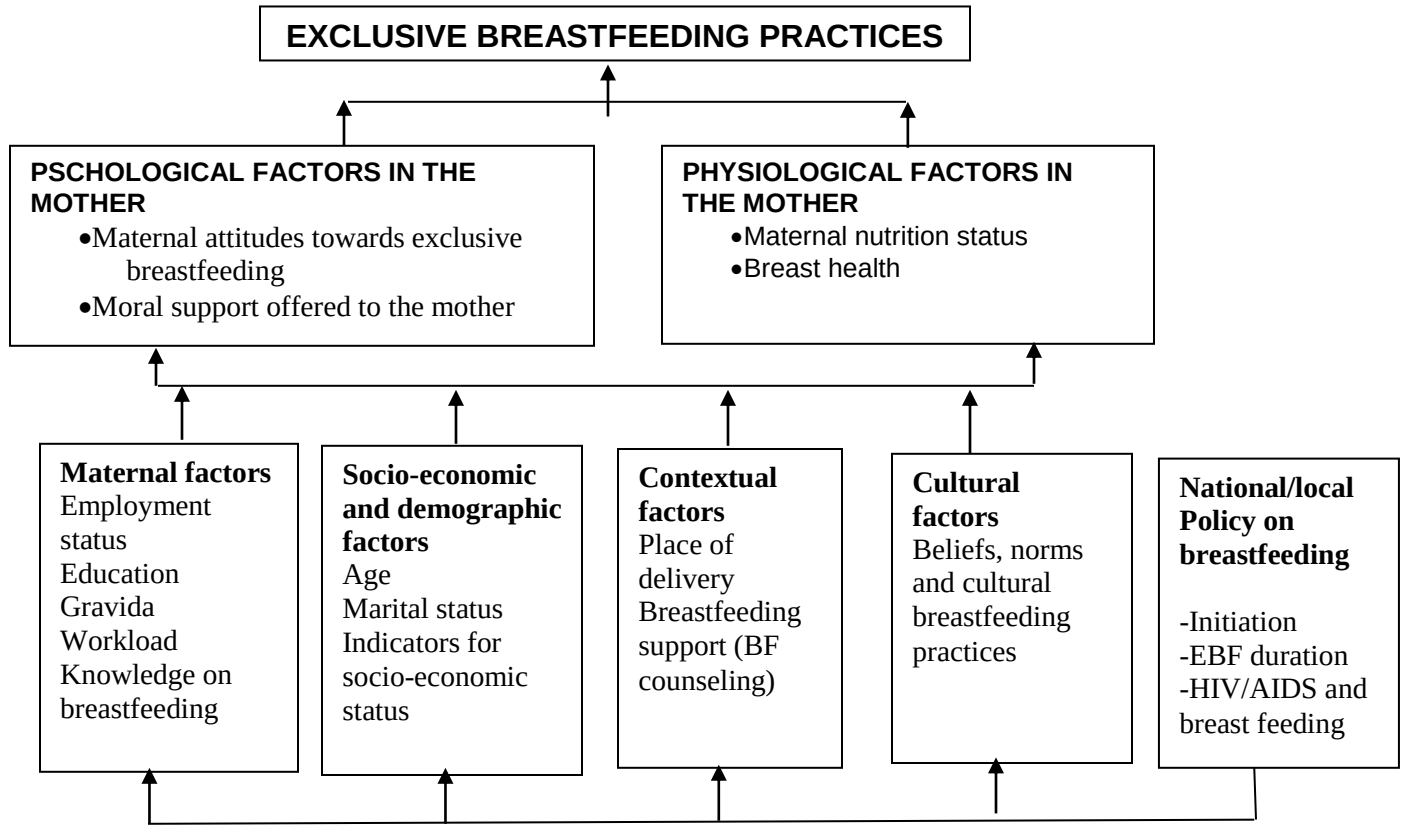
The fifth level is about policy. This includes national policies and guidelines that create an enabling breastfeeding environment in a country. The insight provided by the SEM

has guided the adaptation, interpretation and understanding of the study conceptual framework that was used by Ochola S.A in her PhD research of 2008. This study considers that Maternal, physiological and psychological factors can also be viewed as individual factors in the SEM apart from social support that can fit in interpersonal level factors. Cultural factors are referred to as community level factors in SEM, while Contextual factors proposed by Ochola can be called Organizational level factors in SEM. Hence Ochola's conceptual framework has been revised to include policy level factors proposed by the SEM as shown in Figure 1.

1.6 The Conceptual Framework

The study adopted Ochola's conceptual framework on factors associated with exclusive breastfeeding practices (Ochola S.A, 2008).

Figure 2: Conceptual framework on factors associated with breastfeeding practices



Source: Adapted from Ochola S.A (PhD Thesis 2008)

According to Ochola (2008), Breastfeeding is a complex process governed by psychological and physiological factors which are in turn conditioned by a wide spectrum of environmental, socio-economic and cultural factors (Dearden, Altaye, & Maza, 2002; Wanjohi, et al 2016; Kailey S. et al. 2021) that also vary in different geographical contexts. Whereas there is a large of body of literature on factors that affect breastfeeding (Dearden, Altaye, & Maza, 2002; Wanjohi, et al 2016), there is limited knowledge on the factors that influence exclusive breastfeeding in this study population in Uganda. The conceptual framework was used as a guide to investigate the influence of the different individual level factors, interpersonal level factors, community level factors, contextual/organizational factors, and policy on exclusive breastfeeding.

1.7 Limitations of the study

The study was cross sectional in design, and was only carried out in a sub-population of Bundibugyo district, a rural district in the southwestern part of Uganda. The results can only be generalized to other areas with similar characteristics.

The study included mothers that had children 0-6 months to determine exclusive breastfeeding at the respective age categories that is sought to establish those that were exclusively breastfeeding at the time of the study within the age categories. It is however not possible to determine those at the respective age groups below 6 months that would actually complete the recommended 6 months of exclusive breastfeeding.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter reviews the literature related to exclusive breastfeeding among women aged between 15-49 years as indicated in the conceptual framework. The review related literature is aligned to the three research objectives; 1) To find out the prevalence of exclusive breastfeeding in children 0-6 months 2) To identify factors that influence exclusive breastfeeding in children 0-6 months and 3) To explore the influence of mothers' knowledge on exclusive breastfeeding in children 0-6 months in Bundibugyo district.

Exclusive breastfeeding refers to giving a child of 0-6 months only breast milk, and no other foods, not even water or semi-solid meals, except for vitamins and mineral supplements (WHO, 2019; UNICEF, 2017). The World Health Organisation (WHO) and UNICEF emphasise and recommend that mothers exclusively breastfeed their children for the first six months of their life, then introduce supplementary foods but continue breast milk until the second year. The benefits of exclusive breastfeeding to both the infant and mother cannot be overemphasized. To the infant, it is one unequalled way of providing the most important food to an infant. Breast milk is a complete source of all nutrients needed by the baby for the first six months and sets a basis for proper and health child growth and development (Egata, Berhane, & Worku, 2013).

Scientific evidence has shown that exclusive breastfeeding leads to significant reductions in infant and under-five deaths especially from the leading causes of deaths in children such as malaria, diarrhea and pneumonia (Wataka, Tumukunde, Kawala,

Nekaka, & Nteziyaremye, 2021). Infants who have been breastfed correctly, have reduced risk of common childhood illnesses such as gastrointestinal and respiratory infections, otitis media, atopic eczema, and allergy during childhood and chronic non-communicable diseases such as obesity, diabetes mellitus, and cardiovascular diseases (WHO, 2014). However, despite the benefits of the practice, its prevalence especially in sub-Saharan countries is below the required minimum levels.

2.1 Prevalence of exclusive breastfeeding

Majority of mothers in Africa have reported failure to practice exclusive breastfeeding for the first six months of their children's lives (UNICEF, 2017). Globally the proportion of mothers practicing exclusive breastfeeding for the first six months increased from 32% to 39% in 2020 (Laksono, Wulandari, & Kusrini, 2021). Global estimates indicate that by 2013, the proportion of children on exclusive breatsfeeding was 35% for the first four months of age, however this proportion reduces as the children grow (WHO, 2019). In sub-Saharan Africa, less than one third of the infants under six months old are exclusively breastfed (Wanjohi, Griffiths, & Murage-Kimanai, 2016).

Global initiatives by international agencies such as UNICEF and WHO have led to increase in the practice in some countries that have dedicated resources to child health programs. For example, Sri lanka experienced a drastic increase in the practice of exclusive breastfeeding from 17% in 1993 to 76% by 2007(Walters, 2015). For Cambodia, exclusive breastfeeding rose from 12% to 74% in a period of ten years. In Africa, Ghana saw its exclusive breastfeeding rate rise from 7% in 1993 to 63% in 2008 (Walters, 2015). Factors that affect exclusive breastfeeding vary in different contexts, between countries and/or between different population groups in the same country (Osman, Zein, & Wick, 2009). Some are biological and beyond women's control (e.g., Breast engorgement, nipple problems etc.), while others are a combination of economic, environmental, cultural, social etc. several of these determinants have been extensively studied and documented in recent years (Osman, Zein, & Wick, 2009).

2.2 Influence of individual level factors on exclusive breastfeeding

The study included 14 factors in this category viz; Attitude of mother towards breastfeeding, Nutrition of mother, Breast health, Mother education, mother knowledge, Age of mother, Marital status of the mother, mother occupation, mother's source of breastfeeding information, mother confidence to breastfeed, mother consumption of alcohol and or smoking, number of births a mother has had, child age, and sex of child.

2.2.1 Attitude of mothers

According to Brown et al. 2011, a positive attitude towards breastfeeding is associated with longer duration of breastfeeding and exclusive breastfeeding while positive attitudes often result in higher level of support, confidence, and a natural determination to breastfeed (Brown et al. 2011). In a study by Hadgu et al..2016, majority of mothers considered breastfeeding as natural but a few of them (2.0%) considered it outdated and a cause to women to get old (Hadgu et al., 2016). In the study by Fjeld, (2008) in southern Zambia, it was found that whereas most mothers were not in favor of giving pre-lacteal feeds, others actively did; and in some cases, water or herbs were given in order to 'wet the mouth' or 'throat' of the newborn.

A study by Cooke, (2007) in Australia found that women with strong beliefs about the importance of breastfeeding as part of their maternal role and who stop breastfeeding in the first three months after birth, were four times more likely to experience psychological distress needing support. his suggests that some women who stop breastfeeding earlier may need support. A study conducted in Lebanon on the other hand, revealed that some women are reluctant to practice exclusive breastfeeding to preserve their body figure and prevent breast-sagging in order to remain attractive to their spouses (Nabulsi M. 2011)

2.2.2 Maternal nutrition

Maternal nutrition is a key determinant of newborn healthy growth and development. The nutritional reservoirs of a lactating woman may be more or less depleted as a result

of the pregnancy and the loss of blood during childbirth (Susana Ares Segura et al.2016). The availability of breastmilk, volume of breast milk and breast health can influence the mother's willingness and ability to practice exclusive breastfeeding (Susana Ares Segura et al.2016; Otto, L. & Perez E. 2009) and improved nutrition during pregnancy and lactation reduces infant mortality by nearly half (Klein R. et al. 1976).

2.2.3 Maternal knowledge

There is strong evidence to suggest that the provision of consistent information to the mother from her health provider positively influences breastfeeding initiation and duration. Health professionals' attitudes to, and knowledge of, breastfeeding is a critical component in ensuring that mothers and families receive accurate and consistent advice about breastfeeding management. Health professionals need to have access to accurate information and counseling and communication skills to ensure that they can provide information about breastfeeding to mothers and families in a clear manner. In order to deliver this information, health providers, such as midwives, midwifes, and general practitioners, need to be provided with sufficient training.

In Tanzania according to Shirima, Medhin, & Greiner, (2001) duration of exclusive breastfeeding is mainly associated with information and knowledge about breastfeeding. Further**,** Mothers cite health professionals' advice as one of the critical factors influencing feeding decisions (WHO 2003). The lack of appropriate information and knowledge on exclusive breastfeeding especially in African rural communities has made the practice hard.

Evidence from studies conducted globally has pointed to the positive association between maternal knowledge and exclusive breastfeeding, for example Ochola, (2008), found that as less mothers were knowledgeable about exclusive breastfeeding, and this led to poor exclusive breastfeeding outcomes. A randomised clinical trial by Su et al (2007) in Singapore revealed that mothers who received breastfeeding education during antenatal and postnatal, reported significant milestones in the practice of exclusive breastfeeding. Like Su et al (2007), Petit, (2008) found that women in Tanzania who

gained knowledge on exclusive breastfeeding realised significant increase in the rates of exclusive breastfeeding. It is thus proven scientifically that maternal knowledge influences exclusive breastfeeding, the more knowledgeable mothers are about exclusive breastfeeding, the more chances of practicing exclusive breastfeeding (Petit, 2008).

2.2.4 Mother's age and Child age

Several studies have reported strong associations between mother's age and exclusive breastfeeding (Conde, Romero, Gomez, & Tomas, 2011; Egata, Berhane, & Worku, 2013). Such studies have argued that older mothers have experience with breastfeeding and have also given up on some social activities that make it hard for younger mothers to breastfeed. However, it is also noted that mothers who are over 35 years of age are less likely to practice exclusive breastfeeding due to responsibilities and more importantly many of them at this age are no longer as excited about children as the case would be for those between 25 and 30 years (Kitano & Sugimoto, 2015). Research conducted by Colombo, Crippa, & Consonni, (2018) found that older mothers (>30 years) were less likely to breastfeed as compared to younger mothers. This is mainly attributed to work and the less enthusiasm about childbearing. It was also noted that, many older mothers find it harder to produce enough breastmilk for the children and thus resort to supplementary foods. However, study conducted by (Oyang, 2007) found that. Older women in Kampala district were more likely to exclusively breastfeed if they were not employed in the formal sector. A study by Wataka, et al, (2021) found that mother's age had a positive association with exclusive breastfeeding among women in eastern Uganda. They study found that exclusive breastfeeding was less in younger women and compared to older women. On the other hand, age of a child is found to be an important factor in exclusive breastfeeding. A study by Nabunya et.al. (2020) showed that exclusive breastfeeding was mostly practiced in children aged below 3 months of age compared to those aged 3-6 months of age in Kampala district, Uganda.

2.2.5 Sex of the child

Results on the association between exclusive breastfeeding and child's sex are mixed, with some studies finding a positive significant relationship while others find no relationship. In a study by Habteworl, Sharew, & Alemu, (2003) conducted in Ethiopia found a positive association between sex of the child and exclusive breastfeeding. The study found that, mothers with male new-borns had 31% higher chances of exclusive breastfeeding during the first six months compared with mothers with female new-borns. In addition, Jayachandran & Kuziemko, (2011) found that male children aged 0-6 months in India were breastfed more than girls and they argued that this was because of the preference given to male children especially by the male partners resulting from the patriarchal nature of most societies.

A study conducted in Malawi to investigate the determinants of exclusive breastfeeding in infants of six months and below found a significant relationship between sex/gender of the child and the practice of exclusive breastfeeding. The study indicated that mothers with female babies and with 3-4 children were more likely to practice exclusive breastfeeding (Salim & Stones, 2020).

2.2.6 Marital status

The association between marital status and early cessation of breastfeeding has been reported in many studies with conflicting results (Thulier, 2009). In a study by Alemayehu *et al*. in Ethiopia in 2005 exclusive breastfeeding was associated significantly with, current marital status, and economical status (Alemayehu *et al*., 2009). In a study by Kimani, 2011 in urban informal settlement in Nairobi, women who were not in union, particularly those who were formerly married were more likely to stop breastfeeding their infants than women who were in union.

A study conducted in Ethiopia (Mamo, Dengia, Abubeker, & Girmaye, 2020) revealed a significant association between marital status and exclusive breastfeeding. Married mothers according to the study findings were two times more likely to exclusively

breastfeed as compared to single or widowed mothers. The results may be linked to responsibility sharing among family members including the husband which warrants the mother time to breastfeed her child for at least the first six months (Egata, Berhane, & Worku, 2013).

2.2.7 Parity

Studies have shown that the number of children a mother has produced before is a major predicator for exclusive breastfeeding especially in resource poor settings (Hackman & Schaefer, 2015; Egata, Berhane, & Worku, 2013). Hackman & Schaefer (2015) studied 542 mothers and found that mothers who had more than two children were likely or intended to practice exclusive breastfeeding as compared to primiparous mothers and mother with more than one child faced significantly lower chances of stopping breastfeeding. The study thus concluded that mothers who had breastfed before and have significantly more breastfeeding experience were more to at least breastfeed their children exclusively and continue them on breast milk for at least two years.

A study conducted in Philippines indicated that mothers with more children tended to have their infants spend a lot more time breastfeeding and many times exclusively as compared to first time mothers. On the contrary, a study by Kitano & Sugimoto, (2015) revealed that mothers who had more than two children and were above 35 years of age were at risk of failing to initiate and sustain exclusive breastfeeding (Neves, Bernard, Silva, & Goldani, 2012). Their findings pointed at the workload and the need to make sure that the rest of the children are catered for, thus they tend to neglect breastfeeding. Such mothers many times would let the young ones in the care of their elder siblings as they move out of the home to fend for the family.

A longitudinal study conducted between 2011 and 2016 in Brazil found that multiparous mothers initiated their infants on breastmilk earlier than primeparous mothers. In this study, parity only influenced the initiation of breastmilk but had no effect on the time

taken to introduce complementary feeds. All the mothers introduced other foods by the age 4 months (Neves, Bernard, Silva, & Goldani, 2012).

2.2.8 Mother's level of education

According to the Uganda demographic and health survey (UDHS, 2016) mother's level of education can easily affect exclusive breastfeeding. Some studies have indicated that mothers with levels of education (secondary and higher) are more likely to practice exclusive breastfeeding due to easy access to literature regarding the benefit of exclusive breastfeeding (WHO, 2019; Conde, Romero, Gomez, & Tomas, 2011). An earlier study by WHO (1995), revealed that less educated women have a strong belief in tradition and get more advice from elders and their mothers which in many cases contradicts the principles of exclusive breastfeeding. The study further noted that low levels of education among mothers makes then less likely to learn or read literature about exclusive breastfeeding which is in most cases displayed in the health facilities.

A study conducted in Nepal by Acharya & Khanal, (2015) found that highly educated women were two times more likely to initiate breast milk in the first hour of birth and continue to breast feed exclusively for six months. They however noted that as much as educated women are knowledgeable and are willing to practice exclusive breastfeeding, this can easily be affected by the nature of their jobs.

Tang, et al, (2016) concluded that mothers with higher level education compared to those with low education level were more likely to initiate early breastfeeding and exclusive breastfeeding. Tang however, notes that the results are better for more educated women who fall under high income household categories.

A study conducted in the horn Africa by Tariku, et al. (2017) indicated that less educated women were less likely to exclusively breastfeed their children not because they have no breast milk or time to breastfeed, but rather due to the limitations imposed on them by the inability to read and comprehend especially English yet information is mostly written or aired in English. He recommends attention to uneducated, rural and adolescent women for better breastfeeding outcomes.

Educated mothers in Western Uganda for example were on one hand, more inclined to use prelacteal feeds; and yet on the other hand were also likely to prepare nutritionally good complementary food for their children (Wamani, et al, 2005). The difficulty in relation to education's role in this instance is whether education enhances one's cooking abilities or it is increased incomes resulting from education that occasions one's ability to prepare good complementary foods.

2.2.9 Mothers' main occupation

Mothers' main occupation/source of income has been reported to have influence on the duration a child can be on breast milk. Traditionally, exclusive breastfeeding means a mother staying at home until the baby is 6 months. This in many times can guarantee exclusive breastfeeding, however this is not possible for many a mother especially those engaged in either trade or those employed in offices (Nabunya, Mubeezi, & Phyllis, 2020). Chekol, et al, (2017) noted that mothers are fully employed in demanding sectors like banks, schools and factories find it extremely hard or next to impossible to exclusively breastfeed their children for the first 6 months. Whereas it is hard for most employed women to practice exclusive breastfeeding, it gets harder for those employed in low paying jobs especially factory work; they cannot afford to even express the milk (Ulumbi, 2014). The situation of such mothers is made worse by the failure of most workplaces to provide safe breastfeeding spaces, at worst some workplaces do not allow mothers to take their children to work for fear of interrupting the work routines (Wataka, et al, 2021).

A study conducted in Kenya to assess the effects of work status on exclusive breastfeeding, found only 13.3% of the working mothers practiced exclusive breastfeeding by 3 months, and 46.4% of the mothers had introduced complementary foods by as early as before the children made one month (Lakati, Binns, & Stevenson, 2002). Lakati noted that for many women, work is more essential for their "economic survival" and thus they cannot risk their jobs for exclusive breastfeeding. Another study conducted in Ghana found similar results, significant differences were found between women in the formal sector and in the informal sectors. Full employed mothers could

not easily practice exclusive breastfeeding due to work demands and stress related factors that were reported to affect breastmilk production (Nkrumah, 2017). Also, some employed women experience short or lack of leave time/period which may negatively influence exclusive breastfeeding practice (Nabunya et.al.2020). In many African societies, some mothers that practice exclusive breastfeeding do so because they have no alternative, the levels of poverty cannot permit them to buy substitutes like porridge or cow's milk (Wood, 2017). Ryan, Zhou, & Arensberg, (2006) study on the effects of employment on breastfeeding revealed that there were more stay at home mothers practicing exclusive breastfeeding as compared to the employed mothers.

2.2.10 Alcohol consumption behaviour

Evidence indicates that maternal smoking, alcohol consumption and obesity also influence the initiation and duration of breastfeeding. Several studies in other countries have found a consistent negative association between maternal smoking and breastfeeding initiation. It is also indicated that mothers who smoke cigarettes are found to be more likely to wean prematurely than non-smokers (Jacobson, et al., 1996). The relationship between smoking and breastfeeding is complicated by contextual factors as Forster et al point out that smoking itself is strongly associated with having no partner, having a lower income, being less educated, being depressed and being more likely to be exposed to violence.

2.2.11 Mother's main source of breastfeeding information

When discussing knowledge, it is also important to talk about the sources of information that informs the knowledgeability of mothers as these also have been reported to influence the practice of exclusive breastfeeding (Mucheru, 2016). Ochola, (2008) pointed to health facilities as the main the sources of information about exclusive breastfeeding at 56%, followed by relatives at 44%, radio at 25% and schools and neighbours at 12.5%.

Achola (2008), further noted that family members and friends were key in decisions regarding breastfeeding, and he pointed out that this information many times is not the

best for promotion of exclusive breastfeeding, he indicates that in order to avoid the negative effects of information from relatives, hospital-based breastfeeding education needs to be offered more consistently especially during antenatal care visits.

A study conducted in Nigeria showed that majority of the mothers received information about breastfeeding from government health facilities (Ukegbu, et al, 2011). In terms of time, Ukegbu et al (2011) revealed that 55.2% and 36.2% of the mothers who participated in the study received breastfeeding education at antenatal and postnatal respectively.

2.2.12 Mother's Confidence or self-efficacy

Breastfeeding self-efficacy may be defined as how a mother perceives her ability to breastfeed or a mother's confidence in her ability to breastfeed her newborn baby (Dennis C. 1999; Brockway et al.2018). This relates to the mother's perceptions related to beliefs about abilities of performing specific behaviors in particular situations. Mothers often experience hesitancy or challenges in breastfeeding in public places due to low self-efficacy or confidence because a woman's breast is often considered private.

2.3 Influence of Interpersonal level factors on exclusive breastfeeding

Formal and informal support toward lactating mothers is crucial for promotion and sustaining exclusive breastfeeding (Kailey, S. 2021; Kahindi et al 2020). This support typically stems from family (such as partner support), friends, peers and co-workers and during the digital era, social media provides vital social support through which mothers. The social networks to which women belong can either be barriers or points of encouragement for breastfeeding (Rujumba et al. 2020). In some societies, women's breastfeeding decisions have been shown to be influenced by their perception of partner's attitudes and paternal involvement in breastfeeding promotion programs (Susin & Giugliani, 2008). Some women avoid breastfeeding to preserve their body figure and prevent breast-sagging. In formal settings such as in hospitals, health workers and trained counsellors provide social support to pregnant and lactating mothers to learn to practice exclusive breastfeeding (Kahindi et al 2020). In addition, the different kind of support received by a mother during pregnancy and beyond enables

her to decide or determine prior intention and plan to exclusively breastfeed at birth (Aidam, Perez-Escamilla, & Lartey, 2005).

2.4 Influence of Organizational level factors on exclusive breastfeeding

This level can reach more people in different sectors of the community. Organizations like hospitals/ health centers, NGOs providing maternal health and breastfeeding support, religious institutions and workplaces can take it upon themselves to advocate and promote exclusive breastfeeding. Hospitals for example, are expected to develop capacity of health workers to provide standard breastfeeding information and support to mothers since they are key behavioral change agents. In Kaduna Nigeria, health workers were found to encourage prelacteal feeding for mothers with insufficient breast milk and that prelacteal feeds are effective in prevention of dehydration, neonatal jaundice, and hypoglycemia (Akuse & Obinya, 2002). Mothers were also reported to give their babies prelacteal fluids to quench baby thirst and that prelacteal feeds enable the baby to rest thereby giving the mother too time to rest (Akuse & Obinya, 2002).

Community-based organizations (CBOs) may provide effective home-based breastfeeding counselling and support to mothers during home visits to promote exclusive breastfeeding. In addition, employers are expected to create conducive environment for mothers to breastfeed at workplaces and also provide longer leave days for breastfeeding women (Kailey, S. 2021).

2.4.1 Antenatal care

Antenatal care is named as one the basic components in childcare from conception to delivery, it plays a key role in ensuring that the fetus is health and so the mother (Tariku, Alemu, Gizaw, & Fentahun)**.** It is during antenatal care that the mothers are prepared for motherhood and most importantly for exclusive breastfeeding. Tariku et al (2010) argued that “it is an entry point to provide multiple health and nutritional interventions to promote maternal and fetal wellbeing, breastfeeding behaviors and birth preparedness”.

A study by Biks, Tariku, & Tessema, (2015) revealed that mothers who attended more than 4 antenatal care visits were 3 times more likely to practice exclusive breast as

compared to those who attended less than 4 antenatal care visits. The importance of exclusive breastfeeding according to …is that during ANC, counseling about breastfeeding is done and this prepares mothers for exclusive breastfeeding and his assertation are similar to those made by (Ghwass & Ahmed, 2011; Mutuho, 2012).

A study by Brent, et al, (1995) concluded that antenatal education had a differential effect for low-income women compared to women with higher incomes. This study also noted that tailoring the ante-natal education received by mothers resulted in improved rates of initiation, with 61% of the intervention group receiving tailored education-initiated breastfeeding in hospital compared to 32% in the control (p=0.002). Thus, tailoring antenatal education could be a promising mechanism to ensure that women get the information that they require to support them to initiate breastfeeding.

2.4.2 Place of delivery

Studies have reported mode of delivery as one of the predictors of exclusive breastfeeding. In a study by Coovadia et al, on mother to child transmission of HIV infection during exclusive breastfeeding in the first six months of life, among other factors vaginal delivery was a predictor of exclusive breastfeeding. Furthermore, in a study done by Zanardo, et al., (2009) to determine whether elective caesarean delivery has negative effect on breastfeeding they report that, emergency and elective caesarean deliveries are similarly associated with a decreased rate of exclusive breastfeeding compared with vaginal delivery.

In addition, Maru & Haidar, (2009) report in their study that mothers who delivered by caesarean section were 80% times less likely to practice exclusive breastfeeding. In a study done in Guatemala, it is reported that, place of delivery is associated with early initiation of breast feeding; that is mothers who gave birth at health facility initiate breast feeding early (Dearden, Altaye, & Maza, 2002). The role of Baby Friendly Hospital Initiation (BFHI) was assessed in a study conducted in Nigeria and it was found that there was increased duration of exclusive breastfeeding of up to 75% from mothers who deliver at BFHI facility as compared to 35% from non BFHI facility (Laar & Govender, 2013). Another study, which was done in Ghana by Aidam et al reports further that

delivery in maternity homes, private clinics, at home, or with Traditional Birth Attendant (TBA) or spiritual leaders, poses a risk for not practicing exclusively breastfeeding within the first six months of life as opposed to delivering in government health facilities (Aidam et al, 2005).

2.4.3 Mother's usual workplace environment

Legislative framework for workplaces that support exclusive breastfeeding in the early life of infants are vital improving child health (Nkrumah J. 2017). It is believed that formal working mothers are entitled to paid maternity leave for a period not less than twelve weeks upon the production of a medical certificate issued by a medical practitioner or a midwife indicating the date of delivery in addition to their annual leave. However, the majority of lactating mothers work in informal sector where such protection is often lacking. Work environment, therefore, has potential to promote or hinder exclusive breastfeeding practices for working mothers.

2.5 Influence of community level factors on exclusive breastfeeding

In this model, a community refers to the culmination of the various organizations in an area. These organizations can pool resources and ideas together in order to improve community health. For example, a hospital agrees to have some of its nurses teach breastfeeding education to village women groups, adolescent mothers, and male parents in community. Organizations in an area could coordinate health events designed to educate and equip affiliates with knowledge and materials to help promote community awareness about breastfeeding and child health in the community. Through such interactions, communities define their values and beliefs. If members of community have strong beliefs about their ability to perform a certain behavior, this increases their self-efficacy and the likelihood that the behavior will be performed (Ngwenya N. et al.2020). For example, where a community considers breastfeeding as socially normal and acceptable practice, it increases confidence in mothers to breastfeed from anywhere including public spaces. Across many rural communities in Africa where breastfeeding appears to be the norm, the question of whether to breastfeed or not,

seldom arises since women are expected or required by the cultural practices of those societies to do so.

In some cases, there are mistaken beliefs about breastfeeding (Aborigo, Moyer, & Engmann, 2012). Among the Kasem and Nankani in rural northern Ghana for instance, newborns to primiparous mothers are regularly given out to wet midwifes or '*fed on herbal teas'* whilst the mother is taken through a cultural cleansing for a period of 3 or 4 days depending on the sex of the child (Aborigo, Moyer, & Engmann, 2012) and this hinders exclusive breastfeeding.

2.6 Influence of Policy level factors on exclusive breastfeeding

Global as well as national level policies and guidelines are essential in determining the success of health strategies and interventions (Tummers L. 2019). The World Health Organization for example, recommends initiation of breastfeeding immediately after birth or within the first hour of life and exclusive breastfeeding until a baby is aged 6 months. It further recommended HIV positive mothers to practice EBF (WHO & UNICEF 2016). These global level policies are translated into national policies and guidelines and governments apply different policy instruments to enforce them including financial incentives and information campaigns (Tummers L. 2019). In Uganda, the government recommends WHO position on breastfeeding and it enacted labour laws that include a minimum of 60 days as maternity leave period to provide mothers time to heal and also breastfeed (GoU, 2006; GoU-MoH 2007). Furthermore, the government launched the "Baby-friendly Hospital Initiative" (BFHI) program, to support immediate initiation and exclusive breastfeeding (WHO & UNICEF, 1991). The government also uses media platforms to educate mothers on how to successfully breastfeed and mobilizes men to support exclusive breastfeeding (Bbaale, 2014). In 2019, the Parliament of the Republic of Uganda started to debate a bill about the need to amend the Uganda Employment law proposing further reforms in workplace terms and conditions to support pregnant women and lactating mothers to have protected time and place as a strategy to promote exclusive breastfeeding.

2.7 Summary of review literature

Exclusive breastfeeding among children 0-6 months is an essential component of child growth and development and can save about 1.5 million infants who die each year from poor feeding related diseases (WHO, 2019). It is noted that the risk of children dying before making one year after birth is highest in sub-Saharan Africa where, by 2018, 52 children per 1000 live births died (WHO, 2019). Infants have been reported to have a higher mortality rate in Uganda like in many other parts of Africa than other age groups (Asiimwe, Nyegenye, & Muyingo, 2019). This can be averted by firstly ensuring all children 0-6 months are exclusively breastfed. In order to achieve this milestone, there is a need to understand the facilitating factors or hindrances to the practice of exclusive breastfeeding.

Whereas various studies were conducted in Uganda (Nabunya, Mubeezi, & Phyllis, 2020; Bbaale, 2014), and Bundibugyo specifically (Wataka, Tumukunde, Kawala, Nekaka, & Nteziyaremye, 2021) about breastfeeding, a few of them are comprehensive enough to unearth the underlying factors that facilitate or otherwise curtail exclusive breastfeeding. This study therefore sought to determine the prevalence of exclusive breastfeeding and the factors that influence exclusive breastfeeding including exploring the influence of mothers' knowledge on exclusive breastfeeding in children 0-6 months in Bundibugyo district.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter includes the methodology for the study. It describes the research design, description of variables, the study population, sampling strategy, description of data collection tools, data management and analysis and discusses how data quality was ensured.

3.1 Research setting and design

This is a cross-sectional mixed methods study conducted in two randomly selected sub-counties in Bundibugyo district, western Uganda (Appendix I: Map of Uganda and location of Bundibugyo). A multi-stage random sampling strategy was used to select villages from where our respondents were identified. Data was collected using both quantitative (Appendix III[a]) and qualitative approaches (Appendix III[b and c] for FGDs & KIs). Quantitative approach involved face-to-face interviewing of mothers with babies aged below 6 months. Qualitative data was collected from focus group discussions (FGDs) with post-natal mothers of babies in the same age bracket. Additional information was gathered from Key-informant interviews (KIIs).

3.2 Description of Variables

A list of variables is presented in Appendix IV where a brief description of each variable was provided.

3.2.1 Dependent Variables

The dependant variable in this study was “Exclusive breastfeeding” practices of mothers with children aged 0-6 months. Exclusive breastfeeding was measured using the question “Has the child ever fed on anything (such as water or liquid and or solid food) apart from breast milk since birth (Yes/No)?” This variable was expressed as binary with ‘1’ representing mothers that were exclusively breastfeeding and ‘0’ for those that were not exclusively breastfeeding.

Prevalence of exclusive breastfeeding in this study was measured by obtaining a ratio of children who were reported to be feeding on only breast milk at their respective age stages over the total number of children aged below six months that were included in the study and this was multiplied by 100%.

3.2.2 Independent Variables

The study used 19 explanatory/independent variables, and these were categorized into three: Individual level, Interpersonal, and Organizational level factors. Individual level factors included mother age, mother education, mother's knowledge, attitude, parity, marital status, occupation, mother confidence, mother drinking alcohol, child age, and child's sex. Interpersonal factors were mothers' source of breastfeeding information, timing of initiation of breastfeeding, and family/ partner support. Organizational level factors included number of ANC visits, place of birth, type of delivery, workplace conduciveness to breastfeed, and health staff support to mothers to breastfeed.

Data on age of mother was collected as a continuous variable. In this report mother age is presented in grouped form (16-19yrs, 20-24yrs, and 25+ yrs.) Mother education was categorized as 'None", "Never completed primary', 'Completed primary', and 'Secondary level plus'. Further analysis retained "None", Completed primary" and "Secondary plus". Mother's knowledge on breastfeeding, was assessed basing on correct responses to two of the three statements that aimed to assess whether mothers knew that breastfeeding must be initiated immediately after birth or within the first hour, that giving babies aged below 6 months water or any fluids (except for medication purposes) is not good practice, and that breastmilk has all the required nutritional needs of the babies. At bivariate level analysis, a compost binary variable for mother's knowledge was derived from for any two correct statements and presented as either "Knowledgeable" or "Not-knowledgeable". Attitude of the mothers towards exclusive breastfeeding on the other hand, was also assessed using two statements/questions to which mothers were to indicate "Agree/Disagree" and "Yes/No" respectively. The statements were "When you delay introducing supplementary feeds (including fluids) to a baby before age of 6

months in addition to breastmilk, it can result in baby refusing food later", and "Do you think exclusive breastfeeding is exhausting and time consuming to the mother?". Information on parity was collected as a continuous variable. This was later grouped into three categories to represent new mothers whom in this study were considered to have little breastfeeding experience (Parity1), then average breastfeeding experiences (parity 2& 3) and more experienced mothers in breastfeeding (parity 4+). Data on mother's occupation was collected as "Business/trading", "Subsistence farming", Casual worker/wage, Professional/salaried job" and "Other". These categories were later collapsed into three; "Business/trade", "Salaried/wage" and "Subsistence farming".

Mother's marital status was categorized as cohabiting, married and single. Information on number of ANC visits attended by mother was collected as continuous variable and later grouped two categories ("4 or plus" and "Less than 4" visits) basing on the minimum recommended ANC visits by the Ministry of Health. Place of birth/ delivery was categorized into two; "Health facilities" (such as hospital, HC III-IV, and clinics) and "Outside health facility" (such as Home and TBA). Data on type of delivery was recorded as "Normal/vaginal delivery" or "Caesarian section". Age of the child was collected as a continuous variable. Children aged 0-3 months were later grouped together at analysis stage and compared with those aged four and above months. On the other hand, information on child sex was recorded as either female or male. Information on initiation of breast feeding was collected using a single question with pre-determined response categories; immediately after birth/within first hour of life, between 1 hour to three hours, and 3 hours plus. A question about whether the mother feels confident to breastfeed from anywhere including in public spaces was used to assess mother's confidence/self-efficacy. This question had two pre-determined options "Yes" and "No". Additionally, mothers were asked about their main source of breastfeeding information. Four pre-determined options (Midwives/Health workers, Parents, TBAs, and VHTs) were used. Mothers were also asked whether they consumed alcohol during pregnancy and, or during lactation. Also, mothers were required to provide their view about whether they considered their usual workplaces conducive for exclusive breastfeeding. Finally, the study inquired about whether health workers provided help of whatever form to mothers to be able to breastfeed. The response options that were

provided were “Yes” and “No”. Additional information was collected through focus group discussions (Appendix III[b]) and Key informant Interviews (Appendix III[c]).

3.3. Study area and population

The study was conducted in Bundibugyo district in two purposively selected sub-counties of Tokwe and Bundibugyo Town Council out of the 15 administrative units (UBOS,NPC 2014). Tokwe (is relatively rural) and Bundibugyo Town Council (peri-urban) directly serve Bundibugyo district hospital contributing 30% of the clients who visit the facility. Bundibugyo hospital was purposively selected because it has the highest number of clients from across the district, higher staffing levels and a higher service level facility in the district. Bundibugyo district is bordered by the districts of Ntoroko in the Northeast, Kabarole in the East and Southeast and to the West by the Democratic Republic of Congo (DRC). To the North, it shares its boundary with Lake Albert (UBOS,2014) as shown in Appendix I.

Bundibugyo became a District in 1974 after the Rwenzururu uprising that led the government then, to allow the break off of Bwamba county and Busongora county as Semuliki and Rwenzori Districts which are the current Bundibugyo and Kasese respectively. Bundibugyo district covers an area of 2,338 Sq Km. The district has a population of 224,387 people of which 108,435 males and 115,952 females (National Population and Housing Census 2014). Of the total population, 45,402 (19.5%) are under five years of age. The district Population density is 264 person per sq. km (UBOS, 2014). The study took place in both rural and urban communities. Most of the families in the district depend on subsistence agriculture, with a few exports for coffee and cocoa.

3.4. Sampling strategy

The study was carried out in the Bundibugyo district which has 15 sub-counties. The respondents were mothers with children of 0-6 months. Out of the 15 sub-counties, 2 (Bundibugyo town council and Tokwe) were selected. A list of all parishes and villages in each of the two sub-counties was obtained from the respective sub-county headquarters. Two parishes were selected randomly from each sub-county, and from

each parish, 2 villages were randomly selected. A total of 8 villages were included in the final study sample. Working with the Office of the DHO, a list of two active VHTs from each of the villages was generated. Using the selected VHTs' registers, all mothers that had children aged 0-6 months were selected and included in the study.

3.4.1. Sample size determination

All mothers that were on the VHT list and were breastfeeding children aged 6 months ane below, were included in the study.

3.5 Description of the Data collection tools

3.5.1 Individual level Mother Questionnaire

A questionnaire was used to collect data from mothers with children 0-6 months. The questionnaire had both closed and open-ended questions to ensure better coverage of information. The questionnaire collected information on exclusive breastfeeding practices, child characteristics, institutional characteristics, and maternal characteristics such as mother's age, marital status, knowledge level, and education level (Appendix III a).

3.5.2 Focus Group Discussions guide

A focus group discussion (FGD) guide was used to elicit information on infant feeding practices with special focus on knowledge, attitudes, and beliefs on exclusive breastfeeding (Appendix III b). Information collected from the FGDs was meant to provide additional information on the understanding of breastfeeding practices in Bundibugyo district. The FGD inclusion criteria was mothers that had children 0-6 months. The FGDs were further constituted to include 1st time mothers, the second FGD had mother of 2 or more children.

In this study, four focus group discussions were conducted with mothers and these were categorized as follows; first time mothers, mothers with two or more children, young mothers aged below 20 years, and mothers aged 20 years and above. First time mothers were selected to understand their unique experiences of breastfeeding

compared to their counterparts who had more than one child. The study also sought to understand the experiences of young mothers below 20 years compared to their older counterparts. The FGD guide was used to collect data from the mothers. The guide had open ended questions that enabled a free exchange of ideas and reaching consensus at the end of the sessions. Each FGD consisted of 8-10 participants. The information obtained provided an in-depth understanding of the study from a group setting.

3.5.3 Key Informant Interviews guide

A key informant interview guide (KII) was prepared to collect information about infant feeding practices with an interest on exclusive breastfeeding practices, knowledge levels, and information about exclusive breastfeeding practices in Bundibugyo sub-district population, and factors that influence exclusive breastfeeding. Eight (8) midwives recommended by the medical superintendent of Bundibugyo hospital (Appendix III c).

3.6.0 Inclusion criteria

The researcher recruited mothers with babies of 0-6months old. Only the mothers who consented and could speak the commonly spoken languages or could speak English, participated in the study. Midwives and, or nurses working with Bundibugyo main hospital in ANC and maternity department who accepted to participate in the study were also considered as Key Informants.

3.6.1 Exclusion criteria

Mothers with communication limitation and those that did not consent were excluded from the study. Health professionals that were working in Bundibugyo hospital but outside maternity department were also excluded.

3.7.0 Ethical considerations

This study was cleared by the ethical review committee of Uganda Christian University (UCU). In addition, the researcher was authorized by the Bundibugyo District Health Office and the Bundibugyo hospital administration. At village level permission was granted by the local council leader while at household level the head of the household

provided permission. Participation in the study was voluntary and the participants were informed that they were at liberty to withdraw their consent at any time or not to answer question they were not comfortable with. Consent by participants was provided verbally.

3.8.0 Dissemination of results

The results were presented in narrative form, graphs and tables. Actionable recommendations for policy and programmatic benefit were presented in both English and local languages. In addition, key messages to breastfeeding mothers, partners, their families and community were also presented in local languages. Dissemination meetings were organised at Bundibugyo district Health office, Bundibugyo district hospital and at parish level in the study area to inform future planning and developing interventions to promote exclusive breastfeeding programs.

3.9.0 Data management and analysis

3.9.1 Data management

Data collection tools were developed and piloted by the researcher, and these were reviewed by the research team to ensure they met the standards and purpose of the study. Five research assistants who were proficient in Lubwisi and Lukhonzo local dialects, and with a minimum education qualification of senior six were recruited. These were trained for 2 days on how to use the tools to collect data and were able to participate in the pre-test of the tools on the third day. Data collection was conducted within a period of seven days.

Filled questionnaires were submitted to the researcher and these were reviewed daily. Feedback from the review process was provided to the research team every morning prior to commencement of the day's work. All correctly completed questionnaires were collected in one box and were serialized ready for data entry. Data was entered using MS Excel and was analysed using Stata version 11.

Data from Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs) was recorded using both electronic recorders and notebooks to minimize loss of information. Recorded information was transcribed verbatim, and the transcription process was

conducted by one person under supervision of the principal researcher. The transcription papers and all materials used during this process were filed awaiting data analysis.

3.9.2 Data Analysis

Quantitative data analysis

Descriptive summary statistics such as frequencies and percentages were used. Data was also analyzed at bi-variable level analysis to determine any association between exclusive breast feeding and independent variables using Pearson's Chi-square test. The level of significance was set at $p<0.05$. Continuous variables were summarized using mean and range. The results were summarized and presented in tabular format.

Qualitative data analysis

Qualitative data was analysed using content analysis as described by (Graneheim & Lundman, 2004). Content analysis involved reading and reviewing texts of the entire interview back and forth to achieve a comprehensive perception of its content and identify meaningful units in relation to the study aims (Morse & Field, 1995).

After each executed interview, the interviewer wrote down what intuitive perception they got of the content before transcription. Each interview was listened to in its entirety to create a general understanding for the material. Then each interview was transcribed verbatim by the researcher. Thereafter the transcripts were formed into meaningful units through extraction.

The meaningful extracts generated were shortened into sentences that bring out the real meaning of the phrase through condensation. The condensed sentence was given a code which summarizes and clarifies the core content of the meaning. Depending on core content, the codes were grouped into themes. Quotations from some of the respondents in the FGDs and KIIs were incorporated in the results in the form of narratives. The qualitative data was used to supplement the quantitative findings in this report.

CHAPTER FOUR

PRESENTATION OF FINDINGS

4.0 Introduction

This chapter presents results for the univariable and bi-variable analysis on the factors influencing exclusive breastfeeding among mothers in Bundibugyo district. The findings are aligned to the three study objectives which include: To find out the prevalence of exclusive breastfeeding in children 0-6 months in Bundibugyo sub-district.To identify factors that influence exclusive breastfeeding in children 0-6 months in Bundibugyo district. To explore the influence of mothers' knowledge on exclusive breastfeeding in children 0-6 months in Bundibugyo district.

4.1 Selection of villages and respondents

The study questionnaire was administered on a total of 122 women. These were breast feeding mothers of children 0-6 months who were selected from 8 villages that were located in Bundibugyo Town Council and Tokwe Subcounty. In addition four (4) Focus group discussions were conducted with breastfeeding mothers selected from the above communities. These were categorized into four; first time mothers, mothers of more than one child, mothers aged below 20years and mothers aged 20 years and above. These were identified at the Hospital with the help of the midwives. Each FGD consisted of between 8 to 12 mothers and key findings are incorporated in this report. In addition, 8 KIIs were conducted with midwives from Bundibugyo Hospital.

Table 1: Selection of Villages and respondents

Selected Sub-counties	Selected parishes	No. villages per parish	Selected villages for study	Number of women interviewed
Bundibugyo Town Council	Central	06	02	58
	Kanyansimbi	05	02	
Tokwe Sub county	Bundinyama	11	02	64
	Hakitengya	08	02	
Total		30	8	122

4.2 Background characteristics of study participants

4.2.1 Socio demographic characteristics of mothers and children

Table 2: Social-Demographic characteristics of mothers and children

Variable	Frequency (n=122)	Percentage (%)
Age of Mother(years)		
16-19	38	31
20-24	35	29
25-29	20	16
30 -34	25	21
35+	4	3
Marital Status		
Cohabiting	26	21
Married	54	44
Single	42	35
Education level		
None	50	41
Primary	44	20
Secondary plus	28	39
Occupation		
Business/Trade	60	49
Salaried/Wage	14	12
Subsistence Farmer	48	39
Parity		
1	25	20
2-3	57	47
4+	40	33
Age of Child (months)		
0-3	55	45
4-6	67	55
Child's sex		
Female	34	28
Male	88	72

Table 2 represents the key socio-demographic characteristics of the mothers and children. The mean age of the mothers was 24.5 years (s.d 5.5, minimum 16 years and maximum 39 years. Seventy three (60%) mothers were aged below 25 years. 54(44.0%) mothers reported to be married, 26(21.3%) co-habiting, and 42(34.4%) were single mothers. Twenty percent of mothers were of parity one and 80% had two or more

births. Fifty mothers(41%) had never attended school, 44 (20%) had completed primary while 39.0% had attained secondary level education. Sixty mothers (49%) were mainly engaged in business/petty trade for income and 39 (48%) were mainly in subsistence farming. Forty-five percent of the children were aged three months and below and majority of the children 88(72%) were males.

4.2.2 ANC and Delivery Care Services utilization

Table 3: Distribution of mothers by ANC and Delivery care service utilization

Variable	Frequency (n=122)	Percentage (%)
ANC Attendance		
Less than 4 visits	35	29
4 and more visits	87	71
Place of delivery		
Health Facility	91	75
Outside Health facility	31	25
Type of delivery		
Normal delivery	91	75
Caesarean Section	31	25

Most mothers 87(71%) reported to have attended received antenatal care (ANC) four or more times during the most recent birth (Table 3). Most mothers 91(75%) delivered from health facilities and 75% experienced normal/vaginal delivery.

4.2.3 Mothers' Knowledge, attitude, practice and source of Breastfeeding information.

Mothers' knowledge and attitude were assessed using questions summarized in Tables 4-6. About half of mothers 75(61%) knew that breastfeeding should be initiated immediately or within one hour after birth and 67(55%) believed that regularly giving a baby aged below six months some fluids such as water in addition to breast milk helps with digestion.

Table 4: Mothers' Knowledge and Attitude on Breastfeeding

Variable	Frequency (n=122)	Percentage (%)
Knowledge Assessment		
A baby should start breastfeeding immediately afterbirth/within one hour after birth		
Agree	75	61
Disagree	47	39
It is good to give a baby aged below 6 months some water regularly to help in digestion		
Agree	67	55
Disagree	55	45
Breast milk is sufficient or provides adequate nutrition to the babies below 6 months		
Agree	77	63
Disagree	45	37
Computed "knowledge"		
Not Knowledgeable	59	48
Knowledgeable	63	52
Attitude Assessment		
Do you think exclusive breast feeding is exhausting and time consuming to the mothers?		
No	48	39
Yes	74	61
When you delay introducing other feeds in addition to breast milk, it can lead to the baby refusing foods later		
Agree	52	43
Disagree	70	57

Further, majority of the mothers 77(63%) knew that breast milk has all the nutritious value the baby requires. As regards, attitude of the mothers towards exclusive breastfeeding, it was found that nearly half 52(43%) believed that delay in introducing other feeds before a child reaches 6 months could lead to a child to refuse food or have poor appetite at a later age. (Table 4). Furthermore, a substantial number of lactating mothers 74(61%) considered exclusive breastfeeding as tedious and a time-consuming practice. This factor required further interrogation to find out if it had significant effect on level of exclusive breastfeeding in this sub-population.

Table 5: Family, Work environment and Health worker support towards breastfeeding

Variable	Frequency (n=122)	Percentage (%)
Do you receive support from your partner/ family on exclusive breastfeeding?		
No	48	39
Yes	74	61
After delivery, did health facility staff provide you with breastfeeding support? *		
No	24	19.7
Yes	98	80.3
Do you find your usual work environment conducive for exclusive breastfeeding?		
No	87	71.3
Yes	35	28.7

Table 5 below provides insight in the level of social, work environment and health worker support extended to breastfeeding mothers in Bundibugyo community. The table examines partner/ family, community, and health worker support as well as work environment factors. It was found that majority of spouses and families 74 (61.0%) supported their wives to exclusively breastfeed. In addition, 98 (80.3%) of mothers that delivered in a health facility received professional assistance from health workers related to breastfeeding. Table 5 further reveals that seven out of every ten working mothers were dissatisfied with their work environment in relation to supporting exclusive breastfeeding.

Table 6a: Breastfeeding practices and confidence of mothers

Variable	Frequency (n=122)	Percentage (%)
Breastfeeding practice		
Exclusive Breastfeeding	57	47
Mixed feeding	65	53
Initiation of breastfeeding		
Immediately/wwithin 1 hour after birth	75	61
Beyond 1hour	47	39
Do you feel confident to breastfeed your baby freely in the presence of people around you?		
No	15	12
Yes	107	88

In Table 6a, a relatively low proportion of mothers 57(46.7%) practiced exclusive breastfeeding in this sub-national population. This low prevalence of exclusive breastfeeding was further explored using qualitative data in this report. It was also found that majority of mothers 75(61%) initiated breastfeeding within one hour after birth. In addition, majority of mothers 108 (88.0%), reported to be confident to breastfeed from anywhere including public spaces as a strategy to exclusively keep baby on breastmilk.

Table 6b: Source of breast feeding information and alcohol consumption

Variable	Frequency (n=122)	Percentage (%)
Source of breastfeeding Information		
Midwives/Health workers	53	43
Parents	28	31
Village Health Team (VHT)	23	19
Traditional Birth Attendant (TBA)	8	7
Did you take alcoholic drinks during pregnancy or after birth?		
No	107	87.7
Yes	15	12.3

The above table shows that mothers accessed breastfeeding information from different sources with generally no dominant source. Fifty three (43%) mothers received information from health workers and 38(31%) from their parents. As regards alcohol consumption, only 15 (12.0%) mothers indicated to have consumed alcohol during and or after birth off the current baby.

4.3 Exclusive Breastfeeding and associated explanatory factors

4.3.1 Socio-demographic factors

The study went ahead to examine the association between EBF as the dependent variable and different explanatory factors. As indicated in Tables 7.1 to 7.8d, there is a significant statistical association between most of the background characteristics and the practice of exclusive breastfeeding amongst women in Bundibugyo district except for parity, type of delivery, mother confidence, mother occupation, alcohol consumption, and child sex.

4.3.1.1 Mothers Age and Education by exclusive breastfeeding

Table 7.1: Association between mothers' age and exclusive breastfeeding

Variable	**Proportion of EBF**	**Percentage (%)**	**P-values**	**OR (**95% CI)
Mothers' Age (years)				
16 –24	43/73	60	0.001*	3.58 (1.64, 7.78)
25+	14/49	27		
Mothers' Education				
None/ Never completed P7	30/50	60	0.014*	2.50(1.13, 3.65)
Above Primary seven	27/72	38		

Study findings revealed that a smaller proportion of younger mothers that were aged between 16-24 years 14(29%) exclusively breastfed compared to 43 (59%) of the older age group. A statistically significant association exist between mother age and EBF (p-value=0.00, OR=3.58 [CI 1.64, 7.78]). The age group 16-24 years was considered as a reference category when interpreting the results.

On the other hand, sixty percent of mothers that either had no formal education or never completed primary education exclusively breastfed their babies compared to 27 (38%) of mothers with education above primary. A statistically significant association was found between mother education and EBF (p-value=0.014,OR=2.50 [CI 1.13, 3.65]). Education above primary seven was the reference category.

4.3.1.2 Mothers' marital status, mother knowledge by EBF

Table 7.2: Association between marital status, knowledge and EBF

Variable	Pro portion of EBF	Percentage (%)	P-values	OR (95% CI)
Mother's marital status				
Married/cohabiting	44/80	55	0.011*	2.72(1.23, 5.99)
Single	13/42	31		
Mother's knowledge				
Not knowledgeable	22/59	37.3	0.043*	
Knowledgeable	35/63	55.6		2.10(1.01, 4.33)

In the study, marital status was described as cohabiting, married and single. 53.0% of mothers who were married reported to have exclusively breast fed compared to 58% among cohabiting mothers. The proportion of mothers that were in a marital union (cohabiting/married n=80/122) and exclusively breastfed (n=44/80) was higher compared to that of mothers that were single (n=42/122) and exclusively breast fed(n=13/42). The findings indicate that having a spouse; whether cohabiting or married has a statistically significant influence on exclusive breastfeeding (p-value=0.00, OR= 2.72 [CI 1.23, 5.99]). Lack of right knowledge on EBF was the reference category.

4.3.1.3 Mothers' occupation, parity and exclusive breastfeeding

Table 7.3a: Association between occupation, parity and exclusive breastfeeding

Variable	Proportion	Percentage	P-values	OR (95% CI)
Mother's Occupation				
Business	30/60	50.0	0.985	0.93(0.67, 1.44)
Salaried	3/14	21.4		
Subsistence farmer	24/48	50		
Mother's parity				
1	9/25	36	0.351	0.67(0.28, 1.55)
2 – 3	26/57	46		
4+	22/40	50		

Results in Table 7.3a indicate that mother's occupation and parity did not have significant effect on their practice of exclusive breastfeeding (p-value= 0.985 and p-value 0.351 respectively). Although the study found no statistical significance in the association between parity and exclusive breast feeding, we found that there exists significant influence between the two factors when we controlled for the source of breastfeeding information (*Table 7.3b*).

Table 7.3b: Association of EBF and Parity after controlling for source of information

Parity / Source of Information	1		2-3		4+		P-value
	EBF	No EBF	EBF	No EBF	EBF	No EBF	
Health Worker	2/7(28%)	5/7(71%)	12/28(42%)	16/28(57%)	10/11(91%)	1/111(9%)	0.010
VHT	6/8(75%)	2/8(25%)	3/8(38%)	5/8(63%)	1/9(11%)	8/9(88%)	0.027
Parent	12/15(80%)	3/15(20%)	11/20(55%)	9/20(45%)	0/8(0%)	8/8(100%)	0.001

Our findings in Table 7.3b revealed variations of EBF within different parity levels after controlling for source of breastfeeding information. Results showed that amongst the different sources of breastfeeding information for mothers of differing parity; health workers, parents and VHTs play a statistically significant role in influencing mother's exclusive breastfeeding practices as shown by the corresponding p-values; 0.010, 0.001 and 0.027 respectively.

4.3.1.4 Mothers' attitude, Perception, Initiation, confidence and EBF

Table 7.4a: Association between mother attitude, confidence and EBF.

Variable	**Proportion of**	**Percentage**	**P-values**	**OR (**95% CI)
Mother's Attitude				
Positive	25/29	86	0.000*	11.9(3.81, 37.2)
Negative	32/93	34		
Mother's Confidence to breast-feed in public				
Confident	6/15	46.7	0.577	1.36(0.45, 4.10)
Not Confident	51/107	38.3		

Table 7.4a reveals that majority (86% or 25/29) of mothers with positive attitude towards exclusive breastfeeding as defined in section 3.2.2, exclusively breastfed their babies. A statistically significant relationship (p=0.000,OR=11.9 [CI 3.81, 37.2]) existed between the two variables. In addition, mothers were asked whether they felt confident to breastfeed their babies in public spaces or whether they felt any hesitation. Eighty eight percent of mothers reported that they were confident to breast anywhere including public places. However, only 38.3% of them exclusively breastfed their babies. Mother's confidence did not have a significant relationship with exclusive breastfeeding (p-value= 0.57, OR= 1.36 [CI 0.45, 4.10]).

Table 7.4b: Mothers' perception, initiation of breastfeeding and EBF

Variable	**Proportion of EBF**	**Percentage (%)**	**P-values**	**OR (**95% CI)
"A baby should start breastfeeding immediately afterbirth/within 1 hr after birth"				
Agree	41/75	55	0.026*	2.33 (CI1.98 3.42)
Disagree	16/47	34		
"It is good to give a baby aged below 6 months some fluids to help in digestion"				
Agree	24/67	36	0.008*	0.37 (CI 0.17 0.77)
Disagree	33/55	60		
"Breast milk is sufficient/provides adequate nutrition to the babies below 6 months"				
Agree	61/77	79	0.000*	5.48(CI 2.36 12.68
Disagree	16/45	36		

The table above shows that at EBF was associated with the belief that a baby should start to breastfeed immediately after birth or within the first hour of life was associated with EBF (p value= 0.026, OR= 2.33 [CI 1.98, 3.42]). Similarly, EBF has significant statistical relationship with beliefs that giving fluids to babies besides breastmilk helps with digestion (p value= 0.008, OR= 0.37 [CI 0.17, 0.77]) and that breastmilk has sufficient nutrients for healthy baby growth.

Table 7.4c: Mothers' attitude and initiation of supplementary foods.

Variable	**Proportion of EBF**	**Percentage (%)**	**P-values**	**OR (**95% CI)
Perception that "exclusive breast feeding is exhausting and time consuming"				
Agree	19/74	27	0.000*	0.90(CI 0.03, 0.27)
Disagree	38/48	79		
"…that delay in introducing other feeds to the baby leads it refusing foods later"				
Agree	24/52	46	0.914	1.04(CI 0.50, 2.13)
Disagree	33/70	47		

It is further found that mother perception that EBF was exhaustive and time consuming was statistically associated with EBF (p value= 0.000, OR=0.90 [CI 0.03, 0.27]) but not with "delay to introduce supplementary feeds".

4.3.1.5 Child age, sex and exclusive breastfeeding

Table 7.5: Association between child age (months), sex and exclusive breastfeeding

Variable	**Proportion of EBF**	**Percentage (%)**	**P-values**	**OR (**95% CI)
Child age				
0-3	33/55	60.0	0.008*	2.63(1.87, 3.54)
4-6	24/67	36.0		
Child sex				
Male	44/88	50.0	0.243	1.61(0.87, 3.01)
Female	13/34	38.4		

Table 7.5 shows that sixty percent of the children aged three months and below were exclusively breastfed compared to only thirty-six percent in older age group. Child age was found to have a significant relationship with exclusive breastfeeding (p-value=0.008,OR=2.63 [CI1.87,3.54]). Age 4-6 months was the reference group.

Sex of the baby on the other hand, did not have a significant association with EBF (p value=0.243, OR=1.61 [CI 0.87, 3.01]).

4.3.1.6 Alcohol Consumption and Exclusive breastfeeding

Table 7.6: Association between alcohol consumption and EBF.

Variable	**Proportion of EBF**	**Percentage (%)**	**P-values**	**OR (**95% CI)
Mother consumption of alcohol				
Yes	6/15	40.0	0.577	0.63(0.32, 0.97)
No	51/107	48.0		

Table 7.6 shows that there was no significant association between consumption of alcohol and exclusive breastfeeding (p-value 0.577, OR=0.63 [CI 0.32, 0.97]). The proportion of mothers that practiced EBF in both categories are relatively comparable (are low) being 40.0% and 48% respectively.

4.3.2 Interpersonal Factors and Exclusive breastfeeding

Table 7.7: Family/Partner support, Source of information and EBF.

Variable	**Proportion of EBF**	**Percentage (%)**	**P-values**	**OR (**95% CI)
"..receive any Family/Partner support to ensure exclusive breastfeeding?"				
Yes	40/74	54	0.044*	2.14(1.01, 4.53)
No	17/48	35		
Source of Breastfeeding Information				
Health workers	33/53	46.4	0.000*	0.44(0.18, 1.03)
Parents	16/28	42.1	0.059*	
Village Health Team (VHT)	8/23	34.7	0.030*	0.32(0.11, 0.89)

Support provided by the family and spouse during lactation was found to have significant influence on exclusive breastfeeding as shown in Table 7.7. About half of the mothers (54.0%) that received family/partner support, also exclusively breastfed their babies and we found a statistically significant association between family/partner and EBF (p value= 0.044, OR=2.14 [CI 1.01, 4.53]). We also found that the source of breastfeeding information to the mother is also an important factor that can influence

EBF. Health workers, parents and VHTs were all found to be associated with EBF with p-value of 0.000, 0.059, and 0.030 respectively.

4.3.3 Health facility related factors, workplace and Exclusive breastfeeding

Table 7.8a: Antenatal, delivery place and exclusive breastfeeding

Variable	**Proportion of EBF**	**Percentage (%)**	**P-values**	**OR (**95% CI)
ANC Visits/attendance				
Less than 4	11/35	31	0.032*	2.44(1.06, 5.60)
Four +	46/87	53		
Place of Birth				
Health Facility	49/91	54	0.007*	6.41(4.36, 7.13)
Outside Health facility	8/31	26		

4.3.3.1 Antenatal care visits/attendance

Among the mothers who reported to have attended ANC for four or more times as recommended by the ministry of health and WHO, (87/122 or 71.3%), fifty three percent of them (46) exclusively breastfed their children compared to thirty one percent in other category of mothers that never met the recommended minimum ANC visits (Table 7.8a). Seeking ANC four or more times was significantly associated with exclusive breastfeeding (P-value 0.032, OR=2.44 [CI 1.06, 5.60]).

During the FGD sessions, mothers mentioned that their first time to get counseling regarding breastfeeding at a given pregnancy has always been at the antenatal clinic.

> *"Towards my days of delivery, the midwives used to talk to us about immediate and exclusive breast feeding….a midwife told me to start preparing for that moment by eating healthy foods that help in production of breast milk. She also told me to ensure that my breasts were always clean before I breast feed my baby to prevent my baby from getting sick… "****(Respondent 2, FGD 1)***

Another mother narrates,

> *"I received breast feeding counselling both during antenatal and postnatal. The midwives always advised us to ensure that our babies are breast fed exclusively for the first six months of their lives and thereafter soft and supplementary feeds be introduced in their diets" (**Respondent 5, FGD 3**).*

According to the midwives interviewed, antenatal care sessions are a good time for them to emphasize immediate and exclusive breastfeeding. They argued that hardly do mothers miss their appointments, and also that mothers tend to pay more attention during this period as they become more concerned for the babies, which cannot be same when they have not yet conceived or way after they have given birth.

> *"We find it a lot easier to address mothers about breastfeeding during their antenatal visits this is because at this point in their life anything to do with their babies takes a center stage and they are willing to listen to any kind of advice. And also, it gives us enough time to interact with them since they have to come for more than five visits" **(KII 2).***

4.3.3.2 Place of Birth

The study further sought to establish the relationship between place of birth and exclusive breastfeeding practices. Fifty three percent (49/91) of the mothers who reported to have delivered at a health facility also exclusively breastfed their children while only 14.0% (8/31) who had delivered outside a health facility exclusively breastfed their children. Results from Table 7.8a showed a statistically significant association between place of birth and exclusive breastfeeding (p-value=0.007,OR=6.41[CI 4.36, 7.13]).

Table 7.8b: Delivery type, breastmilk Initiation and Health worker support

Variable	Proportion of EBF	Percentage (%)	P-values	OR (95% CI)
Type of delivery				
Normal	44/91	49	0.536	1.25(0.78, 2.18)
C-section	13/31	42		
When was baby Initiated on breast milk after birth?				
Within first hour	41/75	55	0.026*	0.42(0.12, 0.91)
After 1hour & beyond	16/47	34		
Did health workers provide help to mothers to breastfeed?				
Yes	41/98	41.8	0.043*	2.10(1.01, 4.33)
No	16/24	66.7		
Is your usual work eenvironment conducive for you to EBF?				
Yes	23/35	65.7	0.008*	2.98(1.31, 6.78)
No	34/87	39.1		

*Indicates statistically significant association

4.3.3.3 Type of delivery

In the study 42.0% (13/31) of the mothers who had delivered by Caesarean section also exclusively breastfed their children compared to 48.4% (44/91) who had a normal delivery (Table 7.8b). The type of delivery of the baby, did not have significant effect on exclusive breastfeeding (p-value =0.536, OR=1.25[CI 0.78, 2.18]).

4.3.3.4 Initiation of breastfeed after birth

Early initiation of breastfeeding immediately after birth or within the first hour of birth is an internationally recommendation practice by WHO. In Table 7.8b, 38.7% (47/122) of mothers experienced late initiation of breastfeeding beyond one hour from birth. The timing of initiation of breastfeed exhibited statistically significant association with EBF in this sub-national population (p=0.026). It was further found that most mothers that

experienced C-section births experienced delayed initiation of breastfeeding (p=0.000, OR=0.42 [CI 0.12, 0.91]) as shown in Table 7.8c.

Table 7.8c: Association between breastfeed Initiation and type of delivery

Initiation of Breastfeed	Type of Delivery		Total	P-value
	C-section	Normal/Vaginal		
Within first hour	8(25.8%)	67(73.6%)	75(61.5%)	0.000
Above 1 hour	23 (74.2%)	24(26.4%)	47(38.5%)	
Total	31(100%)	91(100%)	122(100%)	

Table 7.8d. Initiation of Breastfeeding and Mothers' knowledge.

Initiation of BF	Mother knowledge of EBF		Total	P-value
	Not knowledgeable	Knowledgeable		0.020
Immediate/<1hr	30(40.0%)	45(60.0%)	75(100%)	
Beyond 1hour	29(61.7%)	18(38.3%)	47(100%)	
Total	48(39.3%)	74(60.7%)	122(100%)	

Fifty two percent of mothers (63/122) were knowledgeable about exclusive breastfeeding and 55.5% (35/63) of them, exclusively breastfed their children (p value 0.043). In addition, there is significant association between mother's knowledge and timely initiation of breast milk to the baby (p-value 0.020) as shown in Table 7.8d.

This relatively low level of mother knowledge is further exhibited in results from the FGDs which revealed that some mothers were less comfortable with health workers (such as midwives). They reported that sometimes mothers preferred getting information from people who are closer to them such as VHTs, their parents and elders. These categories of people are generally considered to be less knowledgeable compared to health workers.

> *"I heard about exclusive and immediate breastfeeding during Antenatal Visits and immediately after I gave birth. After that much more information was received from my friends and relatives. They showed me how to handle the baby and how to*

*make them sleep in my arms as they breastfeed, it is such a good feeling…" (**Respondent 9, FGD 2).***

*"The Village health team member from my village visited me while I was pregnant and told me about exclusive breastfeeding. I was able to ask questions for things I did not understand when I attended antenatal care where sometimes health workers are harsh…." **(Respondent 3, FGD 4)***

4.3.3.5 Health workers support and exclusive breastfeeding

Table 7.8b also showed that health workers' support towards mothers during breastfeeding was found to be associated with EBF (p value = 0.043, OR=2.10 [CI 1.01, 4.33]. Ninety eight mothers (80.3%) reported to have received breastfeeding support from health workers. Out of these, 42.0% exclusively breastfed their babies.

4.3.3.6 Workplace environment and exclusive breastfeeding

The study sought to find out the effect of the workplace environment on the practice of exclusive breastfeeding. The findings in Table 7.8b indicate that 23/35 (65.7%) mothers who affirmed to have a conducive work environment exclusively breastfed their babies while only 34/87(39.1%) who mentioned that their work environment was not conducive practiced exclusive breastfeeding (p-value 0.008, OR=2.98 [CI 1.31, 6.78]).

In summary, this study has found the prevalence of exclusive breastfeeding in this community to be 46.7% and several factors have been found to influence EBF that mainly include socio-demographic, interpersonal and organizational factors. Mother's age, education, marital status, knowledge, attitude and perception, age of child, partner/family support, source of EBF information, making 4 or more ANC visits and place of delivery were found to have statistically significant association with EBF. It was found that majority of mothers with correct information and knowledgeable about EBF actually practiced EBF and a substantial proportion of mothers introduce supplementary feeds to their babies after they make three months of age.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.0 Introduction

Scientific evidence has shown that exclusive breastfeeding in children aged between 0-6 months has positive effects on their life and these benefits impact rest of their life. EBF improves nutrition, health, and the development of children (Neves, Bernard, Goldani, 2012). This study was conducted to determine the prevalence of EBF, identify factors that influence exclusive breastfeeding practices amongst mothers in Bundibugyo sub-district and explore the influence of mother knowledge on exclusive breastfeeding. The results of this study are discussed guided by five tenets of the socio-ecological theory that takes into consideration the influence of individual, interpersonal, community, organizational and policy level factors on the desired outcome.

5.1 Prevalence of exclusive breastfeeding

Scientific evidence has indicated that exclusive breastfeeding from day zero to 6months enables proper growth and development of the child and has long term positive effects on the health of a person in adult life (Wataka, et al., 2021; UNICEF, 2017; Walters, 2015). Although over 90% of children in Uganda are breastfed at some point, the percentage of children exclusively breastfed decreases sharply with age from 83% in infants 0–1 month to 69% among those 2–3 months and further to 43% among infants aged 4–5 months (Nabunya, Mubeezi, & Phyllis, 2020). Generally, about 35% of Ugandan children below 6 months are not breastfed exclusively despite its active promotion(UDHS, 2016). In this study, the prevalence of EBF by child age up to six months was 46.7% which is lower than the national average of 65.5% according to Uganda Demographic and Health Survey 2016 (Asiimwe, Nyegenye, & Muyingo, 2019).

5.2 The effect of Individual level factors on EBF

Several factors were found to significantly affect exclusive breastfeeding practice at individual level. These were; mother age, mother education, marital status, mother's knowledge and attitude and perceptions, and age of the baby.

5.2.1 Mother's age

The study involved relatively more mothers (60%) aged below 25 years. It was established that majority of young mothers aged below twenty five years (43/73 or 60%) breastfed their babies exclusively. These results are contrary to Mutuho, (2012), who found that younger women were less likely to exclusively breastfeed their babies. While parity was not found to be significantly associated with EBF, a study by Ayele, (2019) revealed that, in some instances, older mothers especially with more than three children, were two times more likely to breast feed exclusively than their younger counter parts. However, information gathered through FGDs noted that much as all women of any age group could exclusively breastfeed, younger mothers were less likely to breastfeed for fear of what may happen to their bodies, "they do not want to see their breasts sag, they think if they breastfed their children this will let their breast to fall, thus the best thing is not to breastfeed at all".

5.2.2 Education level and exclusive breastfeeding

Most of the study participants either never went to school at all (41%) or had primary level education (20%) which characterizes this community generally as a low educated one. Despite the low level of education in this community, women with low education (below primary), were three times more likely to practice EBF than their counterparts with higher education. This finding is a bit surprising and contrary to Tariku et al. 2017's findings that indicated that less educated mothers were less likely to EBF. It is generally assumed and expected that educated mothers can easily acquire relevant information about the practice and make informed decisions. However, this is sometimes not realized due to different reasons. For example, educated mothers who are employed in formal settings may often experience challenges to EBF due to their work schedules or routines that may not allow them to practice what they know (Mamo, Dengic, Abubeker,

Girmeye, 2020). Additionally, Wamani et al. 2005, opined that educated mothers in Western Uganda, were more inclined to use of prelacteal feeds, and likely to prepare nutritionally good complementary foods for their babies. It would be expected that educated mothers would have higher likelihood of exclusive breastfeeding because apart from accessing information on EBF, they are more likely to afford to express breast milk unlike many less educated mothers.

According to FGD participants, it was reported that educated women did not have time to sit at home and do exclusive breastfeeding. The results are in line with Laksono, Wulandari, & Kusrini, (2021) who found that mothers who graduated from elementary school were marginally 1.167 times more likely to perform exclusive breastfeeding compared to mothers who never attended schools. The study further found that mothers who had graduated from junior high school were 1.203 times likely to practice exclusive breastfeeding compared to those that did not have any medical records.

5.2.3 Marital status and exclusive breastfeeding

Exclusive breastfeeding in both married and cohabiting mothers was found to be higher compared to single mothers. The proportion of mothers that were in a marital union (cohabiting/married n=80/122) and exclusively breastfed (n=44/80) was higher compared to that of mothers that were single (n=42/122) and exclusively breast fed (n=13/42). The findings indicate that having a spouse; whether cohabiting or married had a strong influence on EBF (p-value=0.00, OR= 2.72 [CI 1.23, 5.99]), whereby mothers in a marital union were about three times more likely to practice EBF than single mothers. According to participants in the FGDs, women with spouses (that is married or co-habiting), tend to provide substantial time and priority to care and breastfeeding their babies for a longer period compared to single mothers. Furthermore, married women were reported to receive support from their partners and family, thus the mothers have enough time to look after their babies including exclusively breastfeeding them. Unlike the single mothers, married women are found not to be pressured into business or move away from home, they are assured that the husband can provide for the family. One FGD participant argued, “*for a married women all you need is to sit*

home and look after your children, the man provides the basic needs, so why wouldn't you breastfeed your baby for even up to two years".

Lakati, Binns, & Stevenson, (2002) noted that married and stay at home mothers if equipped with the relevant knowledge and skill are more likely to exclusively breastfeed their babies.

5.2.4 Mothers knowledge about exclusive breastfeeding

Right knowledge about breastfeeding is fundamental in achieving higher EBF prevalence within the first 6 months of the child's life (Coceka, et al., 2017). While majority of the mothers (61%) knew that breastfeeding should be initiated immediately after birth or within the first hour after birth, and 63% knew that breastmilk possessed all the nutrients needed by the baby for healthy growth, still a substantial number of mothers held negative beliefs about EBF that ultimately affected their practice. For instance 55% of mothers believed that giving a baby fluids before 6 months was good to improve digestion while 43% opined that delay in introducing supplementary feeds to the baby before age of 6 months would result in poor eating habits as the baby grows. These misconceptions could partly explain the generally low level of exclusive breastfeeding in this community. Results of this study showed that mothers that were knowledgeable about EBF were twice more likely to EBF compared to mothers with little or no knowledge about EBF. In comparison, in Zimbabwe and Nigeria for example, maternal knowledge on EBF was found to be (>82%), but their level of EBF practice was very low (Mundagowa et.al 2019: Leshabari S. 2006; Onah et al. 2014). Mundagowa et.al (2019) opined that having the knowledge of EBF does not necessarily translate into EBF practice, but sometimes social pressure to introduce complementary feeds tends to outweigh the mother's knowledge of EBF benefits. Therefore strategies to improve mothers' and community knowledge on breastfeed in general and EBF in particular should be strengthened to minimize misconceptions and other barriers identified in this study in order to achieve better child breastfeeding outcomes in Bundibugyo sub-population.

5.2.5 Sources of breastfeeding information

The sources from which mothers get information about exclusive breastfeeding are an important aspect in the practice of exclusive breastfeeding. Evidence shows that health workers or health facilities, parents and VHTs are all vital avenues for disseminating health information about EBF. During antenatal and postnatal care visits by mothers to health facilities, midwives or other health professionals utilize the opportunity (Tesfa, Nigussie, & Sisay, 2020). Findings from the study revealed that close to 46% of the mothers received breastfeeding information from health workers, and a relatively similar proportion relied on their parents and VHTs. It must me noted that reliance on unprofessional sources of information such as friends and parents could sometimes be a hindrance to EBF promotion especially if wrong information is shared or culturally inappropriate messages are shared such as, serving a baby on local herbs before initiation of breastmilk. These beliefs and practices affect not only early initiation of breastmilk but also exclusive breastfeeding. The best way of dispelling negative beliefs and attitudes is continuous breastfeeding counseling during pregnancy, maternity and during postnatal care (UNICEF, 2017). Therefore, there is need to understand the association that different sources of information have with establishing sustainable breastfeeding practices. Such information is necessary to create effective public health messaging, breastfeeding policy, and allocation of resources to sources of support (Sutter et.al. 2018).

Whereas health workers were indicated as one of the common sources of information to mothers, they were mentioned in FGDs as sometimes being rude and unapproachable by mothers in one of the FGDs.

> *"…at some health facilities the midwives are very tough, they talk to us but in a very hard tone, they sometimes insult us…".*

The midwives possess the knowledge to share with the mothers, but the mode of transmission negatively affects the outcomes. According to Radzyminski & Callister, (2015) midwives and how they handle antenatal and postnatal can easily determine whether a mother exclusively breastfeeds or otherwise.

5.2.6 Child's age and exclusive breastfeeding

A bigger proportion (60%) of children aged below three months were exclusively breastfed compared to their older counterparts. There was a notable decline in EBF as age of children increased. Children aged 3 and below months were found to be three times more likely to be exclusively breastfed than their older counterparts. A study conducted by Nkrumah et al. (2017) found a strong relationship between child age and EBF. Their study established that children were most likely to be exclusively breastfeed between 0 and 3 months. It was noted that at age between 0-3 months most mothers are still home, they will not have resumed routine activities be it in the garden, shop or office and they utilise this time to breastfeed their children. From 4 months, a lot happens; if the mother had a caretaker (for example a sister, mother or aunt) it is mostly at around this time that they believe the mother is healed and can resume work (Chezem, Friesen, & Clark, 2001). Data from the FGDs further confirmed these findings;

"When we are going into labour our sisters or mothers come through to support us with home chores and generally looking after the new mother, however this ceases at around 3 months, at this point you have to cook for yourself and look after your family. Many times, this is when food supplements are introduced" **FGD participant**

The lack of continuous support and the need to fend for the family, pushes many mothers into mixed feeding, compromising EBF especially in resource poor setting like Bundibugyo and many other parts of Uganda (Lakati, et al,.2002).

5.3 The effect of Interpersonal level factors on EBF

Interpersonal level factors mainly include formal and informal support such as support from spouse/partner or family. In this study, a strong association between partner/family support and EBF was found (p-value=0.044, OR=2.14 [CI 1.01-4.53]). Mothers that received partner and family support were twice more likely to exclusively breast than others with no partner support. Our findings are similar to a study by Fadjriah et al. (2021) who stated that a family motivates the mother and contributes to the mothers 'desire to breastfeed their babies. She further argues that a family/partner is the closest community that can influence the mother in her actions and her study showed a relationship between the success of exclusive breastfeeding and family social support

with value (p = 0.000). According to Fadjriah et.al. (2021), family and partner support often manifests in such forms like informational support (providing the information), instrumental support (availability of facilities and funds), emotional support (empathy, love, trust, and motivation), and appraisal support (appreciation for the efforts of the mother).

5.4 The effect of Organizational level factors on EBF

The socio-ecological framework emphasizes multiple levels of influence and supports the idea that behaviors both affect and are affected by various contexts. Organizations are instrumental in the development of behaviors as they often enforce behavior-determining regulations and restrictions. Health facilities for example, are governed by established standards set by the ministry of health often benchmarked by international regulations such as the World Health Organization (WHO). The regulations and standards related to pregnancy care and delivery and the manner the health providers implement these guidelines may impact on the mother's ability and willingness to exclusively breastfeed her infant. For example, the government of Uganda promotes 4 or more ANC visits by mothers and also institutional delivery. These messages are amplified by health workers in health facilities as well as during outreaches to mothers and their spouses. In doing so, health seeking behavior as well as positive breastfeeding practices are adopted.

5.4.1 Antenatal care attendance

The findings showed that majority (71%) of the mothers attended four or more antenatal care visits. It was found that mothers that made 4 or more ANC visits during their latest pregnancy, were twice more likely to practice EBF than mothers that made lesser visits. These findings are in agreement with Biks, Tariku, & Tessema, (2015) and Coceka, et al.(2017) who found that mothers who attended ANC, were more likely to exclusively breastfeed their babies than their counterparts who did otherwise. According to Biks, Tariku, & Tessema (2015), ANC attendees receive nutritional counseling and education as part of the health promotion, such as the health benefits of exclusive breastfeeding,

and this information is provided by midwives who are the best sources of reliable information regarding baby and maternal nutrition.

Antenatal care attendance does not stop at only maternal knowledge regarding exclusive breastfeeding, but also utilization of institutional delivery which also enhances timely initiation of breastfeeding. According to the midwives interviewed, antenatal care sessions are crucial for instilling a sense of responsibility for the mothers towards their babies. A midwife from Bundibugyo hospital said,

"*We find it a lot easier to address mothers about breastfeeding during their antenatal visits this is because at this point in their life anything to do with their babies takes a centre stage and they are willing to listen to advice given".*

5.4.2 Place of delivery

It has been reported that the place where a baby is born can influence the practice of exclusive breastfeeding. Our study results revealed that EBF mostly occurred in babies delivered from health facilities and mothers who delivered their babies in health facilities were three times more likely to exclusively breastfeed than their counterparts who delivered from elsewhere.

The findings are supported by Tahiru, et al (2020), who found that mothers who delivered from a hospital or health facilities were two times more likely to initiate and sustain exclusive breastfeeding than their counterparts who delivered from elsewhere. A study by Ulumbi, (2014) found that mothers who delivered from a health facility practiced exclusive breastfeeding and were more knowledgeable about the practice than their counterparts who delivered either from home or traditional birth attendant.

5.4.3 Initiation of Breastfeeding

Timely initiation of breastfeeding was found to be associated with EBF. This finding can be much related to findings in section 5.4.2 where health workers are ideally the first contact between the mother and the baby. Health workers therefore, are expected to ensure immediate/early initiation of breastfeeding. Our study found that majority (61.5%) of the mothers with children 0-6 months started their children on breast milk within their

1st hour after birth and majority of these had delivered from either a hospital or health facility. The results of the study resonate with Nkrumah, (2017) whose study in Ghana found that mothers who initiated their babies on breast milk within the 1st hour after birth had delivered from a health facility by a trained birth attendant. Mothers who deliver from a health facility, are more often supported by the health workers to initiate breastfeeding. The kind of support is non-existent to mothers who deliver from home or from traditional birth attendants (Biks, Tariku, & Tessema, 2015). Biks argues that the practice of early initiation as well as exclusive breastfeeding is highly determined by the place where a mother delivers.

5.5 Child's Sex

The preference for sons over daughters is prevalent worldwide, especially in Asia, North and Sub-Saharan Africa and more often, sons receive preferential treatment over daughters (Jayachandran & Kuziemko 2021; Kien Le. & My Nguyen 2022). Some studies have also found that preference for sons discriminated against daughters in the distribution of scarce resources such as breastmilk, sources of vitamin and protein, health care, and time spending (Baker & Milligan 2016; Aurino 2017). In our study, while we found a higher proportion of males that were exclusively breastfed (50.0%) compared to 38.2% among females, there was no statistically significant association between child sex and EBF (p-value=0.243,OR=1.61 [CI 0.87,3.01]).

The FGD participants on the other hand argued that some women choose to breastfeed boys more because of the intervention by their husbands who sometimes caution them to make sure that the boys grow up stronger and health;

> *"Some of our husbands are more interested in male children and they will take time to ask you to breastfeed their heirs so they can be bright and strong men, the same rarely happens for girls"* ***FGD participant, 3***

Jayachandran & Kuziemko, (2011) in their study among rural women in India found related results. They noted that males were breastfed more and for a relatively longer period of time due to pressure from the husbands (Tesfa, Nigussie, & Sisay, 2020).

5.5.1 Occupation of mothers

Most of the survey participants' main occupation and source of income or livelihood was petty trade at 49% and subsistence farming (39%). Half (50.0%) of the mothers that were engaged in petty trade or subsistence farming practiced EBF. However, we found no statistically significant relationship between mother occupation and EBF. These findings are contrary to what Chekol, Biks, Gelaw, & Melsew, (2017) found who indicated that self-employed mothers or mothers engaged in agriculture are more likely to exclusively breastfeed compared to their formally employed counterparts. They found that 48% of the self-employed mothers exclusively breastfed compared to only 21% among employed mothers. They argued that mothers that were self-employed or engaged in subsistence farming often worked near their homes or they practiced agriculture at home. This gave the mothers enough time to cater for their babies including providing adequate time for breastfeeding. It is noted that whereas self-employment by mothers presents an opportunity for exclusive breastfeeding, this can only be achieved if the mothers have access to the right and necessary information regarding exclusive breastfeeding (Lakson, Wulandari,Kusrin, 2021).

5.5.2 Parity and exclusive breastfeeding

The majority of mothers (97 or 80%) had ever given birth to two or more children, and 49.0% of these, exclusively breastfed their babies compared to 36.0% amongst mothers of parity one. Inspite of this, no statistically significant association between parity and EBF was found. This implied that regardless of whether a mother had had one or more babies, it did not influence breastfeeding practices in this sub-population. These findings are in line with Ulumbi (2014) who found no association between number of deliveries and the practice of exclusive breastfeeding. However, like with this study, participants in Ulumbi's research, argued that mothers with more than two babies tended to practice exclusive breastfeeding more often than the 1st time mothers. The more children a mother has the more likely they practice exclusively breastfeeding (Kitano & Sugimoto, 2015).

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion on Influence of Individual factors on exclusive breastfeeding

The practice of EBF has been found to be strongly influenced by several individual level factors and characteristics. It has been found that mother age, mother education, being in marital relationship, knowledge and attitude of the mother, as well as the age of the baby were significantly associated with EBF. Mothers in Bundibugyo sub-population were fairly knowledgeable about EBF and less than 50 percent knew that breastfeeding should be started immediately after birth or within the first hour of baby's life. Several misconceptions about exclusive breastfeeding were prevalent that included beliefs that if a baby does not initiate supplementary foods/fluids early before 6 months of age, it develops poor appetite in later age, that giving a baby some fluids in addition to breast milk was useful for digestion, and that breast milk does not possess all the nutrients needed for a healthy baby growth. If these misconceptions are well addressed in this community, the prevalence of EBF will ultimately be improved.

6.2 Conclusion on Influence of Interpersonal level factors on exclusive breastfeeding

It has been established that social support to a breastfeeding mother is crucial to achieve EBF. Support from the family, spouse and health workers is very instrumental in sustaining EBF.

6.3 Conclusion on Influence of Institutional level factors on exclusive breastfeeding

Health facility and work environment were found to influence EBF. Health facility factors included ANC visits at the facility, delivery place, initiation of breastfeeding, and health worker support (in either providing information, helping in positioning of the baby during breastfeeding, and other related counselling) were found to be key influences to EBF. Besides this, parents, health workers and VHTs are central sources of breastfeeding

information to the mothers. These information sources need to be strengthened. On the other hand, workplaces that are conducive for breastfeeding were found to have positive influence on EBF.

6.4 Conclusion on Influence of policy level factors on exclusive breastfeeding

Uganda's policy guidelines on infant and young child feeding mandates all mothers to be counselled and supported to exclusively breastfeed their infants for the first six months of the child's life. In addition, the policy recommends early initiation of breastfeeding and this message is emphasized to the mothers and their spouses during ANC and postnatal visits and to communities during health outreach programmes by health workers. This policy environment has been effective and should be sustained.

6.5 Recommendations

i. Promotion of ANC and facility deliveries: Increased advocacy to mothers to make a minimum of 4 ANC visits to professional health workers will enhance mothers' knowledge about EBF. In addition, health facility deliveries should be increased since they impact of EBF practice.

ii. Improve mothers' attitude about EBF and reduce related misconceptions:

iii. Increase awareness about importance of social support to breastfeeding mothers. This support starts from the family including the partner, relatives, and friends.

iv. Advocate for improvement in workplace environment to support and sustain EBF.

For instance the ministry of health through the parliament should enact laws that make it mandatory for all workplaces to have safe breastfeeding areas for mothers.

6.6 Area for further research

There is a need to investigate factors that hindered some mothers from accessing delivery health services in this population and also generate evidence whether children exclusively breastfed in this community were having better child growth monitoring indicators and morbidity experiences compared to others on supplementary feeds since this was not covered by this study.

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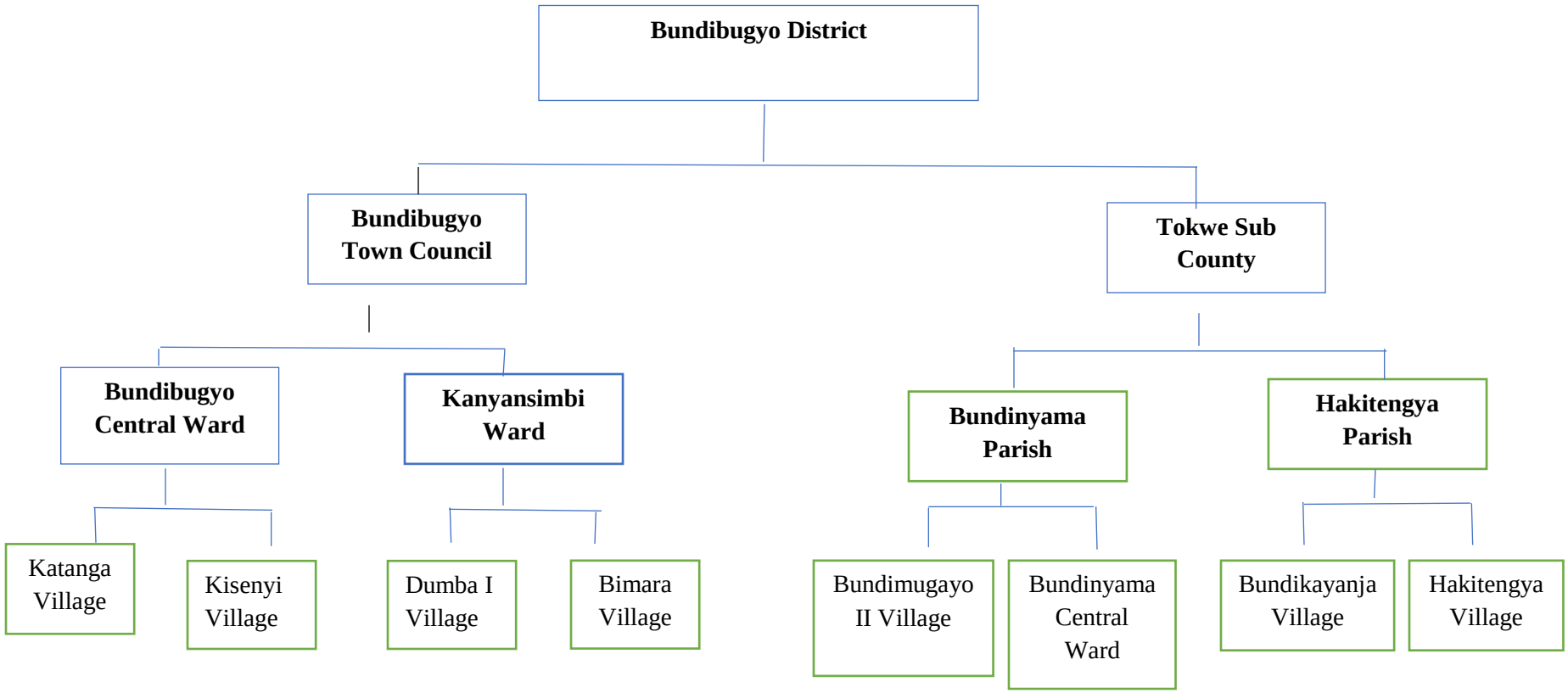
Appendix I: Map of Uganda showing Bundibugyo hospital catchment area.

Appendix II: Multi Stage Cluster Sampling Strategy



Appendix III: Data collection tools (a-c)

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(a) Individual Level mothers Questionnaire

My name is Rita Ntegyereize, a graduate student of Uganda Christian University, undertaking a Master of Public Health. I am conducting a study into the factors influencing exclusive breast feeding among mothers of Bundibugyo district. You have been chosen to participate in this study because the researcher believes you will provide accurate information for the study. Participation in the study is optional and your declining to participate does not in any away have consequences.

Agreed to participate ☐ **Declined** ☐

Sub-county…… **Parish**…… ……..**Village**……		
1	Age in complete years ……..	
2	Marital status •Single •Married •Cohabiting •Windowed •Others (specify)……	 1 2 3 4 5
3	What is your highest level of education completed? •None •Primary incomplete •Primary Completed •Secondary Plus	 1 2 3 4
4	What is your main occupation/employment? •Business/Trading •Subsistence farming •Casual work/Wage •Professional work/Salary job •Others (specify)……..	 1 2 3 4 5
5	Did you at anytime drink alcohol during your last pregnancy? •Yes •No	 1 2
6	What is the age of baby in months ……	
7	Sex of the baby •Male	 1

	•Female	2
8	Baby is a result of ……..pregnancy	
9	Where was the baby delivered? •Hospital •Health centre IV •Health centre III •Clinic •Home •Traditional birth attendant •Others (specify)……..	 1 2 3 4 5 6 7
10a	Did you seek Antenatal care during the pregnancy of your latest baby? 1.Yes 2.No	 1 2
10b	Where did you go to seek ANC during the pregnancy of your baby? •Hospital •Health centre IV •Health centre III •Clinic •Home •Traditional birth attendant	 1 2 2 4 5 6
10c	How many antenatal care visits did you make to a health facility before you gave birth? …….visits None……	……
11	What type of delivery did you have? •Normal (vaginal) •C-section •Other (describe)……..	 1 2 3
12a	Since birth, have you ever fed your baby on any of the following? •Breastmilk alone •Thin porridge •Cow’s milk •Water •Breastmilk and other foods •Others (specify) ……..	 1 2 3 4 5 6
12b	What were the main 2 reasons for combining breastfeeding and other supplements? 1……. 2……. **IF THE CHILD DID NOT BREASTFEED ATALL, ASK QUESTION 12C**	

12c	**BELOW.** •Did not breast feed What is the **major** reason(s) why the baby is not breastfeeding at all? ……. …….……..	
13	After how long from birth did you introduce the baby to breast milk? •Within the 1st hour after birth •After 2-3 hours •After more than three hours	 1 2 3
14	During pregnancy and after birth of your baby, what was your Main source of breastfeeding information? Midwives/Health worker Parents TBAs VHTs	 1 2 3 4
15	During the antenatal care visits, did the care provider give you information on the following topics? •The importance of spending time skin-to-skin with your baby immediately after birth? •The risks of giving water, formula or other supplements to your baby in the first six months if you' re breastfeeding •Whether a woman with HIV/AIDS can pass the virus to her baby?	 1 2 3
16	During maternity did the health facility staff offer you help with breastfeeding? •Yes •No (If yes), How long after birth was this help given? •Within 6 hours of when the baby was born •More than 6 hours after birth of the baby	 1 2
17	Did the staff give you any help with positioning and attaching your baby for breastfeeding before discharge? •Yes •No	 1 2
18a 18b	Did the health facility staff give you information on how you could express your milk by hand? •Yes •No Did you try expressing breast milk by yourself? •Yes •No	 1 2 1 2
19	What advice were you given about how often to feed your baby? •No advice •Every time my baby seems hungry (as often as he/she wants)	 1 2

	•Every hour •Every 1-2 hours •Every 2-3 hours •Other (describe)……..	3 4 5 6
20	What advice were you given about how long your baby should suckle? •No advice given •For a limited time (specify time)…….. •For as long as my baby wants •Other (describe)……..	 1 2 3 4
21	Were you given any suggestions by health facility staff about how or where to get help if you have challenges with feeding your baby? •Yes •No	 1 2
22	If yes for above, what suggestions were you given? ***Tick all that apply*** •Get help from a health professional •Get help from a hospital/health centre •Call a helpline •Get help from a mother support group or peer counsellor •Other (describe)……..	 1 2 3 4 5
23	Do you receive any support and or encouragement to breastfeed /exclusively breastfeed your baby from: a) Health facility/hospital staff? 1=Yes 2=No b)Your spouse? 1=Yes 2=No c) Your other family members? 1=Yes 2=No d) Friends in community? 1=Yes 2=No e)Your workmates (if any)? 1=Yes 2=No	
24	Now, I would like you to tell me your view about the following statements on breastfeeding; (**Circle only one Option in a-e**) a) I feel shy/hesitant to breastfeed my baby when I' m in a public place. 1=Agree 2= Somewhat agree 3=Disagree 4= Strongly disagree b) My workplace is conducive for me to breastfeed. 1=Agree 2= Somewhat agree 3=Disagree 4= Strongly disagree c) My friends and peers give me advice and encourage me to breastfeed. 1=Agree 2= Somewhat agree 3=Disagree 4= Strongly disagree d) The health facility where I sought ANC/Delivery care services encourage exclusive breastfeeding. 1=Agree 2= Somewhat agree 3=Disagree 4= Strongly disagree e) Breastfeeding is so exhaustive and time consuming for me 1=Agree 2= Somewhat agree 3=Disagree 4= Strongly disagree f) Breastmik does not have all necessary nutrients for the baby growth. 1=Agree 2= Somewhat agree 3=Disagree 4= Strongly disagree	

Appendix III (b): Focus Group Discussion guide

1. Ever heard of exclusive breastfeeding? What do you understand by the term?
2. What about immediate and timely initiation of breastmilk? What do you understand by the term?
3. What are the main of sources of information regarding breastfeeding?
4. Comment about breastfeeding counseling received from health facilities
5. From your understanding, what are the benefits of immediate and exclusive breastfeeding?
6. Do you believe that a baby can be fed on breast milk alone without even water for the first six months? If no why?
7. Is immediate and exclusive breastfeeding a common practice in your community?
8. What are the factors that encourage mothers to practice immediate and exclusive breastfeeding for six months?
9. Why do some mothers choose not to practice immediate and exclusive breastfeeding?
10. Do you have suggestions on what can be done to encourage mothers to practice immediate exclusive breastfeeding for six months in your community?
11. What recommendation would you like to give to the health workers to improve the breastfeeding counselling given to mothers?

Appendix III (c): Key Informant Interview Guide for Health Workers

What is your general comment about the immediate and breastfeeding practices among mothers in your community?

What kind of counselling do you provide to mothers about breastfeeding?

At what point do you provide breastfeeding counselling to mothers?

Are there any factors that favour adoption of exclusive breastfeeding among mothers?

What do you think can be done to improve the practice of immediate and exclusive breastfeeding?

Appendix IV: Summary and description of variables

Variable category	Variable name	Description and Measurement
Individual level factors	Mother's age	Age in Completed years
	Mother marital status	Cohabiting, Married, Single
	Mother's knowledge of EBF	Knowledgeable, Not knowledgeable
	Mother's attitude toward EBF	Positive, or Negative
	Mother's confidence to breastfeed from all spaces	Yes confident, or No not confident
	Mother's occupation	Business, salaried, subsistence farming
	Parity	1, 2-3, or 4 plus
	Child sex	Male, or Female
	Child age	Age in completed months
	Mother alcohol consumption	Yes, or No
Interpersonal level Factors	Family/Partner support towards mother to EBF	Yes, or No
	Mother's main source of breastfeeding information	Health workers, Parents, VHTs, or TBA
Organizational Level factors	ANC visits attended during pregnancy	Less than 4 visits, or 4plus visits

	Place of birth	In Health facility, or Outside health facility (Unprofessional care)
	Timing/Initiation of breastfeed after birth	Immediately/Within first hour, or After 1 hour
	Type of delivery	Normal delivery, or Cesarian section
	Health worker support to the mother to be able to breastfeed/EBF	Yes they supported, or No support given
	Workplace conduciveness to the mother to EBF	Yes conducive, or Not Conducive
Policy level Factor	Government recommends initiation of breastfeeding immediately after birth until 6 months without any other fluids or supplementation.	No data collected, but its captured in literature review

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DISSERTATION CORRECTION COMPLIANCE REPORT BY THE CANDIDATE (POST VIVA FORM)

Date: 28th March 2024

Name of Candidate: Rita Ntegyereize **Reg. No:** RJ14M21/035

Title of Dissertation: Factors Influencing Exclusive Breastfeeding in Bundibugyo District, Uganda

SN	COMMENTS BY EXTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	Under the abstract on the problem the candidate should quote the sources of breastfeeding rates	Included	The prevalence of exclusive breastfeeding among the study participants was at 47%, which is below the national average of 66%. The prevalence of exclusive breastfeeding declined as the children grew older. Majority of the mothers reported having initiated their children on breast milk in the first hour after birth. Majority (75%) of the mothers delivered from a health facility.
2	Should also explains 4+ stand for in the ANC	Clarified	The study found statistically significant association

	statement. This should be clarified.		between health facility delivery, ANC 4+(4 or more ANC Visits)
3	The several misconceptions about exclusive breastfeeding (EBF) should be stated	Added in the abstract	
4	The general objective should be made action oriented to address the silent question "and then what?'' at the end of the objective.	Addressed	The main objective of the study was to establish the prevalence of exclusive breastfeeding and identify the factors influencing the practice among mothers of children within the age range of 0 to 6 months in Bundibugyo district to inform appropriate interventions.
5	The last paragraph on page 24 should be written in past tense, and so should be the entire report for obvious reasons.	Corrected	Entire report checked.
6	Under table 2, ages of mothers should be labelled with years not just ordinary numbers as in the case.	Addressed	Added the word "years" in brackets
7	Table 7.5 should show age in years.	Addressed	Added months in brackets

SN	COMMENTS BY INTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	Keep your abstract on one page and it should be a maximum of 300 words!	Adjusted to fit one page	
2	The problem statement is unnecessarily long- please cut is to about half a page- but it has the right content which is aligned to the title	Adjusted	
3	Please look at your definition of exclusive breast feeding and these objectives--- You may need to operationalise the definition to fit your objectives	Definition was operationalized to the align with the study objectives.	
4	Overall, presentation requires some changes- especially, the comments should come after the tables and there should be no discussions in the results chapter. The discussion should be done in chapter five.	Adjusted accordingly	

SN	COMMENTS BY VIVA VOCE PANNEL	ACTION TAKEN	INDICATOR
1	How do you know that a mother has exclusively breastfed their baby?	From the EBF operational definition of this study, a mother was considered to be exclusively breastfeeding at the respective age she was interviewed.	
2	Re-write the objectives to be smart	Rewritten	1. To determine the prevalence of exclusive breastfeeding in children 0-6

			months in Bundibugyo district. 2. To establish factors that influence exclusive breastfeeding in children 0-6 months in Bundibugyo district 3. To explore the influence of mothers' knowledge on exclusive breastfeeding in children 0-6 months in Bundibugyo district.
3	Include an operational definition of EBF		Exclusive breastfeeding (EBF) is defined as giving an infant only breast milk from birth up to six months of age, without giving other liquids or solids, not even water, except for oral rehydration solution or drops/syrups of vitamins, minerals or medicines [WHO, 2003; Jolly, 2008; Kong et al., 2004]. For this study Exclusive breastfeeding was assessed for all mothers of children within the range of 0 to 6 months at the respective age of the child at the time of the study.
4	Correct your study design from cross-sectional to mixed methods	Done	
5	Complete the analysis and have the multi-variable factors		Maintained bi-variable analysis. The study objectives were met and are already informing interventions.
6	Crease a limitations section and under it, state that you included children below 6 months in your study.	Added under section 1.7	**1.7 Limitations of the study** The study was cross sectional in design, and was only carried out in a sub-population of Bundibugyo district,

			a rural district in the southwestern part of Uganda. The results can only be generalized to other areas with similar characteristics. The study focused on mothers that had children 0-6 months and thus those within the age bracket that were exclusively breastfeeding at the time of the study. It is not possible to determine those at the respective age groups before 6 months who would complete the recommended 6 months of exclusive breastfeeding.
7	Improve your third objective		Third objective maintained as findings were intended to give insight into mother specific factors that should inform mother focused interventions given that uptake of desired practices is primarily with the mother.

Rita Ntegyereize  **Dr. Alex Mokori** 

Candidate's Name Signature Supervisor's Name Signature