FACTORS AND CHALLENGES ASSOCIATED WITH EXCLUSIVE BREASTFEEDING AMONG WORKING MOTHERS ATTENDING THE YOUNG CHILD CLINIC AT GULU REGIONAL REFERRAL HOSPITAL

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DECLARATION

I, Christine Nalinda, affirm that, to the best of my knowledge, this research thesis is entirely original and has not been submitted to other academic institutions for publication, academic awards, or other considerations.

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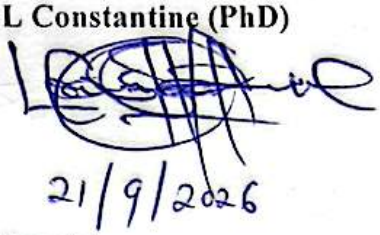
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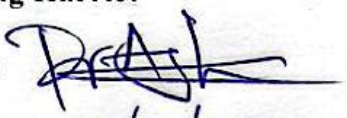
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DEDICATION

I dedicate this work to the late Bindeeba Godfrey and Kali Humphrey's families, who helped me with all of my academic pursuits.

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WORKING DEFINITIONS

Exclusive breastfeeding: the practice of giving infants only breast milk and no other food or liquids (such as water or infant formula), except prescription drugs or vitamin and mineral supplements.

Employment: all mothers who will work for pay or profit during the reference week, or who will work for at least an hour as an unpaid family worker.

Formal employment: employment that is established by a contract between an individual employee and an incorporated business.

Factors: Characteristics, circumstances, or conditions of working mothers that are statistically associated with the practice of exclusive breastfeeding among mothers with infants aged 0–12 months attending the Young Child Clinic at Gulu Regional Referral Hospital.

Informal employment: work arrangements that are legally or practically exempt from income taxation, national labor laws, social protection, and other employment guarantees.

Infant: A baby under one year of age.

Support from husband: assistance from the husband in promoting breastfeeding, including encouragement, help with household tasks, provision of resources, or participation in feeding-related decisions.

Working mothers: Mothers working outside the home to earn money.

LIST OF ACRONYMS

aPR:	Adjusted prevalence ratio
BFHI:	Baby Friendly Hospital Initiative
BF:	Breastfeeding
CVI:	Content Validity Index
CVR:	Content Validity Ratio
CPR:	Crude prevalence ratio
EBF:	Exclusive breastfeeding
GUREC:	Gulu University Research and Ethics Committee
GRRH:	Gulu Regional Referral Hospital
ILO:	International Labor Organization
MOH:	Ministry of Health
MGLSD:	Ministry of Gender, Labour and Social Development
ORS:	Oral rehydration solution
UNICEF:	United Nations Children's Fund
UNCST:	Uganda National Council for Science and Technology
UDHS:	Uganda Demographic Health Survey
UGX:	Uganda shilling
WHO:	World Health Organization
YCC:	Young Child Clinic

ABSTRACT

Background: Exclusive breastfeeding (EBF) remains suboptimal among working mothers despite efforts by WHO and UNICEF to promote it. Balancing employment and childcare may create challenges that limit mothers' ability to practice EBF. However, limited information exists on the factors and challenges influencing EBF among working mothers attending the Young Child Clinic at Gulu Regional Referral Hospital. This study therefore aimed to determine the prevalence, factors, and challenges influencing EBF among working mothers attending the clinic.

Methods: The study was carried out at Gulu Regional Referral Hospital at the Young Child Clinic (YCC). 415 working breastfeeding mothers with infants aged 0-12 months, living in Gulu city and attending Young Child Clinic, were interviewed using a semi-structured questionnaire to get the factors and challenges associated with exclusive breastfeeding. Systematic sampling was used to select the study participants. Data were analysed using robust modified Poisson regression to determine the independent factors and challenges associated with EBF.

Results: The mean age of the working breastfeeding mothers was 28 years (SD 5.6), and the mean age of infants was 5.2 months (SD 2.5). 75 (18%) practiced EBF for six completed months. Independent factors associated with EBF at multivariate analysis were; initiating breastfeeding within one month after birth (aPR=0.62, 95% CI=0.47-0.82, P=0.001) and good attitude (aPR=0.75, 95% CI=0.59- 0.94, P=0.011), were positively associated with EBF, while mothers earning less than 500,000UGX, (aPR=1.2, 95%CI=1.05-1.59, P=0.016) and mothers who reported that breastfeeding made working difficult (aPR=2.15, 95% CI=1.31–3.51, P=0.002) were negatively associated with EBF. Reported challenges were insufficient breast milk, problems with the nipples and breasts, not being well, lack of support from their spouses and limited time for breastfeeding.

Conclusion: The practice of EBF among working mothers attending Young Child Clinic at Gulu RRH is still very low. Significant factors associated with exclusive breastfeeding included maternal monthly income, initiation of breastfeeding within the first hour after delivery, maternal attitude towards exclusive breastfeeding, and difficulties experienced with breastfeeding due to work. . These findings highlight the need for supportive maternity and workplace breastfeeding policies, targeted breastfeeding education, and livelihood support for postpartum mothers to address barriers to exclusive breastfeeding among working mothers in attending YCC at GRRH.

Keywords: Exclusive Breastfeeding, working mothers, factors, and challenges.

CHAPTER 1: INTRODUCTION

1.9 Background

Exclusive breastfeeding (EBF), according to WHO, is giving breast milk only to infants between 0-6 months of age, except for prescribed medicines, vitamins, and minerals. The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) recommend that infants should be exclusively breastfed for the first six months of life because of its important benefits for infants, such as reducing mortality and morbidity in children, reducing the risk of becoming obese later in life, preventing 420,000 child deaths from diarrhea and pneumonia, and saving 10% of the household's wages, which are used to purchase infant formula. Women who breastfeed have a lower risk of developing ovarian and breast cancer. (Prentice, 2022) & (Meek & Noble, 2022). One meta-analysis found that non-exclusively breastfed children below five years of age had a risk of getting pneumonia four times higher than those who were breastfed exclusively (Ahsan et al., 2022).

Despite these benefits and global efforts to promote breastfeeding, the practice of exclusive breastfeeding remains suboptimal. UNICEF reports that the prevalence of EBF is at 48% globally, 44% in Africa (UNICEF & WHO, 2023), 55% in East Africa (Dukuzumuremyi et al., 2020), and 94% in Uganda, according to the current Uganda Demographic Health Survey (UDHS) (UDHS, 2022). These figures indicate that a substantial proportion of infants are introduced to solid foods or liquids before 6 months, despite the established health benefits of exclusive breastfeeding.

The challenge is particularly important among mothers who work outside the home. Returning to work before the infant reaches six months may make it difficult for mothers to maintain exclusive breastfeeding because of inadequate maternity leave, work demands, and limited opportunities to breastfeed or express breast milk. (Chhetri et al., 2018), (Samson et al., 2023), (Pérez-escamilla et al., 2023). Studies have reported that mothers who return to work may experience fewer breastfeeding sessions and may discontinue exclusive breastfeeding earlier than recommended. (Chhetri et al., 2018). The problem is not limited to workplace conditions. Working mothers may also experience individual and social challenges that interfere with maintaining EBF, including concerns about insufficient breast milk, breast and nipple problems, inadequate knowledge or negative attitudes towards EBF, limited support from spouses and family members, and pressure to combine breastfeeding with other responsibilities. Consequently, a mother may understand the benefits of EBF and intend to practice it but still fail to sustain it for the recommended six months

because of circumstances surrounding her work and home environment. (USAID, 2017), (Chen et al., 2019), (Fadjriah et al., 2021), (Fatmawati et al., 2020).

In Uganda, breastfeeding is strongly promoted as an important component of infant and young child nutrition. The Uganda Demographic and Health Survey (UDHS, 2022) reported a high national prevalence of EBF. However, national estimates may mask differences among specific groups of mothers, particularly those who have to combine breastfeeding with paid or income generating work. Evidence from Uganda indicates that EBF among working mothers is considerably lower than the national estimate. Studies conducted among working mothers reported EBF prevalence of 42.8% in Kampala and 43.9% in Lira City (Omute & Kirungi, 2022), (P. N. Id et al., 2020). These findings suggest that work related circumstances may present an important challenge to sustaining EBF in Uganda.

Therefore, there was a need to establish the extent to which working mothers in Gulu City were able to practice EBF for the recommended six months and to identify the factors and challenges influencing the practice. Understanding these factors would provide locally relevant evidence for health workers, employers and policymakers to develop interventions that address the barriers faced by working mothers and create an environment that enables them to sustain exclusive breastfeeding while working.

1.10 Problem statement

Exclusive breastfeeding (EBF) for the first six months of life is globally recognized as a critical intervention for reducing child mortality and preventing long-term cognitive and developmental delays (UNICEF, 2018). Despite these proven benefits, working outside the home remains a major structural barrier to EBF sustainability, as working mothers face inadequate paid maternity leave, prolonged work hours, workplace distance from home, and a lack of breastfeeding friendly facilities (Omuemu & Adamu, 2019) & (Omute & Kirungi, 2022).

Employment outside the home is consistently identified as a major barrier to EBF internationally, for instance, only 10.3% of working mothers in Ghana exclusively breastfeed (Dun-dery & Laar, 2016), and 24% of working mothers in Thailand discontinue EBF within three months of returning to work (Jiravisitkul et al., 2022). In Uganda, EBF uptake among working mothers similarly remains suboptimal and falls way below WHO targets, with rates of 31.7% in Kampala and 43.9% in Lira City (Edema & Namisi, 2026) & (Omute & Kirungi, 2022). A recent hospital-based study in Gulu City further revealed that only 35.9% of working mothers manage to sustain EBF (Otika

& Ssemakula, 2026), underscoring that the practice remains low even among mothers attending a public tertiary hospital.

The disruption of breastfeeding as a mother transitions back to work exposes infants to increased risks of malnutrition and preventable infectious diseases such as diarrhea and pneumonia, and raises household healthcare costs associated with treating these otherwise preventable illnesses (Khan & Islam, 2017) & (D. Walters et al., 2016).

Although general barriers to breastfeeding in Uganda are documented, there is a lack of local evidence on the specific socioeconomic, institutional, and workplace challenges encountered by working mothers seeking postnatal services within public tertiary facilities. Specifically, the exact factors influencing EBF practices among working mothers attending the Young Child Clinic (YCC) at Gulu Regional Referral Hospital (GRRH) remain poorly understood. This study therefore addresses this gap by investigating the factors and challenges associated with exclusive breastfeeding among working mothers attending the YCC of Gulu RRH.

1.2 Research question:

1.2.1 General Research Question:

How are working mothers attending the Young Child Clinic (YCC) at Gulu Regional Referral Hospital (GRRH) performing with exclusive breastfeeding (EBF)?

1.2.2 Specific Questions:

1. What is the prevalence of exclusive breastfeeding among working mothers attending YCC at GRRH?
2. What factors are associated to exclusive breastfeeding among working mothers attending YCC at GRRH?
3. What are the challenges faced by working mothers attending YCC at GRRH face while practicing EBF?

1.3 Hypothesis

H0 (null hypothesis): There is no significant association between selected factors and the practice of exclusive breastfeeding among working mothers attending YCC at GRRH.

H1 (alternative hypothesis): There is a significant association between selected factors and the practice of exclusive breastfeeding among working mothers attending YCC at GRRH.

1.4 Objectives

1.4.1 General objective

To determine the prevalence, factors and challenges related to exclusive breastfeeding among working mothers attending YCC at GRRH.

1.4.2 Specific objectives

2. To determine the prevalence of exclusive breastfeeding among working mothers attending YCC at GRRH.
3. To identify the factors related to exclusive breastfeeding among working mothers attending YCC at GRRH.
4. To identify the challenges working mothers attending YCC at GRRH encounter in continuing to breastfeed exclusively.

1.5 Justification

Exclusive breastfeeding has been proven to boost child survival, development, and growth. As more women of childbearing age join the workforce, they need to practice EBF while working, however, they face challenges in balancing EBF and work. This has led to the early introduction of breast milk substitutes, which increase the risk of infections and malnutrition in infants.

Although several studies have examined exclusive breastfeeding in Uganda, limited evidence exists on the factors and challenges influencing exclusive breastfeeding among working mothers attending YCC at Gulu RRH. Understanding these factors and challenges will generate context specific evidence to inform interventions aimed at improving exclusive breastfeeding among working mothers.

1.6 Significance of the study

1. It will identify best practices and potential areas for improvement, informing future interventions aimed at improving infant nutrition and supporting breastfeeding working mothers.
2. Recommendations will be made for employers to create supportive environments for breastfeeding working mothers.
3. Create evidence that will be used by policymakers to advocate for increased paid maternity leave duration.

4. It will help minimize the cost of treating infants who are not breastfed exclusively and who are susceptible to infections due to low immunity.

1.7 Scope of the study

The study aims to investigate EBF in employed mothers attending the Young Child Clinic (YCC) of Gulu RRH and staying in Gulu City by understanding the prevalence, associated factors, and challenges they face while balancing work and exclusive breastfeeding.

1.8. Conceptual framework



Figure 1: Conceptual framework for determinants of exclusive breastfeeding among working mothers attending the Young Child Clinic at Gulu Regional Referral Hospital.

The independent variables influence the practice of EBF in such a way that the social demographic variables for example age of the mother is important in the practice of EBF where by the old mothers have higher chances of practicing EBF more than the young ones. Education level affects

knowledge and understanding where by those with high education level are more likely to breastfeed then those with low education level. Marital status explains the relationship in way that those with spouses can easily get support to practice EBF while those without spouses might fail to practice EBF due to lack of support from spouse. Employment status influences EBF by increasing on EBF rates for those who are not employed and it reduces EBF for mothers who are employed. Income level influences EBF by improved practice in mothers who have higher income since they can afford to buy breast pumps and refrigerators for expressing and storing breast milk while those with low income might not afford to buy them hence stopping EBF.

The work-related factors influence the practice of EBF by reducing or increasing EBF rates among working mothers where those with a breastfeeding corner, get breaks for breastfeeding, work for short hours, have flexible working hours, stay near their workplace, have a refrigerator, have breastfeeding policies, have paid maternity leave, and get enough maternity leave are more likely to practice EBF than those who lack all the above.

The social and cultural factors such as support from spouses, other family members, and co-workers influence EBF practice by increasing EBF rates for mothers who get full support from their families and co-workers more than those who do not get support while cultural beliefs hinder the continuation of EBF if they are considered by the community and the mother.

Knowledge and attitude can directly affect the practice of EBF, or they can be independent variables so they are mediating factors.

CHAPTER II: LITERATURE REVIEW

2.0 Exclusive breastfeeding

WHO defines Exclusive breastfeeding (EBF) as giving an infant breast milk only, except syrups or drops of medicines, vitamins or minerals, or oral rehydration solutions (ORS) for six completed months. It has benefits such as infants being able to consume different foods from different food groups such as fruits, vegetables, meat, fish, and grains, and fewer beverages sweetened by sugar and juices. Breastfed infants also had a relationship with shortened hospital stay, reduced total cholesterol levels, low body mass index (BMI) than children who were not breastfed at all or those who were taking breast milk and other substitutes. (Couto et al., 2020). It also reduces the risk of diseases in children less than two years of age, such as diarrhea, upper respiratory infections (ARI), otitis media, fever, and type 2 diabetes (Hossain & Mihrshahi, 2022) & (Prentice, 2022). It improves child spacing through lactation amenorrhea, protects the mother against breast and ovarian cancers, and reduces the chances of the mother getting type 2 diabetes (Prentice, 2022).

None exclusively breastfed infants are susceptible to diseases that can be avoided, such as diarrhea and pneumonia. Lack of EBF practice contributes to close to 974,956 cases of childhood obesity every year (D. D. Walters et al., 2019).

2.1. Prevalence of Exclusive Breastfeeding among Working Mothers

Globally, there are significant differences in the prevalence of EBF among working mothers. Studies indicate that while some working mothers successfully manage to breastfeed exclusively, many find it difficult to meet the six-month recommendation due to work-related constraints.

For example, a study in Nigeria revealed that 69% of working mothers exclusively breastfed their infants, (Onwuka, 2022), In another study done in Myanmar, 99% of the working mothers breastfed their babies during maternity leave and this rate dropped to 45% after they resumed work, another study also found that a significant number of mothers (79.9%) breastfed exclusively during maternity and the EBF rate dropped to 59.9% when they returned to work, (Chowdhury & Chakraborty, 2017).

Another study reported that the EBF prevalence was higher in working mothers who were working in family or own businesses than those working in government (Abou-Elwafa & El-Gilany, 2019), In a study comparing working and non-working mothers, the EBF rate was significantly higher among non-working mothers (85.5%) than among employed mothers (48.3%), (Khaliq et al., 2017).

Another study done in Ethiopia had a 56.4% prevalence (Gebrekidan et al., 2021). Although some studies have reported a fairly good prevalence of EBF among working mothers, others have reported a low EBF prevalence, such as 17.5%, which was found in India 14. 1% in Egypt.(Chhetri et al., 2018) & (Abou-Elwafa & El-Gilany, 2019).

2.2. Factors associated with EBF among working mothers

The following are some of the factors that studies have found to be linked to exclusive breastfeeding:

2.2. 1 Maternal Knowledge and Attitude

Most studies done on EBF agree that most mothers have good knowledge about EBF, a study done in Nigeria found that 78.26% of the mothers were aware that exclusive breastfeeding takes six months, (Ibekwe et al., 2022), 81% of mothers were aware that EBF is feeding the baby breast milk only, 94% were aware that giving the baby colostrum is very beneficial for them, and 74.5% were aware that breast milk shields the baby from infections during childhood. (Chhetri et al., 2018).

Mothers understood the benefits of breastfeeding for their children's growth and development, how it can be used as a method of birth control, and how to express breast milk, according to another Ethiopian study. (Gebrekidan et al., 2021). Another study identified that the mothers who knew EBF, heard about it from somewhere, and got trained in EBF before childbirth were more likely to practice EBF than those who had never heard about it (Sabin et al., 2017).

While most mothers seem to know EBF, there is a study where 10% of the mothers reported not having any knowledge about EBF, (C. P., 2014), in another study 28% of the mothers knew that EBF is giving breast milk alongside complementary feeds for the first six months, and 25% of the mothers thought that EBF was giving the baby both breast milk and water for the first six months which shows that there is still a knowledge gap which needs to be filled to increase knowledge of working mothers about EBF to increase the prevalence of EBF, (M. Id et al., 2024). Although most studies found that having good knowledge was associated with EBF, one study found that good knowledge was not significant with EBF. (Fatmawati et al., 2020).

Mothers' perception of breast milk being better than formula milk encouraged them to carry out EBF, although others thought that formula could be an alternative to breast milk, even with knowledge of its importance (Johari et al., n.d.). Mothers' willingness to have Positive attitudes towards EBF was attributed to the thought of bonding it creates between mother and infant, the

health and nutritional benefits, and the convenience of the number of times a woman gave birth. This positive attitude is good for increasing EBF rates. At the same time, low costs were associated with negative attitudes, according to a study done in Nigeria (Ishola et al., 2019). While mothers were found to have a positive attitude towards EBF, they found it hard to practice it because of a lack of support (Jiravisitkul et al., 2022).

2.2.2. Previous Breastfeeding Experience

According to one study, mothers who had I–4 live births had a higher likelihood of practicing EBF than those who had five or more live births, indicating a significant parity with EBF. (Onwuka, 2022), According to a different study conducted in Thailand, mothers who had previously experienced EBF were more likely to continue practicing it than those who were doing it for the first time. (Jiravisitkul et al., 2022).

2.2.3. Workplace Factors

2.2.3.1. Maternity Leave

The International Labour Organization (ILO) Maternity Protection Convention, 2000 (No. 183) states that women should receive a minimum period of 14 weeks of leave after childbirth, and it has an accompanying recommendation (No. 191) for promoting the optimal maternity leave to at least 18 weeks. In China, a study reported that mothers are mandated to 98 days of paid maternity leave according to the country's Special Provisions on Labor Protection of Female Employees though the mothers wished that extending their maternity leave to six months would help them stay closer to their infants which would improve breastfeeding, the study found that the mothers who were in formal employment received four months of maternity leave while those who were in informal employment did not receive maternity leave that they wanted due to the unstable nature of their positions at the workplace, this resulted in fewer breastfeeding sessions and an early EBF termination so they can resume their jobs. (Chhetri et al., 2018).

In a Nigerian study, mothers were willing to practice EBF if their maternity leave would be increased to five months or more (M. Id et al., 2024). Another South African study discovered that shorter maternity leave than six months did not benefit EBF because it decreased adherence to EBF. Mothers also began mixed feeding despite being aware of the consequences due to the four-month maternity leave. (Maponya et al., 2021).

This shows that adequate maternity leave is related to adherence to exclusive breastfeeding, while short maternity leave leads to early cessation of EBF or mixed feeding, which is not good for the infant. There is a need to address the issue of inadequate maternity leave to increase the EBF rates.

2.2.3.2 Workplace Support

Studies done about workplace support for working breastfeeding mothers show that they have little or no support being given to them. An Indian study reported that 99.3% of employed mothers lacked a baby nursery to put their babies in while at work, (Chhetri et al., 2018), other studies reported the absence of facilities that support breastfeeding, for example, breastfeeding rooms, lack of privacy for breastfeeding, and no refrigerators for storing expressed breast milk, which contributed to low EBF (Abou-Elwafa & El-Gilany, 2019) and other mothers lacked support from their employer. (M. Id et al., 2024).

A study done in China found that due to the favorable law of accepting mothers with infants to get one hour of breastfeeding break, mothers who were living next to their workplaces were able to utilize the break by going back home to breastfeed while those who were living far from their workplace were finding it hard to go back to breastfeed, it was also noted that mothers who were not in formal employment were not getting the breastfeeding breaks, also mother's work schedules and workload were found to be a reason to influence EBF by decreasing on the number of times of breastfeeding or use of breast pumps, also mothers who would be under pressure found it exhausting and hard to continue breastfeeding (Chen et al., 2019).

There is a lack of support at the workplace for breastfeeding working mothers from the employer and co-workers by not allowing breastfeeding breaks to express breast milk (Maponya et al., 2021). A study done in Ethiopia among managers of breastfeeding mothers reported that they appreciated breastfeeding and that it was a good aspect of good care and they felt embarrassed when telling mothers to work thinking that it would have an impact on their babies, however, they stated they only support breastfeeding mothers by allowing flexibility in their work schedules for example, relaxing attending time for them and accepting late coming in the morning and leaving work early. (Gebrekidan et al., 2021).

2.2.4. Societal and Cultural Factors

2.2.4.1. Social Support

EBF was found to be more common among mothers who received support from their husbands, according to an Indonesian study, (Fadjriah et al., 2021), good family support was found to improve EBF in one study, (Fatmawati et al., 2020), support from the spouse, family, friends and health care staff were identified as crucial for breastfeeding to be done successfully and this could be attained by helping the mothers with housework while they were breastfeeding and while at work, (Johari et al., n.d.), according to a different study, women who had family support were more

likely to breastfeed successfully and would have enough time to do so while someone else looked after the child, (Jiravisitkul et al., 2022).

2.2.4.2 Cultural Norms and Beliefs

A study done in Nigeria found that mothers had different beliefs about EBF, whereby some believed that EBF was going to make their breasts sag, some practiced EBF according to the gender of the infant, others perceived it to be a bad omen, and others considered colostrum as a taboo according to their culture, such cultural beliefs contribute to low rates of EBF, (M. Id et al., 2024).

2.3. Challenges faced by working breastfeeding mothers

Some of the mothers cease exclusive breastfeeding because of not being able to go with their babies to work due to work pressure, the discomfort of taking a baby to work and expressing breast milk, (Chhetri et al., 2018), mothers fearing to continue EBF even when they develop sore nipples, others were worried about their babies not getting enough nutrients from breast milk alone, and some attributed breastfeeding to bring them stress and worry (M. Id et al., 2024). Not being able to get a safe, clean, and private space for pumping breast milk was also found to hinder the continuation of EBF in a study done in China (Chen et al., 2019). Others felt that they were not producing enough breast milk for their babies after resuming work, hence introducing formula, which affects the EBF rate, others reported having had pain due to engorged breasts and inverted nipples. (Ahmad et al., 2022).

Although studies have examined exclusive breastfeeding in Uganda, limited evidence is available on the factors and challenges of exclusive breastfeeding specifically among working mothers attending the Young Child Clinic at Gulu Regional Referral Hospital. In particular, there is a need for context specific evidence on how socio-economic, individual, workplace, and social factors influence the continuation of exclusive breastfeeding among working mothers attending the Young Child Clinic at Gulu Regional Referral Hospital. This study therefore sought to address this evidence gap by determining the prevalence of exclusive breastfeeding, identifying associated factors, and documenting the challenges experienced by working mothers attending YCC at Gulu RRH.

CHAPTER III: RESEARCH METHOD

3.0 Study design

A cross-sectional study design was used since it involved collecting data at a single point in time, making it ideal for assessing the prevalence, associated factors and challenges influencing exclusive breastfeeding (EBF) among working mothers. A quantitative method was employed to measure the prevalence of EBF and examine the relationship between factors and challenges influencing EBF practices among working mothers in Gulu City.

3.1 Study area

The study was carried out at Gulu Regional Referral Hospital (GRRH), located in the Laroo-Pece division of Gulu City at latitudes of 2^0 46'40.7" N 32^0 17'54.5" E. GRRH serves all 9 districts of the Acholi region, it sees over 249,000 clients annually, and it provides a range of specialized medical services as out-patient or inpatient. The Young Child Clinic of GRRH provides free services such as immunization, growth monitoring and promotion, health and nutrition education and counseling, Vitamin A supplementation, and deworming. They serve an estimated number of 1,400 mothers per month.

Gulu City is situated in northwest Uganda at an elevation of approximately 3,600 feet (1,100 meters), 200 miles (320 km) by road north of Kampala, the capital city of Uganda. It shares borders with the districts of Pader and Omoro to the east, Nwoya to the southwest, Amuru to the west, Lamwo to the north, and Oyam to the south.

3.2 Study population

Working breastfeeding mothers living in Gulu city

3.3 Target population

Breastfeeding mothers of reproductive age, who were in formal or informal employment, with infants 0- 12 months of age living in Gulu City, and attending the YCC of Gulu Regional Referral Hospital.

3.4 Inclusion criteria

1. Breastfeeding mothers who were of reproductive age with infants aged 0- 12 months.
2. Mothers who were working
3. Mothers who were living in Gulu City for more than six months.
4. Mothers who were attending the YCC of Gulu Regional Referral Hospital.

5. Mothers who provided consent to participate in the study.

3.5 Exclusion criteria

1. Caregivers who were working but not the biological mothers of the children.
2. Working breastfeeding mothers who came with sick infants.

3.6 Sampling method

Systematic sampling was used, an estimated number of working mothers who would attend YCC during March to May was obtained using registers. The total number of working mothers was 1,245. This was divided by 415, which was the sample size, to get 3. The research team would first establish whether the mother was eligible to be included in the selection sequence by using the eligibility criteria. Then sampling was done by using an interval of 3 until the targeted number of study participants was attained. The first number was picked randomly from one to three, so every third person after number three was selected to participate in the study.

3.7 Sample size

Kish Leslie formula (1965) $n = Z^2Pq/\alpha^2$ was used to determine the sample size. A prevalence of 43.9% from a study done in Lira was used (Omute & Kirungi, 2022). The level of precision was 5%, with a two-tailed 95% Confidence Interval at a Z-score of 1.96, and a non-response rate of 10%.

$N= Z^2Pq/\alpha^2$

Where;

N = Sample size

Z = two-tailed 95% Confidence Interval (1.96)

P = 0.439%

q = 1-P (1-0.439)

α = Precision at 0.05

$n = (1.96)^2 (0.439) (1 – 0.439) / (0.05)^2$

n = 378

n = 415 (with 10% non-response)

3.8. Study variables

3.8.1 Independent variables

These were divided into infant characteristics, socio-demographic characteristics, individual maternal factors, work-related factors, social and cultural practices and challenges faced by the working mothers.

Infant characteristics

These included the child's age, gender, order of birth of the infant, and the infant's gestational age.

Social demographic factors

These included the mother's age, education level, marital status, employment status, and income level, mode of delivery, place of delivery. The mother's age was recorded in complete years while that of the child was recorded in complete months, baby's gender was recorded as male or female, and education level was captured as primary, secondary, tertiary, and post-graduate, marital status was recorded as single, married, separated, widowed and divorced, employment status was captured as working or not working, income level was recorded as earning some specific amount of money and number of children was captured as live children that the mother has.

Breastfeeding practices

These included practices such as time the mother initiated breastfeeding after delivery, duration of exclusive breastfeeding, provision of water during the first six months of an infant, if mother had ever practiced EBF, the age of infant when the mother introduced other foods, challenges faced during breastfeeding and if they affected breastfeeding.

Individual maternal factors

These included factors such as attitude, which was categorized as good or poor using the number of questions answered correctly out of the total questions which were six, those who answered 4 questions and above correctly were rated as having good attitude and those who answered 3 questions and less were rated as having poor attitude towards EBF. Knowledge about breastfeeding was rated as good, moderate and poor, using the number of questions answered correctly out of the total questions which were thirteen. The mothers who answered ten questions and above correctly were rated as having good knowledge, those who answered 7-9 questions correctly were rated as having moderate knowledge while those who answered 6 questions and less correctly were rated as having poor knowledge about EBF.

Work-related factors

These included the availability of a breastfeeding corner, breastfeeding breaks, flexible working hours, the availability of breastfeeding policies at work, and the length of maternity leave.

Social and cultural practices

These included support from the spouse, other family members, co-workers, and cultural beliefs and norms about EBF. Support from spouses, other family members or relatives, and co-workers were recorded as yes or no, and the participants mentioned cultural beliefs and norms if they answered yes.

Challenges faced by mothers while practicing EBF

These included inadequate breast milk, stress from parents, mother not being well, baby being ill, lack of support from spouse, limited time to breastfeed, baby biting the nipple, nipple problems, and breast problems. They were assessed by first asking mothers whether they had experienced any challenge while practicing EBF. The response was recorded as yes or no. Mothers who responded yes were asked to state the specific challenge(s) they had experienced. The responses were recorded as reported by the mothers and subsequently grouped into common challenge categories for analysis.

3.8.2 Dependent variable

The practice of exclusive breastfeeding had a binary outcome of yes or no. EBF was defined as giving breast milk only, except recommended syrups and drops to the baby for six completed months. A mother was classified as practicing exclusive breastfeeding if she reported that her infant received breast milk only, except recommended medicines, syrups or drops, for the first six completed months. Mothers who introduced water, other liquids, foods, or other milk before completion of six months were classified as not practicing exclusive breastfeeding.

3.9 Quality of data collection tool

The quality of the data collection tool (questionnaire) was tested for validity and reliability. The questionnaire was divided into seven sections: infant characteristics, socio-demographic characteristics, recommended EBF practices, Knowledge about EBF, attitude towards EBF, work-related factors, and socio-cultural factors.

3.9.1 Validity

This was tested using Lawshe's content validity index (CVI) (Gilbert & Prion, 2017), which measured the research tool's content validity based on 4 experts' opinions who are in the field of nutrition. These reviewed the 66 items of the questionnaire, they rated each item on how it was essential to the concept being measured using a Likert scale of 3 points (1=not necessary, 2=useful but not essential, and 3=essential). The content validity ratio (CVR) for every item was calculated and a CVI was computed. The following formula was used to calculate CVI;

$$CVI = \frac{\text{Number of items rated as essential} * CVR}{\text{Total number of items}}$$

$$CVI = \frac{64}{66} * 0.84$$

$$CVI = 0.80$$

The CVI was 0.8 which indicated that the tool had good content validity. The tool was pre-tested on 18 mothers attending the postnatal clinic of the hospital, which is 5% of the required sample size.

3.9.2 Reliability

Reliability was tested to ascertain whether the research tool would produce consistent results over repeated interviews. Cronbach's Alpha (α) Reliability Coefficient Test was used to test the internal consistency of the research tool. The questionnaire was subjected to trial using a few participants at the postnatal clinic, and the responses were analyzed to compute Cronbach's Alpha for each independent variable in the tool. A Cronbach's Alpha value of 0.78 was achieved which is acceptable hence making the tool reliable for this study.

Table 1: A table showing Cronbach's Alpha score

SN.	Construct	Cronbach's Alpha	Number of Items
1.	Infant characteristics	0.76	7
2	Socio-demographic characteristics	0.79	8
3.	Exclusive Breastfeeding Practices	0.80	14

4.	Knowledge about breastfeeding	0.78	13
5.	Attitude towards breastfeeding	0.75	6
6.	Work-related factors	0.82	12
7.	Socio-cultural practices	0.78	6
Average score		0.78	

3.10. Data collection

Research assistants were trained by the principal investigator for 3 days to familiarize themselves with the questionnaire's content, how to administer it, seek consent from the participants, and select the study participants.

Data collection procedure

The research team left home with prepared documents such as an introduction letter from the Gulu University Research and Ethics Committee (GUREC), consent forms, an acceptance letter from the Gulu Regional Referral Research Committee, notebooks, and pens for recording events and participants' responses. They made a courtesy visit to the office of the Senior Executive Consultant of GRRH to introduce themselves and inform him about the data collection, purpose, and objective of the study.

The research team proceeded to the Young Child Clinic and introduced themselves to the in-charge of the unit, handed her the letter of introduction from the university and acceptance letter from the GRRH research committee, and informed her about the study, the research team then requested the in-charge to introduce them to the rest of the staff in the unit and a 15 minute meeting was held to explain the purpose, objective, target population, eligibility criteria, sampling process and expected time of data collection, this was done to ease the sampling process and identifying eligible participants during data collection.

The unit in charge was also requested to provide registers of the unit which helped us in projecting the estimated number of working mothers who would attend from March to May, 2025, which was 1,245, this was used to compute the sampling interval by dividing it by the sampling size (415) to get number 3. The first person to be interviewed was selected randomly from number one to three, and then every 3rd person was selected for the interview. Eligible mothers were identified at arrival by being following the eligibility criteria and they made to sit in their own rows to make systematic sampling possible.

Consent from the participants was sought by the research team, who started by introducing themselves to the participants and explained the purpose of the study. They provided the consent form to the participant, and verbally explained its contents ensuring the mother understood the study's objectives, risks, benefits, confidentiality, and voluntary participation, the participant was allowed to ask questions for clarity and signed or put a thumb print on the consent form if case they allowed to participate in the study.

The research team worked hand in hand with the staff at YCC to identify the eligible clients. Data was collected by face-to-face interviews using a semi-structured questionnaire. The interviews were conducted in a private and quiet room which was allocated by the unit in-charge to ensure confidentiality and respect, and each interview lasted 30 minutes. The research team used to hold daily meetings after data collection to discuss the progress, challenges and provide workable solutions to ensure that the quality of data collected was good. Data was be collected from March, 2025 to May, 2025.

3.11 Management and Quality Control

3.11.1 Quality control during data Collection

Research assistants were trained for 3 days by the principal researcher on the purpose of the study, data collection tools and data collection procedure to ensure consistent administration of the questionnaire, reducing interviewer bias and ensuring uniform data recording. The questionnaire was pretested on 5% (18 mothers) of the required participants before actual data collection. Each questionnaire was reviewed for completeness and accuracy before data entry, and any incomplete or inconsistent responses were recorded for follow-up where possible. The principal researcher supervised the research assistants during data collection to ensure proper data collection and daily meetings were held after data collection to discuss the challenges that came up and solutions to the challenges were given.

3.11.2 Data Cleaning and Pre-Processing

All questionnaires were reviewed for data discrepancies, duplicate entries, and incorrect values before data entry. Data was checked in Excel for missing values, outliers, and data entry errors before being transferred to STATA version 18 for statistical analysis. Double data entry was minimized by entering the same dataset twice by two independent individuals, and discrepancies were cross-checked manually. Cases which had excessive missing data were removed to increase on data integrity. The transferred dataset in STATA Version 16 was checked to confirm whether variables were correctly coded and that no data was lost or altered during the transfer.

3.12 Data analysis

3.12.1 Descriptive statistics

Categorical variables were expressed using frequencies, and percentages while the numerical variables were summarized according to the normal distribution of the data, the numerical variables that were normally distributed were summarized using mean and standard deviation while those that were not normally distributed were summarized using median and interquartile range. Data were presented using tables and pie charts for categorical variables, and bar graphs and tables for numerical variables.

The prevalence of EBF was determined by calculating the percentage of mothers who reported practicing EBF among the total number of study participants.

The challenges faced by the working mothers while practicing exclusive breastfeeding were summarized using frequencies and percentages. The initial yes/no responses were summarized using frequencies and percentages. Among mothers who reported experiencing challenges, the specific challenges provided in the open ended responses were reviewed, grouped into similar categories and summarized using frequencies and percentages. The percentage for each challenge was calculated based on the number of mothers who reported that particular challenge among those who reported experiencing challenges.

3.12.2 Inferential statistics

Bi-variable analysis

The association between categorical independent variables and exclusive breastfeeding (EBF) was assessed using the Chi-square test. For numerical variables, a one-way Analysis of Variance (ANOVA) was employed to evaluate their relationship with EBF. Poisson regression analysis was conducted to identify factors associated with EBF. Crude prevalence ratios (CPR) were estimated along with their corresponding 95% confidence intervals (CIs). A p-value of <0.05 was considered statistically significant.

Multivariable analysis

A robust modified Poisson regression model was used to determine the independent factors associated with EBF. Variables with a p-value of < 0.02 in bivariate analysis were taken to robust modified Poisson regression model to confirm whether the association was not due to confounding or interaction. Model building was done by backward stepwise elimination. A model with Pearson chi-square >0.05 and likelihood ratio closest to zero was considered a good fit. The Adjusted

prevalence ratio (aPR) and 95% CI were used to report the strength of association, which were statistically significant at a p-value of < 0.05.

3.13 Ethical Considerations

Ethical approval was obtained from the Gulu University Research and Ethics Committee (GUREC) under approval number GUREC-2024-1081 and the Gulu RRH research committee. (*National Guidelines for Research Involving Humans as Research Participants*, 2014) & (Gazette et al., 2025).

This study posed minimal or no risk to participants, as data collection involved administering interviews through a structured questionnaire only. Prior to participation, all respondents were fully informed about the purpose, potential benefits, and any foreseeable risks of the study. Written informed consent was obtained from each participant to confirm their understanding of the study objectives and their voluntary participation.

The identity of the participants was concealed by using codes while collecting data and reporting to provide privacy and confidentiality. The researcher stored the data in a password-secured computer system and the filled questionnaires in a locked cabinet. The data will be stored for at least 5 years after completing the study and can be accessed by the researcher and GUREC, UNCST only if requested. The participants were provided with refreshments (soda and cake) and 5,000 Ugandan shillings to compensate for transportation and time spent during the interviews.

CHAPTER 4: DATA ANALYSIS AND PRESENTATION

4.1. Introduction

This chapter presents the findings of the study based on quantitative data collected through questionnaires. Data were analyzed using STATA Version 18, and the results are presented in tables and text. The results are presented according to the research objectives.

4.2.Socio-demographic Characteristics of Respondents

Table 2: Infant socio-demographic characteristics

	Frequency	Percentage (%)
Variables		
Baby's age	n=415	5.2 (2.5)
Child's gender		
Male	176	42%
Female	239	58%
Gestational age at birth		
Pre-term	39	9.4%
Term	360	87%
Post-term	16	3.9%

Table 3: Social demographic characteristics of the mothers

	Frequency	Percentage
Variables	n=415	
Mother's age	28	28 (5.6)
Education level		
Primary	74	18%
Secondary	145	35%
Tertiary	196	47%
Marital status		
Single	59	14%
Married	356	86%
Religion		

Christian	381	92%
Muslim	34	8.2%
Place of delivery		
Hospital	303	73%
Health facility/Clinic	108	26%
Home/TBA	4	.96%
Mode of delivery		
Spontaneous Vaginal delivery	352	85%
Caesarian	63	15%
Monthly income		
Less than 500,000	222	53%
500,000 and above	193	47%
Current job		
Professional	154	37%
Informal	261	63%
Type of professional employment		
Government	64	15%
Private	89	21%
Not in professional employment	262	63%

The study comprised of 415 working mothers with infants aged between 0 to < 12 months, mean age was 28years (SD 5.6), and 415 infants of which 239 (58%) were female while 176 (42%) were male with mean age of 5.2 months (SD 2.5). 352 (85%) of the participants delivered by spontaneous vaginal delivery, while 63 (15%) delivered through caesarian. 303 (73%) gave birth from the hospital, 108 (26%) from a health facility and clinic, and 4 (0.96%) from home and traditional birth attendant (TBA), 39 (9.4%) of the infants were delivered prematurely. 360 (87%) were at term while 16 (3.9%) were post-term. 222 (53%) were earning less than 500,000 UGX, while 193 (47%) were earning 500,000 UGX and above.

4.3. Prevalence of exclusive breastfeeding

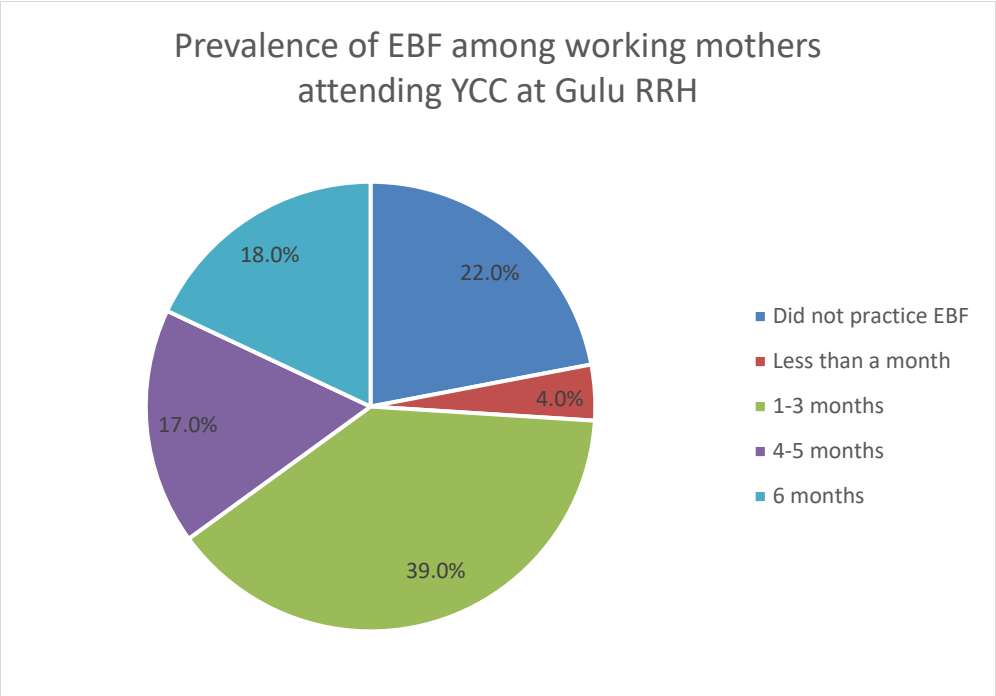


Figure 2: A figure showing the prevalence of EBF among working mothers attending YCC at Gulu RRH.

Figure 2: Prevalence of EBF among working mothers with infants 0-12 months attending YCC at Gulu RRH.

Out of the 415 participants, 310 (74.7%) had ever breastfed while 105 (25.3%) never breastfed, only 75(18.0%) practiced EBF for six months as recommended by WHO/UNICEF, 72(17.0%) practiced EBF for 4-5 months, 161(39.0%) for 1-3 months, 17(4.0%) for less than a month while 90(22.0%) started mixed feeding right at birth. The majority of the mothers, 356(86%) initiated breastfeeding within the first hour after delivery while 54(13%) initiated breastfeeding between one to twenty four hours following delivery.

4.4. Factors related to exclusive breastfeeding

4.4.1. Bivariate analysis

The crude prevalence ratio (CPR) was computed to assess the association between the independent variables and EBF practice; the following variables were statistically significant.

Table 4: Factors associated with EBF

	Ever practiced EBF				
	Total	Yes	No	CPR(95% CI)	P - Value

Variables	415 (100.0%)	310 (74.7%)	105 (25.3%)		
Mother's age	28 (5.6)	29 (5.4)	26 (5.7)	0.94(0.91-0.97)	<0.001
Marital status					
Married	356 (86%)	275 (89%)	81 (77%)	Reference	Reference
Single	59 (14%)	35 (11%)	24 (23%)	1.79(1.24-2.57)	0.002
Monthly income					
500,000/= and above	193 (47%)	154 (50%)	39 (37%)	Reference	Reference
Less than 500,000/=	222 (53%)	156 (50%)	66 (63%)	1.47(1.04-2.08)	0.0029
Time started breastfeeding					
1 – 24 hours	54 (13%)	28 (9%)	26 (25%)	Reference	Reference
Less than an hour	356 (86%)	280 (90%)	76 (72%)	0.44(0.32-0.62)	<0.001
After 1 day	5 (1.2%)	2 (.65%)	3 (2.9%)	0.48(0.58-2.69)	0.575
Gave colostrum after birth					
No	99 (24%)	56 (18%)	43 (41%)	Reference	Reference
Yes	316 (76%)	254 (82%)	62 (59%)	0.45(0.33-0.62)	<0.001
Time you practiced EBF					
Did not practice EBF	90 (22%)	7 (2.3%)	83 (79%)	Reference	Reference
Less than a month	17 (4.0%)	11 (3.5%)	6 (5.7%)	0.38(0.20-0.73)	0.004
1 – 3 months	161 (39%)	150 (48%)	11 (10%)	0.74(0.04-0.13)	<0.001
4 – 5 months	72 (17%)	67 (22%)	5 (4.8%)	0.75(0.32-1.76)	<0.001
6 months	75 (18.07%)	75 (24%)	0 (0%)	2.43(1.92-3.07)	<0.001
Age you introduced other foods					
Did not introduce other foods	120 (29%)	109 (35%)	11 (10%)	Reference	Reference
Less than a month	11 (2.7%)	6 (1.9%)	5 (4.8%)	4.96(2.10-11.7)	<0.001
1 – 3 months	112 (27%)	71 (23%)	41 (39%)	3.99(2.16-7.38)	<0.001
4 – 5 months	88 (21%)	50 (16%)	38 (36%)	4.71(2.55-8.69)	<0.001
6 months	84 (20%)	74 (24%)	10 (9.5%)	1.23(0.58-2.92)	0.527
Provided water within 6 months					
No	196 (47%)	184 (59%)	12 (11%)	Reference	Reference

Yes	219 (53%)	126 (41%)	93 (89%)	6.93(3.80-12.65)	<0.001
Knowledge level					
Moderate	92 (22%)	59 (19%)	33 (31%)	Reference	Reference
Good	302 (73%)	243 (78%)	59 (56%)	0.32(0.17-0.57)	<0.001
Poor	21 (5.1%)	8 (2.6%)	13 (12%)	0.58(0.30-1.10)	0.096
Attitude					
poor	147 (35%)	90 (29%)	57 (54%)	Reference	Reference
Good	268 (65%)	220 (71%)	48 (46%)	0.46(0.31-0.68)	<0.001
Bf policy available at work					
No	222 (53%)	153 (49%)	69 (66%)	Reference	Reference
Yes	193 (47%)	157 (51%)	36 (34%)		
Does working make bf difficult					
No	60 (14%)	53 (17%)	7 (6.7%)	Reference	Reference
Yes	354 (85%)	256 (83%)	98 (93%)	2.37(1.16-4.86)	0.018
Rate how bf makes work difficult					
Does not make work difficult	61 (15%)	54 (17%)	7 (6.7%)	Reference	Reference
Very much	101 (24%)	72 (23%)	29 (28%)	2.50(1.17-5.36)	0.018
Much	101 (24%)	80 (26%)	21 (20%)	1.81(0.82-4.01)	0.143
Somewhat much	152 (37%)	104 (34%)	48 (46%)	2.75(1.31-5.75)	0.007
Supported by husband					
No	85 (20%)	50 (16%)	35 (33%)	Reference	Reference
Yes	330 (80%)	260 (84%)	70 (67%)		

Socio-demographic characteristics

The socio-demographic factors included; increasing mother's age CPR=0.94, 95% CI (0.91-0.97, p-value = < 0.001, single mothers were 1.79 times more likely not to practice EBF compared to married mothers with a (CPR=1.79, 95% CI (1.24-2.57) p-value=0.002), and mothers earning monthly income of less than 500,000shs were1.04 times more likely not to practice EBF(CPR=1.47 95%, CI (1.04-2.08), p – value=0.029).

Breastfeeding practices

Breastfeeding practices associated with recommended EBF included initiating breastfeeding within one hour after delivery CPR=0.44, 95% CI (0.32–0.62), P=< 0.001 and giving colostrum immediately after birth CPR=0.45, 95% CI: 0.33–0.62, P=<0.001. Mothers who gave water to infants within the first six months were 3.80 times more likely not to practice EBF (CPR=6.93, 95% CI (3.80–12.65), P=< 0.001).

Individual maternal factors

The individual maternal factors included; having good knowledge about EBF CPR=0.32, 95% CI (0.17 – 0.57), P= < 0.001 and positive attitude towards EBF were significantly associated with EBF CPR=0.46, 95% CI (0.31 – 0.68) and P= < 0.001.

Work-related factors

Availability of a workplace breastfeeding policy was 0.46 times less likely to stop practicing EBF (CPR=0.46, 95% CI (0.40–0.89), P=0.013). Mothers who perceived work as making breastfeeding difficult were 2.37 times more likely not to practice EBF (CPR=2.37, 95% CI (1.16–4.86), P=0.018).

Socio-cultural factors

The socio-cultural factors included: mothers who received support from their husbands were 0.52 times less likely to stop practicing EBF, (CPR=0.52, 95% CI (0.34 – 0.77), P=0.001).

4.4.2 Multivariate analysis

This was conducted to control for potential confounders and identify independent predictors of EBF. Variables with statistically significant adjusted prevalence ratios (aPR) and P–value of <0.05 are presented below.

Table 5: Independent factors associated with EBF practice							
	Ever practiced EBF						
	Total	Yes	No	CPR(95% CI)	P - Value	aPR(95% CI)	P-value
Variables	N=415 (100.0%)	310 (74.7%)	105 (25.3%)				
Monthly income							
500,000/= and above	193 (47%)	154 (50%)	39 (37%)	Reference	Reference	Reference	Reference
Less than 500,000/=	222 (53%)	156 (50%)	66 (63%)	1.47(1.04-2.08)	0.0029	1.29(1.05-1.59)	0.016
Time started breastfeeding							
1 – 24 hours	54 (13%)	28 (9%)	26 (25%)	Reference	Reference	Reference	Reference
Less than an hour	356 (86%)	280 (90%)	76 (72%)	0.44(0.32-0.62)	<0.001	0.62(0.47-0.82)	0.001
Attitude							
poor	147 (35%)	90 (29%)	57 (54%)	Reference	Reference	Reference	Reference
Good	268 (65%)	220 (71%)	48 (46%)	0.46(0.31-0.68)	<0.001	0.75(0.59-0.94)	0.011
Does working make bf diff							
No	60 (14%)	53 (17%)	7 (6.7%)	Reference	Reference	Reference	Reference
Yes	354 (85%)	256 (83%)	98 (93%)	2.37(1.16-4.86)	0.018		
Bf makes work diff (rate)							
Does not make work diff	61 (15%)	54 (17%)	7 (6.7%)	Reference	Reference	Reference	Reference
Very much	101 (24%)	72 (23%)	29 (28%)	2.50(1.17-5.36)	0.018	0.71(0.56-0.90)	0.005
Much	101 (24%)	80 (26%)	21 (20%)	1.81(0.82-4.01)	0.143	0.57(0.99)	0.041

Mothers earning less than 500,000UGX monthly were 1.29 times more likely not to practice exclusive breastfeeding compared to those earning 500,000UGX and above (aPR=1.29, 95% CI (1.05-1.59), P=0.016). Initiating breastfeeding within one hour after birth was 0.62 times less likely to affect EBF practice (aPR=0.62, 95% CI (0.47–0.82), P=0.001). Mothers with a positive attitude toward EBF were 0.75 times less likely to stop practicing EBF (aPR=0.75, 95% CI (0.59–0.94), P=0.011. Lastly, mothers who reported that breastfeeding made working difficult 2.15 times more likely not to practice EBF (aPR=2.15, 95% CI (1.31–3.51), P=0.002)

4.5. Challenges related to exclusive breastfeeding

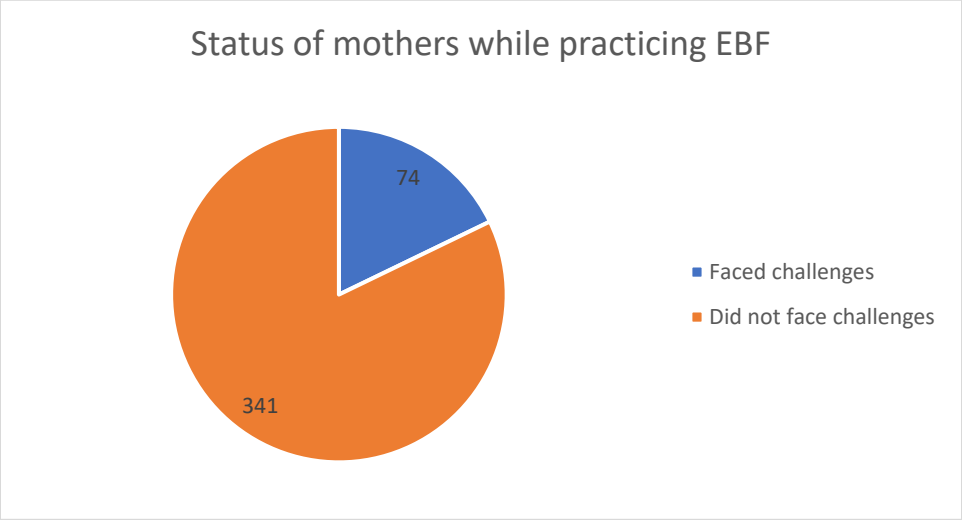


Figure 3: A figure showing the status of working mothers while practicing EBF

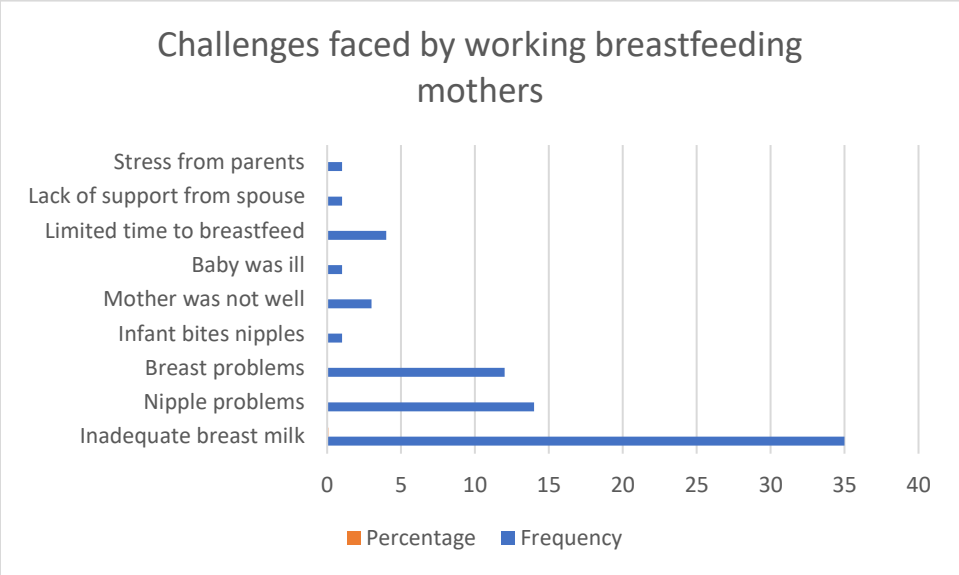


Figure 4: A bar graph showing the challenges faced by breastfeeding mothers

Table 6: Challenges faced by breastfeeding mothers		
	Frequency	Percentage
Inadequate breast milk	35	8.4%
Nipple problems	14	3.4%
Breast problems	12	2.9%
Infant bites nipples	1	.24%
Mother was not well	3	.72%
Baby was ill	1	.24%
Limited time to breastfeed	4	.96%

Lack of support from spouse	1	.24%
Stress from parents	1	.24%

74 (18%) of the participants got challenges while practicing EBF and 17(16%) of these reported that the challenge interfered with their practice of EBF.35(8.4%) of the working breastfeeding mothers reported to have had inadequate breast milk.14(3.4%) had problems with the nipples such as sore, cracked, inverted, or painful nipples and bitting the nipples by the infant.12(2.9%) reported breasts problems such as painful breasts, engorged, and mastitis. 3(0.72%) reported not being well while 1(0.24%) lacked support from their spouses and 4(0.96%) had limited time to breastfeed.

CHAPTER 5: DISCUSSION

This study was done to assess the prevalence of EBF among employed mothers, determine the factors associated with EBF practice, and the challenges they face while practicing EBF.

Prevalence of EBF

The finding is lower than that reported in several Ugandan and other LMIC studies among working mothers. (Nabunya et al., 2020) reported an EBF prevalence of 42.8% among mothers working in the informal sector in Kampala, using a community-based sample of 428 mothers with infants aged 0–5 months, the difference may partly reflect their community based recruitment versus this study's hospital-based sampling and the younger average infant age in their sample, since EBF prevalence is known to decline sharply as infants approach six months. A community-based study among working mothers in Udupi, India (n=137, infants <6 months) reported a closely comparable prevalence of 17.5% (Chhetri et al., 2018), consistent with the similarity in study design and sample size. A lower prevalence of 10.3% was reported among professional, formally employed mothers in an urban Ghanaian regional capital (Dun-Dery & Laar, 2016, n=369), a population with access to formal maternity leave that differs from the informal-sector mothers who made up part of this study's sample.

Factors associated with EBF

Mothers earning a monthly income of less than five hundred thousand Ugandan shillings were more likely not to practice EBF compared to those who were earning 500,000 UGX and above.

This could be because the mothers earning 500,000 UGX and above are in formal employment hence having better maternity leave policies which allow them to stay home and continue EBF which is unlikely for mothers earning less than 500,000 UGX, might be in informal employment which does not have proper maternity leave policies hence prompting them to return early to work which can lead to EBF discontinuation.

A comparable income-based association was found in Azezo district, northwest Ethiopia, where mothers earning ≤1,000 Ethiopian birr (about US$47.62) monthly were 77% less likely to practice EBF (Asemahagn, 2016) a study using a similarly framed absolute income threshold, though among a general maternal population rather than one restricted to employed mothers. In Uganda, a study reported the contrary of the findings of this study whereby infants born in poor households were more likely to be exclusively breastfed than those coming from richer families (OR=2.38 95% CI=1.30-4.33 for poorest families, and (OR= 2.16 95% CI=1.18-3.96) poorer (Mawa, 2019) and in Somalia mothers (63.8%) earning very low income of less than $50 had higher chances of practicing EBF compared to those (21.3%) with low and medium incomes of $50-$100 (Hassan & Hossain, 2023). Both comparator studies drew on general community populations using relative or context specific income bands, rather than the working-mothers, formal/informal employment framework used in this study. The more plausible driver in both cases is that very low-income mothers may be less able to afford breast-milk substitutes such as infant formula or cow's milk, which compels continued EBF independent of employment related constraints.

Initiation of EBF within one hour after delivery was less likely to stop practicing EBF compared to those who initiated after one hour. This can be attribute to early stimulation of breast milk because of attaching the baby on the breast which increases breast milk production. It also creates a bond between the baby and mother which positively empowers the mother to produce adequate breast milk hence supporting continuation of EBF. Comparable associations were reported in a community-based study of mothers with six-month-old infants and not restricted to employment status in Horro District, Ethiopia (AOR = 1.94, 95% CI 1.13–3.35; (Jebena & Tenagashaw, 2022), and among a general community sample of 494 mothers with infants aged 0–5 months across nine community health centres in Nanning, China (AOR = 2.06, 95% CI 1.29–3.29; (Li et al., 2021), both using similar community-based cross-sectional designs. Despite these differences in setting community versus tertiary hospital, the consistency of the initiation–EBF association across studies suggests the effect of early initiation is healthy, and can possibly be attributed to the

continuous health education mothers receive during antenatal visits and the adoption of WHO/UNICEF Baby-Friendly Hospital Initiative guidelines.

Maternal attitude toward EBF also played a significant role. Mothers with a positive attitude were 0.75 times less likely to stop practicing EBF than those with moderate and poor attitudes. The findings can be attributed to the mother's willingness and confidence to practice EBF since they know the benefits of EBF, which improves EBF continuation up to six months. A similar association was found among employed women with children aged six months to two years in a community-based study in Tigray region, North Ethiopia (Gebrekidan et al., 2021) a population and design closely matching this study's, which strengthens the comparability of the finding. The pattern can be related to mothers wanting the best health outcomes for their infants, reinforced by continued health education on Infant and Young Child Feeding practices during antenatal and postnatal visits.

Mothers who reported that breastfeeding made working difficult were more likely not to practice EBF. This study's findings could be due to the work related problems mothers face while breastfeeding such as lack of flexible working hours, lack of breaks to express or breastfeed their infants, lack of breastfeeding corners and poor maternity policy implementation which frustrate working breastfeeding mothers and they end up introducing breast milk substitutes which hinder EBF continuation. Similar findings were reported in Jordan, where maternal employment was a hindrance for EBF practice AOR=0.4, 95% CI=0.22-0.72 (Khasawneh & Khasawneh, 2017) and Ethiopia and Jerusalem (p=0.002) where mothers who were working full time were less likely to practice EBF (OR=0.43, 95% CI=0.31-0.61) (Wake & Mittiku, 2021), (Amer & Kateeb, 2023). This similarity can be attributed to lack of facilities that support EBF at work such as availability of a breastfeeding corner, a refrigerator to keep expressed breast milk, lack of flexible working hours and lack of support from employer and co-workers.

Challenges faced by working breastfeeding mothers while practicing EBF

The study found that mothers had challenges with breastfeeding such as having insufficient breast milk, 35(8.4%), problems with the nipples such as sore, cracked, inverted, or painful nipples and infant was biting their nipples 14(3.4%), and problems of the breasts such as painful breasts, engorged, and mastitis 12(2.9%), not being well 3(0.72%), lack of support from their spouses (0.95%) and limited time to breastfeed 4(0.96%). Comparable findings appear in the literature,

though the underlying designs differ. A prospective cohort of mothers followed monthly from birth through six months in Kinshasa, DRC, found a similar pattern of perceived insufficient milk, mastitis and breast engorgement, and cracked nipples interfering with EBF continuation (Babakazo et al., 2022), a longitudinal design likely to capture a higher cumulative frequency of problems than this study's cross-sectional snapshot at a single point in time. A cross-sectional study among mothers in Ho Chi Minh City, Vietnam (Nguyen et al, 2021) similarly identified insufficient milk supply as a leading perceived barrier. Taken together, these largely physiological and support-related barriers appear consistently across widely different health systems and cultures, which is consistent with mothers facing shared biological and social challenges in early lactation regardless of setting.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.0. Conclusion

This study assessed the prevalence, factors and challenges associated with EBF among working mothers of infants aged less than twelve months. The prevalence of EBF was 24%, which is very low compared to the national prevalence of 94% and the WHO recommendation of breastfeeding at least 90% of infants for the first six months. This result shows that there is a gap between the current practice and the desired practice, hence requiring immediate interventions.

The factors negatively associated with EBF included, mothers earning less than 500,000shs, mothers who practiced EBF for less than a month, and those who reported that working making makes breastfeeding difficult which shows the impact of working on EBF. Initiation of EBF within one hour after birth and having positive attitude towards EBF were positively associated with EBF. The Challenges faced by most mothers include inadequate breast milk, nipple and breast problems, and limited time to breastfeed.

These findings suggest that that working mothers face both structural barriers such as economic, duration of breastfeeding, workplace and individual barriers such as nipple and breast problems, illness, and lack of support barriers to sustaining EBF. Addressing these factors is essential for improving breastfeeding practices among working mothers and eventually child health outcomes.

6.1. Recommendations

The identified factors and challenges in this study require a combination of multi-level and multi-component approach to create an enabling environment needed to protect, promote and support breastfeeding such as;

1. Ministry of Health (MOH) and Gulu RRH should enforce implementation of Baby Friendly Hospital Initiative (BFHI) guidelines through counseling and educating mothers at antenatal care (ANC), outpatient department (OPD), adolescent clinics, young child clinic (YCC), maternity and postnatal wards on topics such as initiation of breastfeeding within one hour after birth, rooming and bedding in, practicing skin to skin immediately after birth, kangaroo among others.
2. The Public Health department of Gulu RRH should strengthen sensitization about EBF through conducting radio talk shows and regular health education and counseling sessions at the community level and workplaces through outreaches and community dialogues.
3. Ministry of Gender, Labour and Social Development (MGLSD) and MOH should strengthen adherence to available workplace policies by all employers such as the provision of the recommended paid maternity leave as recommended by ILO, provision of flexible working hours and breaks to accommodate breastfeeding, and they should penalize those who undermine the recommended breastfeeding policies.
4. MGLSD should also revise the available policies and include policies that clearly state the roles of different parties at work, such as managers and coworkers in supporting breastfeeding, emphasize the provision of facilities such as breastfeeding corners, refrigerators to promote breast milk expression, and continued EBF while at work.
5. The Community Development Officer (CDO) and City Health Officer of Gulu City should target vulnerable breastfeeding mothers, such as those earning low income and link them to government livelihood programs such as the Parish Development Model (PDM) to reduce economic stresses that reduce EBF practice.
6. The District Health Educator (DHE) should emphasize regular home visits done by Village Health Teams VHTs) and community Health Extension workers (CHEWs) to monitor breastfeeding progress, identify any problems, and refer to the health facility for proper management, and more effort should be put on mothers who have infants less than one month to help them in creating breastfeeding patterns and addressing problems coming early during breastfeeding.

7. A study examining a cohort of mothers followed from delivery to six months should be conducted to resolve the temporality problem of this study.

6.2 Strengths of the study

1. A systematic sampling method was used to select study participants.
2. Questionnaire validity and reliability were assessed before the actual data collection.
3. Multivariate analysis was used to control for potential confounding.

6.3 Limitations of the study

The study relied on the mother to recall their breastfeeding experience in the first six months of her baby's life, which may have introduced recall bias due to the possibility of forgetting certain events. The study minimized the limitation by focusing on mothers with infants 0 to 12 months, which is quite short from the time the mother last practiced EBF. Additionally, the research questions were simplified to enhance understanding of what constitutes EBF and the specific period during which it was expected to be practiced. The questionnaire was administered in a language clearly understood by each participant to reduce the risk of further misinterpretation and increase the accuracy of responses. The mean age of the infants was 5.2 months, and therefore a considerable proportion of infants had not yet completed the recommended six months of exclusive breastfeeding at the time of data collection. This was minimized by including mothers with infants aged 0–12 months. Mothers of infants below six months were assessed based on their breastfeeding practices up to the time of the interview, while mothers of infants aged six months and above provided information on whether exclusive breastfeeding was maintained during the first six months. The cross-sectional study design limited the ability to establish causal relationships between the identified factors and exclusive breastfeeding practice, as exposure and outcome information were collected at the same time. The UGX 5,000 provided to participants may have influenced some mothers' willingness to participate, particularly those who considered the compensation attractive. However, participation was voluntary, and mothers were informed that they could decline or withdraw from the study without any consequences.

6.4. Dissemination Plan

The study findings will be shared with key stakeholders such as Gulu RRH staff, Gulu City Health Team, the working mothers, policy makers, government officials and political leaders, healthcare professionals, employers and managers, Non-governmental Organizations, and community leaders. The findings and recommendations of the study will be shared during workshops,

meetings with stakeholders, community dialogues, and conferences. The study will also be published in a reputable journal for wider coverage, and it will be assessed by academic institutions and public health organizations. Materials for dissemination such as PowerPoint presentations, detailed reports, brochures, posters, and short videos. The findings will be disseminated in six months with a designated budget.

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APPENDICES

APPENDIX 1: INFORMED CONSENT FORM – ENGLISH

For breastfeeding/ lactating working mothers with babies less than one year.

Title of the study: Determinants of exclusive breastfeeding among mothers living in Gulu City.

Investigator: Christine Nalinda 23/U/0713/MPK/PS

Institution: Gulu University

Introduction

The investigator above is pursuing a Master's in Public Health at Gulu University. I am researching the practice of exclusive breastfeeding among working mothers in Gulu Regional Referral Hospital, Uganda.

The study is explained in this informed consent form. After reading the consent, any questions you have will be answered. You will be asked to sign this consent form if you decide to participate.

Research Funding: This study is not sponsored but funded by the investigator.

Purpose

The study seeks to understand the determinants of exclusive breastfeeding among working mothers, at Gulu Regional Referral Hospital, Uganda.

Procedures

Your involvement in this study will follow the investigator's or interviewer's guidance.

Who will take part in the study?

You have been selected to participate in this study because you are an employed breastfeeding or lactating mother who is attending YCC at Gulu Regional Referral Hospital. The interview will take approximately 30 minutes. The researcher will continue to collect data from working mothers daily until the desired sample size is reached.

Risks/discomforts

There is no expected risk of harm or discomfort from your participation in this study. The only inconvenience will be the time spent during the interview.

Benefits of the research

The participant will receive 5,000 Uganda shillings and refreshments (soda or water and a cake) after the interview as compensation for their time.

Confidentiality

Your identity will remain concealed, as we will identify study participants using codes only. The information collected will be accessible exclusively to the research team, GUREC, and UNCST whenever they are requested. Soft copies of the data will be secured with a password, while physical files will be stored safely in a locked location. Confidential information will be accessed only by the investigator.

Alternatives

You are not required to participate in this study if you are uninterested. There will be no penalty for choosing not to participate.

Expenses

Participating in this study will incur no additional costs.

Questions

If you have any questions regarding the study or your rights as a research participant, please contact the researcher, Christine Nalinda, at 0788983316.

Voluntary statement

Your participation in the research study is completely voluntary, and you can choose to join at your will. You have the right to withdraw from the study at any time without facing any penalties.

If you have any questions or concerns regarding your rights or participation in the study, please feel free to contact the Chairperson of the Gulu University Research Ethics Committee, Dr. Julaina A. Obika. Tel: No. 0772964491; email: j.obika@gu.ac.ug. ; or the Uganda National Council for Science and Technology, on plot 6 Kimera Road, Ntinda, Kampala on Tel 0414705500.

Agreement to Consent

The research team has explained the study procedures to me, including the associated risks, potential benefits, and my rights as a participant. I understand that my decision to take part in this study will not impact me negatively in any way. My identity will remain confidential when this information is used. I am aware that I can withdraw from the study at any time. By signing this form, I do not give up any of my legal rights; rather, I acknowledge that I have been informed about the research study and that I am voluntarily agreeing to participate.

Participant's Name: …….

Signature or Thumbprint: …….

Date: ……

Witness Name: …….

Signature or Thumbprint: …….

Date: …….

Interviewer's Name: ……

Signature or Thumbprint: …….

Date: …….

APPENDIX 2: INFORMED CONSENT - ACHOLI

Bot min lutino ma lutic ma lutino gi pe oromo mwaka acel

Kwed eni kilwongo ni: Ngo ma gengo onyooo weko mon ma gi lutic doto lutino mamegi acaaki dwee abiciel I Gulu Citi, Uganda.

Latim Kwed: Christine Nalinda 23/U/0713/MPK/PS

Gang pwonye: Gulu University

Nyut

Latim kwed mun tye ka kwano maaita iyi yotkon palwak (public health) iyi university me Gulu. Atye ka timo kwed ikom tim me doto lutino keken ikin mege ma yitye ka tic, iyi ot yat madit me Gulu, Uganda

Pwony man kiloko iye I karatac man me cwako tam man matye kin gee. Inge kwano cwak mono, lapeny mo keken ma itye kwede obigamo. Ki bii penyo in me keto lingi ikom cwak man ka iyek me bedo mo bedo ikwan man

Cente metimo kwed: kwed man pe kiculo pire, ento latim kwed aye oculo pire.

Pingo kwan ma kitimo

Kwan ni neno me niang jami ma muko doto lutino keken ikin mege magitiyo iyi ot yat madit me Gulu Uganda

Kit/yoo me limo

Tic ma itimo ipwony man obilubu lok pa latin kwed onyo lapony pony

Anga ma obibedo ka nywako pwony man?

Ki yero in me bedo ipwony man pion ni itye mindot ma tiyo/mego dot ma tye ka bedo tye iyi ot yat pa lutino (YCC) iyi ot yat madit me Gulu.Kwed obi tero cocok ki dakika pyera adek.Latin kwed obi medo ki loko ngee ki bot mege matye nino ki nino wang ma miti me wel ma mito oo.

Jami ma kelo peko/Ayeyella

Pe tye peke mo ma kigeno nit were kelo peko mo keken ki ibedo ipwong man. Peko acel keken ma obi bedo tye aye kare me kweda man.

Ber pa kweda man

Joo ma obi bedo iye gu bi gamo alib abic cente me Uganda ki gin amata wa ki mugati acama me dwoko wang cawa gi

Gwoko mung

Nyingi obi bedo mung,kit ma wabi ngeyo kwede jo ma tye ka nywako,kwan kun watiyo ki kodi,keken. Lok ma ki nongo ni obibedo tye pi dul pa dano matye ka kwedo ngee ni.Cal me ngee man kibigwoko maber,kun karatac me ngee man kibi gwoko ne kumaber ngee matye iyi mung obi nongo bot latim kwed keken.

Yoo mukene

Pe omyero ibed ikwan mar kape imito. Culm o bibedo pe pi joo ma pegu bedo iye

Jami ma kwako cul

Bedo ikwan man pe bimito cul mo keken

Lapeny

Ka itye ki lapony mo ikom kwan onyo tweronicalo lakwedo ma bedo ikwan man, rwate ki latin kwed. Christine Nalinda iyi nama 0788983316

Lok ma pe ki culu

Bedo ni I kweda, kwan man pe kibi ento ne,bene in itwero yero me donyo ka iyi mitini. Itye kitwero me weko kwan man ikare mo keken labongo kit cul mo

Ka itye ki lapeng mo onyo lok mo ikom twero ma megi onyo bedo I kwan man, bed agonya me rwate ki won kom me Gulu University Research Ethic Committee, Dr Juliana A. Obika; Nama sim 0772964491 email: j.obika@gu.ac.ug; or The Uganda National Council for Science and Techonology, on Plot 6 kimera Road, Ntinda Kampala on Tel 0414705500

Winye

Dul ma kwano lok kom kwed otito kit me kwano kwan bot an; medo ki jami ma kubbe kwede. Adwogi maber matworo bino, ki twero na macalo, ngat ma tye ka nyako ipwon. Aniang nitam ma amoko me nywako impwony man pe bibedo ki adwogi marac iyo mo keken nying ma mega bibedo me mungkade kitiyo ki ingee man. Atye kin gee ni atwero weko kwan I cawa mo keken ki koto cinga ikom karatac man. Pe aweke tworo na mo keken me cik, ento, angeyo ni ki Waco bet an lok pwony me kwed dok ni atye ka moko tamma me bedo tye lyub me kwan man.

Anying lanywak pwony: …….

Ka ketocing: …….

Nino dwer: ……

Nying caden: …….....

Cinge: ……

Nino dwe: …….

Nying lamii lapeny: …….…….

Cinge: …….

Nino dwe: …….....

APPENDIX 3: STRUCTURED QUESTIONNAIRE

The questionnaire was adopted and modified from Watetu (n.d..) and (Onwuka, 2022).

DETERMINANTS OF EXCLUSIVE BREASTFEEDING AMONG WORKING MOTHERS ATTENDING YOUNG CHILD CLINIC AT GULU REGIONAL REFERRAL HOSPITAL LIVING IN GULU CITY.

SECTION A: INFANT CHARACTERISTICS

1. What is your baby's date of birth? Date/Month/Year.
   ……../……../……..
2. How old is this child in full months? …….. months
3. What is the gender of the child?
   I. Male
   II. Female
4. What is this child's birth order among your children?

I. 1st……., II. 2nd ……, III. 3rd ……., 4th ……., Others ……

5. Where did you deliver this baby from?
   I. Hospital
   II. Health facility
   III. Home

IV. Traditional Birth Attendant

V. Others specify…….

6. What was the mode of delivery for this baby?

I. Normal delivery

II. Caesarian delivery

7. Was the baby delivered at full term, or was it born prematurely?

I. Pre-term

II. Term

III. Other specify…….

SECTION B: SOCIODEMOGRAPHIC CHARACTERISTICS

8. What is your age in years? .....

9. What is your marital Status?

I. Single II. Married III. Separated 1V. Divorced V. Widowed

10. Which religion do you belong to?

I. Roman Catholic

II. Anglican Faith

III. Muslim

IV. Others…….

11. What is the highest level of education you have completed?

I. Primary II. Secondary III. Tertiary IV. Post-graduate

12. What is the amount of money you earn each month?

I. Less than 500,000

II. 500,000 – 1,000,000

III. 1,000,000 and above

13. What is your current job status?

I. Working.

II. Not working

14. What is your current job or source of income?

I. Professional Employment

II. Informal employment

15. If professional employment, where exactly?

I. Government
II. Private

SECTION C: RECOMMENDED EXCLUSIVE BREASTFEEDING PRACTICES

17. When did you start first breastfeeding?

I. Immediately II. Within 30 minutes III. Within 1 hour 1V. Within 2-4 hours
V. Within 4-12 hours VI. Within 13-24 hours VII. After 1 day VIII. Other……

18. Did you give colostrum to your baby shortly after birth?

I. Yes II. No

19. Have you ever practiced breastfeeding exclusively?

I. Yes II. No

20. For how long did you practice exclusive breastfeeding?

I. Less than a month II. One month III. Two months
IV. Three months V. Four months VI. 5 months
VII. 6 months VIII. Above 6 months

21. How old was your baby when you started introducing other foods besides breast milk?

I. Less than a month
II. 1 month
III. 2 months
IV. 3 months
V. 4 months
VI. 5 months
VII. 6 months

22. Did you provide water to your baby during the first six months?

I. Yes
II. No

23. State the reason for introducing other foods at that age.

I. I had moved away from home
II. Insufficient breast milk

III. I had a feeling that breast milk was not satisfying the baby
IV. Family/friends/relatives advised me to introduce foods at that age
V. I was unwell
VI. A healthcare professional advised me
VII. The baby had made the right age to introduce complementary feeding

24. Is your child still breastfeeding?

I. Yes
II. No

25. If no, state the reasons.

I. Baby ill
II. Baby refused to suckle
III. Mother refused to breastfeed
IV. Mother ill
V. Mother away from baby
VI. Mother died
VII. Spouse recommended
VIII. No/little breast milk
IX. Sore/cracked nipples
X. Baby had reached the age of stopping to breastfeed
XI. Baby developed teeth
XII. I was advised by a health professional
XIII. I can't tell

26. What type of feeds are you giving to the infant if you have stopped breastfeeding?

I. Powdered milk
II. Infant formula
III. Fresh cow's milk
IV. Porridge
V. Solid foods
VI. Others specify. ……

27. Do you get any challenges while breastfeeding?

I. Yes
II. No

28. If yes, mention the challenge.

I. ……..
II. ……..
III. ……..

29. Has the challenge interfered with breastfeeding?

I. No
II. Yes

30. How often do you breastfeed your baby?

I. On demand
II. At specific interval
III. At random

SECTION D: KNOWLEDGE ABOUT BREASTFEEDING

31. What does exclusive breastfeeding mean?

I. Giving babies only breast milk for the first six months of their lives
II. Feeding infants with both breast milk and water
III. Feeding infants with breast milk and infant formula
IV. Feeding infants with water and cow's milk

32. Do you think children who breastfeed benefit more than those who are fed on infant formula?

I. Yes
II. No

33. Does a newborn child get all the nutrients they need from breast milk?

I. Yes
II. No

34. Does exclusive breastfeeding prevent pregnancy?

I. Yes
II. No

35. Do you believe that starting complementary feedings at six months of age is appropriate?

I. Yes
II. No

36. Do you think that giving an infant water is not prohibited by exclusive breastfeeding?

I. Yes

II. No

37. Does breastfeeding promote mother-baby attachment?

I. Yes

II. No

38. Do you think that babies who are breastfed have more developed immune systems than babies who are fed on infant formula?

I. Yes

II. No

39. Did you give your newborn the first yellow breast milk (colostrum) shortly after birth?

I. Yes

II. No

40. Do you think colostrum should be poured because it does not contain the nutrients needed by the infant?

I. Yes

II. No

41. Do you think that a newborn should start sucking breast milk at least one day after delivery?

I. Yes

II. No

42. Have you ever received information about exclusive breastfeeding?

I. Yes

II. No

43. Where did you get information about exclusive breastfeeding?

I. Health professionals

II. Electronic media

III. Family/friends/relative

IV. Others

SECTION E: ATTITUDE TOWARDS BREASTFEEDING

44. Does formula feeding require less effort than exclusive breastfeeding?

I. Yes

II. No

45. Is it simpler to exclusively breastfeed a child than to give them formula?

I. Yes

II. No

46. Is exclusive breastfeeding preferred over formula feeding in your community??

I. No

II. Yes

46. Is it possible to express breast milk?

I. No

II. Yes

47. Should other feeds be introduced before six months?

I. Yes

II. No

48. Before giving breast milk immediately after birth, is it necessary to give other feeds?

I. Yes

II. No

SECTION F: WORK-RELATED FACTORS

49. How long does your company's maternity leave last?

I. Not more than a month

II. A month

III. Two months

IV. Three months

V. Four months

VI. Five months

VII. Six months

50. Does your workplace have a breastfeeding policy?

I. Yes

II. No

51. Does your workplace have a daycare facility?

I. Yes

II. No

52. Do you get breaks to express or breastfeed your baby?

I. Yes

II. No

53. Do you think that working makes breastfeeding more difficult?

I. No

II. Yes

54. How does working affect breastfeeding?

I. Very much

II. Much

III. Somehow much

55. Did you receive approval to change your work schedule to accommodate breastfeeding??

I. Yes

II. No

56. How many hours a week does your employer modify to accommodate breastfeeding?

I. Seven hours or less

II. 8–14 hours

III. 15–24

IV. More than twenty-five hours

57. Do you go to work with your baby?

I. Yes

II. No

58. How often do you take your infant to work with you?

I. Daily

II. Once a week

III. Twice or three times per week

IV. Once per month

V. Twice every month

59. Is your employer supportive of your exclusive breastfeeding practice?

I. Yes
II. No

60. Do you think that employer support for exclusive breastfeeding would positively influence EBF outcome?

I. No
II. Yes

SECTION G: SOCIO-CULTURAL PRACTICES

61. Are there any breastfeeding beliefs that you are aware of?

I. Yes
II. No

62. If yes, please mention it……

63. Do you get support from your husband after giving birth?

I. Yes

II. No

64. Do you get support from family members or relatives after giving birth?

I. Yes

II. No

65. Do your co-workers support you to practice exclusive breastfeeding?

I. Yes

II. No

66. If yes, mention the ways your co-workers are helping you.

I. …….

II. …….

III. ……

APPENDIX 4: RESEARCH APPROVAL LETTER FROM GUREC

GULU UNIVERSITY
P.O. Box 166, Gulu (U)
Website: www.gu.ac.ug
Email: gurec@gu.ac.ug
Tel: +256 471 432 096
Fax: +256 471 432 913
Mob: +256 772 964 491
+256 776 812 147
RESEARCH ETHICS COMMITTEE

22/03/2025

To: Christine Nalinda

0788983316

Type: Initial Review

Re: GUREC-2024-1081: DETERMINANTS OF EXCLUSIVE BREASTFEEDING AMONG MOTHERS ATTENDING YOUNG CHILD CLINIC OF GULU REGIONAL REFERRAL HOSPITAL

I am pleased to inform you that at the **122nd** convened meeting on **23/01/2025**, the Gulu University REC meeting voted to approve the above referenced application.
Approval of the research is for the period of **22/03/2025** to **22/03/2026.**

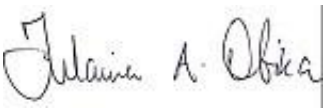
As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the REC for rereview and approval **prior** to the activation of the changes.
3. Reports of unanticipated problems involving risks to participants or any new information which could change the risk benefit: ratio must be submitted to the REC.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by participants and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Continuing review application must be submitted to the REC **eight weeks** prior to the expiration date of **22/03/2026** in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda. The following is the list of all documents approved in this application by Gulu University REC:

No.	Document Title	Language	Version Number	Version Date
1	PROTOCOL	English	Version 2.0	2025-03-20
2	INFORMED CONSENT FORM ENGLISH	English	Version 2.0	2025-03-18
3	INFORMED CONSENT FORM ACHOLI	English	Version 2.0	2025-03-18
4	COMMUNITY ENGAGEMENT PLAN	English	Version 2.0	2025-03-18

5	COVID-19 RISK MANAGEMENT PLAN	English	Version 2.0	2025-03-18
6	Data collection tools	English	Latest	2024-11-30

Yours Sincerely



Julaina A. Obika (PhD)

For: Gulu University REC