



UNIVERSITY OF NAIROBI

EXCLUSIVE BREASTFEEDING PRACTICES AND WORKPLACE
SUPPORT OFFERED TO FORMALLY EMPLOYED MOTHERS IN
NAIROBI ACCESSING WELL-CHILD SERVICES AT THE NAIROBI
HOSPITAL OUTPATIENT CENTRES

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DECLARATION

I certify that this dissertation is my original work and has not been presented for a degree at any other university.

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Acknowledgement

I would like to dedicate this dissertation to my late mother Rahab Wanjiku Mwendwa for awarding me the gift of life and education.

I give gratitude to my wife Dela Maranga for being my pillar of hope and strength during my master's programme in Paediatrics and Child Health. My newborn son, Enzi for the motivation to push to the end.

I am forever indebted to my mentor and supervisors Prof. Ruth Nduati and Dr Atul Patel for their guidance and technical support in my dissertation.

Abbreviations

BF – Breastfeeding

BFCI – Baby-friendly community initiative

EBM – Expressed breastmilk

EBF – Exclusive breastfeeding

ERC – Ethics Research Committee

GE - Gastroenteritis

ILO – International Labour Organization

IYCF – Infant and young child feeding

KDHS – Kenya Demographic Health Survey

KNH – Kenya National Hospital

KEPSA – Kenya Private Sector Association

LMIC – Low middle-income countries

MOH – Ministry of health

NCD – Non-communicable diseases

NEC – Necrotising enterocolitis

OPC – Outpatient centre

RA – Research Assistant

RTI – Respiratory tract infection

TNH – The Nairobi Hospital

WHO – World Health Organization

Case Definitions

Breastfeeding Mother: A mother that is breastfeeding her child.

Breastfeeding Policy: A policy in the workplace that supports breastfeeding working mothers by providing clear guidance on time, space and support. To secure a good breastfeeding-friendly work environment.

Complementary Feeding: Continuation of breastfeeding after 6 months with the addition of nutritionally adequate complementary foods.

Employer: A individual, public institution or private company that has entered a working contract with an employee.

Exclusive breastfeeding: WHO defines this as breastfeeding initiation from the first twenty four hours of life and up to 6 months of age without the introduction of food or drink but except for medication or supplements.

Expressed Breastmilk: Breastmilk that is expelled from the breast either by hand or with the help of a breast pump.

Formal sector employment: Persons employed by an employer that is subject to taxation and employee subject to PAYE (Pay As You Earn). Formal employment includes the provision of employee benefits such as paid annual leave, maternity or paternity leave, paid sick leave, medical insurance cover and others.

Informal sector employment: Persons that are employed and not subjected to PAYE and employer benefits such as paid annual leave, maternity, or paternity leave, paid sick leave, medical insurance cover and others.

Unemployed women - Mothers are considered unemployed if they indicated that they are currently unemployed or self-employed.

Workplace Support – is institutional support provided by the employer to ensure a breastfeeding-friendly workplace environment for employees who are breastfeeding mothers. In Kenya, this provision is provided in The Health Act 2017, Section 71 & 72 regarding workplace support policy. The Employment Act provides for paid maternity leave.

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Abstract

Background

Breastmilk is the most important nutrition that a mother can offer her child. Exclusive breastfeeding (EBF) is one of the most cost-effective strategies to reduce infant and child mortality. Despite the numerous benefits to both mother and child, breastfeeding working mothers find themselves disadvantaged in maternal employment. Mostly due to workplaces lacking a suitable environment for good breastfeeding practices.

Objectives

The main aim of the study was to describe exclusive breastfeeding practices among formally employed working women in Nairobi. The secondary objective was to describe the type of workplace support offered to the same employed mothers.

Methodology

A cross-sectional hospital-based study conducted at The Nairobi Hospital's, five outpatient centres offering well-child services. A total of 234 eligible participants were issued with a questionnaire. Descriptive data were summarized into tables to show percentages and frequency. Univariate and multivariate data analysis of the independent variable categories such as maternal characteristics, social support and workplace support were performed.

Results

The median age was 32 years for mothers and nine months for infants. A positive association between paid maternity leave and workplace support to secure breastfeeding-friendly was reported. The prevalence of EBF was 79% (95% CI 70%, 82%). Out of the 179 participants that exclusively breastfed only 45% had access to a breastfeeding station. A majority of 75.4% (135) participants reported flexible working hours and showed 2.56 times greater odds when accorded the same support. Mothers given more than three months of maternity leave were 4.74 times more likely to breastfeed exclusively with 74.3% (133) reporting EBF.

Conclusion

The rates of EBF are improved when working mothers are also accorded good workplace support to promote EBF. The current policies in place to support breastfeeding mothers at the workplace have been poorly implemented. Furthermore, poor knowledge of a workplace breastfeeding policy is demonstrated in the findings.

Chapter 1: Introduction

1.1 Background

Breastfeeding has proven to be the greatest gift that a mother can give her growing infant and to herself. Breastmilk is an essential source of nutrition for the growing infant and contains immune factors that are only present in human milk. These act as the first immunisation for the newborn child. Breastmilk protects the child against acute respiratory infections such as pneumonia and diarrhoeal diseases. These account for the leading causes of child deaths under 5 years of age. By supporting breastfeeding (BF) mothers to achieve exclusive breastfeeding (EBF), just under a million children's lives can be saved annually. (1) Studies have shown that in the initial 6 months of life, infants that weren't exclusively breastfed had a 14 times greater chance of succumbing to the most common infant illness. The risk of developing diarrhoea (gastroenteritis) was increased by tenfold and the risk of developing an acute RTIs was increased by fifteen-fold in infants who were not EBF. (2) By improving breastfeeding practices and achieving EBF for 6 months in combination with continued BF for up to 2 years, and the introduction of quality complementary feeds 50 % of child mortality can be reduced. (3) In developing countries where infant mortality is high, achieving EBF is one of the best-proven strategies to significantly improve infant mortality.

Working BF women should be supported as much as possible to promote EBF when they return to their respective workstations. This has been reciprocated in the form of paid maternity leave and other benefits for mothers working in the formal sector. Unfortunately, a large majority of women in Kenya work in the informal sector where these laws are not adhered to and employment contracts are almost always non-existent. This renders a large number vulnerable as mothers tend to return early and leave behind their growing infants to be able to earn and provide a living.

BF not only provides benefits to the growing infant but to the nurturing mother as well. This creates a healthy symbiotic relationship between mother and child that stretches beyond the infant and young child's physical and psychological growth and development. Studies have shown

a correlation with a compelling reduction in acquiring ovarian and breast cancer. Breast cancer has the highest burden of cancer deaths globally. It is estimated that over 20,000 breast cancer cases can be prevented thanks to optimal breastfeeding practices. Exclusive breastfeeding is a form of natural birth spacing. Prolactin can act as a natural family planning method when optimal breastfeeding practices are followed correctly. (4) In addition prospective cohort studies showed mothers who don't EBF and introduce complementary feeds before five months are known to be at higher risk of acquiring postpartum depression. (5)

Breastmilk colostrum though produced in relatively small volumes is packed with immune-protective factors such as secretory immunoglobulin A (IgA) and lactoferrin. It is also comprised of epidermal growth factor which helps the intestine to mature and as a result can prevent NEC by up to 50%. In comparison to breastmilk substitutes, breastmilk dynamically changes according to the growing infant's nutritional and immunologic requirements up to a particular period. (6)

In 2002, the WHO & UNICEF recommended optimal IYCF. This is described as the introduction of BF in the first hour of birth. It further advocates the promotion, protection, and support for EBF in the initial 6 months of life. It also recommends a scheduled initiation of optimal and safe complementary feeding, with continuous BF up to 2 years of age. To achieve the above recommendations, it is essential to emphasise optimal maternal nutrition in the society and community at large. In line with the recommendations, it is crucial to support and protect the working lactating mother and child to achieve the WHO targets of initiating. (2)

Despite the many proven benefits of breastmilk and breastfeeding numerous factors have been established that deter the efforts in achieving EBF. The rates of EBF in babies below six months in Kenya have risen substantially from 32% in 2008 to 61% in 2014 based on National Demographic Health Surveys (KDHS). The rates of breastfeeding on the first day were much higher at 90.6% and the decline to 61% was seen after three months. This is usually the time a mother returns to work. A major barrier working lactating mothers face is the intricate balance of work and breastfeeding. (7)

Chapter 2: Literature Review

2.1 Breastfeeding Support at the Workplace

Research has shown that the global prevalence of EBF is bound to increase when a competent policy, legal framework and guidelines are firmly cemented in the legislature. For this to have a positive impact on the rates of EBF these policies should be implemented nationally through the community and at the workplace. BF Policies at any workstation should be provided to promote BF practices in the formal and informal sectors to improve EBF rates. (8) In Kenya, 52% of BF working mothers return to work after three months postpartum. This is to continue securing income as the informally employed women aren't entitled to paid maternity. This goes against the ethos of equitable employment and the lack of workplace support for the informally employed creating marginalization. (9) In the past 20 years, we have witnessed a noticeable steep rise in the proportion of women in the workforce. An exodus shift from informal to more formalized work among women in LMICs as women continue to be more empowered. (10)

2.2 Legal Framework Supporting BF in the Workplace

Women have made great strides in striving for equity in the workforce. Progress can be seen since the development of the UN SDGs with particular emphasis on SDG 5 to empower women. As many more countries executed the implementation of SDGs, metadata from the 2019 World Bank data catalogue reveals that 47.1% of women contribute to the global workforce. (32) Working lactating mothers face a dilemma when they need to return to work to earn wages to provide for their families. They must perform a tightrope balance act between work and nursing to try to achieve EBF that has shown to benefit their growing infant. Global efforts made by the ILO & WHO have put in place a framework for governments to put in place legislation to support the working lactating mother. This goes against the SDGs empowering women for equitable employment as maternal employment continues to be a barrier to woman's right to BF.

The advice provided is that countries need to put in place better laws to protect the BF rights of working women. This is achieved by working with institutional stakeholders to create an ideal

work environment to support EBF. It must be emphasised that even beyond six months it is encouraged to maintain BF for up to 24 months with the introduction of adequate and quality feeds introduced at 6 months. It is important to support BF mothers reach the recommendations by empowering the family on how to support the BF mother such as assisting in nursing and contributing to accomplishing other household chores. The spouse plays a major role in assisting the BF mother by providing moral and financial support. Moreover, it is important to emphasise that kangaroo care may also be done by fathers. This is to ensure a healthier thermal environment for the growing infant and in turn, create a conducive breastfeeding-friendly home. Fathers are granted two weeks of paternity leave to support their spouses and lighten the load of nurturing the newborn. The effectiveness of the two weeks paid paternity leave is debatable and has seen the paternity leave duration questioned.

The community plays a monumental role, especially in a world where social media encompasses our daily lives. Peer support groups being sorted on social network sites is a common trend. Those not privileged enough to be exposed to high-end technology such as smartphones and mobile apps can access the Breastfeeding Friendly Community Initiative. (11) A community-driven initiative founded around Primary Healthcare and UHC. Largely driven by Community Health Volunteers that reach mothers in the most remote of areas and educate them on the importance of breastfeeding and adequate nutrition. Lastly, once the BF mothers return to the workplace reciprocal support must be followed to help the mother EBF. (12) This has been described widely and has been recognised globally.

The International Labour Organization (ILO) Maternity Protection Convention No. 183 and 191 proposes at least 14 weeks of maternity leave that is paid. A break or two in a working day or reducing work hours for BF employees to BF their children and if possible, provide facilities for breastfeeding and breastmilk expression under appropriate hygienic conditions at or close to the workplace. (13)

The Kenya Employment Act 2007 facilitates a 3-month paid maternity leave (91 days) for the birth of a child. This is provided that the employee submits a notice no less than 7 days before proceeding to maternity leave. The stipulated maternity leave is 2 weeks shy of the

recommended 14 weeks by the ILO. However, as per the Employment act 2007, the employee may extend leave if a request is made to the employer to apply for annual leave or sick leave to extend the time the mother has with the child. In comparison to global WHO recommendations, the entitled maternity leave is still 3 months less than the recommended minimum duration of EBF for up to 6 months. Studies have shown to increase EBF rates by providing 6 months of paid maternity leave and effective workplace support as per the legal framework provided by WHO. (8)

In 2012 the Breastmilk substitutes (BMS) and regulations act was added to our Kenyan constitution as further means to protect breastfeeding. (14) This was adopted from the International Code of Marketing of BMS also known as The Code. This internationally recognised health policy framework to promote BF was adopted in 1981 after years of aggressive marketing by leading breastmilk substitute manufacturers promoting formula as a superior and more prestigious alternative to breastmilk. (15) Before the act was passed the Kenyan government was a signatory and state of voluntary observance of The Code. This went on for 30 long years till the BMS act was passed in 2012. The legislative bill was passed to help protect breastfeeding mothers from false or aggressive advertising. This bill strictly controls and regulates the promotion, advertising, and sale of breastmilk substitutes in hospitals and to the public. Recently, the BMS Act was further amended and now also regulates teats, bottles for feeding and pacifiers. (16) In 2017 Kenya amended the health act in hopes to help support the lactating working mother to be able to achieve EBF as recommended by the WHO and shown in the sections below:

2.3 The Kenyan Health Act, 2017

71. (1) All employers should provide BF stations at the workplace and should be optimally equipped with facilities such as a handwashing station, refrigerator/cool box, electrical sockets, a small table, and comfortable seats to allow EBM.

(2) BF station should not be located in restrooms.

(3) All employers shall adhere to the BMS Act and not allow the promotion of BMS at the workplace.

72. 1) An employer shall provide all BF employees with a BF break and regular lunch/tea breaks.

(2) The time intervals referred to in subsection (1) include time for an employee to get, to and from the BF station and are counted as compensable hours provided the BF interval is not more than 1 hour.

In 2018 Guidelines For Securing A Breastfeeding-Friendly Work Environment For Breastfeeding Working Mothers were released by the MOH.(17) These were to provide employers both in the public and private sectors a step-by-step guide on how to enforce the above Health Act. It empowers employers on how they can help support their employees achieve EBF. The guidelines provided the steps and tools for employers to facilitate the workplace support needed for BF employees. This was categorised as workplace BF policy, time, space and social support. The benefits for the employer, BF employee and child were outlined clearly and shown to be beneficial to all the parties involved. The chapters in the guidelines facilitated lactation stations, managing breaks and flexible working hours to allow for EBM, storage facilities for EBM and provisions of a creche and/or nursing rooms. (17) The MOH went even further in 2020 to launch the Implementation Framework For Securing A Breastfeeding-Friendly Work Environment, for the relevant stakeholders as part of a mission to ensure that they are on track to achieving the Kenya Vision 2030 targets and SDG. Supporting EBF has shown to significantly reduce infant and young child mortality in clinical trials and anticipated the same benefits with the implementation of Kenya's National Health Sector Strategic Plan. (18)

2.4 Global And Local Examples Of The Impact Of Workplace Policies On BF Practice

A cross-sectional study in Brazil was conducted and based on the association between maternity leave and the prevalence of EBF in the study population. Women in Brazil who give birth or adopt a child are eligible for paid maternity leave and benefits for 4 months as per ILO recommendations. The rates of EBF were 50.1%. The BF women employed and entitled to maternity leave were shown to have an increased prevalence of the outcome, in comparison to BF mothers not entitled to paid maternity leave and benefits. In their study, less than 25% of BF mothers had taken maternity leave during the survey. Lactating mothers on paid maternity leave showed a rate of 91% of EBF which was significantly higher than those not entitled to maternity leave, this further emphasises the crucial role of paid maternity leave on rates of EBF. Paid maternity promoted BF mothers to continue earning an income, especially for single mothers that may not get additional financial support from a spouse. This is vital as being financially stable allows the mother to be able to provide for her growing infant and improve the quality of nurturing and making it more conducive to achieving EBF. Lactating mothers on maternity leave had an increased prevalence of EBF in comparison to unemployed BF mothers, demonstrating that BF mothers engaged in work don't affect EBF prevalence, but rather the absence of paid maternity leave and benefits. (19)

Similar findings are also seen in a cohort study where the objectives were to evaluate the association between returning to work and BF. Women entitled to maternity leave that was less or equal to 6 months stopped BF before those mothers entitled to maternity leave. These findings appear to confirm those of a similar study conducted in Brazil. (20)

An observational study was performed at the paediatric clinics of KNH and Mbagathi District Hospital. Just below 400 BF mothers were surveyed via a questionnaire. The prevalence of EBM was 41%. Poor know-how of EBM was found in 66% of BF mothers surveyed. The higher the education and in this case, tertiary showed to have an increase in EBF rates. It was concluded that a lack of knowledge exists in the expression and storage of breastmilk. Data gathered also

revealed that mothers were confident that they could achieve EBF when support for expressing milk at work was made available. (21)

A cross-sectional study among Kenyan infants of women employed largely in floriculture found that formal employment was associated with reduced chances of EBF by 14 weeks after birth which coincides with the legally mandated duration of paid maternity leave. EBF rates did not change by employment status at discharge from the hospital or 6 weeks after delivery. Formally employed mothers were less likely than those in the informally employed to report EBF at 14 weeks 59.0% vs 95.4%. The rates of continued BF at 8 months (36 weeks) were more or less the same for both groups. The primary inferences for not being able to EBF were resuming work (46.5%), early introduction of complementary feeds based on the child's age (33.5%), or perceptions of inadequate breastmilk supply (13.7%). This study shows the evidence behind the relationship between a longer duration of paid maternity leave and an increase in EBF rates. (22)

Summary of literature review

Table 1.

Study Title/Author	Study Design	Results	Conclusion
Maternity leave and EBF (Rimes, 2019) Brazil (19)	Cross-sectional study, with BF mothers of infants below 6 months (n = 429).	Rates of EBF were 50.1%. Those on maternity leave had increased prevalence (APR = 1.91; 95%CI 1.32-2.78), in comparison with BF mothers without maternity leave.	Maternity leave promotes BF mothers and improves the prevalence of EBF rates below 6 months for BF mothers entitled to the same.
EBF among professional working mothers in Ghana (E.Dun-Dery,2016)(23)	A cross-sectional design with a multi-stage stratified sampling technique. n=369	Prevalence of BF was 91% in the first hour but at 6 months it dropped to 10.3%	EBF rates were low in BF working mothers and better work policy and maternity leave were needed to support BF mothers.
Exploring the Experiences of Middle-Income Mothers in Practicing EBF in Nairobi, Kenya (C.Wainaina,2018)(24)	A qualitative study using 9 in-depth interviews and 2 FGD was performed with middle-income women with a child below 24 months of age.	Most women were unable to EBF for the first 6 months. The results that most lacked social, community and workplace support and relied on information online.	Workplace policies are needed to promote EBF by creating a conducive BF environment.
Formal maternal employment is associated with lower odds of EBF, a survey in Naivasha, Kenya(22)	A cross-sectional study among mothers (n = 1186)	Reasons for not achieving EBF were returning to work (46.5%), early weaning (33.5%), or perceptions of breastmilk insufficiency (13.7%).	More workplace support to promote EBF is needed for BF in the formal sector

<p>Breastfeeding Experience Among Healthcare Professionals at KNH (Gituma) (25)</p>	<p>Cross-sectional study. (n = 138) Comprised of female residents and nurses</p>	<p>Showed that only 29.2% achieved EBF in 6 months</p>	<p>The low rates of EBF were attributable to a lack of breastfeeding support policy and maternity leave of 3 months.</p>
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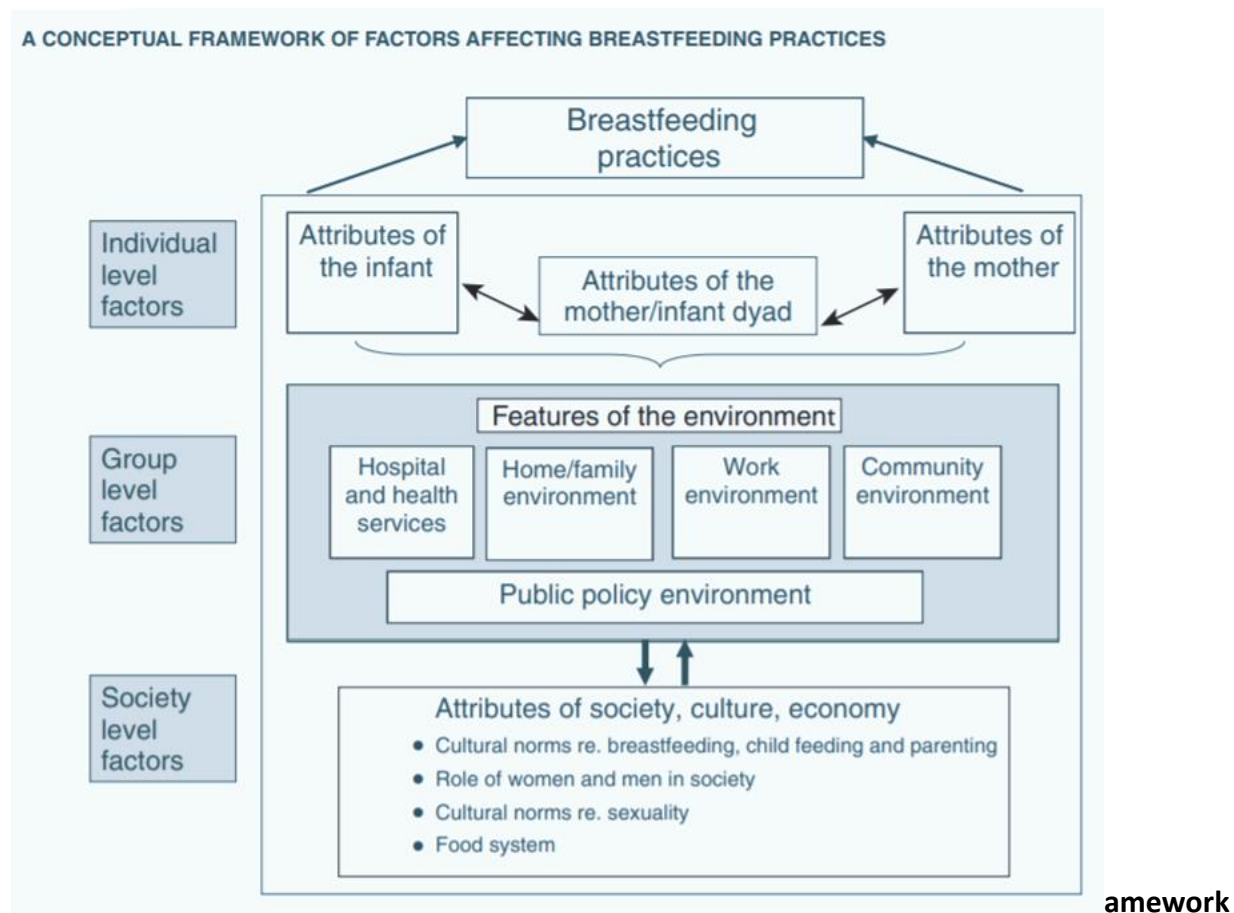
2.5 Conceptual Framework

In this study, a conceptual framework has been adopted to help reduce the limitations of the study as most factors have focused on the socio-demographic aspect and the mother's view of why they have not been able to exclusively breastfeed.

The framework captures 3 main pillars: individual, group and societal factors. This approach helps to formulate a hypothesis and the types of interventions that can be used to address them systematically.

The individual factors revolve around the mother and the infant and what is termed a mother-infant dyad. Infant and mother attributes include the intention to EBF, the knowledge and education around EBF and BF technique all of which can influence the rate of EBF. The group factors revolve around the mother and infant environment which ultimately determines the quality and rate of EBF. This may be as early as the hospital setting and whether proper policies have been put in place such as early BF education, latching within an hour of delivery, follow up and support. Other environments include the home environment and whether the mother is being supported by the family and spouse. Size of the family, partner's knowledge and will to support, financial support from spouse etc all play a role in the mother's ability to EBF. Community support cannot be excluded as peer support groups be it physical breastfeeding groups or those on social media all of which can influence the quality and rate of EBF.

Work environment, which is a crucial area of interest in this study on whether the mother is supported in her workplace with eligibility for maternity leave, a suitable area for EBM, flexible working hours and an active work policy on the approach for lactating mothers in the place of work. The last pillar is the society where different cultural norms may influence the rates of EBF. This is often through the society's view of the woman's role and the role they play in nurturing children and ultimately breastfeeding. (26)



Problem Statement

a) Increasing numbers of women working away from home

In Africa and other low middle-income countries (LMICs), we discover that most women are employed in the informal sector where legislation such as paid maternity leave is not enforced. Kenya National Bureau of Statistics demonstrated that 880,000 women had formal sector employment in 2016. In Kenya as of 2020 data estimates from Statista, the global market leader in the provision of reliable business data trusted by esteemed academic institutions. Revealed that 15 million people are employed in the informal sector and 3 million are estimated to represent the formal sector. (27) Nearly half, 48% of all employed people in Kenya are women. (28) This is mainly due to the rise of the role

of the working mother and her contribution to the household income and financial security that a job provides. The reduced earning capacity and inflation have led more women to become part of the breadwinners for the family, a position that in Africa is culturally and religiously viewed as the man's role.

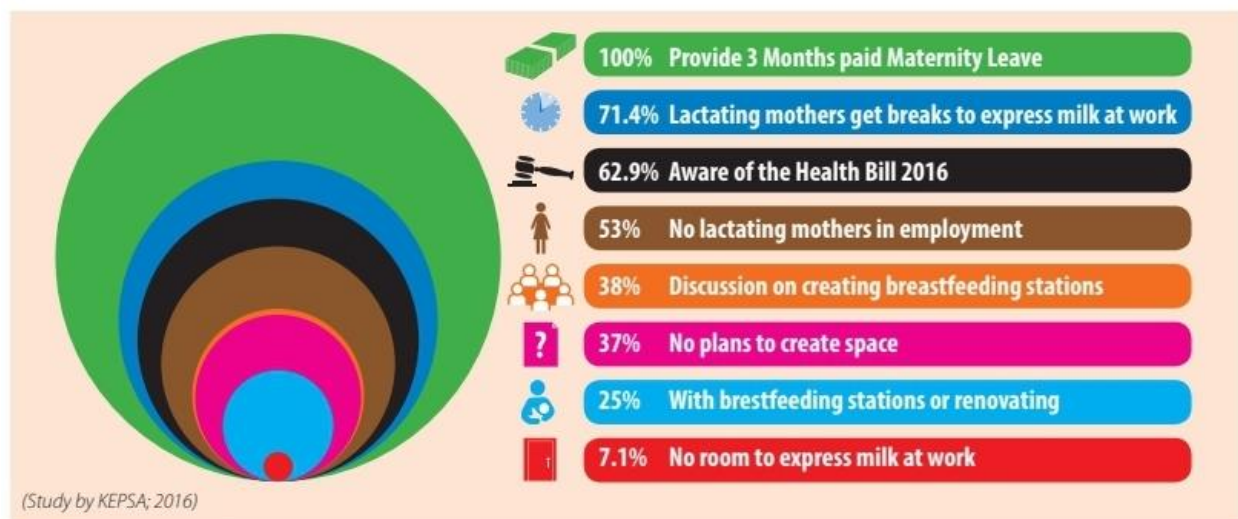
b) Working away from home is associated with a decline in breastmilk production

Lactating working mothers are constantly disadvantaged because being present at the workplace means that they spend most of their time away from their growing babies. The lack of knowledge and support for sustaining milk flow is something that working mothers grapple with. The separation anxiety, work-related stress, and, in most cases, long working hours lead to reduced breastmilk production and poor breastfeeding rates. (29) This has proved to be a deterrent to improving the rates of exclusive breastfeeding by introducing other feeds prematurely as the mother must also fend for her family's needs. (9)

c) Partial implementation of legislation to support breastfeeding in the workplace

Very few studies have been done to evaluate the impact of the above-mentioned legislation and the correlations to the rates of EBF for lactating mothers employed in the formal sector. A survey of 66 private companies by KEPSA 2017 showed that 100% of employers adhered to providing 12 weeks of (paid) maternity leave. The Health Act 2017, possesses the legislative framework for employers to help support their employees in achieving EBF. Only 71% of lactating mothers got breaks to express breastmilk at work. That shows a clear contravention of the Health Act 2017, section 72 subsection (1) and (2) that protects EBF working mothers in the formal sector. Regarding section 72 of the same act, only 16 companies of the 66 companies surveyed provided a lactation station. Few with full compliance such as a private room that has a hand-washing station, and refrigerator for storing expressed milk. The provisions of breast pumps, a comfortable seat to express with a table. Electrical outlets for mothers' own electronic pumps and accessories. The survey also showed that 37% had no plans to create lactating stations and were blatantly ignoring the legislation in place to support breastfeeding working mothers.

Figure 2. Status of workplace support implementation among 66 private companies in Nairobi



2.6 Study Significance

Few studies if any, have evaluated the outcomes since the implementation of the 2017 Health Act in regard to workplace support for BF mothers. A study in Naivasha study started soon after the Health Act bill was passed. (22) By this time employers had not rolled out its implementation as the guidelines were only released in 2018. Upon review of the few studies done in the context of EBF and workplace support. The common conclusion from the data collected is that more policies need to be put in place and implemented at the workplace to support the working lactating mother. It has been six years since the Health Act 2017 was introduced and limited studies in Kenya have been done to show whether this legislation has had any effect on the EBF rates for working mothers entitled to the above-mentioned laws. In 2018 guidelines for securing a friendly work environment for breastfeeding working mothers were released by the MOH, these were to provide employers both in the public and private sectors a step-by-step guide on how they can help support their employees to try to achieve EBF. The guidelines provide the requirements for lactation stations, managing breaks for expressing milk, storage facilities for expressed milk and provisions for a creche and nursing rooms.

2.7 Study Justification & Utility

Globally EBF rates are still below the recommended rates for working BF mothers in both sectors. In the past 20 years, we have seen a paradigm shift and a significant increase in women engaging in formal labour. (10) This is in line with UN Standard Development Goal: 5, to create gender equality and empower women and the girl child. As part of globally driven economic development strategies to improve health and alleviate poverty. One of the most prevalent barriers to achieving EBF is maternal employment. (30) Given the relatively new Health act of Kenya passed in 2017 and the provision of guidelines to support breastfeeding in the workplace, we can appreciate that we have limited studies on how maternal employment affects the rates of EBF in Kenya.

This study is primarily aimed to describe exclusive breastfeeding practices in formally employed women entitled to workplace support for good breastfeeding practices. Their experience with BF needs much-needed evaluation since the implementation of the legal framework for the workplace in 2020. Focus area 6, monitoring & evaluation is well described in the mentioned Implementation framework provided by MOH. This entails mainly supporting research around workplace support and EBF in both the public and private sectors. Studies have shown similar results where the longer the duration of maternity leave the greater the odds of achieving EBF.

Formally employed women are better educated and pacesetters in their community. Their practice may have a keen impact on the general culture around breastfeeding. Addressing the barriers they face may help unlock the barrier faced in achieving higher exclusive breastfeeding rates in our population.

2.8 Research Question

1. What are the exclusive breastfeeding practices of employed women?
2. What workplace support is in place to secure a breastfeeding-friendly work environment?

2.9 Study Objectives

Broad Objective

To describe the exclusive breastfeeding practice of formally employed women in the first 6 months of their infant's life and the role of the workplace support

Primary Objective

1. Describe the prevalence of EBF in the first 6 months of life among formally employed women working in Nairobi and accessing well-child services at The Nairobi Hospital Outpatient Centres (Anderson, Galleria, Capital, Warwick and Southfield).

Secondary Objective

1. Describe the type of structural workplace support offered to secure a breastfeeding-friendly work environment for BF mothers employed in Nairobi and accessing well-child services at The Nairobi Hospital OPC.

Chapter 3: Methodology

3.1 Study Design

A hospital-based descriptive cross-sectional design involving breastfeeding mothers employed in the formal sector in Nairobi, Kenya.

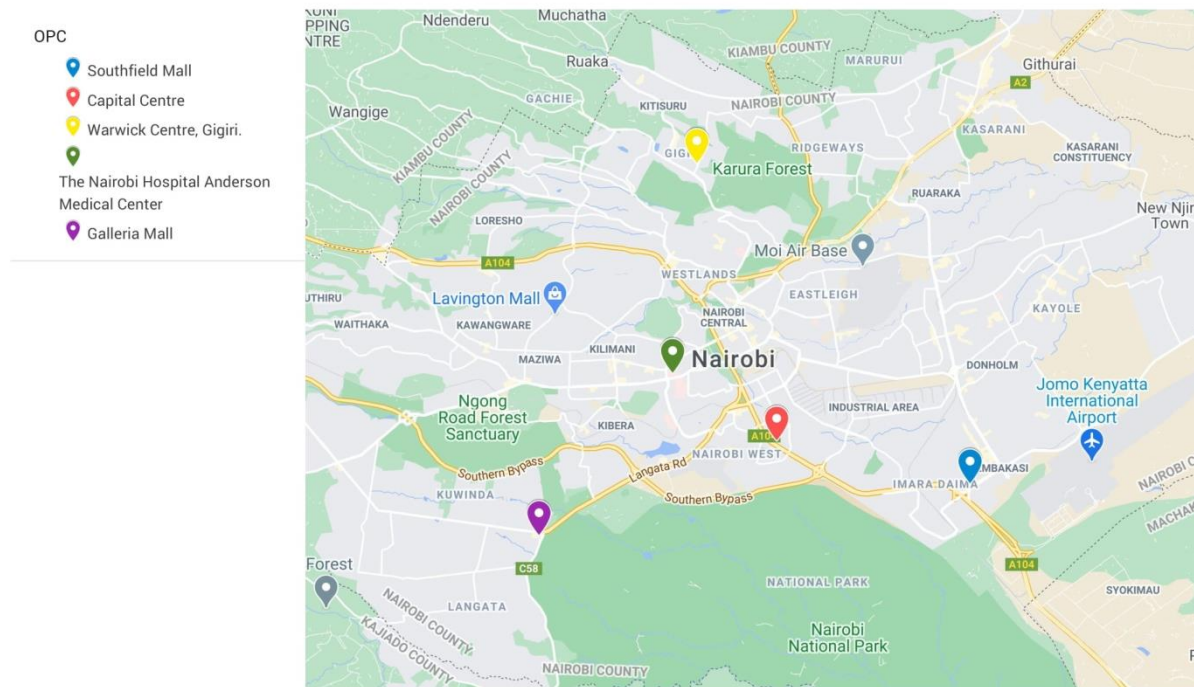
3.2 Study Area

The study area was at the well-child paediatric clinics within The Nairobi Hospital Anderson Speciality Centre & The Nairobi Hospital Outpatient Centres (OPCs). The different centres run Paediatric well-baby clinics on different days of the week. They however offer routine immunizations from Monday to Saturday in all the OPCs. They cater for a large number of working-class women in Nairobi who access healthcare from private health institutions in Nairobi. The OPCs are as follows:

1. The Anderson Specialist Centre is located on Argwings Kodhek Road, Hurlingham in Nairobi. It is situated adjacent to the main hospital. The centre provides multi-disciplinary consultant clinics all in one building. The Paediatric clinic provides services to approximately 10 well-baby patients a day and services provided are on Tuesdays, Thursdays and Friday from 8:30 to 3:30 pm.
2. The Nairobi Hospital Galleria Out-patient in the Karen and Lang'ata area. The well-baby and Paediatric clinic run on Wednesday from 8 am to 2 pm. On average up to 10 patients are seen.
3. The Nairobi Hospital Capital Outpatient Centre is located inside The Capital Centre Mall, South B along Mombasa Road serving the residents of the west and south of Nairobi. The clinic runs on Thursdays from 8 am to 2 pm and can see up to 5 patients on average.
4. Southfield Outpatient Centre is located inside The Southfield Mall in Embakasi serving residents of the Embakasi East & West, Kitengela, Syokimau & Athi River. The clinic runs Wednesdays & Saturdays from 9 am to 3 pm and sees an average of 5 patients a day.
5. Warwick Outpatient Centre is located inside the Warwick Mall and serves residents of Runda and UN employees. The clinic runs Wednesdays & Fridays and can see up to 10 patients a day.

Figure 3. Map of Nairobi

Nairobi Hospital OPC



Most of the population of the patients seen in the above centres are formally employed and the majority are entitled to medical insurance policies (including NHIF remission) provided by their employers. They are also entitled to paid maternity leave and other legislation to support breastfeeding working mothers. Women who attended these clinics and met the eligibility criteria were offered an opportunity to participate in the study.

3.3 Study Population

Breastfeeding mothers employed formally seeking well-child services at The Nairobi Hospital OPCs at Anderson, Galleria, Warwick, Capital & Southfield.

3.4 Study Period

The study was conducted from January 2022 to March 2022.

3.5.1 Inclusion Criteria

1. Formally employed women who have an infant aged 6 months to 12 months and attending the well-baby paediatric clinic at The Nairobi Hospital OPC.

3.5.2 Exclusion Criteria

1. BF mothers employed in the informal sector (self-employed) and not entitled to benefits that support and promote breastfeeding in the workplace.
2. Refusal of consent.
3. Mother's with valid contra-indications to BF.

3.6 Sample Size Determination & Calculation

The sample size was calculated by incorporating the Fisher formula:

n= Desired sample size.

p= Estimated prevalence of EBF up to 6 months in women working in the floriculture sector in Naivasha 19%

q= 1-p

d= margin of error (0.05)

z=the standard normal deviate at a 95% confidence interval (=1.96).

$$n = \frac{z^2 \cdot P(1 - P)}{d^2}$$

n=234

3.7 Sampling Procedure

The sample size was achieved by the consecutive sampling method.

3.8.1 Approach and Recruitment

The recruitment of study participants was carried out by two research assistants (RA) who were Nutrition & Dietetics graduates of the University of Nairobi. The RAs were oriented by the principal investigator on the data collection tool. The RAs were trained on how to approach the potential study participants, the eligibility criteria and how to seek consent. The principal investigator was always present and available to handle any unforeseen issues. The PI was consulted by the research assistants when required and weekly feedback was given on the progress.

Eligible mothers were breastfeeding mothers with infants aged six to twelve months currently employed in the formal sector and are entitled to breastfeeding support at the workplace. The eligibility was narrowed down by asking the mothers verbally if they were entitled to maternity leave and whether formally employed. The RAs or PI then explained the relevance of the study and verbal consent was obtained. The consent form was on the first page of the questionnaire and only those with signed consent were included in the study. The process of seeking consent and issuing questionnaires was carried out in the well-baby clinics while mothers are awaiting services or after they had received services.

Research assistants also collected the data from the BF mothers in the form of an online questionnaire where a link was provided via email for those who preferred the online survey (98/234). Confidentiality of the data was ensured at all stages of the study. The recruitment was conducted during the various OPC's well-baby clinic days of service until the required consecutive sample size was achieved.

3.8.2 Variables of Interest

Workplace support

- Breastfeeding policies
- Flexible working hours
- Maternity leave

Social support

- Family support

Maternal characteristics

- Level of education
- Age
- Marital status
- Place of employment

3.8.3 Outcome variables

Our outcome of interest encompassed 2 BF indicators:

1. Early initiation of BF within the first hour after delivery
2. EBF from 0 to 6 months.

3.8.4 Data Collection Tools & Procedures

Data collection was carried out at the specified clinics using a standard questionnaire (Appendix 1). Before data collection, the questionnaire was pretested using a sample of 20 to check the average time it takes to fill a questionnaire and any challenges that are likely to be encountered during data analysis.

Mothers of infants aged 6 months and up to 12 months attending the well-baby clinic were introduced to the study and offered the opportunity to participate. Using a checklist for eligibility (paid maternity leave), women meeting the criteria were issued a consent form and questionnaire.

The questionnaire (Appendix I) was provided to the mothers to fill in. The survey was divided into 3 modules as follows:

1. Socio-demographics & household support
2. Employment status and workplace support
3. IYCF practices.

Sociodemographics & Household support

This section details the eligible participant's age, marital status, level of education and briefly whether the subject is employed. Household support in the form of domestic workers, spousal support and immediate family member as per the Baby-Friendly Community Initiative (BFCl) to support breastfeeding mothers. Questions on access to breast pumps (manual & electric), electricity and refrigeration to help in the storage of breastmilk were also included in the survey.

Employment status and workplace support

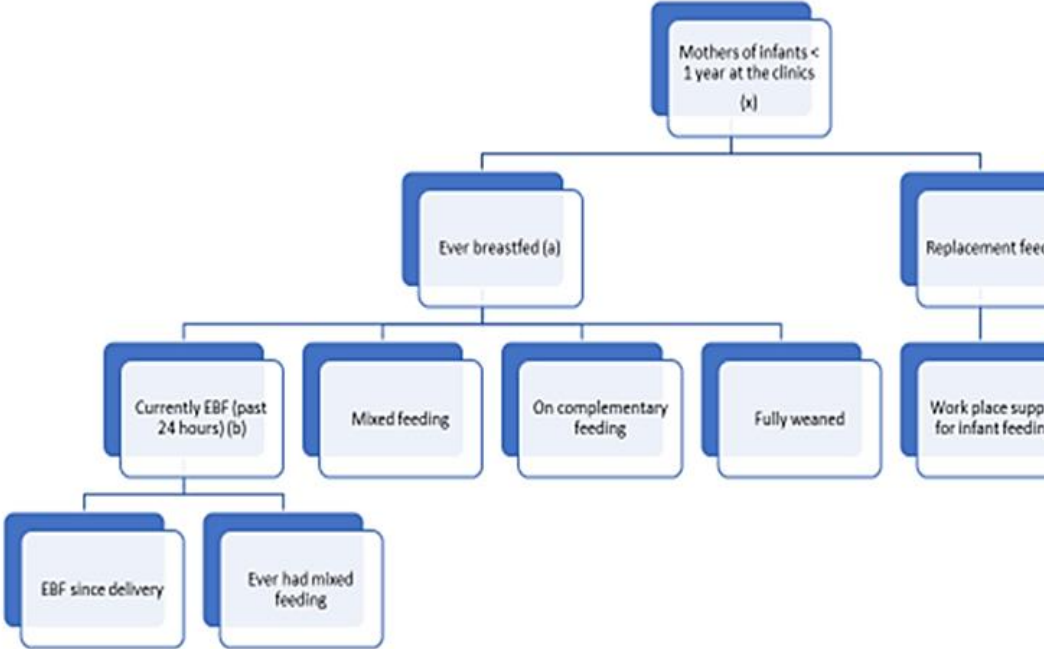
In this section, a confirmation was made that the participant was formally employed as per case definition, sector of employment (public or private) and monthly income. Provision of a breastfeeding policy, flexible working hours and lactation station with all the provisions of securing a breastfeeding-friendly workplace environment.

IYCF practices

IYCF practices were assessed using standardized questions from Part One: WHO IYCF Tool. This entails the initiation of BF within 1 hour, EBF up to 6 months, duration of BF, complementary feeding & bottle feeding. Using a 24-h list-based recall method, we can record the types of liquid, semisolid, and solid foods given during the previous day. The ability for breastmilk expression and storage at the workplace was also evaluated in this section. (31)

Figure 4: IYCF Tool

Infant feeding practice of formally employed women



3.8.5 Ethical Considerations

Ethical approval sort from the Kenyatta National Hospital Ethics and Research committee Ref No. P235/04/2021. Being a hospital-based study outside KNH, ethical approval was acquired and approved by The Nairobi Hospital Ethics & Research Committee. TNH-ERC/DMSR/RP/017/21.

Informed consent was obtained from the BF mothers after explaining to them the basis of the survey. The form explains the steps to be followed. Consent was voluntary and without coercion. The eligible mothers all signed the consent form. The consent form was translated to Kiswahili for parents who do not understand English. However, all participants preferred English.

3.8.6 Data Management

A template for data entry was created and double-entry was done to minimize errors. Data was then cleaned and validated before analysis and stored safely in the principal investigator's drive-in Excel format. The data was then submitted to the data analyst.

3.8.7 Data Analysis

Data analysis was executed in R version 4.0.2. Exploratory analysis was done by use of charts. Univariate data analysis of the independent categorical variables such as maternal characteristics, social support and workplace support was done through tabulation of frequencies and proportions. Continuous data e.g., maternal age was presented using median and interquartile range (IQR).

Bivariate data analysis was executed using Pearson's chi-square (Table 8) and Fisher's exact test (Table 9) for a categorical independent and outcome variable. Regression of the binary outcome against each independent variable to produce unadjusted ORs, confidence intervals at 95% (CI) and p-values that were then tabulated. Association between exclusive breastfeeding (outcome) and multiple independent variables (those that were significant under bivariate analysis) e.g., BF policy and family support was evaluated using multivariable binary logistic regression. Results were presented using adjusted odds ratios, 95% confidence intervals for odds ratios and p-values at a 5% significance level.

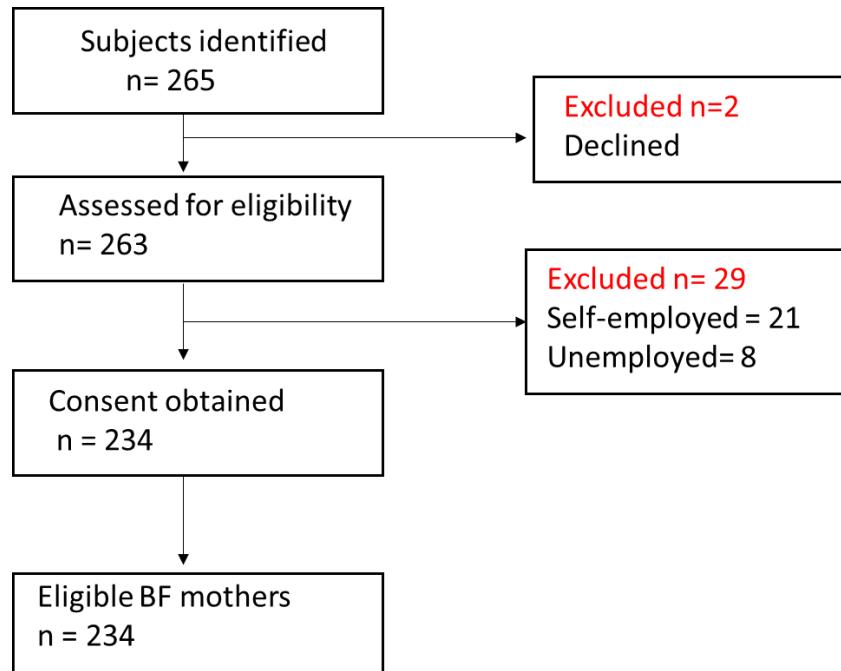
3.9 Quality assurance

To ensure quality data, the collection of data was carried out by research assistants who were Nutritionist graduates of the University of Nairobi. Before data entry and analysis, all the questionnaires were examined by the principal investigator to check for completeness and then stored in the file and submitted to the analyst on the same day.

Chapter 4: Results

The total number of subjects that were identified was 265 subjects. Upon seeking consent two subjects declined to participate in the study. About 21 mothers showed interest but were excluded as they were self-employed. An additional eight mothers were unemployed and being supported by their spouses and hence excluded. A flow diagram of the participants is illustrated below.

Figure 5. Flow Diagram



4.1 Demographic characteristics

Infant Characteristics

The response rate for this study was 100%. The youngest infant was 6 months old while the oldest was 12 months. The median age was 9.0 months with an interquartile range (IQR) of 7 to 11 months. Out of the 234 infants as shown in (Table 2) n = 114/234 (48.7%) were males, 106/234 (45.3%) were females and 2/234 (0.9%) were intersex. The rest were not indicated.

The median gestational age was 39.0 weeks and an IQR of between 38.0 to 40 weeks. There were 14/234 (6%) preterm infants born before 37 completed weeks of gestation. Those born via spontaneous vertex delivery (SVD) were 126/234 (53.8%) infants, caesarian section accounted for 99/234 (42.3%) while 4/234 (1.7%) were delivered via vacuum extraction.

Maternal Characteristics

The age range of the participating women was 22 – 42 years and a median age of 32 years with an IQR of 28 to 34 years. Most women had post-secondary education, with 222/234 (94.9%) having tertiary education and 8/234 (3.4%) had secondary education and only 3/234 (1.3%) had primary education. Three-quarters of the women 175/234 (74.8%) were employed in the private sector while the rest were in the public sector. A total of 199/234 (85.0%) were married, 30/232 (12.8%) were single and 3/232 (1.3%) were divorced as shown in (Table 2).

Table 2: Demographic characteristics of the study participants

Variable	Frequency/Median N = 234	Percentage (%)/IQR
Gender: Male	114	48.7
Female	106	45.3
Mixed	2	0.9
Not indicated	12	5.1
Age of the child in months	9.0 months	(7.0, 11.0) months
Gestation in weeks:	39.0 weeks	(38.0, 40) weeks
Age categories: <8 months	65	27.8
8-10 months	78	33.3
>10 months	91	38.9

Mode of delivery: C-section	99	42.3
Normal (SVD)	126	53.8
Vacuum	4	1.7
Not indicated	5	2.1
Breastfed within 24 hours: Yes	172	73.5
No	62	26.5
Gestation at birth: Preterm	14	6.0
Term	212	90.6
Not indicated	8	3.4
Maternal characteristics		
Age of the mother in years	32.0 years	28, 34
Age categories of mothers: <30 years	70	29.9
30-36 years	132	56.4
>36 years	30	12.8
Not indicated	2	0.9
Mother's education: Primary school	3	1.3
Secondary school	8	3.4
Tertiary level	222	94.9
Not indicated	1	0.4
Employment: Public sector	58	24.8
Private sector	175	74.8
Not indicated	1	0.4
Marital status: Married	199	85.0
Single	30	12.8
Divorced	32	1.3
Not indicated	2	0.9

Primary Objective

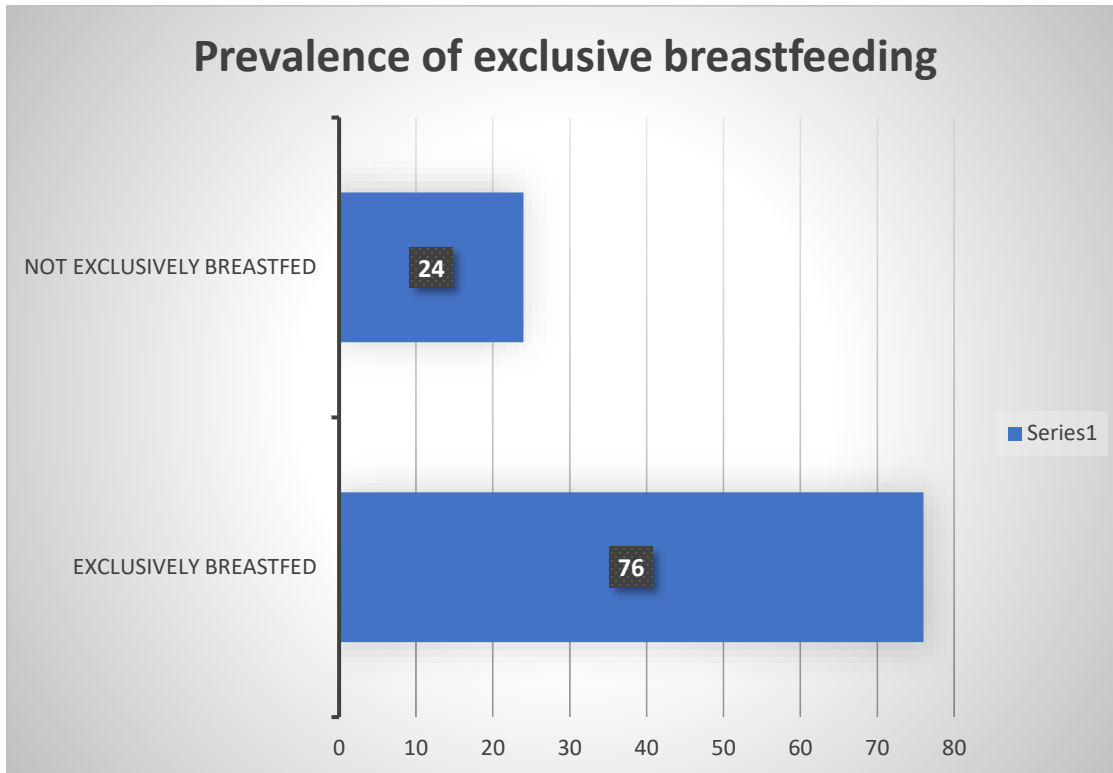
1. Describe the prevalence of EBF in the first 6 months of life among formally employed women working in Nairobi and accessing well-child services at The Nairobi Hospital OPC.

4.2 Maternal Breastfeeding Practices

A total of 234 women responded to the question of whether they had ever breastfed and 234 reported that they had prior breastfeeding experience. With the current infant, 76.5% (n = 179) of the women reported having breastfed exclusively for the first 6 months. Therefore, the

prevalence of exclusive breastfeeding for the first 6 months was 76% (95% CI 70%, 82%). At the time of the interview, 73.5% (n = 172) of the women were still breastfeeding and providing complementary feeds to their babies.

Figure 6: Prevalence of exclusive breastfeeding in the first 6 months.



Other Maternal Breastfeeding Practices

When mothers were asked whether they managed to breastfeed their babies within the first hour of birth. Those that breastfed an hour postpartum were 42.3% (n = 99). Most of the mothers were educated on BF, 87.4% (n = 201).

In response to the question of breast milk expression at home, a total of 55.6% (n = 129) responded that they expressed at home, 44.0% (n = 103) did not express and 0.9% (n = 2) did not respond. When the women were asked whether they had ever breastfed, 97.0% (n = 227) had ever breastfed while the rest had not. Most of the mothers 47.0% (n = 110) used pumps to express milk 6.4% (n = 15) expressed manually and 46.6% (n = 109) did not express. When it

came to the source of education on breastfeeding, most of the mothers 154/206 (74.7%) were educated by healthcare workers followed by 25/206 (12.1%) who got information from healthcare workers and friends. The remaining number was learnt from friends and online (table 3)

Table 3: Maternal Breastfeeding Practices

Variable	Frequency N = 234	Percentage (%)
Mother exclusively breastfed	179	76.5
Expresses breast milk at home	129	55.1
Mother has ever breastfed	227	97.0
Mode of breast milk expression: Manual	15	6.4
Pump	110	47.0
Not expressing	109	46.6
Breastfed within 1 hour of birth	99	42.3
Mothers educated on breastfeeding	201	87.4
Source of education on breastfeeding:	N = 206	
Friends	17	8.3
Health care workers	154	74.7
Friends/health care workers	25	12.1
Online	10	4.9

Secondary Objective

Describe the type of structural workplace and home support offered to secure a breastfeeding-friendly work environment for BF mothers employed in Nairobi and accessing well-child services at The Nairobi Hospital OPC.

4.3 Structural workplace and home support offered to secure BF in mothers working in Nairobi and accessing well-child services at The Nairobi Hospital OPCs

There were various levels of workplace structural support for breastfeeding and included 128 (54.7%) women reporting that there was an existing breastfeeding policy. Flexible working hours were accorded to 165 mothers (70.5%) and about half of the mothers (52.6%) were awarded breastfeeding breaks at the workplace. Less than half of the mothers (44.9%) were provided with access to breastfeeding stations (n=104) as shown in (Table 4). Of those who responded to the provision of BF stations at the workplace 80 mothers (34.1%) reported that they were conveniently situated, and 44.9% (n = 105) had a sink with running water and soap. Those who reported comfortable chairs in the lactation stations were 99 (42.3%) and 41.9% (n = 98) reported that the lactation stations were comfortable enough to EBM. 234 (98.3%) of the participants were accorded three months of paid maternity leave. A good majority 67.9% (n = 159) were accorded more than three months of maternity leave.

Table 4: Workplace structural support for breastfeeding

Variable	Frequency (%)
	N = 234
Flexible working hours	165 (70.5%)
Breastfeeding breaks	123 (52.6%)
Breastfeeding station	105 (44.9%)
Breastfeeding policy	128 (54.7%)
Convenient location of breastfeeding stations	80 (34.2%)
Comfortable chairs in lactation rooms	99 (42.3%)

Paid 3 months of maternity leave	230 (98.3%)
More than 3 months of maternity leave	159 (67.9%)
Availability of soap and water	105 (44.9%)
Mothers able to EBM comfortably	98 (41.9%)

Impact of workplace support, infant characteristics, maternal characteristics and home support on exclusive breastfeeding in the first 6 months of life

Table 5. Maternal characteristics

Factor	Exclusive breastfeeding		Crude OR (95% CI)	p-value
	Yes N = 179	No (ref) N = 55		
Maternal characteristics				
Marital status: Single (ref)	20 (11.2%)	10 (18.2%)		
Married	154 (86.5%)	45 (81.8%)	1.71 (0.75, 3.92)	0.20
Divorced	3 (1.7%)	0 (0%)	NA	0.23
Mothers' age:<30 years (ref)	52 (29.4%)	18 (32.7%)		
30-36 years	103 (58.2%)	29 (52.7%)	1.22 (0.59,2.56)	0.55
>36 years	22 (12.4%)	8 (14.6%)	0.95 (0.36, 2.5)	0.92
Mothers' education level:				
Primary/secondary (ref)	9 (5.0%)	3 (5.5%)		
Tertiary	170 (95%)	52 (94.5%)	1.09 (0.28, 4.17)	1.00
Place of work: Private sector	134 (74.9%)	42 (76.4%)	0.92 (0.45, 1.87)	0.82
Mothers' income in KSHs.				
<100,000 (ref)	42 (23.5%)	14 (25.5%)		
100,000 - 150,000	38 (21.2%)	24 (43.6%)	0.53 (0.24, 1.17)	0.11
>150,000	99 (55.3%)	17 (30.9%)	1.94 (0.88, 4.29)	0.10
Educated on breastfeeding	158 (88.3%)	43 (78.2%)	2.01 (0.96, 4.60)	0.06

Source of education on breastfeeding: Friends (ref)	13 (7.9%)	4 (9.8%)		
Health care workers	125 (75.8%)	29 (70.7%)	1.33 (0.40, 4.36)	0.64
Friends/health care workers	18 (10.9%)	7 (17.1%)	0.79 (0.19, 3.28)	0.75
Online	9 (5.5%)	1 (2.4%)	2.77 (0.26, 29.1)	0.38

*Where more than 20% of cells have counts less than 5, the p-values are generated using Fisher's exact test.

A total of seven factors were assessed under maternal characteristics and none of them was significantly associated with EBF at a 5% significance level p-values >0.05 in its entirety. The odds ratios show that the odds of married women breastfeeding exclusively were 1.71 the odds of women whose marital status was single OR 1.71 (95% CI 0.75, 3.92).

Women who were aged between 30-36 years old were had 1.22 times the odds of those aged below 30 years for exclusive breastfeeding OR 1.22 (95% CI 0.59, 2.56) while the odds of exclusive breastfeeding for mothers aged above 36 years old were 0.95 times the odds of those aged below 30 years OR 0.95 (95% CI 0.36, 2.50).

Tertiary level education increased the odds of exclusive breastfeeding by 9% the odds of primary/secondary level education. The odds of exclusive breastfeeding among women who worked in the private sector were 0.92 times the odds of those who worked in the public sector OR 0.92 (95% CI 0.45, 1.87).

The odds of exclusive breastfeeding among women who earned between KSHs. 100,000-150,000 were 0.53 times the odds of those who earned less than KSHs. 100,000 OR 0.53 (95% CI 0.24, 1.17) while those who earned more than KSHs. 150,000 were 1.94 times likely to breastfeed exclusively compared to those who earned less than KSHs. 100,000 OR 1.94 (95% CI 0.88, 4.29) (Table 5).

Effect of workplace environment on exclusive breastfeeding

In univariate analysis, several workplace factors were associated with a significantly increased likelihood of exclusively breastfeeding in the first 6 months of life. Exclusive breastfeeding among women who had flexible working hours in their workplaces was 2.56 times more compared to those who did not have flexible working hours OR 2.56 (95% CI 1.36, 4.80, p-value = 0.003). The odds of exclusive breastfeeding for women who were given breastfeeding breaks at the workplace were 2.37 times the odds of those who were not given breastfeeding breaks OR 2.37 [(95% CI 1.27, 4.42), p-value = 0.006]. In contrast, women who reported that their workplace had a breastfeeding policy were 50% less likely to breastfeed exclusively compared to those who did not have a breastfeeding policy OR = 0.50 (95% CI 0.27, 0.94, p = 0.03). The above occurrence could have been caused by a lack of understanding on what breastfeeding policy meant among the respondents. Three months maternity leave was positively associated with exclusive breastfeeding i.e., women who were given three months maternity leave were 3.58 times more likely to breastfeed exclusively compared to those who were not OR 3.58 (95% CI 1.89, 6.97, p = 0.001).

Table 6: Effect of workplace support on exclusive breastfeeding

Factor	Exclusive breastfeeding		Crude OR (95% CI)	p-value
	Yes N = 179	No (ref) N = 55		
Workplace Support				
Flexible working hours	135 (75.4%)	30 (54.5%)	2.56 (1.36, 4.80)	0.003
Breastfeeding breaks	103 (57.5%)	20 (36.4%)	2.37 (1.27, 4.42)	0.006
Breastfeeding station	80 (44.7%)	25 (45.5%)	0.97 (0.532, 1.78)	0.92
Breastfeeding policy	91 (50.8%)	37 (67.3%)	0.50 (0.27, 0.94)	0.03
Convenient location of BF stations	67 (37.4%)	13 (23.6%)	1.94 (0.97, 3.86)	0.06

Comfortable chairs in lactation rooms	75 (41.9%)	24 (43.6%)	0.93 (0.51, 1.71)	0.82
Paid 3 months maternity leave	177 (98.9%)	53 (96.4%)	3.33 (0.46, 24.28)	0.24
> than 3 months maternity leave	133 (74.3%)	26 (47.3%)	3.58 (1.89, 6.97)	<0.001
Availability of soap and water	79 (44.1%)	26 (47.3%)	0.82 (0.45, 1.50)	0.52
Mothers able to EBM comfortably	77 (43.0%)	21(38.2%)	1.22 (0.66, 2.27)	0.52

4.4 Home environment and its effect on EBF

Bivariate analysis

Table 7: Effect of home environment on exclusive breastfeeding

Variable	Exclusive breastfeeding		Crude odds ratio (95% CI)	P-value
	Yes N = 179	No (ref) N = 55		
Availability of a fridge: Yes	175/179 (97.8%)	51/55 (92.7%)	3.43 (0.83, 14.20)	0.09
Spousal support: Yes	170 (95%)	54 (98.2)	0.35 (0.04, 2.82)	0.46
Family support: Yes	176 (98.3%)	46 (83.6%)	11.48 (2.99, 44.11)	<0.01
Family with a house help: Yes	153 (85.5%)	47 (85.5%)	1.002 (0.43, 2.36)	1.00

Four factors were assessed under the home environment and how they affected exclusive breastfeeding. These factors were the availability of a fridge at home, spousal support, family support and having house help. Of the four factors, family support was significantly associated with exclusive breastfeeding, p-value < 0.01 at a 5% significance level.

The women who had family support were 11.48 times more likely to breastfeed exclusively compared to those who did not have family support OR 11.48 (95% CI 2.99, 44.11, $p < 0.01$). Availability of a fridge at home increased the odds of exclusive breastfeeding by 3.43 times though this factor was not significantly associated with exclusive breastfeeding OR 3.43 (95% CI 0.83, 14.20, $p = 0.09$).

4.5 Effect of breastfeeding knowledge on EBF

In table 8 below we reveal that 88.3% ($n = 158$) of the women who breastfed exclusively had been educated on breastfeeding. In comparison to 11.7% ($n = 21$) had not been educated on breastfeeding but they managed to breastfeed exclusively.

Bivariate analysis

Table 8: Association between education on EBF and EBF

		Exclusive breastfeeding		P-value
Factor	Category	Yes	No	
Educated on exclusive breastfeeding	Yes	158 (88.3%)	43 (78.1)	0.10
	No	21 (11.7%)	12	

A Pearson's chi-square test of association yielded a p-value of 0.10 at the significance level of 0.05. We concluded that education on breastfeeding wasn't independently associated with EBF. As to whether there was an association between the source of breastfeeding education and exclusive breastfeeding, Fisher's test produced a p-value of 0.59 at a significance level of 0.05. We concluded that there was no statistically significant association between the source of breastfeeding education and exclusive breastfeeding (Table 8).

Table 9: Association between the source of education and exclusive breastfeeding

		Exclusive breastfeeding		P-value
Factor	Category	Yes	No	
Source of education on exclusive breastfeeding	Health care workers	125 (53.4%)	29 (12.4%)	0.59
	Health care workers/friends	18	7	
	Friends	13	4	
	Online	9	1	

4.6 Multivariable analysis

We fitted a multivariable binary logistic regression model to assess the effect of the significant factors on exclusive breastfeeding after adjustment. Insignificant variables were eliminated through reverse selection. Table 10 below shows the factors that remained in the model.

Table 10: Factors associated with exclusive breastfeeding

Factor	Exclusive breastfeeding		Adjusted odds ratio (95% CI)	P-value
	Yes N = 179	No (ref) N = 55		
Breastfeeding policy	91 (50.8%)	37 (67.3%)	0.38 (0.17,0.79)	0.01
Family support	176 (98.3%)	46 (83.6%)	5.76 (1.47, 28.80)	0.02
More than 3 months maternity leave	133 (74.3%)	26 (47.3%)	4.74 (2.25, 10.26)	<0.001
Term gestation	166 (92.7%)	46 (80.7%)	3.20 (1.02, 11.15)	0.05

Four factors were found to be significantly associated with exclusive breastfeeding after adjustment at a 5% significance level i.e., breastfeeding policy, family support, more than 3 months of unpaid leave after delivery and term gestation, p-values 0.01, 0.02, <0.001 and 0.05 respectively.

Availability of a breastfeeding policy reduced the odds of exclusive breastfeeding by 62% after adjusting for family support, gestation, and unpaid leave for more than 3 months AOR 0.38 (95%

CI 0.17, 0.79). The difference between mothers who EBF and received family support in comparison to those who did not have family support was significant AOR 5.75 [(95% CI 1.47, 28.80) $p=0.02$] after adjusting for breastfeeding policy at the workplace, gestation and unpaid maternity leave of more than 3 months.

Mothers who were given more than 3 months of unpaid maternity leave showed a positive association with mothers likely to breastfeed exclusively compared to those who were not AOR 4.74 [(95% CI 2.25, 10.26) $p<0.001$] after adjusting for gestation, breastfeeding policy and family support. Babies born at term were 3.20 times more likely to be breastfed exclusively compared to pre-term babies AOR 3.20 [(95% CI 1.02, 11.15) $p=0.05$] after adjusting for breastfeeding policy, family support and more than 3 months of unpaid maternity leave.

Chapter 6: Discussion

However, BF mothers find themselves in catch 22 situations when striving for equity in the workplace as numerous studies have revealed that being a working BF mother is associated with poor rates of EBF. These studies also show that working mothers turn to the introduction of BMS sooner due to the strain of employment and poorly implemented measures in place to promote BF by creating a BF friendly environment in the workplace. (33) A Kenya Demographic Health Survey in 2014 revealed that the national rate of EBF was 61%. The Health Act 2017 amendment provides policy on efforts to secure a breastfeeding-friendly working environment for working mothers.

In this study, 234 participants were recruited. The median age was 32 years for mothers and 9 months for infants. We found that 90.6% of the infants ($n = 212$) were born at term gestation. The majority of mothers 94.9% ($n = 222$) had attained tertiary education and the participants were highly educated. 85.8% ($n = 199$) were married and a positive association between family support was reported. We demonstrate a positive association between paid maternity leave, workplace support and household support to secure a breastfeeding-friendly environment for BF mothers. 76% of BF mothers achieved EBF by 6 months and these rates are higher than the

national EBF rates and in keeping with other studies that have shown an increase in EBF with paid maternity leave. (19) It is also important to highlight that 42.3% (n = 99) managed to BF within one hour as part of the outcome of interest in this study. Those that delivered via caesarian section also happened to be 42.3% which usually contributes to the low rates of BF within 1 hour due to prolonged time away in the post-operative recovery room.

As part of workplace support, we found a strong association between EBF and participants who were awarded a maternity leave greater than three months, as some employers go above and beyond to support working BF mothers. After adjusting for confounders, we revealed mothers with longer than 3 months of maternity leave have a 4.74 times greater odds of EBF versus the mothers who did not. A longitudinal study done in 38 low income and LMICs revealed that extended maternity leave (more than 14 weeks) has a positive association with increased EBF rates. The fully adjusted models in the mentioned study showed that increasing the maternity leave by one month was shown to have a 7.4% increase in the prevalence of EBF. (34) This study suggests that a paid maternity leave independently without a conducive work and home environment to foster BF will not positively impact EBF rates. This is observed in a 2016 local hospital-based study at KNH where it revealed low rates of EBF at 6 months at 29.2%. In comparison, the rates at 0 – 3 months (duration of maternity leave in Kenya) stood as high as 99.3%. (25)

Our study revealed that the availability of a breastfeeding policy reduced the odds of exclusive breastfeeding by 62% after adjusting for family support, gestation, and unpaid leave for more than 3 months. A fair majority 57.5% (n = 103) had access to BF breaks. Only 80 of the participants (44.7%) who EBF had access to a BF station at the workplace in comparison to the respondents who had no access to breastfeeding stations. In those that EBF with the availability of BF stations, our findings reveal that 37.4% (n = 67) were not conveniently located. The association of EBF and a conveniently located BF station showed it was 1.94 times greater than those who had EBF and had no provision of a conveniently located lactation station. This was however noted not to be statistically significant. Out of the 179 that EBF, 44.1% (n =79) had no access to running water or

soap. This reveals the poorly implemented policy despite the implementation framework in place.

The associations between workplace/home support and EBF include breastfeeding policy, family support, > 3 months of maternity leave and term gestation were noted to be significantly associated with EBF with p-values of 0.01, 0.02, <0.001 and 0.05 respectively. The odds of exclusive breastfeeding for women whose workplace had flexible working hours were 2.56 the odds of those who did not have flexible working hours. A systematic review of interventions to better workplace support to encourage BF among working mothers demonstrated that securing a BF friendly work environment helps improve the prevalence of BF and prevents the premature introduction of BMS. Provision of a lactation room, BF breaks, and institutional BF policies were recommended as key strategies in promoting working mothers' EBF. (35)

In terms of the association between home environment and EBF rates, we can appreciate that having family support has a positive impact on EBF. BF working mothers with family support had a positive association with EBF. The odds of EBF for participants with family support were 5.76 times the odds of those without family support. A study in Indonesia on Family support and EBF among employed BF mothers showed that family support for BF and a higher education level were positively associated with EBF among BF mothers and findings were statistically significant. (36)

In maternal BF practices, 42.3% of the BF mothers had achieved BF within an hour after delivery. A majority of 88.3% had received education on BF with HCWs and friends 75.8% (n =125) being the largest source of education. However, no statistical significance in the association between the source of breastfeeding education and EBF was found. The most common sources the respondents received BF education were HCWs, friends and information online. Babies born at term were 3.20 times more justifiably able to EBF compared to pre-term babies. This was found to be significant after adjusting for breastfeeding policy, family support and more than 3 months of unpaid maternity leave.

Our findings revealed four main factors, the availability of BF policy at the workplace, family support, BF breaks and more than 3 months of maternity leave to be significantly associated with

EBF after adjusting for other factors p-values 0.04, <0.01 and 0.03 respectively at a 0.05 significance level. The associations are in keeping with the previous studies mentioned above.

6.1 Study Strength

This is the only study that evaluates how workplace support policies affect the rates of EBF amongst formally employed women in Nairobi, accessing well-child services at the Nairobi Hospital OPCs. The relative cost of the study design is inexpensive. The study has provided significant data on the status of the Implementation framework for workplace support for BF mothers provided by MOH.

6.2 Study Limitations

We can appreciate methodological limitations in the study as it was an observational cross-sectional study. The time the study was taken (snapshot) may not be representative and findings must be interpreted with this in mind. The study was a hospital-based study for BF mothers seeking well-child services at The Nairobi Hospital and may not be generalizable to the entire population. An index of brief definitions and abbreviations was provided on the questionnaire. This was to help reduce misinterpretation or misunderstanding of the terms such as BF policy.

6.3 Conclusion

This study revealed a positive association between EBF practices in working mothers that were adequately supported at the workplace to ensure good breastfeeding practices. Higher rates of EBF were positively associated with mothers accorded a paid maternity leave and an even more significant increase when maternity leave was longer than 3 months to support the working mothers. It adversely reveals the poor implementation of the workplace policies in place to protect exclusive breastfeeding in working mothers. A clear gap exists in the implementation of the Kenya Health Act 2017, particularly sections 71 & 72. This important act outlines the provision of a well-equipped breastfeeding station, flexible working hours and even provision of a creche if possible for working lactating mothers. This study has produced significant evidence showing that half of the BF mothers were not adequately supported at the workplace.

As more women equitably join the workforce it is imperative that better methods of monitoring, evaluating and improving policies in place to support BF mothers be considered. Women have every right to equitable employment and institutional support to help foster EBF practices in the workplace. The study reveals that institutions with a BF policy harm EBF. The lack of breastfeeding policies and poor workplace support such as breastfeeding breaks for mothers employed in the formal sector suggests a gap in knowledge among employers and BF employees regarding the laws in place to foster EBF. This may point to the assumption that the participants may not have understood the definitions of terms such as breastfeeding policy and the results should be interpreted with some caution.

Recommendations

Given the findings and the higher rates of EBF associated with home and workplace support for the formally employed BF mothers. Policy changes such as extending the duration of maternity leave for working mothers will assist in improving the rates of EBF. This is owing to the findings showing poorly implemented workplace support that foster exclusive breastfeeding at work. More advocacy and education on current policies in place to support BF working mothers is needed. Better studies on the knowledge and attitude of the same workplace policies and their role in BF practices may provide more conclusive data to augment further policy changes.

Study Budget

ITEM	UNIT	QUANTITY	TOTAL
PRINTING	10	1000	10,000 KES
PHOTOCOPYING	5	10	5000 KES
BINDING	100	10	1800 KES
CONSENT TRANSLATION	1500	3	4500 KES
ERSC KNH/UON	1	2000	2000 KES
DATA COLLECTION & ANALYSIS	1	30,000	30,000 KES
RESEARCH ASSISTANT	2	10,000	20,000 KES

STATISTICIAN	1	30,000	30,000 KES
GRAND TOTAL			103,300 KES

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Appendix 1: Questionnaire

Topic: Exclusive Breastfeeding Practices and Workplace Support for Mothers Employed in the Formal Sector in Nairobi

Socio-demographics

Please fill out this questionnaire after providing written consent and appraisal of the importance of the study.

Age: ____ D.O.B: _____ Parity: _____

Marital Status

Single Married Divorced Widow

Education Level

Primary Secondary Tertiary

Household Support & Nursing Support

Domestic worker (nanny) Yes | No

Spouse/Partner support Yes | No

Immediate family member Yes | No

Workplace Support

Please fill out this questionnaire after providing written consent and appraisal of the importance of the study.

Breastfeeding support at the workplace

Does a BF policy exist at work? Yes | No

3-month paid maternity leave? Yes | No

> 3 months paid/unpaid maternity? Yes | No

Is a private BF station available? Yes | No

Does it have running water and soap? Yes | No

Does it have comfortable chairs? Yes | No

Does it have storage counters? Yes | No

Does it have a fridge? Yes | No

Access to electricity Yes | No

Access to fridge or freezer Yes | No

Do you EBM at home? Yes | No

If yes how do you express? Manual | Pump

Breastmilk storage bags/bottles Yes | No

Household income (KES)

< 100k 100-150k 150-200k > 200k

Is it located in a convenient location? Yes | No

Can you EBM comfortably? Yes | No

Are you provided with a 1-hour BF break in addition to lunch breaks for every 8-hour workday? Yes | No

Do you get flexible working hours? Yes | No

Do you have any know contraindications to BF?

Yes No

If yes, specify

Employment Status

Public sector Private Sector

Working hours

< 40 hrs/wk 40 hrs/wk > 40 hrs/wk

Antenatal History

Age of youngest child: ____ months Sex: ____

Mode of delivery? SVD | C-Section | Vacuum extraction

Gestation ____ weeks

Breastfeeding Practices

Have you ever breastfed? Yes | No

Did you receive any education or training on BF? Yes | No

If yes, please specify HCW Friends/Family Online

Other, specify _____

Did you manage to BF within an hour after delivery?

Yes | No

Have you BF in the past 24 hours? Yes | No

If no, what liquids did you introduce?

Infant formula Animal milk Plain Water Juice

Other, specify _____

Why did you introduce other liquids/foods?

Not enough milk | Baby refused to BF

Return to work | Advice from family and friends

Baby was 6 months and ready to feed | Other, specify

How old was your child when you introduced food?

_____ months

Have you introduced solid feeds in the past 24 hours? Yes |
 No

If yes, specify _____

Does your child have any contraindications to breastfeeding?

Yes | No

If yes, specify _____

Index

BF – Breastfeeding. EBM – Expressed breastmilk. BF Policy – A policy provided by HR to employees on workplace support to aid exclusive breastfeeding.

Appendix 2: Participant Information Form

Principal Investigator: Dr Ngala Mwendwa, Mobile: 0705916065

Email: ngalamwendwa@students.uonbi.ac.ke

Thank you for your time, I humbly seek your voluntary participation in this scientific study as part of a survey. A questionnaire is made available for your valuable input.

TITLE OF THE STUDY: EXCLUSIVE BREASTFEEDING PRACTICES AND WORKPLACE SUPPORT FOR MOTHERS EMPLOYED IN THE FORMAL SECTOR IN NAIROBI

PURPOSE OF THE STUDY: This study is designed to evaluate the prevalence of exclusive breastfeeding rates in mothers employed in the formal sector. Part of its aim is also to identify and describe the associations of workplace support for breastfeeding by securing a breastfeeding-friendly work environment to help mothers achieve EBF so their infants may receive the benefits.

STUDY PROCEDURE: Each breastfeeding mother employed in the formal sector that consents to participation will be provided with a self-administered questionnaire by the investigator or research assistant. The time taken to complete the questionnaire should be no more than 15 to 30 minutes.

RISK OF THE STUDY: There is no risk of participating in the study.

POSSIBLE BENEFITS: By participating in the study, you will aid in providing key data on the prevalence of EBF in mothers in the formal sector and the level of workplace support to breastfeeding mothers.

COMPENSATION: There will be no compensation given.

RIGHT TO WITHDRAW: As a participant in this study, your involvement is voluntary. You are free to refuse participation without stigma or judgement. Your input is impartial and at any time you have the freedom to withdraw from participation in this study.

CONFIDENTIALITY: All answers will be strictly confidential and applicable to the ethical conduct of research. The answers will be documented and analyzed anonymously. Only the researchers shall have access to your private information. The participant's identity will be anonymous and the data is solely intended for the purpose is for scientific research.

Researcher's Statement

My name is Dr Ngala Mwendwa, a postgraduate student studying paediatrics and child health at The University of Nairobi. I am conducting a study on exclusive breastfeeding practices and workplace support for mothers employed in the formal sector in Nairobi.

PLEASE READ AND SIGN IF YOU HAVE AGREED TO PARTICIPATE IN THIS STUDY

I confirm that I read the above information for this study, and I have fully understood the purpose of the survey. I am aware I will not suffer any injury or harm during the process of

participation. The information I provide will not be used maliciously. I am cognizant that I possess the freedom to withdraw from the study at any given point in time with no explanation or justification. I acknowledge the information shared will be confidential and only be accessible by the researcher and those affiliated with the study. I understand I won't benefit financially from participating in this study. I am informed and aware that in case of queries or clarifications I may reach the principal investigator to raise concerns. I agree to answer to the best of my knowledge, voluntarily and without coercion.

Participants Name..... Signature..... Date

Researchers Name..... Signature.....Date.....

Appendix 3: Plagiarism Reports

Please find appended the Turnitin similarity reports. A disclaimer is that 2 sources were excluded from the final search. The reason for exclusion is that these two sources (Higher Commission of Education Pakistan and Barstow Community College) are where the previous study proposals were uploaded several times. This happened via the logins I was provided with at the time. A version of each paper uploaded was deleted from the inbox, however, all versions were not permanently deleted from the Turnitin repository.

Before exclusion from the final similarity report

The screenshot shows the Turnitin Feedback Studio interface. The main document area displays the following text:

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Student Paper

Because submitted papers remain the intellectual property of their authors, instructors, and respective institutions, we are unable to show you the content of this paper at this time. If you would still like to view this paper, please click on the institution name above to submit a permission request to the author's instructor.

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT FOR THE AWARD OF A MASTER'S DEGREE IN PAEDIATRICS AND CHILD HEALTH

The right sidebar shows a 'Match Breakdown' table:

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At the bottom of the interface, it shows 'Page: 1 of 54', 'Word Count: 12409', and 'Text-Only Report | High Resolution On'.

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Above we find the similarity report of the proposal submitted 5th April 2021. The same proposal was submitted for internal marking and to ERC with the above plagiarism report, this context can also be verified in both soft and hard copies.

Final Similarity report below.

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UNIVERSITY OF NAIROBI

EXCLUSIVE BREASTFEEDING PRACTICES
AND WORKPLACE SUPPORT OFFERED TO
FORMALLY EMPLOYED MOTHERS IN
NAIROBI ACCESSING WELL-CHILD
SERVICES AT THE NAIROBI HOSPITAL
OUTPATIENT CENTRES

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT FOR THE AWARD OF A MASTER'S
DEGREE IN PAEDIATRICS AND CHILD HEALTH

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THE NAIROBI HOSPITAL

Argwings Kodhek Road
P.O. Box 30026 - 00100
Nairobi, Kenya

REF: TNH/ADMIN/CEO/DMSR/14/12/2021

15th December 2021

TO: Dr. Ngala B. Mwendwa
Principal Investigator

Dear Dr. Mwendwa,

RE: EXCLUSIVE BREASTFEEDING PRACTICES AND WORKPLACE SUPPORT FOR MOTHERS EMPLOYED IN THE FORMAL SECTOR IN NAIROBI

This is to inform you that *The Nairobi Hospital Ethics & Research Committee* has reviewed and approved your above research proposal. Your application approval number is *TNH-ERC/DMSR/RP/017/21*. The approval period is *15th December, 2021 - 15th December, 2022*.

A. Scientific design and conduct of the study.

In this proposed study the PI shall encompass a descriptive cross-sectional design involving breastfeeding mothers employed in the formal sector in Nairobi, Kenya. The study shall be conducted at The Nairobi Hospital Anderson Centre & The Nairobi Hospital Outpatient Centres.

B. Recruitment of research participants.

The recruitment of study participants will be carried out by two research assistants who are final year medical students at the University of Nairobi. The research assistants will be dully trained by the principal investigator on the data collection tool, how to approach the potential study participants, the eligibility criteria and how to seek consent. The principal investigator will also be present to handle any unforeseen issues, to be consulted by the research assistants and to allay anxiety among the potential study participants if need be.

C. Care and protection of research participants

The research assistants shall be catered for fully by the principal investigator. The survey shall be conducted via questionnaire forms physically or online via a compatible device. KN95s will be provided to the research assistants by the PI. The PI takes for responsibility for the conduct of the research assistants.




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This approval is subject to compliance with the following requirements;

- i. Only approved documents including (informed consents, study instruments, MTA) will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by *The Nairobi Hospital Ethics & Research Committee*
- iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to *The Nairobi Hospital Ethics & Research Committee* within 24 hours of notification
- iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to *The Nairobi Hospital Ethics & Research Committee* within 72 hours
- v. Clearance for export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to *The Nairobi Hospital Ethics & Research Committee*.

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

Yours sincerely,
FOR: THE NAIROBI HOSPITAL

James Nyamongo
CHIEF EXECUTIVE OFFICER

- C.c. Chairman, TNH-Ethics & Research Committee
Director, Medical Services & Research
Anderson OPC Manager
Galleria OPC Manager
Southfield OPC Manager
Capital OPC Manager
Warwick OPC Manager
Chief Medical Records Officer