FACTORS ASSOCIATED WITH INADEQUATE EXCLUSIVE BREASTFEEDING PRACTICES OF CHILDREN AGED 0-6 MONTHS IN MUMBWA DISTRICT: A CASE OF MULUNGUSHI RURAL HEALTH CENTRE

By

Banda Mathews Spider

A Dissertation submitted in Partial Fulfillment for the Requirements for the Award of Degree of Master of Science in Public Health at the University of Zambia.

THE UNIVERSITY OF ZAMBIA

LUSAKA

2023

COPYRIGHT

All rights reserved. No part of this dissertation may be reproduced, stored in any retrieval system or transmitted in any form by any means without prior written permission of the author or University of Zambia.

©Banda Mathews Spider, 2023

DECLARATION

I, **Banda Mathews Spider** make a declaration that this research report is original and an outcome of my own effort. It is being submitted for the degree of Master of Science in Public Health at the University of Zambia. Its contents have never been submitted before for any degree or examination either wholly or partially at this or any other University.

……………………… ……   ....

Signature   Date

APPROVAL

This dissertation submitted by Banda Mathews Spider is approved as fulfilling part of the requirements for the award of the degree of Master of Science Public Health at the University of Zambia.

Supervisor

Name:…………………………………………….....

Signatures…………………………………………Date:……………………………………

Coordinator

Name:…………………………………………………..

Signatures………………………………………………Date:……………………………

ABSTRACT

Exclusive Breastfeeding (EBF), the best feeding practice for infants aged from birth to six (6) months has faced challenges of adherence, exposes infants to infections such as diarrhea, despite information on its importance being given to mothers. The main objective of this study was to assess factors associated with inadequate exclusive breastfeeding practices of children aged 0-6 months in Mumbwa district, Mulungushi rural Health Centre.

A descriptive cross section study design was used and a total sample of 192 breast feeding mothers were selected using systematic sampling method. The study was conducted from within Mulungushi RHC catchment area. The respondents were interviewed using a structured questionnaire at study sites. Quantitative data was analyzed using SPSS computer software package and Fishers Exact test was used to test the association between the dependent and independent variables. Qualitative data from the focus group discussions was analyzed using content analysis.

The prevalence of exclusive breast feeding practice was at 47%. The factors that were found to be statistically significant to exclusive breast feeding were age of infant, educational level, parity, occupation of the mother, number of meals mothers eat per day, child spacing and support breast feeding mothers received. The other factors were found not to be statistically significant to exclusive breast feeding and these were age of the mother, HIV status of the mother and support from spouse.

The study revealed that mothers found it difficult to practice Exclusive Breast Feeding because of the amount of work at home, some feared to transmit the HIV to their babies, some because of the business trips, those in employment stated that the conditions at work were not very conducive for breastfeeding and spouses found it difficult to help with house chores because culturally it was a woman's work.

Despite the respondents having knowledge about the importance of EBF, the practice was still below what WHO recommends (60%), that there was still need to strengthen the practice in the study area through education of spouses, family and the community on infant feeding for them to support breast feeding mothers. With the support, mothers will have time to exclusively breast feed their infants.

DEDICATION

This work is firstly dedicated to my beloved parents Mr. Spider Banda and Ireene Banda. I am because of them. Secondly, I would like to dedicate this report to my wife, Constance Hang'ambwa Banda, my brother and Sister, Banda Spider Junior and Prisca Banda respectively, who were an inspiration during the time of conducting this study.

They gave me encouraging words and support throughout the period I was doing this study though they were denied of my love and care during my busy days.

ACKNOWLEDGEMENTS

I am indebted to the commitment and contributions from my supervisors Dr. Alice Hazemba Ngoma and Mr. Zulu John for their insight, guidance and wisdom that kept this work focused and plausible. This was not an easy task, as it demanded full commitment, dedication and selflessness towards the task of providing me with vital information that assisted in the refining process of the document.

I am also grateful to Mr. Hector Chiputa, and Mrs. Rose Sakala Bipanda who served as my Research Assistants during data collection. I am also indebted to acknowledge Mr Victor Cheelo for his tireless input mostly during data entry, analysis and presentation phases. He was instrumental, what a man.

My profound gratitude goes to Mumbwa District Health Office (MDHO) for the permission granted to conduct the research. Further, I may fail in my duties if I do not extend my special thanks to my family and all my other friends, colleagues and associates that were an inspiration to me.

TABLE OF CONTENTS

COPYRIGHT i
DECLARATION ii
APPROVAL iii
ABSTRACT iv
DEDICATION v
ACKNOWLEDGEMENTS vi
LIST OF ABBREVIATIONS x
CHAPTER ONE: INTRODUCTION 1
1.0 Introduction of the Study 1
1.1 Background of the Study 1
1.2.1 Global situation 3
1.2.2 Regional situation 4
1.2.3 National situation 5
1.3 Statement of Problem 7
1.4 Justification 8
1.5 Research Objectives 9
1.5.1 General objective of the study 9
1.5.2 Specific Objectives of the study 9
1.6 Research Hypothesis 9
1.6.1Null hypothesis 9
1.6.2 Alternate Hypothesis 10
1.7 Significance of the Study 10
1.8 Diagram of Problem Analysis/Conceptual Framework 10
1.9 Variables 11
1.9.1 Operational Definitional Of Variables 11

1.10 Operational Definitions of Concept Terms 12

CHAPTER TWO: LITERATURE REVIEW 13

2.1 Introduction 13

2.2 Breastfeeding and Exclusive Breastfeeding 13

2.2.1 Social-cultural factors Influencing Exclusive Breastfeeding Practices 13

2.2.2 Economic and demographic Factors Influencing Exclusive Breastfeeding Practices.. 14

2.2.3 Service related factors Influencing Exclusive Breastfeeding Practices 15

2.2.4 Level of knowledge on breastfeeding 16

2.3 Summary of Literature Review 16

CHAPTER THREE: RESEARCH METHODOLOGY 17

3.1 Introduction 17

3.2 Research Design 17

3.7 Sampling Method 20

3.8 Validity and Reliability of Research Instruments 20

3.8.1.1. Internal validity 20

3.8.1.2. External validity 21

3.8.2 Reliability of Research Instruments 21

3.9 Pilot Study 21

3.10 Data Collection tools or methods 22

3.11 Data Analysis 22

3.13 Ethical Consideration 23

3.14 Plans for Data Dissemination and Utilization 24

CHAPTER 4 25

DATA ANALYSIS AND INTERPRETATION 25

4.1 Introduction 25

4.2 Description of independent variables 27

4.3 Cross Tabulation of Variables 30

CHAPTER FIVE 39

INTERPRETATION AND DISCUSSION 39

5.3.1. Demographic Variables 40

5.3.2. Service Related variables 42

5.3.3. Knowledge and Attitude Variables 43

5.3.4. Social Cultural Practices variable 44

5.4 Conclusion 45

5.5 Recommendations 45

5.6. Dissemination of Findings 46

5.7. Limitations of the Study 46

REFERENCES 48

APPENDICES 53

LIST OF ABBREVIATIONS

AFASS:	Affordable, Feasible, Accessible, Sustainable, and Safe
DRGS:	Directorate for Research and Graduate Studies
EBF:	Exclusive Breastfeeding
HIV:	Human Immunodeficiency Virus
HMIS:	Health Management and Information System
MDHO:	Mumbwa District Health Office
MOH:	Ministry of Health
SPSS:	Statistical Package for Social Scientist
UNZA:	University of Zambia
UNZABREC:	University of Zambia Biomedical Research Ethics Committee
UNICEF:	United Nations International Children's Emergence Funds
UNAID:	United Nations Program on HIV/AIDS.
WHO:	World Health Organization

CHAPTER ONE

INTRODUCTION

1.0 Introduction of the Study

Mumbwa is one of the districts in Central Province of Zambia indigenous to the Lenje and Tonga speaking people. The people in this area are mainly peasant farmers who grow maize and soya beans as main cash crops. The district has health institutions which are about 20-25km apart and the people have to travel long distances to access health services. It is alleged that the education level of the community is low and exhibits poor attitudes towards the certain concepts among which include and not limited to exclusive breastfeeding.

Mumbwa District Health Information Office (2018), reported that 19% of the general population and 30% of children under age of five are malnourished in Mumbwa district, and reported that breastfeeding practices and starter of complementary foods was an essential determining factor of the nutritional status of children. Mumbwa District Health Information Office (MDHIO) 2012-2015 report, the prevalence of exclusive breastfeeding for the 1st six months of life was 38%, the data indicates hardly any improvement compared to MDHIO 2015-2018 report, where it was 37% (MDHO, 2018). The report results indicate that the percentage of using formula milk has increased due to the increase in number of working mothers in the district both in formal and informal sectors.

Mixed feeding to infants below the age of six months had been a source of concern in Mulungushi catchment area resulting in high numbers of diarrhea diseases in infants at Mulungushi RHC. It was with that background that the study wished to determine and explore the factors associated with inadequate exclusive breastfeeding practices of children aged 0-6 months in this community.

1.1 Background of the Study

Milk is the primary source of nutrition for newborns before being able to digest other foods other than milk (WHO, 2001). Exclusive Breastfeeding has been defined by the World Health Organization as the infant has to receive only breast milk from his/her mother or expressed breast milk, and no other liquids or solids, except drops or syrups of vitamins, mineral supplements or medicines (WHO, 2015). Breastfeeding offers health benefits to mother and child, birth spacing

through lactation amenorrhea and motor and cognitive development in childhood of the child (Black, et al., 2013). Withdrawing the process of breastfeeding before the time recommended to children will be a high risk of infections to infant that is to cause mortality (Victora, et al., 2016).

UNICEF recommended exclusive breastfeeding for 6 months of life and continued breastfeeding up to two years of age or beyond (UNICEF, 2016). An appropriate feeding practice is important in survival, growth and development (WHO, 2013).

Exclusive breastfeeding practice is a leading intervention in promoting Child Health Survival and a single most effective intervention that could prevent 13 – 15% of infant's deaths. The practice is recommended by the World Health Organization and United Nations Children's Funds (World Health Organization, 2012). Globally, it is estimated that less than 39% of infants are exclusively breastfed for the first four months of life. Stunting prevalence worldwide is about 21-33%, and indicated as one of the factor caused by inadequate exclusive breastfeeding for six months of life (Victora, et al., 2016).

Maternal and child under nutrition remain prevalent in developing countries, with about 45% of both child and maternal deaths primarily due to poor nutrition and 11% of child deaths are due to suboptimal breastfeeding (UNICEF, 2016).

Maternal under nutrition during pregnancy and breastfeeding periods has adverse effects on child growth and development. This is because during this period, maternal nutrient needs increase and if they are not met, mothers may suffer from wasting which limits their ability to fully satisfy the needs of their infants (WHO, 2013), (Allen & Haskell, 2001). Children under 3 are breastfed for a median duration of 19.4 months and are exclusively breastfed for 4.3 months. Complementary foods should be introduced when a child is six months old to reduce the risk of malnutrition (Robertson, 2015) (WHO, 2011).

The Breast milk provides required nutrients to infants, the human milk is endogenous nutrient store contains all nutrients (WHO, 2011). It provides all the energy and nutrients that is needed for growth and development for the first months of life up to two years of age (WHO, 2011). It is estimated those sub-optimal breastfeeding, particularly non-exclusive breastfeeding in the 1st six months of life, responsible for 1.4 million deaths and 10% of illness in children under-five years old. Non–exclusive breastfeeding additionally has future impact, including poor school

performance, reduced productivity, and impaired intellectual and social development. It can also increase the danger of dying as a result of diarrhea and pneumonia during the first five months of age by more than twofold (Gawhara, Gad, Soliman, Ebrahem1, & et.al, 2019).

Breastfeeding practice can save many as 1.5 million infants' lives every year, as it provides significant protection against diseases. An orphan child is more likely to die before reach age of two years than a child whose mother survival (WHO, WHO Exclusive Breastfeeding, 2015).

1.2.1 Global situation

35% of infants worldwide are exclusively breastfeeding during their four months of life, although the rates differ from one country to another (WHO, 2011). Brazil 58%, Bangalore 40%, Iran 69%, Lebanon 10.1%, Nigeria 20%, Bangladesh 34.5%, and Jordan 77% ((Batal, Boulghourjian, Abdallah, & Afifi, 2005). In Sub-Sahara and Africa countries exclusive breastfeeding rate for six months is about 30% (UNICEF 2016), 47% in Ethiopia, 13% in Kenya (Kiboi & Patrick, 2017) and 50% in Tanzania (Leshabari, Blystad, de Paoli, & Moland, 2007). Although the CDC reported that, the breastfeeding is rising by 2% (CDC, 2007). One of the study indicated that, the race, maternal age, maternal occupation, parent's educational level, social-economic status, insufficient milk supply, infant health problems, maternal obesity, smoking, parity, method of delivery, maternal interest, social culture, and lack of knowledge were factors that caused inadequate exclusive breastfeeding (Roudbari, 2015).

A study conducted in Mexico to assess the association between working mothers and breastfeeding using secondary data source from three national health survey (1999, 2006 & 2012), the findings of the study suggest that maternal full time employment was negatively associated with breastfeeding mothers with a child under age one year. The study elaborated that full time employed mothers were 20% less to breastfeed compared to part-time employed mothers. While, full time employed mothers were 27% less to breastfeed compared to non-employed mothers (WHO, 2011).

The previous study design was cross-sectional study, which has a limitation to measure causal association between maternal employment and breastfeeding duration. Moreover, the study did not consider identifying the factors, which compel or repeal employed mothers to continue or discontinue breastfeeding and its relation with the socio-demographic variables. Finally, the study

provided limited information on employment detail, and mother's distance from the home to give understanding of the relation of various factors affect breastfeeding practices at workplaces.

The decision of the women to continue with breastfeeding on return to work comes from two sources, family and non-family. The family support predominantly comes from spouse or parents and then from other family members. The non-family support drive chiefly from employer at work, sociocultural system and mother attribute which her knowledge, education, commitment, and other personal factors that influence her decision for breastfeeding.

1.2.2 Regional situation

Breastfeeding in Africa is a norm and remains the cultural way of feeding infants but not exclusively. African mothers who do not breastfeed their infants are unusual. It is seen to be a culturally acceptable mode of infant feeding (Dop M. C., 2002)

In countries like Ethiopia, exclusive breastfeeding was recorded to be 47% in 2012, while Nigeria the rate was 20% (Setegn T. , 2012). Economic factors, mother's age, perception of mothers on sufficiency of breast milk and social cultural influence has been associated with inadequate breastfeeding in Tanzania (Leshabari, Blystad, de Paoli, & Moland, 2007). Data from Tanzania Demographic Health Survey indicated that an exclusive breastfeeding practice for the six months of infant's life is not widely practiced. The National rate of exclusive breast feeding in Tanzania being 50% regardless of mother's HIV status, only 49% of children breast fed within an hour of birth. The mean duration of exclusive breastfeeding is 2.4 months. The major factors causing inadequate/poor EBF in Tanzania identified were inadequate advice and support on how to feed their child (Mahesh Sarki & et.al, 2018).

A study done at Morogoro, Kilimanjaro, and Igunga district, shows that EBF is not widely practiced, only 9% of nursing mother practiced exclusive breastfeeding in Dar-es-salaam regional (Shirima, Greiner, Kylberg, & Gebre-Medhim, 2011) whereby EBF practices in HIV positive mothers is high from birth to 2 months (80%), decreasing rapidly at age 3 to 4 months 34% and lowest among infants of six months 13.3% (Shirima, Greiner, Kylberg, & Gebre-Medhim, 2011). The percentage is below the National prevalence of 41% (Shirima, Greiner, Kylberg, & Gebre-Medhim, 2011). Most factors identified were cultural beliefs which hinder exclusive breastfeeding, whereby more than half of infants are supplemented early and the majority of mothers have

inadequate knowledge on exclusive breastfeeding (Shirima, Greiner, Kylberg, & Gebre-Medhim, 2011)

Another study conducted in South Africa the neighboring country to Zambia revealed that although the initiation of breastfeeding was immediate and prevalent, with 79% of children fed with colostrum, exclusive breastfeeding for the 6 months of life was rarely practiced; only 36% of the children were exclusively breastfed for the 6 months of life, with substitute (49%) being common although mixed feeding was practiced (Gamuchirai, 2020) (Chakona, 2020). Maternal characteristics (age and education), household demographic household size and household head and socioeconomic factors (income and employment status), have been implicated in driving poor IYCF (Mamabolo, et al., 2004). Furthermore, cultural beliefs (food, taboos and perceptions) by mothers, households and communities also influence breastfeeding behavior and complementary feeding; including the types of foods young children are given. Grandmothers' knowledge and their decisions were also regarded as critical for early child feeding practices in other African countries (Karmacharya, Cunningham, Choufani, & Kadiyala, 2017), (Bezner Kerr, Dakishoni, Shumba, Msachi, & Chirwa, 2008).

1.2.3 National situation

The demographic profile of Zambia is similar to many sub-Saharan African countries in the Southern and Eastern regions. Zambia adopted exclusive breastfeeding as a method of infant feeding from birth to six months and unless replacement feeding was Acceptable, Feasible, Affordable, Sustainable and Safe (Tembo & Ngoma, 2015)

In Zambia, the 2018 ZDHS reported that mortality during the first month (neonatal mortality), wass higher than post neonatal mortality (27 deaths per 1,000 births versus 14 deaths per 1,000 births) and accounts for 64% of the overall infant mortality and the common cause of death was poor breastfeeding practices especially among first time mothers.

The target of Zambia for Exclusive breastfeeding for the six months of life was 60%, however, the prevalence of EBF in Zambia was at 61% (Tembo & Ngoma, 2015), (ZamStat, 2019). Despite the great advances in health services in Zambia, the 2018 ZDHS report stated that the practice of EBF dropped from 65% at 2 – 3 months to 35% at 4 – 5 months of age. A study which was carried out by in Luangwa considering breastfeeding practices in the area concluded that exclusive breast

feeding practice had improved in the district, there was still need to strengthen the practice in the district through education of spouses, family and the community on infant feeding for them to support breastfeeding mothers. With the support, mothers were going to have time to exclusively breast feed their infants. The 2015 ZDHS indicated that EBF dropped sharply from 45% at 2-3 months to 15% at age 4-5 months. 62% of children aged 4-5 months are receiving food supplements to breast milk (ZamStat, Zambia Demographic and Health Survey, 2019). All these studies pointed out that mothers found it difficult to practice exclusive breastfeeding because of the amount of work at home and spouses found it difficult to help with house chores because culturally it was a woman's work, luck of knowledge on benefits of breastfeeding. Another research which was carried out in Chadiza district area, under the program of PMTCT, reported that nursing mother who had received adequate counseling on exclusive breastfeeding had high rate of practicing exclusive breastfeeding than those who do not, 56% to 70 % (Kiboi & Patrick, 2017)

In the Central Province of Zambia, Mumbwa district to be more precise, Mulungushi RHC catchment area, little was known about the factors contributing to inadequate breastfeeding practices especially to children less than 6 months and that was why the area was selected for this research to help establish the factors that contributed to poor breastfeeding practices.

It was imperative to note that WHO and UNICEF reported that exclusive breastfeeding in the 6 months of life was and is still considered to be an important measure to secure child’s optimal health and survival, Sub-Sahara Africa where Zambia lies has continued record high prevalent rates of poor exclusive breastfeeding mothers (WHO, 2011). ZDHS 2018 noted that 76% of children were breastfed within the first hour of life, while 96% were breastfed within 24 hours after delivery. 7% of children who were ever breastfed received a prelacteal feed, although it was not recommended. ZDHS (2018), also noted that 3% of the under 6 months children are not breastfed, 10% are breastfed with other liquids, 17% are breastfed with complementary foods and only 70% are exclusively breastfed of which WHO recommends that complementary foods should be introduced when a child is six months old to reduce the risk of malnutrition (Zambia Statistcs Agency, 2019).

1.3 Statement of Problem

Zambia is a country in the Sub-Sahara region with high rate of infant death which is attributed to inadequate exclusive breastfeeding. Efforts have been made by the Zambian Government, Donors, NGO and other stakeholder to protect, support and promote and meet the target for exclusive breastfeeding for the six months of life which stands at 60% (ZamStat, 2019). The prevalence of EBF in Zambia is 61%. However, the practice dropped from 65% at 2 – 3 months to 35% at 4 – 5 months of age. ZDHS data report, indicated there were challenging factors that caused inadequate exclusive breastfeeding practices, ministry of health in collaboration with other well-wish partners have been trying in implementing a national program on infant and young child nutrition initiatives in collaboration with social welfare, the goal was to empower lactating mother to breastfed their infant and introduce complementary food after six months (Zambia Statistcs Agency, 2019).

ZDHS, 2018 hypothesized that in Zambia, 35% of children under five are stunted, 4% wasted, or thin for their height, 12% of children under five are underweight, or too thin for their age, while 5% are overweight (Zambia Statistcs Agency, 2019).

MDHIO 2018, reported that 19% of the general population and 30% of children under age of five were malnourished in Mumbwa district, and reported that breastfeeding practices and starter of complementary foods was an essential determining factor of the nutritional status of children. Mumbwa District Health Information Office (MDHIO) 2012-2015 report, the prevalence of exclusive breastfeeding for the 1st six months of life was 38%, the data indicated hardly any improvement compared to MDHIO 2015-2018 report, where it was 37% (Mumbwa District Health Information, 2018). The report results indicated that the percentage of using formula milk had increased due to the increased in number of working mothers in the district both in formal and informal sectors. In order to improve on expressive breastfeeding practices, health professionals, neighborhood health committee members, community health workers and Mother Support groups were engaged and even trained in infant and young child feeding that they could teach women on how to feed infants (Mumbwa District Health Information, 2018)

Apart from the efforts made by district Health office and other Non-Governmental organizations in the district to try and address the issue, there was a challenge of inadequate exclusive breastfeeding practice in Mumbwa district to be more precise Mulungushi Clinic catchment area.

Observation during clinical support supervision indicated that the majority of nursing mothers admitted with their children less than six months of age had started complimentary foods unless replacement feeding was acceptable, feasible, affordable, sustainable and safe, a mother would not exclusively breastfeed her infant (Tembo & Ngoma, 2015).

Therefore, this study intended to add knowledge on determining factors associated with inadequate exclusive breastfeeding practices of children aged 0-6 months in Mulungushi area of Mumbwa district.

1.4 Justification

Although the reviewed literature had confirmed that several studies concerning factors affecting EBF were conducted in different countries across the globe including Zambia, findings varied from study to study, due to different geographical and social-economic set up of the study location.

American Academy of Paediatrics (2017), stated that single mothers had great difficulty supporting themselves and caring for the baby especially if they are young. Single mothers had less family support. Henderson (2000), noted that the decision to breastfeed was often influenced more by socio-cultural factors than by health consideration. Ergen ekon (2016), noted that cultural beliefs had a significant influence on breastfeeding practices. When perceived primarily as sex symbols, the breasts must be decently hidden which makes breastfeeding in public places difficult (Fraser, Cooper, & Nolte, 2015)

With that background therefore, according to the preliminary survey, there was no study that had been conducted to determine contributing concerns to inadequate exclusive breastfeeding practices of children aged 0-6 months at Mulungushi. Once this research is done, the information obtained can still be used to help data users, health center staffs, planners and public heath administrators and policymakers to scale up the initiative to work on the identified gaps in the quest to identify some of the concerns that contributed to poor breastfeeding practices. The study was also intended to help to change the paradigm of health service delivery to the public and how best to remain effective as public health care organization.

The rationale of the study was, therefore, to determine leading factors to inadequate exclusive breastfeeding of children aged 0-6 months among mothers. The researcher is confident that it could

help Ministry of Health, stakeholders, policymakers as well as individual person in planning feasible intervention and strengthening the existing factors, and also to reduce the morbidity and mortality rate of the child more especially among those under the age of 5 as earlier indicated under the statement of problem.

1.5 Research Objectives

1.5.1 General objective of the study

The purpose of the study was to assess factors associated with inadequate exclusive breastfeeding practices of children 0-6 months old in Mumbwa, Mulungushi RHC catchment area.

1.5.2 Specific Objectives of the study

This study was guided by the following specific objectives;

1.5.2.1. To describe the demographic factors associated with inadequate exclusive breastfeeding to children aged 0-6 months.

1.5.2.2. To assess social-cultural factors that associated with inadequate breastfeeding to children aged 0-6 months.

1.5.2.3. To determine service-related factors associated with inadequate breastfeeding practices to children aged 0-6months among mothers.

1.5.2.4. To determine the knowledge and attitude levels of mothers on inadequate breastfeeding practices to children aged 0-6months among mothers.

1.6 Research Hypothesis

A hypothesis is an assumption, an idea that is proposed for the sake of an argument so that it can be tested to see if it is true. The hypothesis translates the research problem and the purpose into a clear explanation or prediction to the expected results or outcome of the study (Burns & Groove, 1993). Therefore, the following hypotheses will be tested;

1.6.1Null hypothesis

There were no factors that hindered exclusive breastfeeding practice of children aged 0-6 months at Mulungushi RHC catchment area.

1.6.2 Alternate Hypothesis

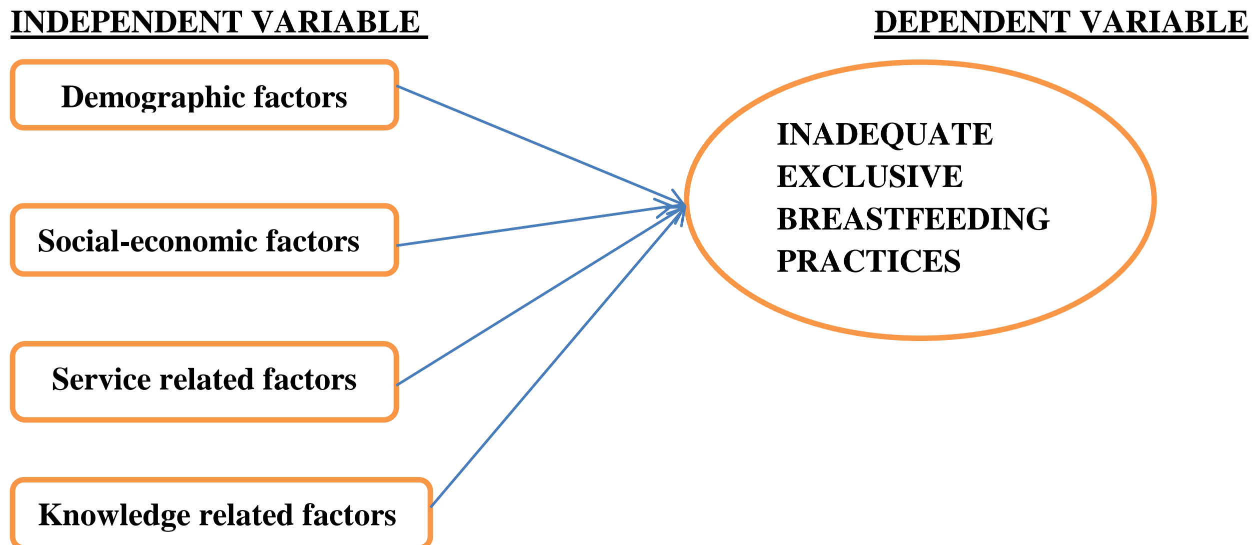
There were factors that hindered exclusive breastfeeding practice of children aged 0-6 months at Mulungushi RHC catchment area.

1.7 Significance of the Study

The study intended to find out factors that contributed to inadequate exclusive breastfeeding leading to child mortality rate aged from 0 to 6months old. The outcomes were expected to assist the Ministry of Health, stakeholders, policymakers as well as individual person in planning feasible intervention and strengthen the existing factors and all other effects to support progress needed to achieve the Sustainable Development Goals (SDGs).

The study formed a basis for other research activities in the area in relation to other regions in the country.

1.8 Diagram of Problem Analysis/Conceptual Framework



Source: ((Hector et all, 2004)

The conceptual framework indicates the relationship between variables. In the middle is the dependent variable, on which the variables (independent) around its periphery depend on. Independent variables are those in the periphery. They can be manipulated to be the factors contributing to inadequate exclusive breastfeeding practices to children 0-6 months. Therefore, the

study will focus on the existence and the extent of the independent variables in order to establish what contributes to inadequate exclusive breastfeeding practices to children 0-6 months.

1.9 Variables

These are the qualities, properties, or characteristics of persons, things or situations that change or vary. In research, variables are characterized by degrees, amounts, and differences, (Burns & Groove, 1993). This study aims at establishing the relationships between the variables. There are usually two types of variables in a study. They are assumed to cause changes or variations in the problem under investigation. Normally, the concern under investigation is the dependent variable.

1.9.1 Operational Definitional Of Variables

Variables is defined as anything that might impact the outcome of a study (Burns & Groove, 1993). The operational definition of variables described what the variables are and how they would be measured within the context of this study.

Type of variable	**Variable**	**Indicator**	**Measuring scale**
Dependent	Inadequate exclusive breastfeeding practices	Absent Present	Categorical
Independent	Demographic factors	High Low	Ordinal
	Economic status	High Average Below average	Categorical
	Service related factors	High Low	Ordinal
	Social-cultural factors	Supportive Not supportive	Categorical
	Knowledge related factors	Present Absent	Categorical

1.10 Operational Definitions of Concept Terms

Breast: Breast of an adult, consists of mammary gland and between15-20 lobes, whereby the lobes gives the breast size and shape (Ross & Wilson, 2014).

Breast Milk: This is the milk that is produced in the alveolus gland cells, (WHO, 2011).

Breastfeeding: This is the process of breastfeeding a baby at least up to the two years old regardless of addition of other complimentary foods, (UNICEF, 2007).

Exclusive Breastfeeding (EBF): This is a process of feeding breast milk for 6 months of life since birth, without feeding any type of food, drinks, even water, except medicine like vitamin and minerals (WHO, 2015).

Inadequate Breastfeeding: This is when the New born baby does not obtain any or enough breast milk resulting to lose more calories than it gaining which leading to serious complication like cerebral edema, intracranial hemorrhage, disseminated intravascular coagulation (a life-threatening condition where there is excessive clotting or bleeding throughout the body), kidney failure, permanent brain injury and even death (Dop M. C., 2002)

Parity: Number of surviving children.

Mother or caregiver: ideally, is the person in the household who takes care of the child (Gamuchirai, 2020)

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Literature review is a review of the available information (Mugenda & Mugenda, 2010). In this study, electronic search engines such as PubMed, Medline and Google, were used to gather data and intensify on the literature reviews.

Therefore, this chapter discussed the literature related to the factors contributing to inadequate exclusive breastfeeding practices to children 0-6 months. It focused on assessing the extent to which demographic, social-cultural, child and maternal, and knowledge related factors contributed to poor breastfeeding practices.

2.2 Breastfeeding and Exclusive Breastfeeding

2.2.1 Social-cultural factors Influencing Exclusive Breastfeeding Practices

In one study conducted by Gamuchirai Chakona in South Africa on Social circumstances and cultural beliefs influence maternal nutrition, breastfeeding and child feeding practices in South Africa, a grandmother quoted saying, *"Culturally, a mother who have delivered should not be with the husband for up to three months as this would make the milk impure therefore the child can develop a big head, big stomach and becomes very weak. Young mothers now are always with their husbands as soon as they can, and the problem persists with the child. They keep disobeying the culture and this is affecting the child to grow well. Most are now giving the babies some other foods at the earliest age." Also, a young mother concurred by saying, "In IsiXhosa culture, soon after delivery a mother should not be with the husband for up to three months so that she concentrates on feeding the baby as the father may make the milk impure. This helps the child to feed well, be healthy and will have a beautiful skin. But because of what is happening in the world, the pressures, I had the fear of losing my husband to other women. Therefore, most young mothers now prefer not to breastfeed their children and satisfy the needs of their husbands to keep them around."* (Gamuchirai, 2020).

In other studies, results of the present study revealed that all the studied mothers gave child solid or semi-solid or soft food before 6 months of age. This may be would have been due to cultural beliefs that infants needed to take herbal medicine for proper immunity, after three months of age or may be due to mothers believed that breast milk alone cannot satisfy the infant requires up to the age of six months or may be due to mothers' belief that their infants were old enough to be given solid foods. This coincided with Alzaheb in 2016, reported that the majority of infants in Saudi Arabia are given solid foods before 4 months of age (Alzaheb, 2016). Higher rates of early introduction of complementary feeding have also been found in several previous research studies in the Middle East context; for example, 65% of infants were reported to have received solid foods at the age of 3 months in the United Arab Emirates (Gardner, Green, & Gardner, 2015). In another study in Egypt done by Gawhara Gad, Soliman Ebrahem et al., 2019, the results of the study revealed that all the studied mothers give child solid or semi-solid or soft food before 6 months of age. It was ascertained that it may have been due to cultural beliefs that infants need to take herbal medicine for proper immunity, after three months of age or may be due to mothers believed that breast milk alone cannot satisfy the infant needs up to the age of six months or may be due to mothers' belief that their infants were old enough to be given solid foods (Gawhara, Gad, Soliman, Ebrahem1, & et.al, 2019).

2.2.2 Economic and demographic Factors Influencing Exclusive Breastfeeding Practices

A study by Catherine Tembo, Ngoma, and others in 2015 to established levels of exclusive breast feeding practice and identified factors that influencied the practice in Luangwa District, Zambia, reported that the mother with higher level of education were more likely to practice exclusive breastfeeding than those with middle level of education. It was ascertained that education is important because it helps a person to understand and analyze issues in order to make informed decisions. The findings revealed that education levels were low among respondents as most of them 103 (60%) had only attained primary school education. Low education levels may have contributed to the early introduction of other foods to an infant despite mothers receiving information on exclusive breast feeding, (Tembo & Ngoma, 2015) (Alyousefi, Alharbi, Almugheerah, & et.al, 2017).

The age of the infant was one factor under social, economic and demographic factors as indicated by other studies. In one study conducted in Libya, it was observed that as the infant grew, mothers

introduced other foods before reaching the age of six months (Abdulmalek, 2008). At the age of 5-6 months according the study that was done in Zambia, Luangwa district only 10 (16%) of infants were exclusively breast fed (Tembo & Ngoma, 2015). In another which was done in South Africa respectively, the findings showed some significant relationship between Exclusive breast feeding and age of an infant (Gamuchirai, 2020) . Considering occupation status of the mothers, a research which was done in Kenya indicated that mothers were reported to resume work shortly after giving birth because 'the baby won't eat the name "good care", and the mother and her family must also survive. In the same research it was reported that women work long hours in non-conducive environments for carrying babies to work or breastfeeding. The child is therefore left behind either under the care of siblings, other relatives, neighbors or at a (sub-standard) day care center.

At times, it was the challenge of work; where the mother was supposed to breastfeed, yet she was also supposed to go to work whether they had a baby or not and possibly forced to leave the baby which exposed the baby to poor breastfeeding practices (Elizabeth, Kimani-Murage, & et.al, 2014). It was also believed that the social network in some parts as indicated in one study by Scott t al., 2015.The study revealed that less than one quarter of the mothers got the advice from their friends and relatives to give glucose. Grand mothers and mothers in-law were the source of advice to give glucose and baby drink for less than one third and less than one quarter of the studied mothers' infant respectively (Sherriff, Hall, & Panton, 2014). Similarly, Sherriff et al., (2014), stated that the mothers received emotional and skilled support from significant others, such as family members, close friends, and professional members, were crucial to the initiation and maintenance of breastfeeding (SSonko & Worku, 2015.) .

2.2.3 Service related factors Influencing Exclusive Breastfeeding Practices

It was believed that some hospital policies had an effect on breastfeeding practices, such as delay of skin-to-skin contact, separation of mothers and newborns, and supplementation of breast milk with infant formula.

Thrower & Peoples in 2015, lamented that routine hospital activity delayed breastfeeding. The present study illustrated that slightly two-thirds of mothers initiated breastfeeding after two hours of delivery. This could have been due to maternal cesarean section or hospital policies that made

a separation between mothers and infants to give mothers a period to rest after delivery (Gardner, Green, & Gardner, 2015).

Tembo, and Ngoma, (2015), did a study in trying to evaluate the relationship between exclusive breastfeeding and the support from the health workers of which the results of this study on support from health professionals were different from the findings of Barclay in Singapore where less than 5 percent of infants at six months of age were exclusively breastfed and reasons given were lack of support from health care professionals (Tembo & Ngoma, 2015)

2.2.4 Level of knowledge on breastfeeding

Having adequate information about breastfeeding and failing to experience problems during breastfeeding period had been found to be an influencing factor of Exclusive breastfeeding (EBF) One of the elements to empower a woman to breastfeed was that she had sufficient knowledge to make decisions (Alyousefi, Alharbi, Almugheerah, & et.al, 2017). A study conducted by Wallace (1992), stated that breastfeeding choice and success were usually associated with higher knowledge on breastfeeding.

2.3 Summary of Literature Review

The low frequency of exclusive breastfeeding during the first months of life found in the previous studies underlined the necessity to promote exclusive breastfeeding if infant feeding recommendations are to be realized. Breastfeeding was and is an important determinant of the nutritional status of the child which in turn influences growth and development (WHO, 2002).
Although the reviewed literature has confirmed that several studies concerning factors affecting EBF have been conducted in different countries across the globe including Zambia, findings have varied from study to study, due to different geographical and social-economic set up of the study location. Hence it was difficult to apply the results from studies conducted to our area of study due to differences in settings. After reviewing the literature, the researcher noted that no research on EBF was conducted in Mulungushi, Mumbwa District.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provided an overview of the materials and methodological details appropriate for the study. Research methodology refers to the development, testing and evaluation of instruments and methods used in investigation, (Burns & Groove, 1993).The goal was to ensure reliability and validity in the tool used for data collection.

3.2 Research Design

A research design is a scheme of action (framework) for answering the research questions. It includes such factors as the research settings, operational definitions, assumptions, and relationships between variables, definitions, sampling procedure, instrument approach to be used and the method for data analysis, ethical consideration of the participants and the use of data (Treece & Treece, 1986)

Therefore, a cross-sectional survey was carried out among all breastfeeding mothers. This design was aimed at determining the current status of the population with regard to one or more variables. The design was suitable for study because data was intended to describe the existing conditions. A standardized questionnaire covering demographic information; socio-economic, knowledge and attitude and service related information with regards to breastfeeding practices among the 192 breast feeding mothers of Mulungushi Rural Health Centre, Mumbwa district was used for data collection purposes.

The research used a paper-based questionnaire that was a self-administered with help from the researcher where needed.

3.3 Study Site/setting

The setting or site is the physical location and condition in which data collection takes place in a study (Mugenda & Mugenda, 2010)

This study was conducted from Mulungushi Rural Health Center catchment area, Mumbwa district. The facility had the total population of 7,805 and attended to not less than 700 patients per week. The main health activities offered included clinical service, clinical support, mother and child services and diagnostic activities, public health preventives health services among other services (ZamStat, Zambia Demographic and Health Survey, 2019).

Mulungushi is under Nakasaka ward of Nangoma constituency. The facility shares borders with Chiwena, Zambia Air Force-Mumbwa, Shimbizhi and Maimwene Health Centers. The facility is located about 18 km from Mumbwa District Health Office with coordinates 14033'9S and 2803'19E in DMS, situated at an elevation of 22000km^2

The site was purposively selected because it was easy for the researcher to reach respondents. Expenses such as transport was reduced because all respondents were confined within the area.

3.4 Target Population

The target population of this study consisted of all breastfeeding mothers/women of reproduction age between 15-49years of Mulungushi Rural Health Center Catchment area.

The researcher's choice of clients was guided by the data made available for breastfeeding mothers who delivered at the center by the time the research was being conducted. Therefore, this study had targeted the breastfeeding mothers during an under five sessions of the selected mothers at the time of the interview that primary data and the exact methods was chosen.

3.5 Study Population

The study population consisted of the breastfeeding mothers within the catchment area of Mulungushi Rural Health Center. The surveillance statistics report of quarter one of 2020, the area had a total number population of 372 possible breastfeeding mothers (ZamStat, 2019).

3.5.1 Inclusion criteria

An inclusion criterion comprises of the characteristics or attributes that the prospective research participants must have in order to be included in the study (Burns & Groove, 1993**.** Therefore, this study only included the breastfeeding mothers or guardian during an under five sessions and willing to participate in the study.

The inclusion of the service providers in this study enabled the researcher to investigate their influence on breastfeeding practices breastfeeding mothers because of their daily interactions with the clients.

3.5.2 Exclusion criteria

This study had not included the non-breastfeeding mothers or guarding who came for under five sessions and or mothers with children breastfeeding and yet not ready to participate in the study and possibly those that had taken part in the pilot study.

3.6 Sample Size

A sample size is a subset of a population selected to participate in a research study (Polit & Hungler, 1995)

The sample size was composed of one ninety-four **(192)** breastfeeding mothers. This was due to the approximated number of the breastfeeding mothers as per population size of 372 possible expected breastfeeding mothers at the time the research was being conducted. The population size was extracted from DHS report as a variant (Zambia Statistcs Agency, 2019).

Therefore, the sample size was calculated using the formula given below:

$$\boldsymbol{n = \frac{N}{1 + N(e)2}}$$

Where; n = sample size, **N** = population size**, e** = margin of error (95 % confidence level) and **1** = Constant

Therefore,

$$n = \frac{\mathrm{N}}{1 + \mathrm{N(e)}^2}$$

$$= \frac{372}{1+375\ (0.05\ )^2}$$

$$= \frac{372}{1.9375}$$

$$=192$$

=**192**

3.7 Sampling Method

A systematic random sampling method was used to select the participants. The total number of the population was divided by the sample size to obtain the sampling fraction. The sampling fraction was used as the constant difference among participants. Then, the representatives are to respond to a self-administered questionnaire.

The site was purposively selected because it was easy for the researcher to reach respondents, and it was researcher's residence, thus for convenience and accessibility. A health center and some health facility outreach points (NHCs) were used during data collection period in order to ensure validity, reliability and non-bias of the results since these institutions had different characteristics. Expenses such as transport were also reduced for the researcher because all respondents were confined within the area.

3.8 Validity and Reliability of Research Instruments

This section explained the validity and reliability of research instruments.

3.8.1 Validity of Research Instruments

Validity is the accuracy and meaningfulness of inferences, which are based on the research results (Mugenda & Mugenda, 2010).

3.8.1.1. Internal validity

Internal validity was upheld by ensuring that the tool was not too long to bore the participants who may get tired and pull out of the study. The tools were also checked by the supervisor for correction purposes.

Therefore, in this research, pretesting questionnaires were used that helped the researcher found ways that increased participants' interest; helped in discovering question content, wording and sequencing problems before the actual study and also helped in exploring ways of improving overall quality of study.

The usual procedure in assessing the content validity of a measure is to use a professional or expert in a particular field (Mugenda & Mugenda, 2010). To establish the validity of the research instrument, the researcher worked hand in hand with the experts in the field of study, especially the lecturers in the department of Public Health for continual guidance. This surely facilitated the necessary revision and modification of the instrument, thereby enhancing validity. Expert opinions was sorted to comment on the representativeness and suitability of questions and gave suggestions

of corrections made to the structure of the research tools (questionnaire). This helped to improve the content validity of the data that was collected. Content validity was obtained by asking for the opinion and guidance of the research supervisor, departmental lecturers and other professionals on whether the questionnaire was adequate to answer the research questions.

3.8.1.2. External validity

External validity is the extent to which the study findings can be generalized beyond the sample used in the study (Mugenda & Mugenda, 2010). This research only included breastfeeding mothers with children that came to the facility for child health services. This was upheld by ensuring that all the people in the target population are given an equal chance to participate in the study as this enhanced generalization of the findings.

3.8.2 Reliability of Research Instruments

Reliability is referred to the consistency of measurement and was frequently assessed using the test–retest reliability method (Burns & Groove, 1993). Reliability was increased by including many similar items on a measure, by testing a diverse sample of individuals, and by using uniform testing procedures. A number of measures were undertaken to ensure reliability. Themes on the interview questions were based on the objectives stated in the study.

To achieve reliability of the questionnaire, the instrument was designed with great care, matching questions with objectives for the study. The questionnaire was tested in two neighboring health facilities of Mulungushi RHC, targeting 10 breastfeeding mothers in a pilot study. The responses from the pilot study helped to reveal inconsistencies in the questions within the questionnaire. In addition, the number of questions were reduced in order to reduce the time taken to respond to the questionnaire.

3.9 Pilot Study

A pilot study is a small scale version, or a trial run in preparation for a major study, (Polit & Hungler, 1995). A pretest of the research instruments was undertaken with an aim of checking the clarity, estimate of possible time it could have taken to complete the questionnaire, consistency and relevance of the questions in relation to the purpose of the study as well as judge if the questions prompted the kind of responses expected. Therefore, the pilot study for this study was conducted from the two neighboring health facilities of Mulungushi RHC namely Chiwena and Maimwene RHC respectively.

3.10 Data Collection tools or methods

This study used the questionnaire for data collection; the questionnaire was used among the breastfeeding mothers. The selection of the tool was guided by the nature of data to be collected, the size and distribution of the population and the objectives of the study.

Questionnaire increased the chances of getting honest responses since they ensured anonymity of the respondent. The questionnaire used both open-ended and closed ended questions. The use of open-ended questions offered flexibility for the respondents to provide more details. Closed ended questions allowed for quantitative analysis. This balance was useful for a comprehensive analysis. An interview is a purposeful conversation in which one person asks prepared questions and another answers them, (Burns & Groove, 1993). This is so to gain information on a particular topic or a particular area to be researched. The use of the interview approach is flexible, providing a large amount of detail. It is clear that the answers are solely those of the person being questioned. The intensive situation that the interview is conducted in, may in itself allow information to be gained without directly asking for it (Mugenda & Mugenda, 2010)

3.11 Data Analysis

This study aimed at to establish the extent to which the independent variables influence the dependent variable. It was therefore suitable to analyze data using descriptive analysis. Descriptive analysis was used in the study of the distribution of one variable, and it provided the researcher with profiles of the study population such as their size, composition, efficiency, preferences and so on.

In this case, data quality control and cleaning commenced in the field by the researcher ensuring that all the information on the questionnaires had been properly collected and recorded and checked for completeness of data and internal consistency. Data analysis was done after all data captured and entered. Closed-ended questions were analyzed using nominal scales into mutually exclusive categories and frequencies by employing descriptive statistics using the SPSS software (13.0) and MS Excel. Open-ended questions were analyzed using conceptual content analysis. Analysis involved the production and interpretation of frequencies, counts, tables and graphs that described and summarized the data.

Descriptive statistics such as frequencies, percentages, means, and standard deviations were then drawn for socio-demographic variables. To examine the relation between independent variables of

the respondents, an independent sample t-test, one-way analysis of variance test of significance, and multiple linear regressions was used. To understand the relationship between independent and dependent variables, a Pearson correlation analysis was used. The correlation coefficient was used to determine the type of relationship that existed between the independent variables and the p-value indicated if the relationship was significant or not.

3.12 Data Collection Procedure

Once the proposal was approved by the University Public Health Department Faculty and the UNZA Biomedical Research Ethics Committee (UNZABREC), the researcher started the data collection process by seeking permission from the district health management team of Mumbwa District, and the management team of Mulungushi RHC catchment area.

This study seek help from the community health workers as the research assistants; they were trained on the tools and issued with the questionnaires to administer to the breastfeeding mothers during an under five sessions. The researcher then collected the questionnaires from the community health worker's responsibility of ensuring that all questionnaires were returned.

Being aware of the challenges involved in interviews, the researcher made adequate preparations to maximize the chances of successful interviews. This was accomplished by informing the service providers about the study and requesting interviews with them. Copies of the interview schedule was made available to the service providers.

3.13 Ethical Consideration

This is the great care that is taken in research to ensure that the rights of those humans used in a study are protected (Burns & Groove, 1993).

A high standard of confidentiality was observed. Participants were assured of maximum confidentiality. Permission was obtained from The University of Zambia, School of Public Health Department, UNZABREC and Zambia Ministry of health through the local district health office. The respondents were informed of the study purpose, objective, method to be used for collecting data and the voluntary nature to participate and right(s) to withdraw from participation at any time should they feel uncomfortable with the study. Written informed consent was obtained before the qualitative inquiry process begun.

3.14 Plans for Data Dissemination and Utilization

The researcher intended to disseminate the information and findings by submitting copies of research findings to the authorities where the research was conducted, the University Library and also submission of articles for publication in the professional journals as per University guidance.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

In this chapter, results were presented based on specific objectives of the study. The aim of the study was to determine factors associated with inadequate exclusive breastfeeding practices of children aged 0-6moths in Mumbwa district, Mulungushi RHC. The findings of the study were based on the analysis of responses from consenting lactating mothers accessing health care at Mulungushi clinic. The sample size for this study was 192 and the results are presented using frequency tables.

A total of 192 breastfeeding mothers were enrolled in the study and the data was collected between January 2023 and February 2023. Table 1.1 below for the demographic characteristics showed that the majority of the respondents 117 (60.9%) were in the age group 20 - 30 years, followed by those between ages 31 – 40 years 41 (21.4%), with 22 (11.5%) being in the age group of < 20 years and the least being those aged > 40 years were in the minority 12 (6.3%). Further, the mean age of the sample population was 27.51 years with a standard deviation (SD) of 6.730 years with the age range of 14 years to 48 years.

The majority of the participants were married or had a partner 121(63%); 39 (20.3%) were single; and another 17(8.9%) were either divorced or separated; 9(4.7%) were cohabiting and the minority group 6(3.1%) were widowed. Of the 192 participants, 114(59.4%) were primiparous and the least fraction 78(40.6%) were multiparous.

On the education level, the majority of participants 101(52.6%) attained primary education; whilst 51(26.6%) had attained secondary education; with 28(14.6%) without any formal education. Those with tertiary education were only 12(6.3%).

The majority of the participants 161(83.9%) were not in formal employment; 20(10.4%) were in employment and whilst 11(5.7%) were in self-employment and businesses. On the actual type of work the participants were doing, 98(58%) of the participants were farmers; 39(20.3%) were business oriented participants; 18(9.4) were in some employment whereas 37(19.3%) represented those that were homemakers

Table 4.1.1 Demographic Characteristics

Age Distribution

Category	Frequency	Percentage (%)
< 20 Years	22	11.5
20 - 30 Years	117	60.9
31 - 40 Years	41	21.4
> 40 Years	12	6.3
Total	**192**	**100**
Marital Status		
Married	121	63
Single	39	20.3
Cohabiting	9	4.7
Divorced	17	8.9
Widow	6	3.1
Total	**192**	**100**
Parity		
Primiparous	114	59.4
Multiparous	78	40.6
Total	**192**	**100**
Occupation		
Employed	18	9.4
Farmer	98	51
Business	39	20.3
Homemakers	37	19.3
Total	**192**	**100**
Educational Level		
No Formal Education	28	14.6
Primary Education	101	52.6
Secondary Education	51	26.6
Tertiary	12	6.3
Total	192	100
Age of Child		
0 - 6 Months	37	19.3
> 6 Months	155	80.7
Total	192	100
Employment Status		
Yes	20	10.4
No	161	83.9
Self Employed	11	5.7
Total	**192**	**100**

4.2 Description of independent variables

This part describes the outcome of some of the independent variables that were being assessed in the study.

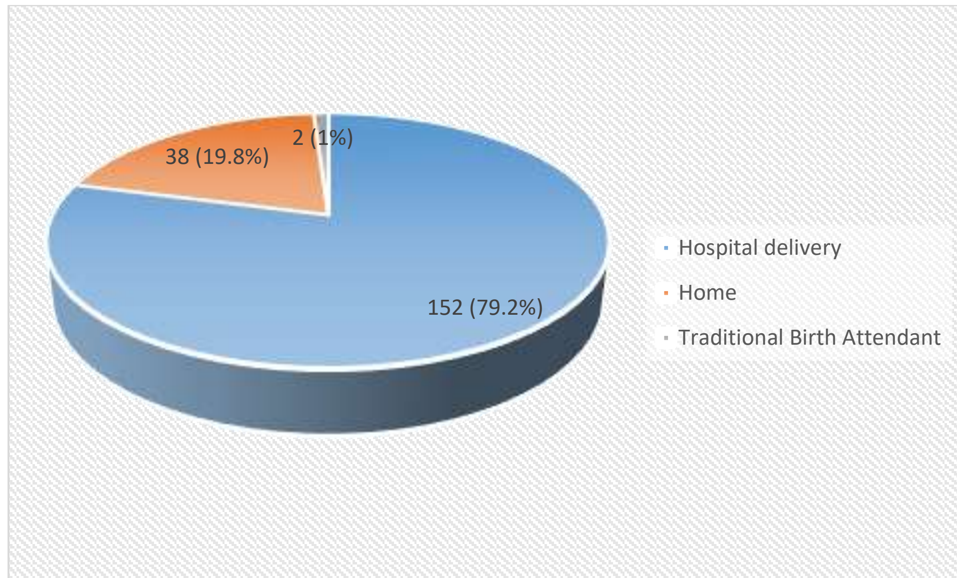


Figure 4.2.1: Place of Delivery of the Respondents

The figure above shows that the majority of the respondents 152(79.2%) delivered from the Hospital whilst the least of the respondents 2(1%) were delivered by the traditional birth attendants. On the other hand 2(1%) delivered from home.

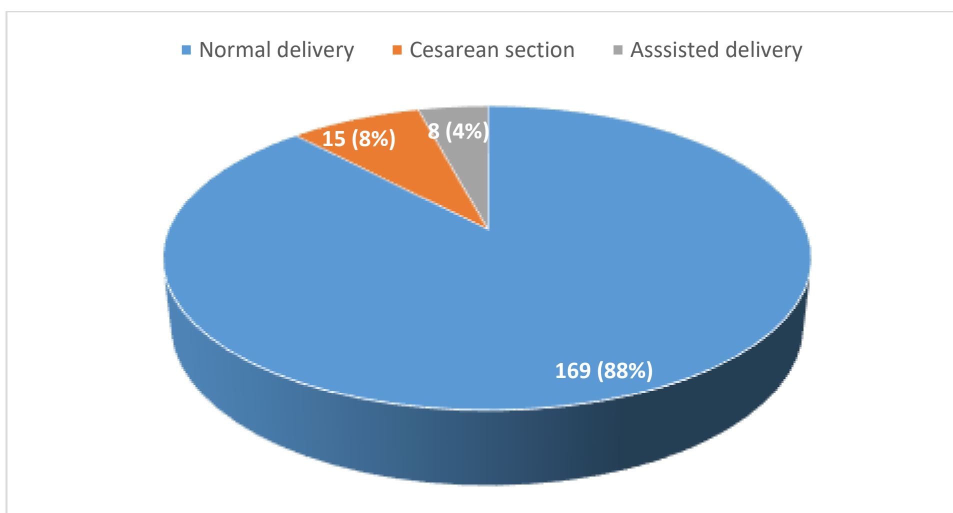


Figure 4.2.2: Mode of Delivery of the Respondents

Figure 4.2.2., shows the mode of delivery the respondents underwent as they were giving birth to the current baby. 169 (88%) of the total respondents delivered normally (normal vaginal delivery), 15 (8%) had caesarean section and the lowest fraction was that of the assisted deliver 8 (4%).

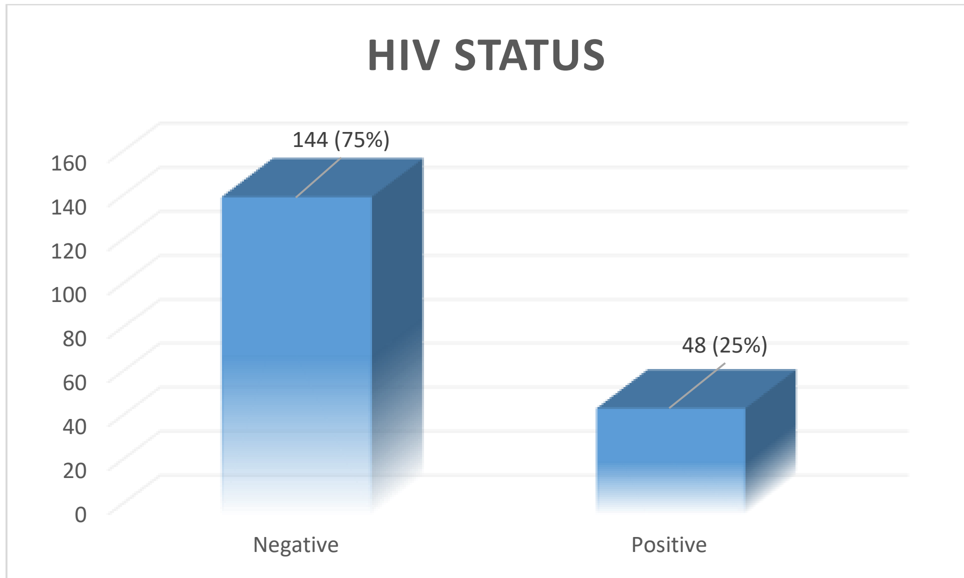


Figure 4.2.3: HIV status of the Respondent

The figure above, shows the HIV status of the total sample size (192) that 144 (75%) of the respondents had a negative HIV status at the time of data collection and 48 (25%) had a positive HIV test result.

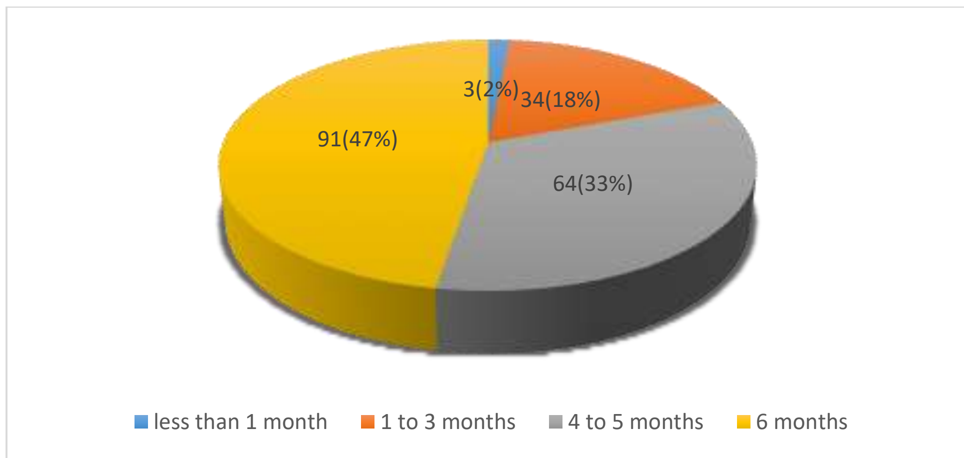


Figure 4.2.4: Introduction of the supplementary food to the child

The Pie chart above shows the time in months when the supplementary food was introduced to the child. Of the 192 respondents, 91(47%) introduced food at 6moths, 64(33%) introduced food at

between the period of 4 to 5months, 34(18%) respondents introduced food to the child between 1 to 3 months and 3(2%) introduced food the time the child was less than 1 month old.

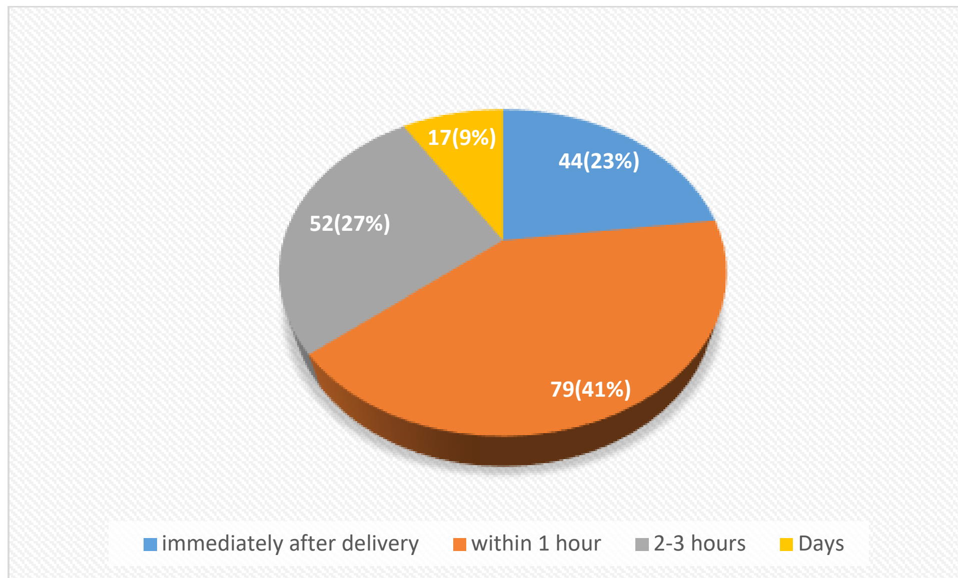


Figure 4.2.5: Initiation of breastfeeding after delivery.

Figure 4.2.5 above, shows the time when breastfeeding was initiated to the baby after delivery. The total number of respondents was 192 of which 79 (41%) of respondents initiated breastfeeding within 1hour after delivery, 52(27%) respondents initiated breastfeeding between 2-3hours after delivery, 44(23%) of the respondents initiated breastfeeding immediately after delivery and the least fraction of 17(9%)respondents initiated breastfeeding after a day or more.

4.3 Cross Tabulation of Variables

Table 4.3.1: Relation between Exclusive Breastfeeding and Age of the mother

Exclusive Breastfeeding Practice	Age of the mother					P – value
	<20 years	**20-30 years**	**31-40 years**	**>40 years**	**Total**	
Exclusive Breastfeeding	13	56	21	8	98	0.529 (Chi – Square) x^2 =2.216
Non Exclusive Breastfeeding	9	61	20	4	94	
Total	**22**	**117**	**41**	**12**	**192**	

The table above illustrates the relationship between exclusive breastfeeding and age of the mother. The Chi–square test conducted showed that at 95% confidence level it was 2.216 and the p–value was 0.529. This indicated that there was no statistical significance or association between age of the mother and exclusive breast feeding practice.

Table 4.3.2: Relation between Exclusive Breastfeeding and Parity

Exclusive Breastfeeding Status	Parity			
	Primiparous	**Multiparous**	**Total**	**P – value**
Exclusive Breastfeeding	51	47	98	0.035 (Chi – Square) X^2 = 4.464
Non Exclusive Breastfeeding	63	31	94	
Total	**114**	**78**	**192**	

The table 4.3.2 above, illustrates the relationship between exclusive breastfeeding practices and parity. The Chi – square test conducted at 95% confidence level showed that it was 4.464 with a p–value of 0.035. This result indicated that there was a statistical significance or association between exclusive breast feeding practices and parity.

Table 4.3.3: Relationship between EBF and Education Level

Exclusive Breastfeeding Status	**Education Level**					**P – value**
	No Formal Education	**Primary Education**	**Secondary Education**	**College education**	**Total**	
Exclusive Breastfeeding	7	45	37	9	98	0.000(Chi – Square) $x^2 = 21.497$
Non Exclusive Breastfeeding	21	56	14	3	94	
Total	28	101	51	12	192	

The table above illustrates the relationship between exclusive breastfeeding practices and Occupation. The Chi – square test conducted at 95% confidence level showed that it was 21.497 with a P – value of 0.000. This result indicated that there was a statistical significance or association between exclusive breast feeding practices and education level.

Table 4.3.3: Relation between Exclusive Breastfeeding and Occupation

Exclusive Breastfeeding Status	Occupation					P – value
	Employed	Farmer	Business	None	Total	
Exclusive Breastfeeding	12	58	11	17	98	0.005 (Chi-Square) X^2 = 12.882
Non Exclusive Breastfeeding	6	40	28	20	94	
Total	**18**	**98**	**39**	**37**	**192**	

The table above illustrates the relationship between exclusive breastfeeding practices and Occupation. The Chi – square test conducted at 95% confidence level showed that it was 12.882 with a P – value of 0.005. This result indicated that there was a statistical significance or association between exclusive breast feeding practices and Occupation.

Table 4.3.4: Relationship between EBF and Initiation of breastfeeding after delivery

Exclusive Breastfeeding Status	Initiation of breastfeeding after delivery					P – value
	Immediately after delivery	Within 1 hour	2-3 hours	Days	Total	
Exclusive Breastfeeding	31	41	17	9	98	0.003 (Chi – Square) x^2 = 13.690
Non Exclusive Breastfeeding	13	38	35	8	94	
Total	**44**	**79**	**52**	**17**	**192**	

The table above illustrates the relationship between exclusive breastfeeding practices and **Initiation of breastfeeding after deliver**. The Chi – square test conducted at 95% confidence level showed that it was 13.690 with a P – value of 0.003. This result indicates that there was a

statistical significance or association between exclusive breast feeding practices and time breastfeeding was initiated after delivery.

Table 4.3.5: Relationship between EBF and Introduction of Supplementary feeding

Exclusive Breast feeding Status	Introduction of Supplementary Feeding					P – value
	< 1 Months	1-3Months	4-5Months	At 6Months	Total	
Exclusive Breast feeding	2	10	27	59	98	0.001 (Chi – Square) $x^2 = 15.595$
Non Exclusive Breast feeding	1	24	37	32	94	
Total	**3**	**34**	**64**	**91**	**192**	

The table 4.3.5 above, illustrates the relationship between exclusive breastfeeding practices and Introduction of Supplementary Feeding. The Chi – square test conducted at 95% confidence levels showed that it was 15.595 with a P – value of 0.001. This result indicated that there was a statistical significance or association between exclusive breast feeding practices and Introduction of Supplementary Feeding.

Table 4.3.6: **Relationship between EBF and Number of Meals mothers have per day**

Exclusive Breast feeding Status	**Number of Meals mothers have per day**					**P – value**
	Less than 3 times per day	**At least 3 times per day**	**More than 3 times per days**	**On demand**	**Total**	
Exclusive Breast feeding	22	55	17	4	98	0.002 (Chi – Square) $x^2 = 15.397$
Non Exclusive Breast feeding	41	33	20	0	94	
Total	**63**	**88**	**37**	**4**	**192**	

The table above illustrates the relationship between exclusive breastfeeding practices and Number of Meals mothers have per day. The Chi – square test conducted at 95% confidence levels shows that it was 15.397 with a P – value of 0.002. This result indicated that there was a statistical significance or association between exclusive breast feeding practices and Number of Meals mothers have per day.

Table 4.3.7: Relationship between EBF and Child Spacing

Exclusive Breast feeding Status	Child Spacing					
	0-1Year	**2Years**	**3Years**	**Other**	**Total**	**P – value**
Exclusive Breast feeding	18	27	25	28	98	0.00 (Chi – Square) $x^2 = 28.252$
Non Exclusive Breast feeding	26	49	15	4	94	
Total	**44**	**76**	**40**	**32**	**192**	

The table above illustrates the relationship between exclusive breastfeeding practices and Child Spacing. The Chi – square test conducted at 95% confidence levels shows that it was 28.252 with a P – value of 0.000. This result indicated that there was a statistical significance or association between exclusive breast feeding practices and Child Spacing.

Table 4.3.8: Relation between Exclusive Breastfeeding and practicing exclusive breastfeeding

Exclusive Breastfeeding Status	Practicing Exclusive Breastfeeding			
	Yes	**No**	**Total**	**P – value**
Exclusive Breastfeeding	68	30	98	0.000 (Chi – Square) $X^2 = 21.259$
Non Exclusive Breastfeeding	34	60	94	
Total	**102**	**90**	**192**	

The table 4.3.8 above; illustrates the relationship between exclusive breastfeeding practices and practicing exclusive breastfeeding. The Chi – square test conducted showed that at 95% confidence

level it was 21.259 and the P – value was 0.000. This indicated that there was a statistical significance or association between exclusive breast feeding and Practice of exclusive breastfeeding for the first 6months without giving water/fluid.

Table 4.3.9: Relationship between EBF and HIV status

Exclusive Breast feeding Status	**HIV status**			
	Negative result	**Positive result**	**Total**	**P – value**
Exclusive Breast feeding	77	21	98	(Chi – Square)= 0.243 $x^2 = 1.362$
Non Exclusive Breast feeding	67	27	94	
Total	**114**	**48**	**192**	

The table above illustrates the relationship between exclusive breastfeeding practices and HIV status. The Chi – square test conducted showed that at 95% confidence level it was 1.362 and the P – value was 0.243. This indicated that there was no statistical significance or association between exclusive breast feeding and HIV status.

4.4 Regression Analysis Outcome

A one-way ANOVA was conducted to determine the effect of parity, age of the mother, age of the child and number of meals mothers eat per day. The table below shows the output of the ANOVA analysis and whether there was a statistical significance among the variables.

Table 4.4.1: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	2.960	4	.740	3.074	.018[b]
1	Residual	45.019	187	.241		
	Total	47.979	191			

a. Predictors: (Constant), age of the child, number of meals mother eats, parity, and age of mother

b. Dependent Variable: Exclusive breastfeeding practice

A one way ANOVA test was performed to predict the influence age of the child, number of meals mother eat, parity, and age of the mother as predictors of exclusive breastfeeding practice among 192 breastfeeding mothers. The outcome showed that the one way ANOVA model was statistically significant ($p < 0.05$). A one-way ANOVA revealed that there was a statistically significant difference among the predictor variables on exclusive breastfeeding practice $F(4, 187) = 3.074$, $p = 0.018$, df = 4.

Table 4.4.2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.230[a]	.053	.043	.490	.053	5.290	2	189	.006

a. Predictors: (Constant), age of the child, number of meals mother eat, parity, and segment age

b. Dependent Variable: Exclusive breastfeeding practice

The model summary above, revealed that the R = 0. 230, R square of 0.053 And Adjusted R square of .043 which indicated a relationship between prediction and grouping. This means that some of the variables were statistically significant to the prediction, P – value = 0.006. These variable are parity and number of meals the mother was taking.

Table 4.4.3: Coefficients

Exclusive Breastfeeding	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	1.747	.222		7.875	.000	1.309	2.184
Parity	-.161	.072	-.158	-2.232	.027	-.304	-.019
Age of the child	-.011	.013	-.087	-.854	.394	-.037	.015
Segemented Age of Child	.168	.128	.132	1.310	.192	-.085	.420
Number of meals mothers eat	-.114	.046	-.175	-2.458	.015	-.205	-.022

From the table of coefficients, the results showed that only parity and number of meals mother eats were statistically significant. The parity p-value = 0.027, (CI = -0.304, -0.019) and number of meals mothers eat p-value = 0.015, (CI= -0.205, -0.022), made a significant contribution to prediction while age of the child p-value = 0.394, (CI = -0.037, -0.015) and segmented age of the child p-value = 0.192, (CI = -0.085, 0.420) were not significant predictors.

CHAPTER FIVE

INTERPRETATION AND DISCUSSION

5.1 Introduction

This chapter presents the interpretation and discussion of the study, implications of the study findings, conclusions made, recommendations made from the study based on the study findings. The discussion of findings is based on data collected from a sample of 192 respondents. The respondents were lactating mothers from the age of 14 to 48 years old who accessed health care services at Mulungushi RHC, Mumbwa District. The general objective of the study was to assess factors associated with inadequate exclusive breastfeeding practices children aged 0-6 months at Mulungushi RHC, Mumbwa District.

5.2 Characteristics of the Sample

The majority of the respondents were in the age group ranging from 20 to 30 years of age. Majority of the respondents were married (63%), this could be attributed to early marriages being practiced in the district.

Of all the respondents, only 26.6% had either acquired secondary or tertiary education or had acquired primary level of education, whereas 52.6% had acquired primary education and the remaining 14.6% had never been to school. This finding correlates with the United States Agency for International Development Population Reference Bureau (2011) which found that the completion rate of primary school among rural dwellers was higher than secondary school completion rate. Only 9.4% of the respondents were in formal employment. The other 51% were unemployed, 20.3% relied on small businesses and small scale farming. This is because Chilubi District is mainly rural and most of the people are not in any formal employment. Of the 40 respondents who were in some form of employment, 48.6% acknowledged that their employment supported exclusive breastfeeding. .

The findings of this study showed that the proportion of respondents who knew how to define exclusive breastfeeding was 45.8% despite the majority 79.2% acknowledging that health education on EBF was being provided by health workers.

Only 53.3% of the respondents stated that all babies should be exclusively breastfed during the first six months of life. This finding could be attributed to the respondents' inadequate knowledge on the subject of exclusive breastfeeding. This was likely to be the factor affecting the adoption of exclusive breastfeeding practices at Mulungushi RHC.

5.3 Discussion of the Variables

Infants are expected to be exclusively breast fed from birth to six months because breast milk is a natural food that supplies all the vital nutrients an infant requires during this period (Fraser, Cooper, & Nolte, 2015).

The study revealed that the prevalence of Exclusive breast feeding practice was at 47%, a finding which was below the national target of 80% (NFNC, 2022). The results of Mulungushi were slightly lower than the findings in Mazabuka where 68.8% of infants were exclusively breast fed and those of Kafue where 53% 9of infants were exclusively breast fed (Tembo & Ngoma, 2015). The variations could have been due to the different social context of the three settings where the researches were conducted from. Other fluids and foods were given to some infants and reasons given for the practice were insufficient breast milk.

5.3.1. Demographic Variables

Education is important because it helps a person to understand and analyse issues in order to make informed decisions. Low education levels may have contributed to the early introduction of other foods to an infant despite mothers receiving information on exclusive breast feeding. The study showed that those that had no formal education were the majority who had not practiced exclusive breastfeeding which could have been due to less understanding of the importance of the breast milk to an infants in its early days. Those who had attained up to college education exhibited more knowledge in terms of the practice of EBF which could have been due to an understanding of the importance of breast milk to the baby.

The study showed that was an association between exclusive breast feeding practice and educational level of the mother (p=0.000). However, it was observed that the twelve (12) mothers who had attained college education exclusively breast fed their infants and that may point to an influence of education on feeding practice. This finding is in agreement with other studies in Spain, Ghana and other countries which revealed that maternal level of education was not associated with

breast feeding though higher education levels were related to positive trends of feeding (Ordenana, Colodro, & Tornero, 2011).

In this study, marital status was not significantly related with the respondents level of knowledge on EBF (P-value = 0.415). 121 (65%) of the respondents were married. These findings were in agreement with the study Musonda Chilufya (2018), who also reported that marital status was not significantly related with the respondent's level of knowledge on EBF. It should be noted that two findings were not in line with a study conducted by the American Academy of Paediatrics (2017) which stated that single mothers have great difficulty supporting themselves and caring for the baby especially if they are young. These findings also argues with another study which concluded that without husbands, support, activities outside the home such as having to work might prevent EBF practices (American Pediatrics Academy, 2017)**.**

Occupation of the mother in this study was found to have an effect on the level of knowledge on EBF (P value = 0.005). The participants involved in the study were either formally employed, farmers or they were into business or some farming and others were just homemakers had exhibited less or no knowledge on EBF practices at all. Those that were into businesses, some respondents said that they could not manage to travel long distances with the baby who needed to breastfeed every now and then that they thought leaving the baby at home and be given extra food would be a better deal as they continuing running the business errands. Some of the participants were farmers that during farming seasons at times it is the challenge of farm works/activities; where the mother is supposed to breastfeed, yet she is also supposed to go to work whether they have a baby or not and possibly forced by husbands to leave the baby which exposes the baby to poor breastfeeding practices. Those that were in formal employment, some found it difficult to breastfeed due to tight work schedules more especially among those working from the mines where women work long hours in non-conducive environments for carrying babies to work or breastfeeding. This finding was in line with the study conducted by Musonda (2018) who stated that other women found it hard to maintain their milk supply when separated from their babies and were forced to stop breastfeeding. Another scholar also agrees with this finding by stating that maternal employment outside the home is often cited as a major factor in short- term breastfeeding patterns seen throughout the world (Perry, 2003)

The results showed that the HIV status of the mother was not influencing the EBF practices in Mulungushi (P value = 0.243). Among the HIV positive respondents, they were those that were knowledgeable about EBF but could not practice due to various reasoning. Some of the respondents said that they feared transmitting HIV to their babies through breast milk as a factor that contributed to them declining breastfeeding. Other respondents stated that they feared to continue breastfeeding as the child grows for it starts to develop milk teeth and possibly bit the mother during breastfeeding and that the disease transmission maybe facilitated that they the better wean off the baby and start giving extra foods at an early age. WHO (2015) argued with this finding by highlighting that the fear of transmitting HIV through breast milk is a factor that contributes to the decline in breastfeeding. A study on breastfeeding conducted in selected African countries is not in line with these findings for it concluded that there has been a reduction on support of breastfeeding as a result of fears and misinterpretation of the UNAIDS/WHO/UNICEF guidance related to HIV and breastfeeding (Fraser, Cooper, & Nolte, 2015).

This is the number of times the woman has given birth to a live neonate. It is believed that multiparas are more likely to initiate breastfeeding and have longer breastfeeding duration. This research indicated that there was a statistical significance or association between exclusive breast feeding practices and parity (P – value of 0.035). It was noted that those participants who had many children, practiced breastfeeding more than those who had 1, 2 and or 3 children. This could have been due to the fact that as the number of children increased, the more knowledgeable the mother could become on the importance of breast milk to the baby.

It was observed that the older the child, mothers introduced other foods before reaching the age of six months. At the age of 6 months, only 91 (47%) of infants were exclusively breast fed. The findings showed some significant relationship between Exclusive breast feeding and age of an infant (P-value=0.001). These results were higher than the findings of the study which was conducted in Luangwa which had 10% of infants who were exclusively breast fed at the same age (Tembo & Ngoma, 2015).

5.3.2. Service Related variables

Delayed initiation of breastfeeding after delivery, some hospital policies in this study proved to have an effect on breastfeeding practices, such as delay of skin-to-skin contact, separation of mothers and newborns, and supplementation of breast milk with infant formula (P – value of

0.003). Some respondents lamented that they could not initiate breastfeeding immediately due to some medical conditions suffered before and or during labor phases such as Covid-19. Thrower & Peoples in 2015, lamented that routine hospital activity may delay breastfeeding. This could be due to maternal cesarean section or hospital policies that may make a separation between mothers and infants to give mothers a period to rest after delivery (Gardner, Green, & Gardner, 2015).

In this study, place of delivery was statically significant on the EBF practices among respondents. Those that delivered their babies from the health facilities exhibited more knowledge than the ones who delivered either from home or were attended to by the birth attendants. This could be due to the fact that at the health center, facility staffs could educate and emphasize on the mothers on the importance of breastfeeding. The findings in this study were in agreement with the study which was carried out in Chadiza district area, under the program of PMTCT, reported that nursing mother who had received adequate counseling on exclusive breastfeeding from the health facilities mostly before and during labor had high rate of practicing exclusive breastfeeding than those who do not, 56% to 70 % (Kiboi & Patrick, 2017)

Most of the respondents in this study reported that they received support from Health professionals which was in a form of education on infant feeding. Despite education being given, 52.6% of respondents practiced mixed feeding and by the age of 4-5 months, only 10(16%) of infants were exclusively breast fed which is low. Furthermore, some mothers reported receiving support from other people for example spouse, grandmothers and mothers. It was interesting to note that the mothers who received support from their grandmothers, were able to exclusively breast feed their infants. The findings revealed a significant relationship between exclusive breast feeding and support given to mothers (p=0.000).

5.3.3. Knowledge and Attitude Variables

Information on the importance of exclusive breast feeding and benefits of breast feeding is given to mothers during antenatal, postnatal and children's clinic. The study found that most of the respondents knew that breast milk provides all the nutrients an infant requires in the first six months of life. Out of the respondents who knew that breast milk contained all the nutrients the infant needed, only few of those introduced other foods to the infant before the age of six months. Knowledge on other benefits of breast feeding was generally less than 70%. Introduction of other

foods before six months was brought out during focus group discussions where participants revealed that giving an infant porridge from two months was a common practice because infants cried a lot. Others narrated that breast milk alone is not enough for the up to 6 months more especially if the breasts were to be small in size. The findings revealed no association between exclusive breast feeding practice and knowledge on benefits of breast feeding (p=0.484). This is in accordant with findings in South Africa, Ghana which revealed that despite efforts of increasing awareness on the many benefits of breast feeding, many mothers do not maintain exclusive breast feeding practice for the first six months of the infant's life

5.3.4. Social Cultural Practices variable

The findings revealed that male participants found it difficult to help with house chores for the fear of neighbors that would think that they were being controlled by their wives. The culture of men not assisting in house chores because it is a responsibility of a woman could have contributed to early introduction of fluids and food to infants before the age of six months. Breast feeding requires time for the mother to properly feed the infant. Time was not enough for mothers to exclusively breastfeed and carry out households' chores at the same time along with farming activities as indicated by some participant.

Most 152 (79.2%) of the respondents in this study reported that they received support from Health professionals which was in a form of education on infant feeding. Despite education being given, 101(66.4%) of respondents practiced mixed feeding and by the age of 5-6 months, only 51(33.6%) of infants were exclusively breast fed which is low. Furthermore, some mothers reported receiving support from other people for example spouses, aunties, brothers, grandparents and mothers. It was interesting to note that the mothers who received support from their grandmothers, were able to exclusively breast feed their infants. The findings revealed a significant relationship between exclusive breast feeding and support given to mothers (p=0.001). Some mothers narrated that they could not breastfeed their babies in public places because removing the breast in public is considered as a form of disrespect and lack of manners. Some respondents said they introduced food/fluids early to the child as they were cleansing the child against evil spirits.

Results of this study on support from health professionals were different with the findings of Tembo and Ngoma in Luangwa where 16 percent of infants at six months of age were exclusively breast fed and reasons given were lack of support from health care professionals.

5.4 Conclusion

The purpose of the study was to assess factors associated with inadequate exclusive breastfeeding practices at Mulungushi RHC, Mumbwa District. The prevalence of exclusive breastfeeding in this study was lower at 47% below the National target of 80%. There was still need to strengthen the practice because mixed feeding was still being practiced in infants below six months of age. The factors that were significant to exclusive breast feeding were age of infant and support. Mothers received support from health professionals but probably they were not able to comprehend information due to low levels of education. Support received from spouse, mothers, and grandmothers may have had gaps due to insufficient knowledge on exclusive breast feeding among them. Focus group discussions revealed that mixed feeding was a common practice by mothers in the community which probably meant that there was influence from the community. The other factors were age of the mother, HIV status of the mother and support from spouse which were found not to be statistically significant to exclusive breast feeding.

5.5 Recommendations

1. The family and community must be educated on the importance of exclusive breast feeding for them to effectively support breast feeding mothers.

2. Information on breast feeding should be given at all times during Antenatal, post natal and Children clinic so that mothers are reminded on the importance of exclusive breast feeding.

3. Spouses who escort their wives for Antenatal care and have shown support for their wives need to be encouraged and if possible be used as peers for other men.

4. There is need to identify factors contributing to spouse minimal support to breast feeding mothers.

5. There is need to intensify PMTCT education to mothers as they come for antenatal services.

6. There is need to continue encouraging mothers who may be willing to go back to school to further their education.

5.6. Dissemination of Findings

The researcher intends to disseminate the study findings by making 3 copies of the report and giving a copy to each of the following: -

1. Department of Public Health, University of Zambia.
2. Mumbwa District Health Office
3. Mulungushi RHC

Research abstracts will be sent to Mumbwa District Health office (DHO) and the study site to read through and plan on utilization of the findings.

The researcher also plans to present the findings to Mumbwa District Medical Office (DMO) to get their views on how the findings could be utilized to increase adoption of EBF.

The researcher intends to disseminate the findings in seminars and conferences that take place, as opportunity arises. The researcher intends to have the research findings published in a journal.

5.7. Limitations of the Study

A number of limitations in this study have to be recognized. For example, income did not show a significant effect, but the measure was possibly subject to underestimation because data was collected using a face to face questionnaire. Due to this method and the inherent belief by the respondents of receiving help if they are proved to be poor. It is to the best knowledge of the Principle Investigator that the participants may have not reported the actual income and may have prevented the detection of the actual picture of the economic status of the community.

Secondly, due to the limited sample size, it will be difficult to generalize these results outside the study area. Thirdly, the sample collected was based on the breastfeeding population of mothers who attended child health services between the times data was being collected; hence, it could have missed out those mothers who did not present themselves to the center at the time thereby biasing the study.

Lack of a well-stocked library and coupled with poor network connectivity at the study site being a rural district, this made progress of the study quite slow.

The interview schedule was in English language which made the researcher spend more time translating the questions into the local language when interview schedules were in place.

Lack of funding, the Principal Researcher had challenges in raising funds to meet the demands of the research.

However, despite these shortfalls, this study demonstrated internal and external validity given the congruency of the findings with other similarly formulated studies in other places.

The low frequency of exclusive breastfeeding during the first months of life found in the previous studies underline the necessity to promote exclusive breastfeeding if infant feeding recommendations are to be realized.

REFERENCES

Abdulmalek. (2008). Factors Affecting Exclusive Breastfeeding Practices In Benghazi, Libya. *Libyan Journal Of Science and Technology, 7*(1), 36-38.

Allen, L., & Haskell, M. (2001). Vitamin A Requirements of Infants Under Six Months. *Food and Nutrition Bulletin* , 22(3):(P)214-234.

Alyousefi, N., Alharbi, A., Almugheerah, B., & et.al. (2017). 'Factors influencing Saudi mothers' success in exclusive breastfeeding for the first six months of infant life: a cross-sectional observational study'. *.Int J Med Res Health Sci., 6,* , pp. 68–78 [6].

Alzaheb, R. A. (2016). Factors Associated With The Early Introduction of Complementary Feeding in Saudi Arabia. *Int J Environ Res Public Health. 2016 Jul*, 13(7): 702.

American Pediatrics Academy. (2017). Breastfeeding and the use of human milk. *Pediatrics.*, 129(3), e827-e841. Doi:10.1542/peds.2011-3552.

Batal, M., Boulghourjian, C., Abdallah, A., & Afifi, R. (2005). Breast-Feeding And Feeding Practices Of Infants In a Developing Country, National Survey In Lebanon. *Public Health Nutrition,*, 9; (P) 13-319.

Bezner Kerr, R., Dakishoni, L., Shumba, L., Msachi, R., & Chirwa, M. (2008). 'We Grandmothers Know Plenty': Breastfeeding, Complementary Feeding And The Multifaceted Role Of Grandmothers In Malawi. *Soc Sci Med.* , 662008;66:1095–10.

Black, R. E., Victora, C., Walker, S., Bhutta, Z. A., Christian, P., M, O., & et.al. (2013). Maternal And Child Under Nutrition And Overweight In Low-income and Middle-income Countries. *Lancet*, 382(9890):(p)427–51.

Burns, N., & Groove, S. (1993). The Practice of Nursing Research. *Philadelphia.Randomized Trial. Journal of Human Lactation*, (15) 125-130.

CDC. (2007, 03 23). *Breast Feeding Report,United States 2012.* Retrieved from http://www.cdc.gov/breastfeeding/pdf/2012Breastfeeding

Dop, M. C. (2002). Breastfeeding in Africa:Wwill Positive Trends Be Challenged by The AIDS Epidemic? *Sante, African Journal 12(1):*, 64-72.

Elizabeth, W., Kimani-Murage, & et.al. (2014). Factors Affecting Actualization of The WHO Breastfeeding Recommendations in Urban Poor Settings in Kenya. *Maternal & Child Nutrition published by John Wiley & Sons Ltd Maternal and Child Nutrition*, 11, pp. 314–332.

Fraser, D., Cooper, M., & Nolte, A. (2015). *Myles Textbook For Midwives.* Elsevier: Churchill.

Gamuchirai, C. (2020). Social Circumstances And Cultural Beliefs Influence Maternal Nutrition, Breastfeeding and Child Feeding Practices in South Africa;. *Chakona Nutrition Journal (2020)*, 19:47.

Gardner, H., Green, K., & Gardner, A. (2015). Infant Feeding Practices of Emirati Women in The Rapidly Developing City of Abu Dhabi, United Arab Emirates. *Int. J Environ. Res. Public Health.12*, 10923–10940.

Gawhara, Gad, Soliman, Ebrahem1, & et.al. (2019). Factors Contributing to Inadequate Exclusive Breast Feeding among Infants Aged 0-6 Months. *IOSR Journal of Nursing and Health Science (IOSR-JNHS) e-ISSN:*, 2320–1959.p- ISSN: 2320–1940 Volume 8.

Karmacharya, C., Cunningham, K., Choufani, J., & Kadiyala, S. (2017). Grandmothers' Knowledge Positively Influences Maternal Knowledge And Infant And Young Child Feeding Practices. *Public Health Nutrition.*, 2017; 20(12): p(2114–23).

Kiboi, W., & Patrick, K. (2017). Factors Associated With Exclusive Breastfeeding In Kenya: A Systematic Review. *International Journal of Community Medicine and Public Health Mututho LN et al. Int J Community Med Public Health. Dec; 4*, (12):4358-4362 .

Leshabari, S., Blystad, A., de Paoli, M., & Moland, M. (2007). HIV And Infant Feeding Counseling: Challenges Faced by Nurse-Counselors In Northern Tanzania. *Human Resources for Health*, Pg 5(18): 5-9.

Mahesh Sarki, & et.al. (2018). Comparison Of National Cross-sectional Breast-feeding Surveys By Maternal Education in Europe (2006–2016. *Public Health Nutrition:* , 22(5), 848–861.

Mamabolo, R., M, A., Mbenyane, G., Steyn, N., Nthangeni, N., De, D.-v., & Waal, H. e. (2004).

MC, D. (2002). Breastfeeding in Africa: will positive trends be challenged by the AIDS epidemic? *Sante, African Journal*, 64-72.

MDHO. (2018). *Mumbwa District Data Review Meeting.* Mumbwa: MDHO.

MDHO. (2018). *Mumbwa District Health Information.* Mumbwa: Mumbwa DHO.

Mugenda, A., & Mugenda, O. (2010, January 23). *Research Methods:Quantitative and Qualitative Population Reference Bureau*. Retrieved from World Population DataSheet.: http://www.prb.org/Publications/Datasheets/19/04/2021-worldpopulation-data-sheet/data

NFNC. (2022, August 1-7th). *World Breatfeeding-Week-Press-Release.* Lusaka: NFNC. Retrieved from https://www.nfnc.org.zm

Ordenana, J., Colodro, L., & Tornero. (2011). Relationship Between Level Of Education And Breastfeeding Duration Depends On Social Context. *Journal of Human Lactation*, 27(3), 272-278.

Polit, D., & Hungler, B. (1995). *Research in Nursing: Principles and Methods.* Lippincott: Philadelphia.

Ross, & Wilson. (2014). *Anatomy& Physiology in Health and Illness: 12th Edition,.* Elsevier: Churchhill.

Roudbari, M. (2015). Exclusive Breastfeeding Duration (EBFD) and Breastfeeding Duration Factors Related (BFD). *Oman Medical Journal (2015)*, Pg(342- 348).

Setegn, T. (2012). Factors Associated with Exclusive Breast Feeding Practices among Mother in Goba District, South Africa, Ethiopia. *A College Of Public Health and Medical Sciences, Department Of Population and Family Health, Jim University Ethiopia.*

Sherriff, N., Hall, V., & Panton, C. (2014).). Engaging and Supporting Fathers to Promote Breastfeeding: . *a concept analysis Midwifery 30 (6)*, 667–677.

Shirima, R., Greiner, T., Kylberg, E., & Gebre-Medhim, M. (2011). Exclusive Breastfeeding Is Rarely Practiced In Rural and Urban Morogoro, Tanzania. *Public Health Nutrition,*, 4(2):148-151.

SSonko, A., & Worku, A. (2015.). Prevalence and predictors of exclusive breastfeeding for the first six months of life among women in Halaba Special Woreda, Southern Nations, Nationalities and Peoples 'Region/SNNPR/, Ethiopia. *a community based cross-sectional study 73*, (1), (p)1–11.

Tembo, C., & Ngoma, M. (2015). Exclusive Breast Feeding Practice in Zambia. *Medical Journal of Zambia, Vol.42, No.3*, (p)124-129.

Treece, E. W., & Treece, J. W. (1986). *Elements of Researh in Nursing.* St. Louis.: Mosby.

UNICEF. (2007). *Preventing Disease and Saving Resources, Increase of Breastfeeding In UK.* UK: UNICEF.

UNICEF. (2016). *The Initiation Of Breastfeeding Within One Hour Of Birth, The Tanzania National Road map strategic plan.* New York: UNICEF.

Victora, C., Bahl, R., Baros, A., Franca, G., Horton, S. K., & et.al. (2016). Breastfeeding In The 21st century. *LancentNorth Am.ed*, 475-490.

WHO. (2001, 03 16). *WHO int*. Retrieved from WHO web: htt;//who.int/nutrition/topics/infantfeeding/en/

WHO. (2002). Effect of Breastfeeding On Infant And Child Mortality Due To Infectious Diseases In Less Developed Countries: A Pooled Analysis. *WHO Collaborative Study Team on the Role of Breastfeeding on the Prevention of Infant Mortality Lancet 2000*, 355(9202):451-5.

WHO. (2011). Exclusive Breastfeeding For Six Months Best For Babies Everywhere. *World Health Organization*, 120.

WHO. (2013). *Essential Nutrition Actions: Improving Maternal, Newborn, Infant And Young Child Health And Nutrition.* Geneva: WHO.

WHO. (2013, March 31). *p(10).* Retrieved from WHO: http://whqlibdoc.who.int/hq/2012/who_DCO_WHD_2012_g.p

WHO. (2015). *WHO Exclusive Breastfeeding*. Retrieved from http://www.who. in/nutrition/topics/exclusive breastfeeding/en/.

WHO. (2015, 12 4). *WHO int.* Retrieved from WHO web: hht;//www.who.in/nutrition/nutrition/topics/exclusive breastfeeding/en/.

WORLD HEALTH ORGANIZATION. (2001). Expert Consultation on the Optimal Duration of Exclusive Breast Feeding, Geneva, .

World Health Organization. (2012). *Good health adds life to years. Global brief for World Health Day 2012.* Geneva: WHO.

Zambia Statistcs Agency, M. o. (2019). *2019-2018 Zambia Demographic Health Survey Summary Report.* Lusaka, Zambia: Zambia Statistics Agency, MOH, and ICF.

APPENDICES

RESEARCH BUDGET

Description	**Quantity**	**Unit cost (ZMK)**	**Total**
Stationary/Ream of paper	3	150.00	4500.00
Photocopying/Printing/	180copies	5.00/180	800.00
Binding	4copies	800.00	3,200.00
Human Resource Expenses	3days	300.00	900.00
Miscellaneous		200.00	200.00
TOTAL			**K3,970.00**

GUNNT CHART

	Oct	**Nov**	**Dec**	**Jan**	**Fe b**	**Mar**	**Ap r**	**Ma y**
Literature Review	✓	✓	✓	✓	✓	✓	✓	✓
Problem Identification	✓	✓						
Proposal Writing	✓	✓	✓	✓				
Proposal Submission			✓					
Proposal Editing				✓	✓	✓		
Data Collection				✓	✓			
Data Entry				✓	✓			
Data Analysis				✓	✓	✓	✓	
Data Presentation						✓	✓	
Thesis submission							✓	✓

CONSENT FORM

Part I: Participant Information Sheet

Introduction

I am **Banda Mathews Spider**, ID no: **20019037**, Master of Science in public health student at the University of Zambia, in Lusaka, Lusaka Province, Zambia. I am doing research on factors associated with inadequate exclusive breastfeeding which is very common in this country and in this region. I am going to give you information and invite you to be part of this research. You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research. This consent form may contain words that you do not understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them of me or of another researcher.

Purpose of the research

Inadequate breastfeeding practices are making many children sick and may end up dying in your community. The purpose of the study was to determine the factors associated with inadequate exclusive breastfeeding practices at Mulungushi RHC in Mumbwa District.
The information generated was thought that it would assist policy makers and implementers of health programs to redirect policy and program implementation and offer better services which would meet the needs of the people.

Participant Selection

The participants were invited to take part in the research because their experience as a (or as a mother, or as guardian was that that it could contribute much to the understanding and knowledge of local health practices. They were selected to take part in the study after meeting all the desired inclusion criteria by the researcher.

Voluntary Participation

The participation in this research was entirely voluntary. It was the choice whether to participate or not. If the participant chose not to participate, they were assured that all the services received at the Centre were to continue and nothing changed.

Procedures

The study involved a face to face interview with lactating mothers seeking health services at Mulungushi RHC. An interview schedule was used and the interview took about 20 to 30 minutes to complete.

Duration

The research questionnaire took 20-30 minutes of the participant's time.

Uses of information

The information collected was thought would be used to help in making decisions by the health facility, the district local authority in the area on how best could prevent inadequate at a household level.

Risks and discomforts

The participants were made aware of the possible risks and discomforts of the research and were allowed decline to answer any question or take part in the discussion/interview if ever wished to do so, and that was also fine. The participants were meant not to give any reason for not responding to any question or for refusing to take part in the interview.

The participants were made aware that there was a risk that participants were at some point asked to share some personal or confidential information by chance, or and that they were at liberty to feel uncomfortable talking about some of the topics. However, we did not wish for this to happen. Participants did not have to answer any question or take part in the survey if they felt the question(s) are too personal or if talking about them makes you uncomfortable.

Benefits

There was no direct benefit to the participants, and participants were assured that their participation was likely to help us find out more about how to prevent inadequate exclusive breastfeeding practices in their community-Mulungushi RHC catchment area.

Confidentiality

The participants were informed that due to the fact that the research was being done in their community, it was likely to draw attention and that if they were to participate, they were likely to be asked questions by other people in the community. Participants were assured that their information was not going to be shared to anyone outside of the research team. The information that I collected from this research project was kept private. Any information about participants had a number on it instead of their name (s). Only the researcher knew the number and locked that information up with a lock and key. Participants were assured that their information was not going to be shared with or given to anyone except **UNZABREC** who were going to access to the information.

Sharing the Results

The participants were meant to understand that what was share with the researcher, was not going to be shared with anybody outside the research team, and nothing was going to be attributed by name. The participants were assured that the knowledge that we got from this research was to be shared with them and the community before it was to be made widely available to the public. Each participant was to receive a summary of the results. The participants were also assured that there was going to be small meetings in the community and that these will be announced. Following the meetings, the research was to publish the results so that other interested people may learn from the research.

Right to Refuse or Withdraw

The participants had the rights to and not participate if they wished to do so, and that choosing to participate was not going to affect their rights to receive health services at this facility in any way. The facility staffs were also meant to understand that they could stop participating in attempting the questionnaire at any time that as per their wish without their job being affected. Participants

had an opportunity at the end of the interview to review their remarks, and were allowed to modify or remove portions of those, if did not agree with the questionnaire.

Who to Contact

Participants that had any questions, were allowed to ask them immediately and or later. If they wished to ask questions later, they were to contact any of the following: **Banda Mathews, Mulungushi RHC,** and **Cell:** 0975644175 **email:** mathewsb110@gmail.com.

The proposal had been reviewed and approved by [**UNZABREC**], which is a committee whose task was to make sure that research participants are protected from harm. If participants/stakeholders wished to find out more about the UNZABREC, they were to contact {**DR Sody Mweetwa Munsaka 09779253**

INFORMATION SHEET FOR HEALTH INSTITUTIONS

Introduction

I am **Mr. Banda Mathews Spider**, ID No: **20019037**, Master of Science in Public Health student at the University of Zambia, in Lusaka, Lusaka Province, Zambia. I have been granted permission by the management at Mumbwa D.H.O to conduct a research at your institution. The study will not interfere with your routine programs.

Purpose of the study

The purpose of the study was to determine factors associated with inadequate exclusive breastfeeding practices of children aged 0-6 months in Mumbwa district: a case of Mulungushi rural health centre. The information generated was going assist policy makers and implementers of health programs to re direct policy and program implementation and offer better services which were to meet the needs of the people.

Procedure

The study involved a face to face interview with lactating mothers seeking health services at Mulungushi RHC. An interview schedule was used and the interview took about 20 to 30 minutes to complete.

Risks and discomforts

The survey involved no physical risks/harm to the respondents and their information will be handled with strict confidentiality.

Benefits

There was no direct benefit to respondents by participating in this study. However, the information obtained was going to help policy makers to make policies that ensured that participants and others received health care that promoted exclusive breastfeeding. No monetary rewards was given in exchange for this information.

Confidentiality

The research records and any information given by the respondents was confidential to the extent permitted by law. They were identified by a number, and personal information was not released without their written permission, except where required by law. Research Ethics
Committee or the Department of Public Health at the University of Zambia may receive the respondents' records, but this will be done with confidentiality if need arise.

CERTIFICATE OF INFORMED CONSENT-SERVICE PROVIDER

Topic: Factors associated with inadequate exclusive breastfeeding practices of children aged 0-6 months in Mumbwa district: a case of Mulungushi rural health center.

I have been invited to participate in research titled **factors associated with inadequate exclusive breastfeeding practices of children aged 0-6 months in Mumbwa district: a case of Mulungushi rural health center.**

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.

Print Name of Participant ________________ Signature of Participant ______________

Date ____________________

Day/month/year

LETTER OF PERMISSION TO CONDUCT STUDY

C/o Banda Mathews

0975644175

Email: mathewsb110@gmailcom

Mumbwa District Health Office,

Box 830018

Mumbwa

28/11/2022

To; The University of Zambia UNZABREC

Lusaka

Dear Sir/Madam,

REF: DATA COLLECTION, BANDA MATHEWS SPIDER

The subject matter refers

The above mentioned person is a bonafide worker under Mumbwa district health office working from Mulungushi RHC as a nurse. He has been allowed to collect data for his academic exercise from the site of his research area. He has been advised to follow all the research steps and guidance as tabulated by the research authorities.

Your usual cooperation will highly be appreciated

Yours faithfully,

Zulu Henry (EHT)

Cell: 0977607777

Ag/FACILITY INCHARGE

CERTIFICATE OF INFORMED CONSENT-CARE GIVER

Topic: Factors associated with inadequate exclusive breastfeeding practices of children aged 0-6 months in Mumbwa district: a case of Mulungushi rural health center.

I have been invited to participate in research titled **factors associated with inadequate exclusive breastfeeding practices of children aged 0-6 months in Mumbwa district: a case of Mulungushi rural health center.**

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.

Print Name of Participant ________________ Signature of Participant ______________

Date ____________________

Day/month/year

***If illiterate*[1]**

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I __________ A literate witness must sign **(if possible, this person should be selected by the participant and should have no connection to the research team**). Participants who are illiterate should include their thumb print as well. 13 confirm that the individual has given consent freely.

Print name of witness____________ Thumb print of participant __________________
Signature of witness _____________
Date ________________________

Day/month/year

TRANSLATED INFORMED CONSENT (TONGA)

CHIZUMINANO CHA NYINA NA MUZYALI

Ndakatambwa kwambwa ati nisanganemo muchizuminano chichi mumutwi wezu wamakani ***"Buchete bulenga kutanyunsha bana mbwelede kutalika chindi nazyalwa mwana kushika ku myezyi ili chisambomwe."*** Ndakabala byonse bitwakabandishana, na bakambalila. Ndakaukwete makanze akwamba ati mbuzye mibuzyo, izyo mibuzyo yangu yakaingulwa. Ndakalyaba kwamba ati ndatolamo lubazu**.**

Lizyina lyangu ndime:………………………… **Ku saina**……………… **Buzuba**……………..

NA TAYILE

Ndakamuzyiminina kubelenga nko bakamubelengela, azemwini kazanda kubuzya mibuzyo.

Ume……………………………………….

Lizyina lyakamboni:…………………………………..... **Kusaina kwa kamboni:**………….

Buzuba:……………….**Kufwatika kwa mwini makani:**……………

ETHICS APPROVAL LETTER (UNZABREC)

UNIVERSITY OF ZAMBIA
BIOMEDICAL RESEARCH ETHICS COMMITTEE

Telephone: +260 977925304 | Ridgeway Campus
Telegrams: UNZA, LUSAKA | P.O. Box 50110
Telex: UNZALU ZA 44370 | Lusaka, Zambia
Fax: + 260-1-250753 | E-mail: unzarec@unza.zm
Federal Assurance No. FWA00000338 IRB00001131 of IORG0000774 NHRAR-REC No 2021-05-0002

25th January, 2023

Your REF. No. 3500-2022

Mr. Mathews Spider Banda,
University of Zambia,
School of Public Health,
P.O Box 50110,
Lusaka.

Dear Mr. Banda,

RE: FACTORS ASSOCIATED WITH INADEQUATE EXCLUSIVE BREASTFEEDING PRACTICES OF CHILDREN AGED 0-6 MONTHS IN MUMBWA DISTRICT: A CASE OF MULUNGUSHI (REF. NO. 3500-2022)

The above-mentioned research proposal was presented to the Biomedical Research Ethics Committee on 25th January, 2023. The proposal is **approved**. The approval is based on the following documents that were submitted for review:

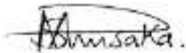
a) **Study proposal**
b) **Questionnaires**
c) **Participant Consent Form**

APPROVAL NUMBER : REF. 3500-2022
This number should be used on all correspondence, consent forms and documents as appropriate.

- **APPROVAL DATE : 25th January 2023**
- **TYPE OF APPROVAL : Standard**
- **EXPIRATION DATE OF APPROVAL : 24th January 2024**
  After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the UNZABREC Offices should be submitted one month before the expiration date for continuing review.
- **SERIOUS ADVERSE EVENT REPORTING**: All SAEs and any other serious challenges/problems having to do with participant welfare, participant safety and study integrity must be reported to UNZABREC within 3 working days using standard forms obtainable from UNZABREC.

- **MODIFICATIONS**: Prior UNZABREC approval using standard forms obtainable from the UNZABREC Offices is required before implementing any changes in the Protocol (including changes in the consent documents).
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the UNZABREC using standard forms obtainable from the UNZABREC Offices.
- **NHRA:** You are advised to obtain final study clearance and approval to conduct research in Zambia from the National Health Research Authority (NHRA) before commencing the research project.
- **QUESTIONS**: Please contact the UNZABREC on Telephone No. +260977925304 or by e-mail on unzarec@unza.zm.
- **OTHER**: Please be reminded to send in copies of your research findings/results for our records. You are also required to submit electronic copies of your publications in peer-reviewed journals that may emanate from this study. Use the online portal: unza.rhinno.net for further submissions.

Yours sincerely,



Sody Mweetwa Munsaka, BSc., MSc., PhD
CHAIRPERSON
Tel: +260977925304
E-mail: s.munsaka@unza.zm

ETHICS CLEARANCE LETTER (NHRA)

NATIONAL HEALTH RESEARCH AUTHORITY

Lot No. 18961/M, off Kasama Road, Chalala, P.O. Box 30075, LUSAKA

Tell: +260211 250309 | Email: znhrasec@nhra.org.zm | www.nhra.org.zm

---

Ref No: NHRA000014/08/02/2023 **Date: 8th February 2023**

The Principal Investigator,

Mr. Mathews Spider Banda,

University of Zambia,

Lusaka, Zambia.

Dear Mr Banda,

Re: Request for Authority to Conduct Research

The National Health Research Authority is in receipt of your request for ethical clearance and authority to conduct research titled **"Factors Associated with Inadequate Exclusive**

Breastfeeding Practices of Children Aged 0-6 Months in Mumbwa District: A Case Of Mulungushi."

I wish to inform you that following submission of your request to the Authority, our review of the same and in view of the ethical clearance, this study has been **approved** on condition that:

a) The relevant Provincial and District Medical Officers where the study is being conducted are fully appraised;
b) Progress updates are provided to NHRA bi-annually from the date of commencement of the study;
c) The final study report is cleared by the NHRA before any publication or dissemination within or outside the country;
d) After clearance for publication or dissemination by the NHRA, the final study report is shared with all relevant Provincial and District Directors of Health where the study was being conducted, University leadership, and all key respondents.

Yours sincerely,

NATIONAL HEALTH RESEARCH AUTHORITY

Ms. Sandra Chilengi-Sakala, **ACTING DIRECTOR/CHIEF EXECUTIVE OFFICER**