

https://dspace.org/

Fathers' involvement in child feeding and the adoption of exclusive breastfeeding by mothers in rural Zimbabwe: a quasi-experimental study

Maphosa, Mackson

2021

https://hdl.handle.net/10539/33448

Downloaded from a DSpace repository. https://dspace.org/

Fathers' involvement in child feeding and the adoption of exclusive breastfeeding by mothers in rural Zimbabwe: A quasi-experimental study

By

Mackson Maphosa
(750529)

Supervisors:
Dr. Sara. J. Nieuwoudt
Mrs. Pamela Ncube-Murakwani

April 2021

Research report submitted to the Faculty of Health Sciences, The University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the Masters Degree in Public Health, Social Behaviour Change Communications

Declaration

I, Mackson Maphosa do hereby declare that this research report is my own original work which was produced entirely by myself with extensive assistance from my supervisors. It has not been used in part or in its entirety for submission for award in other universities.



_____

Mackson Maphosa
Student No. 750529

12/11/2021
Date

Acknowledgements

I am deeply grateful to the women from Tsholotsho District who took their time to give their thoughts and share their knowledge. This would not have been possible without their contribution.

I also received a great deal of support and assistance to be able to conduct this research and in putting the report together.

Firstly, I would also like to extend my deepest gratitude to the management of the USAID funded Amalima program, whose funds made the research possible. I am also eternally grateful to the unwavering support from my supervisors, Dr. Sara Nieuwoudt and Mrs. Pamela Ncube-Murakwani for their invaluable expertise they so willingly gave in formulating the approach to conducting the research as well as the analysis of the data. Your support and gentle nudges always gave me the needed focus and brought a lot of high quality to my work. I would also like to appreciate your patience with me throughout this entire process. It certainly made my journey to completing this study a lot smoother.

I am also grateful to the team at the University of the Witwatersrand Faculty of Health Sciences. I am certain the stimulating and engaging debates and lectures contributed immensely in shaping my mind to think practically and scientifically in the interests of public health.

Lastly, am very grateful to my family for putting up with me during the entire course of this process.

Table of Contents

Contents

Declaration i

Acknowledgements ii

Table of Contents iii

List of Tables vi

List of Figures vii

Appendices viii

Definition of Terms ix

List of Acronyms x

Abstract xi

Introduction xi

Methods xi

Results xii

Conclusion xii

Chapter 1: Introduction and Background 1

1.1 Introduction 1

1.2 Background 2

1.3 Conceptual Framework 3

1.4 The Intervention 3

1.5 Problem Statement 5

1.6 Justification 5

1.7 Aim of the Study 6

1.8 Objectives 6

1.9 Literature Review 6

1.9.1 Exclusive Breastfeeding 6

1.9.1.1 Trends in Exclusive Breastfeeding 7

1.9.2 Barriers to Exclusive Breastfeeding in Zimbabwe 7

1.9.3 Determinants of Male Involvement in Young Childcare and Feeding 10

1.9.3.1 Male Involvement in Breastfeeding 11

1.9.4 Social Support 14

1.9.5 Conclusion 15

2.0 Chapter 2: Methodology 16

2.1 Introduction 16

2.2.0 Study Design 16
2.2.1 Study Site 16
2.2.2 Study Population 17
2.3 Inclusion and Exclusion Criteria 18
2.4 Sampling Considerations 18
2.5 Recruitment and Data Collection 20
2.6.0 Measurement 21
2.6.1 Data management 23
2.6.2 Data Analysis 23
2.7 Ethics 24
2.8 Funding 25
3.0 Chapter 3: Findings 26
3.1 Introduction 26
3.2 Study Participants 26
3.3 Exclusive Breastfeeding Practices 31
3.4 Satisfaction with Partner's Involvement in Child Feeding and Care 33
3.5 Factors associated with the Adoption of Exclusive Breastfeeding 35
3.6 The Relationship between Women's Satisfaction with Male Partner Involvement and the Adoption of Exclusive Breastfeeding 40
Chapter 4: Discussion 47
4.0 Introduction 47
4.1 Summary of the Key Findings 47
4.2 Discussion of the Findings and Interpretations 48
4.3 Strengths of the Study 57
4.4 Limitations of the Study 57
Chapter 5: Conclusion and Recommendations 59
5.0 Conclusion 59
5.1 Principal Recommendations for Practice 60
5.2 Research Recommendations for Further Investigation 64
References 68
Appendix A – Plagiarism Declaration Report 72
Appendix B – Turnitin Report 73
Appendix C – The Care Group Model 74
Appendix D – The Male Champions Approach 75
Appendix E – The Data Collection Tool 76
Appendix F – Clearance Certificate 89

Appendix G – Information Sheet on Study 90
Appendix H – Informed Consent Form (English) 93
Appendix I – Bi-variate Analysis for Exclusive Breastfeeding 94
Appendix J – Other Findings 95
Practices Leading to the Failure to Exclusively Breastfeed (additional analysis) 95
The Practice of Using Child Minders (additional analysis) 99

List of Tables

Table	Title	Page
TABLE 01a	Participant Characteristics by Intervention or Control Group	26
TABLE 01b	Participant Household Characteristics by Intervention or Control Group	27
TABLE 02	Participant Children by Intervention or Control Group	28
TABLE 03	Care Group Participation by Intervention or Control Group	29
TABLE 04	Participant Partners or Husbands by Intervention or Control Group	30
TABLE 05	Exclusive Breastfeeding Rate reported for mothers with infants below 6 months	32
TABLE 06	Successful Exclusive Breastfeeding Rate reported by mothers with infants over 6 months	33
TABLE 07	Satisfaction with Partner's Involvement in Child Feeding and Care by Intervention Area	33
TABLE 08	Male Involvement in Child Feeding and Care Index by Study Group	35
TABLE 09	Factors Associated with Exclusive Breastfeeding	36
TABLE 10	Satisfaction with Male Partner Involvement and the Adoption of EBF, by sample	41
TABLE 11	Regression Model for Factors Associated with EBF Among Mothers with Infants Under-Six Months	42
TABLE 12	Regression Model for Factors Associated with EBF Among Mothers with Children Under Six Months Split by Study Area	42
TABLE 13	Logistic Regression Model for the Past Successful Exclusive Breastfeeding Outcome	44
TABLE 14	Regression Model for Factors Associated with EBF Among Mothers with Children Over Six Months Split by Study Area	44
TABLE 15	Exclusive Breastfeeding on the Day the Infant was Born	96
TABLE 16	Exclusive Breastfeeding in the First Few Weeks Post-birth	96
TABLE 17	Practices Leading to the Failure to EBF in the First Few Weeks Post-birth	97
TABLE 18	Practices Leading to the Failure to EBF Since Birth in Sample of Mothers with Infants below Six Months in age	97
TABLE 19	Practices Leading to the Failure to EBF Since Birth in Sample of Mothers with Infants above Six Months in age	98

List of Figures

Figure	Title	Page
FIGURE 01	Conceptual Framework Explaining the Choice not to EBF	3
FIGURE 02	Male Champion Intervention Theory of Change	4
FIGURE 03	Map of Tsholotsho Showing Research Areas by Ward	17
FIGURE 04	EBF reported in the Under Six Months of Age Sample by Infant Age	37
FIGURE 05	EBF in the Under Six Months of Age Sample by Mothers Age	37
FIGURE 06	EBF in the Over Six Months of Age Sample by Mothers Age	38
FIGURE 07	Overall EBF Adoption by Husband or Partner Age	38
FIGURE 08	EBF in the Over Six Months of Age Sample by Mothers Age	39
FIGURE 09	Reasons for Failure to Exclusively Breastfeed from Birth - Under 6 Mothers	98
FIGURE 10	Reasons for Failure to Exclusively Breastfeed from Birth - Over 6 Mothers	99
FIGURE 11	The Frequency of the Use of Child Minders	100
FIGURE 12	The Amount of Time Infants are Left with Child Minders	100

Appendices

Appendix	Title	Page
Appendix A	Plagiarism Declaration Report	72
Appendix B	Turnitin Report	73
Appendix C	The Care Group Model	74
Appendix D	The Male Champions Approach	75
Appendix E	The Data Collection Tool	76
Appendix F	Clearance Certificate	89
Appendix G	Information Sheet	90
Appendix H	Informed Consent Form	93
Appendix I	Bi-variate Analysis for Exclusive Breastfeeding	94
Appendix J	Other Findings	96

Definition of Terms

Care Group – a group of up to ten women that meets once a month to learn about infant and young child nutrition, moderated by a Lead Mother (1).

Care Group Volunteer – these are Ministry of Health Village Health Workers who mentor and assist Lead Mothers (1).

Exclusive breastfeeding (EBF) – refers to nurturing an infant between the age of zero and six months with breast milk (including expressed breast milk or breast milk from a wet nurse) only while allowing the infant to receive oral rehydration therapy, drops, syrups (vitamins, minerals, medicines) prescribed by a health practitioner, and no other solid or liquid (2).

Indoda emadodeni campaign (or Male Champions Campaign) – *Indoda emadodeni* is isiNdebele for a man amongst men. It refers to the intervention that seeks to promote male in involvement in infant and young children nutrition by the Amalima project in Zimbabwe (3).

Lead Mother – a community volunteer in the Amalima program who recruits pregnant and lactating women and mothers of young children for nutrition food rations and also to join Care Groups which they facilitate (1).

Male Champion (MC) – a community volunteer who is an agent for behaviour change promoting the uptake of key male involvement behaviours by men (3).

Male Champion peer – a group of 10 or more men recruited by the male champion who go through the campaign modules monthly for a period of 7 months (3).

Male involvement – the concern and participation of men in the decision making about how to feed and care for children and being part of or facilitating activities that nourish their children (3). This could be parental being done by paternal fathers or brothers, grandfathers, uncles, or any other men within a household set up aged between 15 and 65 (3).

List of Acronyms

CNFA	Cultivating New Frontiers in Agriculture
EBF	Exclusive Breastfeeding
IYCF	Infant and Young Child Feeding
MC	Male Champion
MICS	Multiple Indicator Cluster Surveys
OR	Odds Ratio
RA	Research Assistant
USAID	United States Agency for International Development
WHO	World Health Organisation
X^2	Pearson's Chi Square Statistic

Abstract

Introduction

Exclusively breastfeeding a child is considered as giving an infant the best start to life. It is proven to be the best way to nourish infants before reaching the age of six months to ensure good health, growth, and development. It has been proven to have a host of health benefits for both the mothers and infants alike. However, a large proportion of children in Zimbabwe and the world over are not exclusively breastfed or are exclusively breastfed for less than the recommended period. Women's decision making around child feeding can be complex and can be influenced by people from within their social networks and communities where they reside, to have it done one way or another. Paternal or male partner involvement and engagement in child feeding has been offered as a potential solution in promoting the uptake of exclusive breastfeeding. The study thus sought to establish the existence of an association between spousal or male partner involvement and the adoption of EBF by women. It also sought to determine whether the Amalima Male Champions Campaign had improved partner involvement through exposing men to its interventions.

Methods

A quasi-experimental approach was taken to measure male involvement and exclusive breastfeeding outcomes among women from Male Champion intervention areas and from suitable comparison areas within the District. Outcomes from 471 women with children aged under two years from comparison wards in Tsholotsho District were compared to 355 women with children aged under two years from the intervention wards in the District. Data was obtained using a researcher-designed and interviewer administered questionnaire. Breastfeeding was measured using the WHO framework using the 24-hour recall along with questions enquiring about foods given to the infant at other times since the child was born. Male involvement was measured through women's satisfaction with spousal or partner support. Data was analysed in STATA-16 using measures of central tendency, the Chi-square test, Cramer's V test and Ordinal Logistic Regression Models.

Results

The overall prevalence of exclusive breastfeeding was 53.5%. The prevalence of exclusive breastfeeding was 61.8% among women with children under six months in age, while 51.2% of mothers with children above six months had exclusively breastfed for six months. A significant difference in EBF rates between intervention and control was not found. The results revealed a significant association between women's satisfaction with perceived spousal or partner support and the adoption of EBF. The results of the logistic regression showed that women with high satisfaction in the intervention area were 4.7 times (OR 4.7) more likely to EBF than women with low satisfaction. In the control group, women with high satisfaction were 3.1 times (OR 3.1) more likely to EBF than their contemporaries with low satisfaction. Among women with children above six month, those that were highly satisfied with the support from their partners or husbands were 1.7 times (OR 1.7) more likely to EBF than women who had low satisfaction. Among these women, both those in the intervention and the control areas who were highly satisfied with the support from their husbands were 1.8 times ([Control – OR 1.8] [Intervention – OR 1.8]) more likely to exclusively breastfeed than their contemporaries who were less satisfied.

Conclusion

The findings suggest that when women are highly satisfied with the support for exclusive breastfeeding from their spouses or partners, they are more likely to adopt exclusive breastfeeding. It is therefore recommended to actively promote the engagement of male partner or spousal support to garner exclusive breastfeeding support for women.

Chapter 1: Introduction and Background

1.1 Introduction

Breastfeeding is the best way to nourish infants to ensure good health, growth and development (1). It has been proven to have a host of health benefits for both the mothers and infants (1). In infants and children it has a protective effect against gastrointestinal illnesses, otitis media, respiratory tract infections, and neonatal necrotizing enterocolitis (2). For example, non-breastfed infants had an incidence of severe respiratory tract infection that required hospitalization which was three times the incidence in breastfed infants (2). At the same time, there is some evidence that breastfeeding is also protective against chronic illnesses that can manifest later on in childhood or later life, such as obesity (2).

The World Health Organization (WHO) recommends that infants should be exclusively breastfed up until they reach six months in age (3). This means that before the age of six months the infant receives only breast milk without any other additional liquids or solids, with oral rehydration solution, or drops/syrups of vitamins, minerals or medicines being the only exceptions. From the age of six months, the recommendation is that the infants continue to be breastfed while being given the appropriate complimentary foods until the age of two years or beyond (3). To achieve optimal child feeding, the WHO holds that a newborn infant must initiate breastfeeding early (within one hour after birth), and then be nurtured exclusively on breastmilk until the child reaches six months in age (EBF), followed by the continuation of breastfeeding while giving the necessary complementary foods up until the infant reaches two years (or beyond) are considered optimal breastfeeding practices (3).

Evidence suggests that a child that is not exclusively breastfed is 14 times more likely to die in the first six months of life than an exclusively breastfed one (4). In addition, in the first two months from birth a child that is not exclusively breastfeeding is 25 times more likely to die from contracting diarrhoea and also four times more at risk from death due to pneumonia than a child that is not breastfed (5). Moreover, breastfeeding greatly reduces the risks of death due to acute respiratory infection and diarrhoea, which are considered two of the major child killers, especially in sub-Saharan Africa (6).

1.2 Background

Nearly half (48%) of infants under six months in age are exclusively breastfed in Zimbabwe, with 74% being exclusively breastfed when they are between zero and one month in age (7). The proportion declines sharply among infants aged two to three months to 46%, and further drops to 20% in the four to five month age range (7). Nationally, stunting is 14.9% in 6 to 11 months old range, 23.8% and 35.9% in the 12 to 17 and 18 to 23 month age ranges respectively, against a national average of 26.0% (8). Experts believe that this points to sub-optimal feeding as a key problem, including mixed feeding in the zero to five month olds (9). The median duration for exclusive breastfeeding is reported to be just above two (2.3) months (7). In Zimbabwe's Matabeleland North[1] stunting among children under the age of five is pegged at 24.0% (8). In Tsholotsho district stunting among children under five is slightly above the provincial average at 24.7% (8).

Mothers or women are biologically the only ones who can nurture their infants with breastmilk, if they are willing and able (2). As such, most of the social determinants for EBF centre on potential motivators, enablers, and barriers. African countries are generally considered to be patriarchal (10). Tsholotsho district is considered patriarchal and the role of child feeding and care is largely consigned to women and the girl child (11). Being the primary custodians of children's welfare is made difficult by gender roles, whereby women also carry responsibility for household chores (11, 12). Moreover, agricultural production, largely manual and labour intensive, is mostly done by women (11, 12). As a result, women become highly time starved as they essentially have a lot of work to do on a daily basis (11, 12).

The gendered division of labour leaves women with little time for the provision of optimal or recommended childcare and feeding. One study showed that women tended to prioritize their chores and other duties, resulting in breastfeeding sessions becoming very short which would deny the infants the more nutritious higher fat content hind milk and its accompanying satiety benefits (11). Women also displayed a fear of being seen taking time to breastfeed by their husbands, mothers-in-law or aunts (11). They feared they would be labelled as lazy, which leads to short token breastfeeding usually to pacify babies and stop

[1] Tsholotsho District is situated in Matabeleland North

them crying (11). In addition, the decisions made about the feeding and care of children involved other women such as grandmothers, mothers, mothers-in-law, and aunts who seemed to have more power and influence than the mothers of the infants (11, 13). For example, a paternal grandmother, mothers-in-law or aunts could insist that a baby be given water or porridge before the infant is at six months in age (13, 14). This has been noted to have negative effects on adoption and serves to complicate decision making about how to nurture infants. However, it is potentially avoidable if men were involved and supportive of their wives / partners doing these practices.

1.3 Conceptual Framework

The conceptual framework below depicts the interplay of various factors that lead to a woman's choice to not exclusively breastfeed.

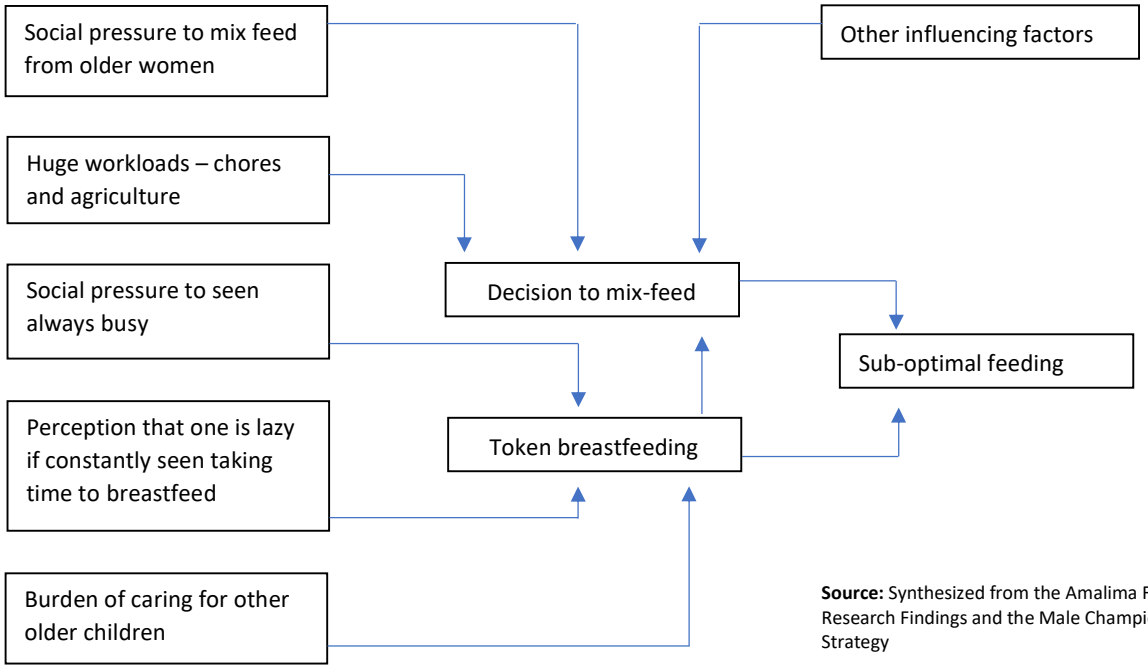
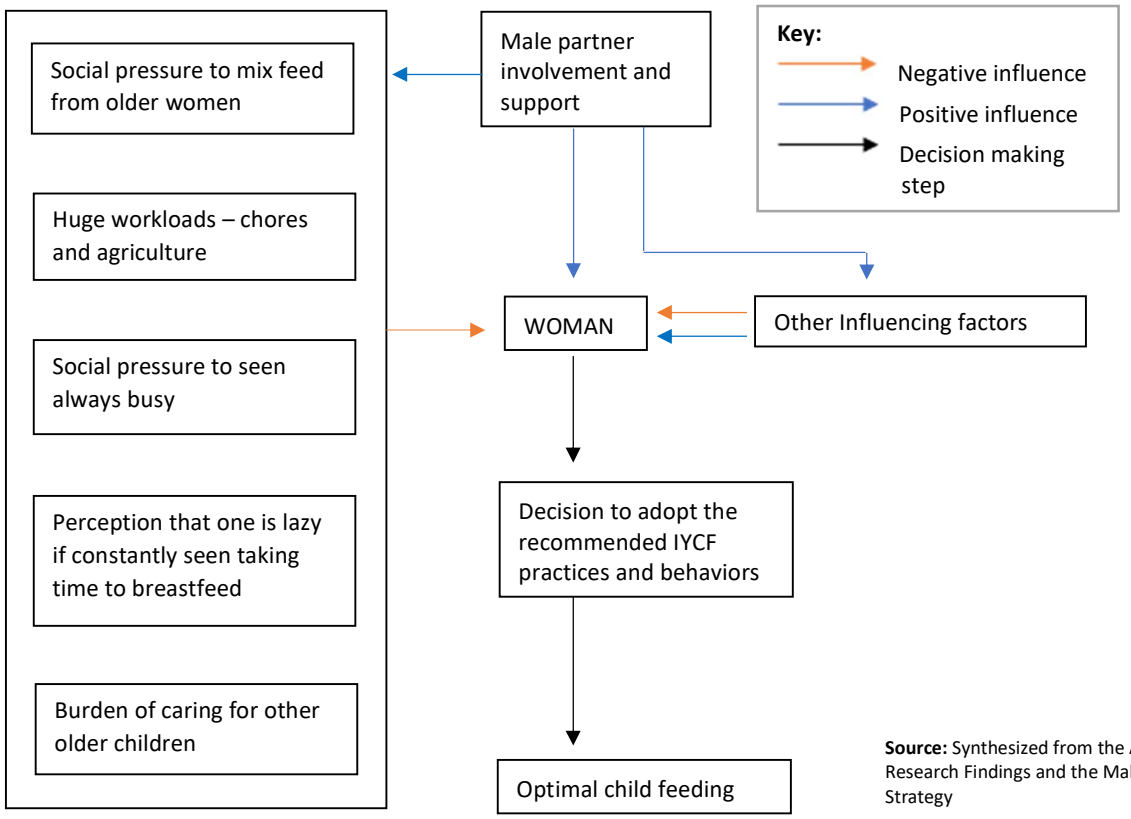


FIGURE 01 Conceptual Framework Explaining the Choice not to EBF

1.4 The Intervention

The Amalima program was a USAID funded multi-year development, food assistance

program in Matabeleland North and South provinces in western Zimbabwe (15). The program sought to reduce stunting and malnutrition through several activities including the Care Group Approach (Appendix C) and provision of corn-soya blend rations to pregnant and lactating women, and children under the age of two (15). The Care Group Approach is a group cascade training intervention that attempts to improve women's knowledge and promote adoption of optimal IYCF practices about child care and nutrition (see Appendix C) (15). The '*Indoda Emadodeni*' Male Champions (MC) Campaign is an intervention designed to provide men aged between 15 and 65 with man-friendly infant and young child feeding (IYCF) information while promoting the uptake of key behaviours (see Appendix D) that will either facilitate the adoption of recommended IYCF practices by women or lead to improved health and nutrition outcomes for the children in their households or homesteads (16).



Source: Synthesized from the Amalima Formative Research Findings and the Male Champions Strategy

FIGURE 02 Male Champion Intervention Theory of Change

The framework above maps out the theory of how male support will lead to adoption of exclusive breastfeeding and other key recommended IYCF practices. The intervention sought to give men health and child nutrition knowledge following the 1,000 days approach, with the intention of helping them to become health and child nutrition advocates in their own homes who are able to assist their wives or partners with support so that the women are better poised to sustainably adopt the recommended practices, including EBF. In other words, women could find it easier to adopt recommended IYCF behaviours if men were involved and supportive of their wives / partners doing these practices.

1.5 Problem Statement

EBF has no accompanying out-of-pocket costs and there is also a host of evidence that suggests that women have the correct knowledge and hold positive attitudes about the practice (2). Evidence also suggests that globally about a million infant lives can be saved annually through increasing the number of women who exclusively breastfeed (17). However, there are great barriers to the adoption of EBF which result in it not being practiced or being practiced for relatively few months (18). In Zimbabwe, only 48% of infants under the age of six month are exclusively breastfed (7). The lack of male involvement in child feeding and care is identified as one of these barriers (13).

1.6 Justification

Studies show that women want men to support them and to be involved in infant nutrition concerns (19). Lay support has been associated with improved breastfeeding practices, but studies of programs that engage men in breastfeeding support have shown mixed results and most are from high-income countries (20).

There is limited literature on this subject, especially about Zimbabwe or sub-Saharan Africa. This study will contribute to the understanding of the dynamics involved in male involvement in infant and young child nutrition, in particular, its influence on the adoption of EBF by women, from the perspectives of women. Lack of optimum breastfeeding is identified as a key factor in the undernutrition and malnutrition of children under the age of

five. Understanding the role of male involvement could lead to the design of more effective interventions in infant and young child nutrition.

1.7 Aim of the Study

The study sought to determine if there was an association between male involvement and the adoption of EBF by women. In addition, it attempted to establish if there was an association between male partner involvement and exposure to the Male Champion intervention.

1.8 Objectives

1. To compare the level of adoption of EBF by women in the intervention versus the control areas.

2. To compare the self-reported satisfaction of women about their partners'/husbands' involvement in childcare in the intervention and control areas.

3. To determine if there was an association between reported male involvement and EBF practices by women in the intervention and control areas.

1.9 Literature Review

1.9.1 Exclusive Breastfeeding

Breastfeeding is considered to be the 'normal way of providing young infants with the nutrients they need for healthy growth and development' (22). Generally speaking, all mothers have the ability to breastfeed their infants if they wish to, save for very rare cases of women with particular conditions that render them either unable to breastfeed or being recommended not to (8). These conditions include the failure to produce sufficient amounts of milk to nourish the infant or medical conditions that include hepatitis B, hepatitis C, herpes, substance use and abuse, breast abscesses, mastitis, and other conditions (8).

Despite the many benefits of breastfeeding, not all mothers breastfeed and not all sustain breastfeeding their children for the recommended times in the recommended way for a variety of different reasons following different social contexts (17).

1.9.1.1 Trends in Exclusive Breastfeeding

Nationally there have been great improvements in exclusive breastfeeding outcomes over the years. In 2005, the median duration of exclusive breastfeeding was 0.6 months with the national EBF rate at 22.0% (21). The median duration of exclusive breastfeeding slightly increased in 2010 to 1.1 months and the national exclusive breastfeeding rate slightly went up to 31.0% (22). In 2015 the median duration of exclusive breastfeeding had more than doubled to 2.3 months with the national EBF rate firmly improving to 48,0% (23). In Matabeleland North, the exclusive breastfeeding outcomes also improved over the years to levels about the national rates. The median duration of exclusive breastfeeding was 0.6 months in 2005 (21), 1.3 months in 2010 (22), and 3.1 months in 2015 (23). Despite these improvements a large proportion of infants was still not being exclusively breastfed.

1.9.2 Barriers to Exclusive Breastfeeding in Zimbabwe

The choice to exclusively breastfeed seems to be a sophisticated process largely determined by inter alia psychological, physiological factors, cultural, environmental, and socio-economic factors or circumstances (23). The factors presented below are specific to the Zimbabwean context.

Level of education - There is an association between education level and the practice of EBF; the higher the education of a mother, the higher the probability that she will EBF her child (16). Women that have secondary education and above have a higher prevalence of EBF than women with primary education (16). One study showed a prevalence of 71% in women with secondary education against 14% in women with primary education (16). As such, in Zimbabwe education has a positive influence towards the adoption of EBF while low education becomes a barrier.

Culture and traditional practices - When most children are born in Zimbabwe, tradition is that they are given traditional water based herbal medicines in order to protect them from

evil spirits or people who may want to harm them leading to the child's fontanel subsiding into the child's cranium (16). It is widely accepted as a good practice that will prevent this from happening. This is referred to as *inkanda* in local isiNdebele or *nhova* in Shona (16). This constitutes a barrier to the adoption and practice of EBF.

Social Pressure - While a woman might be the mother of the infant, a number of people within her social circle have influence on how she will nurture and feed her child. These include grandmothers, mothers-in-law, mothers, paternal aunts, and husbands (16, 17, 23). Their opinions and demands can hold sway over what a woman would choose for her child as these agents usually have more power than the mother of the child, especially if she is a first-time parent (16). If a mother-in-law gives a recommendation or instruction on how to feed the child, a daughter-in-law feels compelled to follow even if the advice is contrary to advice from health workers (14, 16). In Zimbabwe, several studies note that mothers-in-law have great influence on the choices their daughter-in-law makes regarding infant feeding (14, 16). They note that these women favour mixed feeding over EBF (16).

Perceived Breastmilk Insufficiency - Knowledge of exclusive breastfeeding among women in Zimbabwe is high (24) (25). However, knowledge about and comprehension of what exclusive breastfeeding entails are not associated with consequent uptake or adoption of the practice (26) (24). In Zimbabwe, women developed negative attitudes towards the appropriateness of exclusive breastfeeding stemming from their beliefs that breastmilk alone was insufficient to nourish an infant and that infants get thirsty, hence it is important to give water as well (24) (27).

Mothers Age - Exclusive breastfeeding rates have also been found to be higher among older women than younger ones. In Gwanda District, women that were less than 25 in age were found to be less likely to exclusively breastfeed than those who were older (25). Other experts found that EBF rates peak in women that were age thirty and above (28). A study in Ghana also found that mothers aged 15–19 years were less likely to exclusively breastfeed than women aged 20–24 years (29). In Zimbabwe and Matabeleland North in particular, there is a high adolescent rate of pregnancy (23). Given that adolescents are largely dependents themselves, it is plausible that they would be less likely to EBF than older younger women.

Parity - Exclusive breastfeeding rates have been found to be higher among women who are not first-time mothers than those who are first-time mothers (25). Having gone through the experience of raising an infant is believed to give higher self-efficacy and confidence than first time mothers, leading to better breastfeeding outcomes than what is found among first time mothers (25). A study in Gwanda District, however, found that women with two children and below were less likely to exclusively breastfeed than those with three or more (25).

Child minding - It is not always possible for mothers to be always with their children. Occasionally, the children are left in the care of other people who include maids, grandmothers, mother-in-law, aunts, etc. The feeding of the children while in their care is largely at their discretion, even if instructions are given (14). One might find that even though expressed milk has been left available, a child minder still gives porridge, water, or other liquids to the child from the standpoint that it is normal and good from their perspective (14).

Gender inequality - Women have more household chores and responsibilities than men (24, 25). The bulk of agricultural activity and production is also done by women (24, 25). Generally, cultural expectations are that a “proper” woman is one who is always busy and not lazy (14, 25) As a result, women find themselves inundated with work leaving them with little time to provide higher quality care to their children. Most women believed that if they were constantly seen taking time to breastfeed, they would be considered as lazy (14). In such instances, the drive to give porridge will be big, as this is considered to satisfy the infants for longer periods of time meaning that the babies cry less allowing the women to focus on their chores and responsibilities (14).

Marital status and past successful EBF - Women who practiced EBF were more likely to be married and older (17). These women also breastfed for longer periods and as such in turn tended to produce more milk (17). If a woman had previously success with EBF they were also more likely to EBF (16). As such, being single and lacking a successful experience of EBF become potential barriers (16, 17).

Socio-economic status - Women from higher income bands showed a higher prevalence of EBF (17). At the same time, women in lower income brackets tended to be malnourished, subsequently leading to the production of low milk quantities (16). This in turn acts as an EBF deterrent as these mothers would then opt for mixed feeding (16).

1.9.3 Determinants of Male Involvement in Young Childcare and Feeding

There are several factors that influence men's involvement in childcare and feeding. Firstly, different cultures can influence men's involvement through governing the roles and social functions of men and women in families (30). In this regard, men are primarily considered as household heads, providers or breadwinners for the family as well as disciplinarians (31). There are generally no direct roles in childcare and feeding that are ascribed to men. Women, on the other hand, are child bearers and caregivers to children, are guardians of children's welfare, and have the primary responsibility to provide for the children materially in response to their needs (30, 31). Women also have to perform various chores at home to ensure good health and nutrition for the whole family, through managing household or homesteads, preparing and providing food, fetching water and general cleaning and household upkeep (30).

As providers, since men spend less time at home pursuing various employment and livelihood options to provide financially for their families, it is possible that their reduced presence at home predisposes them to have little or reduced contact with their children, hence making men less likely to be involved in childcare and feeding in the first place. Due to such cultural norms and dictates on the roles of men and women, the involvement of men in childcare and feeding essentially becomes curtailed.

A study in Malaysia found that fathers' breastfeeding knowledge was correlated to increased paternal involvement in breastfeeding (p-value 0.001) (32). Generally speaking, having good knowledge about a recommended practice is a precursor to uptake and adoption (32). It would be difficult to act on something that one is not aware of or understands. The same study also found that fathers' attitudes towards the breastfeeding practices were also found to be a determinant of involvement (32). In this case, fathers with

high knowledge on breastfeeding were found to be more likely to have good involvement in the breastfeeding practices of their wives. Lastly, Nawi & Hamid (2021) also found that the mode of infant delivery was a determinant of male involvement, as the fathers to infants delivered vaginally were more likely to be involved in their breastfeeding than the fathers whose children were delivered through caesarean-section (32).

Father educational status was also found to be a determinant for their involvement in breastfeeding practices (33). Fathers in Southern Ethiopia with high education were 4.1 times more likely to be involved than fathers with low educational status. In this study, fathers that were in monogamous matrimonial unions were also found to 5.8 times more likely to be involved in the breastfeeding of their children than polygamous fathers (33). Having wives who had positive attitudes to father involvement in child feeding was also found to be a determinant (33). In this instance, fathers with wives who had good perceptions about father involvement were 5.6 times more likely to be involved in breastfeeding than fathers with wives with poor or negative perceptions about father's involvement in breastfeeding (33). Moreover, fathers that were prone to visiting health facilities were 5.9 times more likely to be involved in breastfeeding that those who are less inclined to visit health facilities (33).

Some factors have also been found to be barriers to male involvement in child feeding practices. Poor couple communication among couples can work as a deterrent to men being involved in the care and feeding of children (30). Some men associated the risk of being shamed and ridiculed by society if publicly seen being involved in the care and feeding of children (30). As such, to avoid this shaming men can opt to not be involved.

1.9.3.1 Male Involvement in Breastfeeding

Male involvement refers to male participation in the activities that nourish their children. This could be parental, being done by paternal fathers, or non-paternal and being done by 'other men' which include inter-alia brothers, grandfathers, uncles, or any other men within a household set up aged between 15 and 65 (3). It is also possible that this can extend beyond familial relationships to include men who may not be related to the children they are responsible for (31). In Sub-Saharan Africa among Black communities, fatherhood

derives from the 'fatherly' actions of men to children rather than being simply a biological father (31). In this view, men who are not biological fathers can still be considered fathers by virtue of their actions in caring and nurturing children. It is also possible for biological parents to neglect or abandon their children as well, further underscoring the importance of actions rather than paternity. The study, however, focused on paternal involvement in order to study these effects of the support specifically from biological fathers who are married and thus maintain a clear sampling frame.

There is a large body of evidence that reflects that the attainment of desired outcomes for children across a wide spectrum of different fields occurs if paternal engagement is done early, regularly, and effectively (34). When this happens, the children are less likely to engage in crime, abuse substances, and other undesired negative behaviour (34). They are also more likely to develop healthy relationships as they grow older, have better educational outcomes and other desired positive outcomes (34). This shows that engaging men can be an effective intervention in championing good and desired outcomes for children.

In child feeding, male involvement is considered as one of the support structures necessary in promoting optimal child feeding (9, 20). Evidence exists that suggests that fathers have a strong influence on their partner's / wife's decision to initiate and continue breastfeeding (21). It can also be deduced that men exercise immense control over women's abilities to feed their children since they control the factors of production and a large component of household income, more so in patriarchal societies as those found in rural Zimbabwe (16). This seems to be a trend globally as evidence shows that men largely have great decision-making power over women concerning the use of productive assets, time, and labour (which can influence the choices about infant feeding) (16). Breastfeeding is a job that requires a lot of time and attention from women which necessitates the importance for women to get appropriate direct and indirect social support in initiating and sustaining breastfeeding (22). Male support, in particular that support from the fathers of the children, is considered a key component in optimizing maternal and child health alike (23). Women that receive support from their husbands are more likely to opt to exclusively breastfeed and are more likely to continue this practice in future births (24). Women can also be prone

to post-natal depression which can negatively impact the care and feeding of infants. However, this can be managed if effective support from partners or spouses exists.

Sheriff, Hall, and Panton identify five critical defining attributes of male involvement in breastfeeding (35). These are having a positive predisposition to breastfeeding, the possession of knowledge about breastfeeding, provision of practical physical support to women, provision of emotional support and presence in the decision-making process concerning the feeding of the child (35). Having a positive attitude towards breastfeeding predisposes an individual to view breastfeeding as good and must be antecedent to attaining involvement(35). It is built through having wholesome proven knowledge about breastfeeding and assists men to be able to also choose proper feeding behaviour for their children (35). The physical support reduces the burden of work and chores that women have and opens up time for the women to give better care and attention to their children, while emotional support offers encouragement and reinforces the woman's decision to breastfeed (35).

This Amalima Male Champions Campaign directly targeted men and trained them on child feeding and at the same time promoted the uptake of key supportive behaviours for the men to do at home to support exclusive breastfeeding and other key recommended child feeding practices. Other studies have also found male partner or spousal involvement in childcare and nutrition to have a positive influence on breastfeeding outcomes (36, 37). For instance, verbal encouragement from fathers or partners to first-time mothers was found to increase exclusive breastfeeding outcomes and breastfeeding duration (37-39). Breastfeeding behaviours were also found to improve when fathers or male partners were conscious of and responsive to the needs of the lactating woman (38, 39). Some experts also found that assistance from men in handling difficulties that arise for the mother because of breastfeeding also led to improvements in breastfeeding behaviours by the mothers (39). This assistance included help with household chores and childcare duties.

While there is a evidence that breastfeeding outcomes improve when women believe that support from their partners or spouses is always available for them should they need it, there is also evidence of negative breastfeeding outcomes when the support becomes real

and tangible, e.g. being supportive by giving information, being helpful with chores or through giving encouragement to continue exclusively breastfeeding (36, 39). The rationale given for this response is that negative EBF outcomes may come from male partner support if the support given is perceived by the woman to not be sensitive or responsive to her needs and requirements. They may not have done so in a manner that was sensitive and responsive to the needs of the breastfeeding woman, thereby undermining the mutual goal (39).

In other words, male engagement can result in negative breastfeeding outcomes (39). For instance, women's breastfeeding duration intentions were found to be reduced when expectant fathers showed an explicit preference for longer durations, while also being more knowledgeable and empathetic about breastfeeding (36). However, women's perceptions of support from their partners or spouses was found to be associated with intentions to breastfeed for longer periods and longer breastfeeding duration as well (36).

1.9.4 Social Support

Experts also overwhelmingly speak of social support in its broad form encompassing support from people within an individual's social network including intimate partners, relatives, friends, neighbours, and the wider community to which an individual belongs (40). Such support is documented as having positive impact on health and being helpful in reducing mortality and morbidity (40). There is evidence that suggests that when grandmothers have significant influence on women's breastfeeding habits, they can influence women's breastfeeding choices enough to reduce exclusive breastfeeding rates (38). Also, as mentioned earlier, influential women within a woman's social network such as mothers-in-law and aunts have been found to have negative influence towards the adoption of EBF (13). Muchacha et al also document that culture and traditions sometimes link specific child feeding behaviours to their familial identities (feeding a child solid food at one month in age is considered a sign of genetic identity to the family in which an infant belongs). As such, focusing on other key people in a woman's life besides intimate partners, in theory, can also lead to improved breastfeeding outcomes. Similarly, in theory, influencing social norms around child feeding can also have a positive effect as well.

However, there is evidence that suggests that the characteristics of women may dictate on which will have greater effect on their breastfeeding choices between social support in its wider form and spousal or partner support (41). The evidence suggests that women from the upper echelons of society would be more likely to respond to spousal or partner opinions and support in their decision-making concerning breastfeeding (41). On the other hand, the evidence holds that women from the lower echelons of society would be more responsive to influence from close friends on their breastfeeding choices (41).

1.9.5 Conclusion

There is a great amount of evidence that argues for the positive impact of engaging fathers in supporting breastfeeding and exclusive breastfeeding. Male partner support can be considered a positive influencing factor in the attainment of improved exclusive breastfeeding outcomes. Some experts now call for the inclusion of men in promoting exclusive breastfeeding initiation and continuation (34).

2.0 Chapter 2: Methodology

2.1 Introduction

This chapter explores in detail the methodology used in the attempt to respond to the research question and study objectives. It describes and explains how the study was carried out.

2.2.0 Study Design

The study applied a quasi-experimental post-test only design, to compare female perceptions of male involvement and the adoption of exclusive breastfeeding, for two groups of women, in the areas where the Male Champions intervention was held and in the comparison areas that did not have the intervention. While a pre- and post-intervention design would have been preferred, as has been conducted for similar breastfeeding studies (42-44), this was not possible in this instance due to the lack of baseline data for this component in the project (Amalima). The post-test only design was considered a suitable alternative.

2.2.1 Study Site

The study was conducted in Tsholotsho District in western Zimbabwe's Matabeleland North Province. Tsholotsho is a semi-arid region largely populated by smallholder farmers that farm mainly for subsistence (27). They practice rain-fed farming and keep livestock which is comprised of cattle, sheep, goats, and chickens (27). The population of the district is 115 119, consisting of 52 930 males and 62 189 females (28). It is for the most part rural, with a small peri-urban centre (27).

The district has formal structures of governance through nominated Members of Parliament and Ward Councillors but also has a very influential traditional system of governance through area Chiefs and Village Headmen (27). The people in the area are mostly Ndebele speaking with a few Kalanga speakers and small communities of the San (27). The Amalima project worked in all wards, with nine receiving the MC intervention (see Figure 3.0).

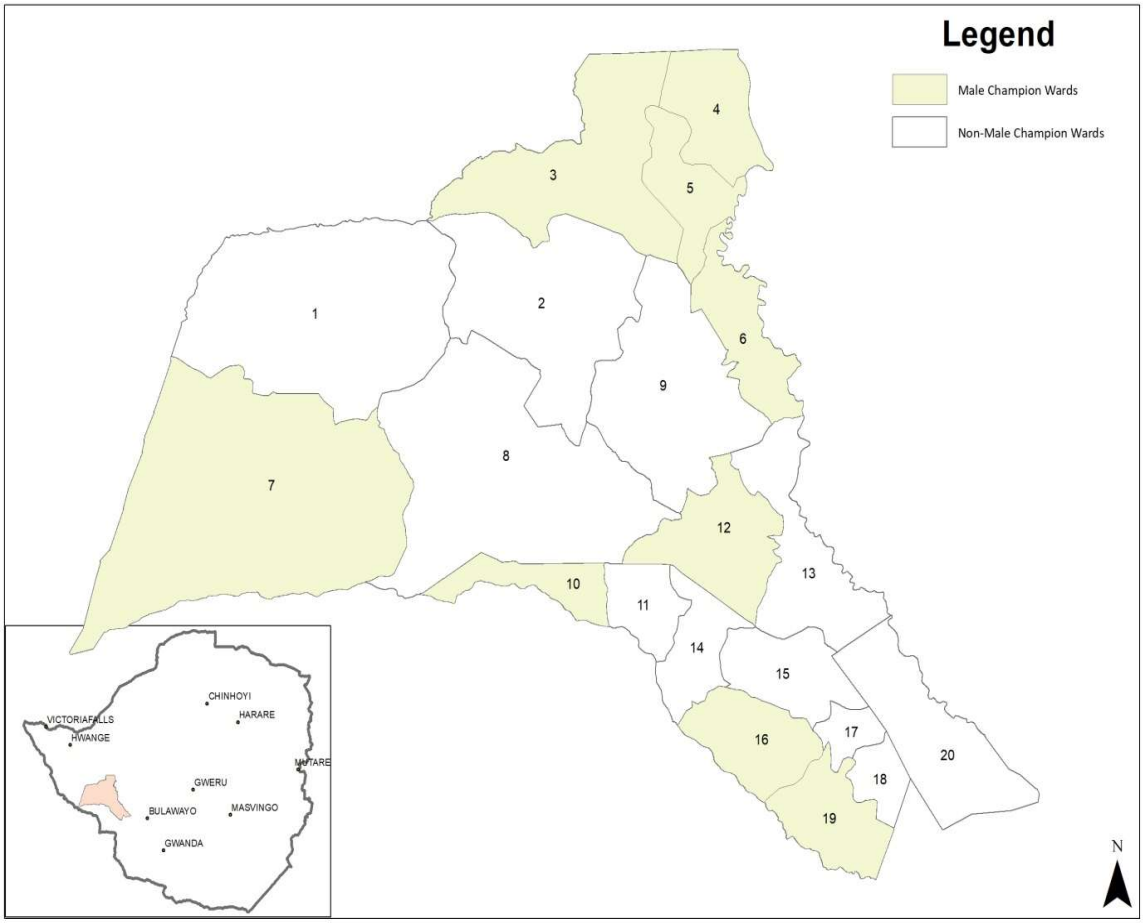


FIGURE 03 Map of Tsholotsho Showing Research Areas by Ward

2.2.2 Study Population

The study population was comprised of women of reproductive age with young children under the age of two years, who were part of the project's Care Groups. In the intervention area, these were wives or partners of the men reached through the MC intervention. In the control area, they comprised married women who were part of the project's Care Groups (their husbands or partners were not exposed to the MC intervention). The study participants were selected to be women, as opposed to the men who were targets of the MC intervention, as the intervention sought to bolster men's support to women to enable them to EBF with relative ease. As such, focusing on their impressions as purported recipients of the support seemed logical.

2.3 Inclusion and Exclusion Criteria

Inclusion and exclusion criteria were crafted to ensure that the study participants selected would have similar characteristics and be comparable. The only allowable difference between the two groups was that the husbands or partners of the women in the intervention area had been exposed to the MC intervention while those in the control were not exposed.

Intervention area - Women of reproductive age (21 to 49) who were Amalima Care Group (refer to Appendix C) participants who lived with their husbands or partners, with their husbands having been exposed to the MC intervention in the eight wards. In this case, exposure was defined by having gone through the entire seven module curriculum of the intervention. These women were all mothers or caregivers to children aged between zero and 23 months who were alive.

Control Area - Women of reproductive age (21 to 49) who were Amalima Care Group participants who lived with their husbands or partners, who lived in the eleven wards without the MC program. These women were also all mothers or caregivers to children aged between zero and 23 months. Their children were also alive.

Exclusion Criteria – Women below the age of 21 were excluded as well as those without a husband or partner. Women aged 49 and above were also excluded, along with women who were unable to breastfeed due to medical complexities[2], as well as women who were not consistently resident in the area. Women with no exposure to Care Group Messaging were excluded as well for comparison purposes. To limit social desirability bias, Care Group project volunteers (Care Group Volunteers and Lead Mothers) were also excluded. The minimum age of potential research participants was 21 for informed consent purposes.

2.4 Sampling Considerations

The population size of eligible women for the intervention area was 750, based on the

[2] Women unable to breastfeed due to medical conditions.

number of males reached by the MC intervention. The population of the control area comprised the 2,366 women participating in Care Groups from those wards that did not have the MC intervention.

Sampling Frame - Two sampling frames were generated from the project registers for the intervention and control areas. In the intervention area, the sampling frame was developed using the registers on the male champions and their peers from all villages condensed into a single list of all men reached by the MC campaign in the district through whom those with wives in Care Groups were recruited. In the control area the sampling frame was generated from the registers of Care Group participants from the wards without the MC Campaign.

Sampling Technique - Simple random sampling was employed using Microsoft Excel from the sampling frames developed, through the RANDBETWEEN function which selects a random row with each execution without replacing the selected row. This was done repeatedly until a list of potential respondents was generated for each group. Oversampling by ten percent of the sample size was done to cater for potential respondents who may decline to be interviewed or for some other reason be unable to taken part in the study.

Sample Size - The desired sample size was determined using the Yamane approach, since the population sizes for both control area and intervention area are known. The Yamane approach being given by the formula "$n = N / [1 + N(e)^2]$", where 'n' is the sample size, 'N' is the population size, and 'e' is the level of precision or margin of error. Assuming a 95% confidence interval and a 5% margin of error, the required sample size for the intervention area was **261** and **342** for the control area. This was exceeded; the number of women interviewed in the intervention area was 355 and 471 in the control area.

There was a large positive variance between the required sample size and the actual attained. In certain villages some incidents beyond our control would occur such as public events and funerals which made respondents unavailable and thus forcing more recruitment in adjacent villages on the days in question. The villages skipped would then often set other dates for the interviews and general courtesy drove the team to interview.

Of the 1164 potential participants initially recruited, 200 interviews were discontinued, as the age of the participants (particularly being under 21) did not meet eligibility criteria. None were discontinued for medical inability to breastfeed. A further 81 prospective research participants refused to participate in the study and 57 were removed from analysis at a later stage due to incomplete data. In all, the study realised a response rate of 85.7%[3], with a final sample of 826. It is also possible that potential respondents felt it was necessary to participate in anticipation of being beneficiaries in some future intervention given that the women were beneficiaries of the food distribution component of the larger program. At the same time, it is possible that the respondents also felt some sort of kinship to the Amalima program and its project representatives since the project had operated in their communities since 2014, and thus the high response rate.

2.5 Recruitment and Data Collection

Household calls were conducted through the program's Field Officers to invite those selected to participate in the study. An information sheet in the local language describing the study was provided to eligible people, from which point informed consent to participate was requested through a consent form written in simple isiNdebele. Once consent was given, appointments were set for conducting the administered questionnaire, while those who declined simply indicated declining on the consent form.

The data was gathered using a standardized interviewer-administered questionnaire (Appendix E). Key questions that were behaviour specific had accompanying show cards depicting the item under investigation in order to reduce ambiguity and to aid recall. Show cards were also used to visually explain the meanings of particular things within questions being asked.

Fourteen fluent Ndebele speaking female research assistants (RAs) resident outside Tsholotsho district were engaged to gather the data. Beforehand, they went through a four-day training course on what they were expected to do. The course included a description of the study, key terms, and their meanings along with their descriptors in vernacular, training

[3] Actual number of research participants divided by the total number of eligible potential participants, 964.

on the tools to be used, and explanations concerning how to ask questions and practical sessions on how to record the responses, which included pre-testing and piloting of the questionnaire in Mangwe district in Matabeleland South Province, after the four-day training with quality control from the primary investigator. Testing the tools in this way helped show the RAs how the tools were expected to work and facilitated the identification of errors or problems in the questionnaire, so that they could be addressed before the field work was done to gather the data.

The questionnaire was also translated to Ndebele and had accompanying notes for the RAs regarding several potential responses in Ndebele along with their meanings in English to give precision in recording. This also ensured that interviewers would ask questions in the same way and that responses received were also interpreted and recorded in the same way as well. During data collection, the RAs operated in teams of two that is, an interviewer and a note taker. They were supervised by the principal investigator.

2.6.0 Measurement

Outcome variables

Three key outcomes were measured for this study: EBF practices (Objective 1), Satisfaction with male involvement (Objective 2), and Perceived male involvement or effective satisfaction[4] with perceived male involvement (Objective 3).

EBF practices: The study employed an adapted World Health Organization 24-hour recall EBF tool to measure EBF among women with children under six months (2). The WHO tool (Q31 - 44 in questionnaire) was adapted to include common locally available infant food and liquid supplements for recall, as well as widened time range which included inquiring about child feeding at birth, recently after birth, and since the child was born to date in addition to the 24-hour recall. The tool also included inquiries about traditional medicines given to the child and inquiries on the practice of traditional treatment of the child's fontanelle. Available EBF measurement tools do not usually account for traditional medicines in measurement. To ensure comparability of the data, adoption of EBF was considered as

[4] See perceived male involvement in the next page (page 31).

having followed all the requirements of EBF at birth, recently after birth, since the child was born and also in the 24-hour recall. Two computations of EBF were then calculated, firstly an EBF rate that did not include traditional medicines and the traditional practice of fontanelle treatment and secondly an EBF rate that included these variables.

Women with children aged between six and 23 months had EBF measured in the same way as those with children under six months, with the difference being a longer recall period with questions asking about at which age different foods and liquids were introduced to the infant during the first six months of life (see Q45 - 62 in questionnaire).

Satisfaction with male involvement - Women ranked their satisfaction with each of the 10 supportive behaviours on a six-point scale, where one is the lowest score and five is the highest (See Q69 to 78 on questionnaire). Behaviours not selected by the women automatically earned a zero score.

Each of the ten constituent behaviours were treated as having the same weighting since cumulatively they defined male involvement in EBF for their infants in the communities under investigation. The scores given per behaviour were then summed up to give the satisfaction score, which ranges from zero to 50. The satisfaction scores were the categorized into none (0), very low (1 to 10), low (11 to 20), moderate (21-30), high (31 to 40) and very high (41 to 50). These scores were also divided along the median score to get a dichotomous measure of the magnitude of satisfaction in terms of low (any score below the median) and high (any score at the median threshold or above).

Perceived Male involvement (effective satisfaction) - This was calculated by weighting the total satisfaction score by the time spent at home (number of months spent at home in any given year divided by 12) by the male partner or husband. This weighted satisfaction gave effective satisfaction with male participation or involvement and became an index to determine the level of male involvement. Ranking was done in the same way as the satisfaction score.

Objective 3 – This objective made use of the determined levels of satisfaction with male involvement, the weighted satisfaction and the reported EBF in both control and

intervention areas, and by sample category (mothers with children under six months in age or those with children above six months in age) in order to establish if an association existed between reported satisfaction with male involvement and the EBF practices by women or male involvement (given by the weighted satisfaction) and EBF practices.

2.6.1 Data management

The completed questionnaires were coded and then captured in Microsoft Excel. The quantitative dataset generated then went through a thorough cleaning and validation process to remove errors, duplications, and sort missing values. Questionnaires that had missing values on questions relating to the key objectives were removed as follow-up interviews became impossible due to Covid-19 restrictions. As mentioned in sampling, 57 questionnaires were removed from analysis. The data file was stored in a secure CNFA server while the hard copies were filed and logged in storage at the CNFA offices after use. When the program shut down in June 2020 the server also shut down. The data was then password protected and kept securely in one laptop and in Google Drive. From this point, the data was exported into STATA for statistical analysis.

2.6.2 Data Analysis

Using STATA version 16.1 the data analysis was undertaken with the assistance of the study supervisors and the university research support units. Descriptive statistics were used to understand the distributions of the various variables in the data and describe the proportions and central tendency of the variables. Inferential statistics was then performed to test for various associations between variables of interest. The Pearson's Chi Square test was employed for the bi-variate analysis among the variables and between the different sample groups, as the variables were largely categorical. Ordinal logistic regression was then done to determine associations over and above possible confounding. Variables selected for use in the models were those at or below the 0.2 threshold in their p-values in the bivariate analysis. For inclusion in the final model, forward selection was used to select only those variables that had statistically significant relationships in the initial model, that is, those with p-values at or below 0.05. The Cramer's V test was then used to gauge the strength of association.

2.7 Ethics

Ethical Clearance was obtained from the University of the Witwatersrand Human Research Ethics Committee after the Ministry of Health for Matabeleland North province and the Tsholotsho Rural District Council reviewed the proposed study and given their consent for the study to be done. The Ethics Clearance Certificate number is M1911161 (see Annex F).

Informed consent was sought through provision of information and use of a consent form (see Appendix G and H for English versions). The consent form was in Ndebele to enable potential participants to easily understand the content. All interviews were conducted privately in secure rooms in the usual community facilities where Amalima trainings were held, all which were within walking distance from the participants' homes. The study participants were also afforded the opportunity to discontinue the interviews at any point during interviews whenever they wished or felt uncomfortable.

To protect potential respondents, village, community, religious and traditional leaders were sensitized about the research solicitation for respondents prior to solicitation using the project's community mobilization team. Community members were also addressed and sensitised about the study in village meetings with their questions and concerns being responded to.

Confidentiality was maintained throughout the study. The data is kept confidential and secure in the protected CNFA servers, while the physical questionnaires are kept locked away in the CNFA file storeroom. Anonymity of the participants was also upheld through assigning unique identifiers linked to the sampling frames. The names and locations of the participants will not be made public and only de-identified data will be shared with the employer, study supervisors or the donor if requested.

A distress protocol was in place throughout the study, in case the questions in the data gathering stage overwhelmed or caused distress to participants. However, no participants required this during the entire data collection phase of the study.

2.8 Funding

The study was fully funded by the Amalima project with the disbursements and procurements of any necessaries being managed by International Medical Corps' Finance Department following standard USAID procurement and finance regulations.

3.0 Chapter 3: Findings

3.1 Introduction

This chapter presents the findings from the analysis of the acquired data. It includes the results obtained from univariate, bivariate and multivariate analysis. The data are described through the interpretation of descriptive statistics looking at percentages and measures of central tendency, and the interpretation of the results obtained from inferential statistical analysis done to test hypotheses, aligned with the study aim and objectives.

3.2 Study Participants

A total of 826 mothers participated in the study. Of these, 173 had children less than six months in age, while 653 had children above six months and below twenty-three months in age. Just over half, 53% (n=436), were below the age of thirty, with 42% (n=348) aged between 31 and 40, and the remaining 5% between 41 and 50 years in age (see Table 01 below).

TABLE 01a Participant Characteristics by Intervention or Control Group

Variable	Mothers with Children Under 6				Mothers with Children Over 6				Total (n=826)	
	Control (n=88)		Intervention (n=85)		Control (n=383)		Intervention (n=270)			
Age	n	%	n	%	n	%	n	%	n	%
20 to 25	22	26	29	34.1	108	28.2	64	26.7	223	27.0
26 to 30	26	29.5	18	21.2	107	27.9	62	23.0	213	25.8
31 to 35	21	23.9	22	25.9	94	24.5	85	31.5	222	26.9
36 to 40	14	15.9	14	16.5	56	14.6	42	15.6	126	15.3
41 to 50	5	5.7	2	2.3	18	4.7	17	6.3	42	5.1
Total	88	100	85	100	383	100	270	100	826	100
Education	n	%	n	%	n	%	n	%	n	%
Primary level	47	53.4	48	56.5	173	45.2	121	44.8	389	47.1
Secondary level	40	45.6	37	43.5	209	54.6	145	53.7	431	52.1
Advanced Level	1	1	-	-	1	0.2	1	0.4	3	0.4
No education	-	-	-	-	-	-	3	1.1	3	0.4
Total	88	100	85	100	383	100	270	100	270	100
Marital Status	n	%	n	%	n	%	n	%	n	%
Married	86	97.7	84	98.8	366	95.6	256	94.8	792	95.9
Cohabiting	2	2.3	1	1.2	17	4.4	14	5.2	34	4.1
Total	88	100	85	100	383	100	270	100	270	100

Household Type	n	%	n	%	n	%	n	%	n	%
Husband's family home	21	23.9	17	20	114	29.8	63	23.3	215	26.0
Parent's homestead	1	1.1	-	-	12	3.1	9	3.3	22	2.7
Other relative's home	2	2.3	4	4.7	19	4.9	7	2.6	32	3.9
Own homestead	63	71.6	64	75.3	232	60.6	189	70.0	548	66.3
Other	1	1.1	-	-	6	1.6	2	0.7	9	1.1
Total	88	100	85	100	383	100	270	100	826	100
No of rooms	n	%	n	%	n	%	n	%	n	%
1 to 2 rooms	19	31.1	21	31.8	81	25.2	66	29.3	187	27.8
3 to 4 rooms	31	50.8	31	47.0	145	45.2	104	46.2	311	46.2
5 to 6 rooms	7	11.5	11	16.7	62	19.3	38	16.9	118	17.5
7 and above	4	6.6	3	4.5	33	10.3	17	7.6	57	8.5
Total	61	100	66	100	321	100	225	100	673	100
Total household monthly income	n	%	n	%	n	%	n	%	n	%
up to $100	78	88.6	75	88.2	311	81.2	209	77.4	673	81.5
$101 to $200	9	10.2	6	7.1	45	11.7	34	12.6	94	11.4
$201 to $300	-	-	2	2.4	14	3.7	20	7.4	36	4.3
$301 to $400	1	1.1	2	2.4	7	1.8	3	1.1	13	1.6
Above $401	-	-	-	-	6	1.6	4	1.5	10	1.2
Total	88	100	85	100	383	100	270	100	826	100

As shown in Table 01, most (66.3%) of the research participants lived in their own homesteads and 26.0% in their husband's family home. Over a quarter (28%) of the homesteads had two rooms and below, 46% had three to four rooms, and the remaining 26% had five of more rooms[5]. All the research participants could be classified as poor, with 81.5% reporting a monthly household income of USD$150 and below.

Of the entire study sample (see Table 02), 20.9% of the infants under investigation were under the age of six months and 79.1% were aged between six and twenty-three months. In the under six study group, women had a mean total number of children of 3.0 (SD 1.1) and 2.9 (SD 1.2) in the over six study group. Overall, only 11.0% of the study participants were first-time mothers. Only 5.8% of the women in the under six-month study group and 12.4% in the over six-month group were first-time mothers. As highlighted in Table 02 below, 58.0% of the research participants had two or three children, 21.1% had four children and 9.9% had between five and eight children in total. More than half (58.3%) of the participants had one child aged under 5[6], 38.3% had two and the remaining 3.4% had between three under-fives or more. The median age at first live birth among all study participants was

[5] Refers to the total number of rooms from all habitable structures in any given homestead.
[6] Refers to child under the age of 5 years.

found to be 20.0 years, with the mean being 21.1 (SD 4.7) and the modal age at first birth at 19.0 years. Almost half (43.6%) of the participants had had their first child at or below the age of 19, with the same proportion (43.0%) of women having had their first child between 20 and 25 years in age.

TABLE 02 Participant Children by Intervention or Control Group

	Mothers with Children Under 6				Mothers with Children Over 6				Total	
Variable	Control (n=88)		Intervention (n=85)		Control (n=383)		Intervention (n=270)			
Total No. of Children	n	%	n	%	n	%	n	%	n	%
1 child	6	6.8	4	4.7	54	14.1	27	10.0	91	11.0
2 children	25	28.4	29	34.1	99	25.9	72	26.7	225	27.3
3 children	28	31.8	18	21.2	121	31.7	86	31.8	253	30.7
4 children	25	28.4	26	30.6	71	18.6	52	19.3	174	21.1
5 to 8 children	4	4.6	8	9.4	37	9.7	33	12.2	82	9.9
Total	88	100	85	100	382	100	270	100	825	100
No. of Children Under 5	n	%	n	%	n	%	n	%	n	%
1 child	32	36.4	33	38.8	255	66.8	161	59.6	481	58.3
2 children	51	57.9	46	54.1	117	30.6	102	37.8	316	38.3
3 children and above	5	5.7	6	7.1	10	2.6	7	2.6	28	3.3
Total	88	100	85	100	382	100	270	100	825	100
Parity	n	%	n	%	n	%	n	%	n	%
First-time mothers	6	6.8	4	4.7	54	14.1	27	10.0	91	11.0
Non-first-time mothers	82	93.2	81	95.3	328	85.9	243	90.0	734	89.0
Total	88	100	85	100	382	100	270	100	825	100
Age at First Live Birth	n	%	n	%	n	%	n	%	n	%
Below 16 years	9	10.2	8	9.4	45	11.7	19	7.0	81	9.8
17 to 19 years	24	27.2	35	41.2	124	32.4	96	35.6	279	33.8
20 to 25 years	43	48.9	32	37.6	160	41.8	120	44.4	355	43.0
26 to 30 years	8	9.1	6	7.1	33	8.6	27	10.0	74	9.0
Above 31 years	4	4.5	4	4.7	21	5.5	8	3.0	37	4.5
Total	88	100	85	100	383	100	270	100	826	100
Age (child under study)	n	%	n	%	n	%	n	%	n	%
0 to 2 months	23	26.1	22	25.9	-	-	-	-	45	5.4
3 to 4 months	32	36.4	39	45.9	-	-	-	-	71	8.6
5 to 6 months	33	37.5	24	28.2	-	-	-	-	57	6.9
7 to 12 months	-	-	-	-	141	36.8	95	35.2	236	28.6
13 to 18 months	-	-	-	-	137	35.8	104	38.5	241	29.2
19 to 24 months	-	-	-	-	105	27.4	71	26.3	176	21.3
Total	88	100	85	100	383	100	270	100	826	100

All study participants had some involvement with the Amalima Care Groups, as a requirement for study inclusion. As shown in Table 3, 88.7% of the research participants reported that they were still members of the Amalima Care Groups and 11.3% claimed to have stopped.

TABLE 03 Care Group Participation by Intervention or Control Group

	Mothers with Children Under 6				Mothers with Children Over 6				Total	
Variable	Control (n=88)		Intervention (n=85)		Control (n=383)		Intervention (n=270)			
CG Membership Status	n	%	n	%	n	%	n	%	n	%
No longer a member	13	14.8	11	12.9	35	9.1	34	12.6	93	11.3
Currently a member	75	85.2	74	87.1	348	90.9	236	87.4	733	88.7
Total	88	100	85	100	383	100	270	100	826	100
Membership duration	n	%	n	%	n	%	n	%	n	%
Up to 6 months	20	22.7	14	16.5	44	11.5	43	16.0	121	14.7
7 to 12 months	17	19.3	16	18.8	80	20.9	45	16.8	158	19.2
13 to 18 months	1	1.1	3	3.5	29	7.6	10	3.7	43	5.2
19 to 24 months	13	14.8	13	15.3	90	23.5	44	16.4	160	19.4
25 months and above	37	42.1	39	45.9	140	36.6	126	47.0	342	41.5
Total	88	100	85	100	383	100	268	100	824	100
Exposure to other similar programs	n	%	n	%	n	%	n	%	n	%
Exposed	13	14.8	20	23.5	85	22.2	62	23.0	180	21.8
Not-exposed	75	85.2	65	76.5	298	77.8	208	77.0	646	78.2
Total	88	100	85	100	383	100	270	100	826	100

In terms of exposure, 41.5% had been members for over two years and 24.6% reported being members for a period ranging between 13 months and two years. The study participants had a mean membership duration of 31.0 months (SD:23.3, 30.3 months (SD 23.8) in the under six-months study group and 31.2 months (SD 23.2) in the over six-months group. Those that were current members tended to have been members for extended periods of time, much more than those who had discontinued membership. The majority (70.6%) of the women who were still Care Group members reported being members for over a year of whom 62.7% reported being Care Group members for twenty-five months and above. Among those that had stopped being members, 30.5% reported having been members for over a year, of which 64.3% of them reported being members for over twenty-five months. Among women who were no longer Care Group members, 69.5% discontinued membership within a year and of these, 65.6% had stopped being Care Group members at or within six months of membership. In addition, 21.8% of the all the research participants had been exposed to other similar health and nutrition programs within the past few years.

TABLE 04 Participant Partners or Husbands by Intervention or Control Group

	Mothers with Children Under 6				Mothers with Children Over 6				Total	
Variable	Control (n=88)		Intervention (n=85)		Control (n=383)		Intervention (n=270)			
Age	n	%	n	%	n	%	n	%	n	%
21 to 25	2	2.3	8	9.4	18	4.7	9	3.4	44	3.4
26 to 30	13	14.8	17	20.0	67	17.6	39	14.6	136	14.6
31 to 35	25	28.4	11	12.9	87	22.8	65	24.3	188	24.3
36 to 40	19	21.6	23	27.1	109	28.6	73	27.3	224	27.3
41 to 45	10	11.4	14	16.5	45	11.8	45	16.9	114	16.9
46 to 50	11	12.5	5	5.9	30	7.9	14	5.2	14	5.2
51 and above	8	9.1	7	8.2	25	6.6	22	8.2	22	8.2
Total	88	100	85	100	381	100	267	100	267	100
Age difference[7]	n	%	n	%	n	%	n	%	n	%
Same age	2	2.3	7	8.2	8	2.1	6	2.3	23	2.8
1 to 3 older	15	17.1	13	15.3	76	19.9	52	19.5	156	19.0
4 to 6 older	23	26.1	21	24.7	97	25.5	74	27.7	215	26.2
7 to 10 older	23	26.1	22	25.9	106	27.8	74	27.7	225	27.4
11 to 15 older	14	15.9	13	15.3	58	15.2	31	11.6	116	14.1
16 and above older	9	10.2	7	8.2	28	7.4	23	8.6	67	8.2
1 to 5 years younger	1	1.1	2	2.4	5	1.3	4	1.5	12	1.5
6 to 10 years younger	1	1.1	-	-	2	0.5	1	0.4	4	0.5
11+ years younger	-	-	-	-	1	0.3	2	0.7	3	0.4
Total	88	100	85	100	381	100	267	100	821	100
Employment	n	%	n	%	n	%	n	%	n	%
Employed	20	22.7	18	21.2	112	29.2	64	23.8	214	25.9
Unemployed	68	77.3	67	78.8	271	70.8	205	76.2	611	74.1
Total	88	100	85	100	383	100	269	100	825	100
Immigration status	nf	%%	nf	%%	nf	%%	nf	%%	n	%
Immigrant	10 6	11.4 6.8	14 4	16.5 95.8	113 54	29.2 14.4	64 27	23.8 10.0	200	24.2
Non-immigrant	78 82	88.6 93.2	71 81	83.5 95.3	271 328	70.8 85.9	206 243	76.2 90.0	626	75.8
Total	88 88	100 100	85 85	100 100	383 382	100 100	270 270	100 100	826	100
Time spent away	n	%	n	%	n	%	n	%	n	%
always home	54	61.4	50	58.8	175	45.7	138	51.1	417	50.5
1 to 2 months	3	3.4	1	1.2	13	3.4	12	3.4	29	3.5
3 to 4 months	8	9.1	6	7.1	25	6.5	25	6.5	64	7.7
5 to 6 months	5	5.7	7	8.2	43	11.2	21	7.8	76	9.2
7 to 8 months	1	1.1	2	2.4	17	4.4	11	4.1	31	3.8
9 months and above	17	19.3	19	22.4	110	28.7	63	23.3	209	25.3
Total	88	100	85	100	383	100	270	100	826	100

As shown in Table 04 above, 30% of the participants' partners or husbands were above the age of 40, while 18% were below 30 and above 21. Age differences are of interest as the power dynamics between couples are sometimes linked to women marrying men who are

[7] Describes the extent to which men are older or younger than their spouses or partners.

much older than them. The power dynamic can affect women's decision making, access to a variety of necessary resources and services. Generally, men were older than their partners. In this study, 48.0% of the research participants were married to men that were older by up to six years. The mean age difference was 7.9 years (SD 15.5) in the over six-month study group and 7.6 years (SD 6.1) in the under six-month group. Nearly a quarter (23%) of the participants were the same age as their husbands or partners. In 45% of the couples, men were older than their partners by between one and six years; only 2.4% of women were older than their partners.

Table 04 also reflects that 26% of the participant's husbands or partners were formally employed and a similar proportion (24%) were immigrants in neighbouring countries. Half (50.5%) of the research participants' husbands or partners were ordinarily at home in any given year, sizeable proportions of men also spend protracted periods of time away of home, with 25.3% away from home for nine months or more. However, higher proportions of immigrant husbands and partners spent longer times away, with 66.5% of immigrant partners spending nine months and above away from home, compared with 12.1% of the non-immigrants.

3.3 Exclusive Breastfeeding Practices

In order to answer the study's first objective, EBF practices were analysed overall and then compared by study area (intervention or control). Further analysis was conducted through using two different measures for EBF, that is, the EBF measure without the cultural and traditional variables and an EBF measure capturing the cultural and traditional variables of fontanelle treatment and the use of traditional medicine. Among all study participants, 53.5% of the women had either managed to EBF for six months or had adopted EBF.

Program-wide[8] for Tsholotsho district the reported exclusive breastfeeding rate was 61.8% using the EBF measure without the traditional and cultural variables. This declined by 11.5% to 50.3% after the traditional and cultural variables of fontanelle treatment and the use of traditional medicine were included in the measurement. The control areas had a higher rate

[8] Including both intervention and control.

of EBF than intervention areas; at 63.6% in the control compared with 60.0% in the intervention using the EBF measure without cultural variables, though this was not statistically significant (X^2 = 0.2, p-value = 0.6). The EBF rates were also lower after traditional and cultural variables were included in the measure, 51.1% in the control and 49.4% in the intervention area.

TABLE 05 Exclusive Breastfeeding Rate reported for mothers with infants below 6 months

	Exclusive Breastfeeding without Traditional and Cultural Variables				Exclusive Breastfeeding including Traditional and Cultural Variables				Total EBF - without Traditional and Cultural Variables		Total with Traditional and Cultural Variables	
	Control		Intervention		Control		Intervention					
Exclusive breastfeeding	n	%	n	%	n	%	n	%	n	%	n	%
Achieved	56	**63.6**[9]	51	**60.0**	45	**51.1**	42	**49.4**	107	**61.8**	87	**50.3**
Not achieved	32	36.4	34	40.0	43	48.9	43	50.6	66	38.1	86	49.7
Total	88	100	85	100	88	100	88	100	173	100	173	100

EBF rates were also explored for the sample of mothers with older infants, as summarised in Table 06. The overall proportion that reported EBF to six months was 51.2% (measure without traditional and cultural variables); the rate was reduced to 41.7% after the traditional and cultural variables were included. Rates in the control area remained slightly higher again for the over 6 study group as well. The control area had a rate of 52.6% against 49.2% in the intervention area using the measure without traditional and cultural variables. These rates were much lower after incorporating the cultural and traditional variables of fontanelle treatment and the use of traditional medicine, 42.4% in the control area and 40.7% in the intervention area. Upon testing for association between study area and the adoption of exclusive breastfeeding, as with the sample with mothers that have children under six months in age, no association was found as well (X^2 = 0.7, p-value = 0.4)

[9] Highlighted figures denote the respective exclusive breastfeeding rate.

TABLE 06 Rate of Successful Exclusive Breastfeeding to six months among mothers with infants over six months

	Exclusive Breastfeeding (WHO)				Exclusive Breastfeeding including Traditional and Cultural Variables				Total EBF - without Traditional and Cultural Variables		Total EBF- with Traditional and Cultural Variables	
	Control		Intervention		Control		Intervention					
Exclusive breastfeeding	n	%	n	%	n	%	n	%	n	%	n	%
Achieved	200	**52.6**	132	**49.2**	161	**42.4**	109	**40.7**	332	**51.2**	270	**41.7**
Not achieved	180	47.4	136	50.7	219	57.6	159	59.3	316	48.8	378	58.3
Total	380	100	268	100	380	100	268	100	648	100	648	100

3.4 Satisfaction with Partner's Involvement in Child Feeding and Care

In order to answer objective two, analysis of women's satisfaction with their husband or partner's involvement in child feeding and care was analysed, overall as well as by study area. Generally, mothers in all groups expressed high satisfaction with their partners' involvement in child feeding and care. In the under 6 group, the median score was 35 (SD 7.1) which is in the high threshold, against a median of 34 (SD 7.2) in the over 6 group, also in the high range of satisfaction. The maximum possible satisfaction score was 50 and the lowest possible score was zero denoting complete dissatisfaction.

TABLE 07 Satisfaction with Partner's Involvement in Child Feeding and Care by Sample Group and Intervention Area

Satisfaction with Partner's Involvement	Mothers with Children Under 6				Mothers with Children Over 6				Total	
	Control		Intervention		Control		Intervention			
	f	%	*f*	%	*f*	%	*f*	%	*f*	%
Very Low	1	1.1	-	-	1	0.3	-	-	2	0.2
Low	1	1.1	2	2.4	19	4.9	6	2.2	28	3.4
Moderate	23	26.1	12	14.1	129	33.7	72	26.7	236	28.6
High	42	47.7	47	55.3	190	49.6	127	47.0	406	49.2
Very High	21	23.9	24	28.2	44	11.5	65	24.1	154	18.6
Total	88	100	85	100	383	100	270	100	826	100

As shown in Table 07, overall, among all the study participants, 67.8% of the women reported high and very high satisfaction with their husband or partner's support. A comparison of partner satisfaction between intervention and control areas found that 83.5% of women from the under six group intervention area reported high and very high satisfaction with their partners or husbands against 71.6% in the comparison area. In the over six study group, the trend was similar with 71.1% of women reporting high and very high satisfaction in the intervention area compared to 61.1% in the control area.

In the sample of women with infants aged over six months, a statistically significant association was found between the intervention area and women's satisfaction with spousal or partner involvement in child feeding and care ($X^2 = 10.5$, p-value = 0.001). Women in the intervention area were 1.7 times (OR 1.7, 95% CI, 1.2 2.3) more likely to be highly satisfied with the husbands' or partners' support than women in the control area. No association was found in the under six months group by intervention or control area ($X^2 = 0.5$, p-value = 0.5). However, in this group women in the intervention areas were 1.3 times (OR 1.3, 95% CI, 0.7 2.3) more likely to be highly satisfied with their husbands or partner's support.

The Male Involvement in Child Feeding and Care Index - The male involvement in child feeding and care index for children under 6 months in age is given by women's satisfaction with their husbands or partners involvement in child feeding and care regarding exclusive breastfeeding, weighted by the amount of time the male partner is ordinarily at home. The intention was to give a measure of what can be called "effective satisfaction" or satisfaction that is also effective, meaning that a woman is both satisfied and receiving the support over sustained periods of time.

As such the index is the product of the overall satisfaction score and the time the partner or husband is ordinarily at home, i.e., score × (months spent ordinarily at home ÷ 12). Overall[10] 64.8% of women in the intervention area had effective satisfaction rated moderate to very high, 16.5% higher than the intervention area with 55.6%.

[10] Totalling both study groups, in this case separated by area whether intervention or control.

TABLE 08 Male Involvement in Child Feeding and Care Index by Study Group

Male Involvement Index	Mothers with Children Under 6				Mothers with Children Over 6				Total	
	Control		Intervention		Control		Intervention			
	f	%	*f*	%	*f*	%	*f*	%	*f*	%
Very Low	16	18.2	18	21.2	116	30.3	63	23.3	213	25.8
Low	9	10.2	10	11.8	68	17.8	34	12.6	121	14.6
Moderate	21	23.9	11	12.9	71	18.5	64	23.7	167	20.2
High	28	31.8	29	34.1	106	27.7	69	25.6	232	28.1
Very High	14	15.9	17	20.0	22	5.7	40	14.8	93	11.3
Total	88	100	85	100	383	100	270	100	826	100

Overall, among all study participants, there was a statistically significant relationship between high effective satisfaction and study area ($X^2 = 6.1$, p-value = 0.014). Women in the intervention area overall, were 1.4 times (OR 1.4, 95% CI, 1.1 1.9) more likely to have high effective satisfaction than women from the control. In the sample with mothers with children aged above six months, a statistically significant association also was found between study area and effective male involvement ($X^2 = 5.4$, p-value = 0.020). Women in the intervention area in this sample were also 1.4 times more likely to have a high effective male involvement measure than women in the control (OR 1.4, 95% CI, 1.1 2.0). No association was established between study area and effective male involvement in the sample with mothers with children under six months in age ($X^2 = 0.7$, p-value = 0.4).

3.5 Factors associated with the Adoption of Exclusive Breastfeeding

In order to answer objective three, which was to explore any association between reported male involvement and EBF, potential confounders were explored that might alternatively explain differences in EBF rates. This was done through bi-variate analysis using cross tabulations to get a deeper understanding of the variables by certain variable subgroup characteristics of interest. The Pearson's Chi Square approach was then done to establish associations with exclusive breastfeeding[11]. Twenty-seven variables were tested (see Appendix I) of which five had a statistically significant association with EBF in the under-six study group and eight were statistically significant in the group with infants above six

[11] The exclusive breastfeeding measure tested against is the measure without the traditional and cultural variables, as this measure is comparable to other measures in existing literature.

months of age. Table 09 presents those variables that had at least one significant finding, with the exception of infant age, which is shown due to clear trends. Each factor is then discussed in the following text.

TABLE 09 Factors Associated with Exclusive Breastfeeding

Factor	EBF (Mothers with Children Under Six)		EBF (Mothers with Children Over Six)	
	X^2	p-value	X^2	p-value
Infant Age	3.0	0.225	0.8	0.975
Mothers' Age	0.04	0.847	7.8	0.005
Husband's or partner's age	9.3	0.156	17.27	0.008
Household type	0.3	0.607	5.9	0.015
Care Group Membership Duration	0.4	0.543	3.9	0.049
Time taken to Initiate breastfeeding	9.7	0.022	20.4	0.0001
The Practice of Bottle Feeding	15.4	0.0001	-	-
The Practice of Treating the Fontanelle	10.59	0.001	24.6	0.0001
Giving traditional medicine	18.2	0.0001	68.5	0.0001

Infant Age and Exclusive Breastfeeding - The EBF rate had an inverse relationship with infant age, as shown in Figure 04, with lower EBF rates for infants of higher ages. However, as shown in Table 09, these trends were not statistically significant. EBF by infant age was measured for each sample, as mothers with infants above six months had much longer recall periods. This analysis showed that the proportion of mothers with infants between six to 23 months who reported successful EBF was similar to the proportion of mothers with infants who were 5 months, with a rate of 54%. (see Figure 04 below)

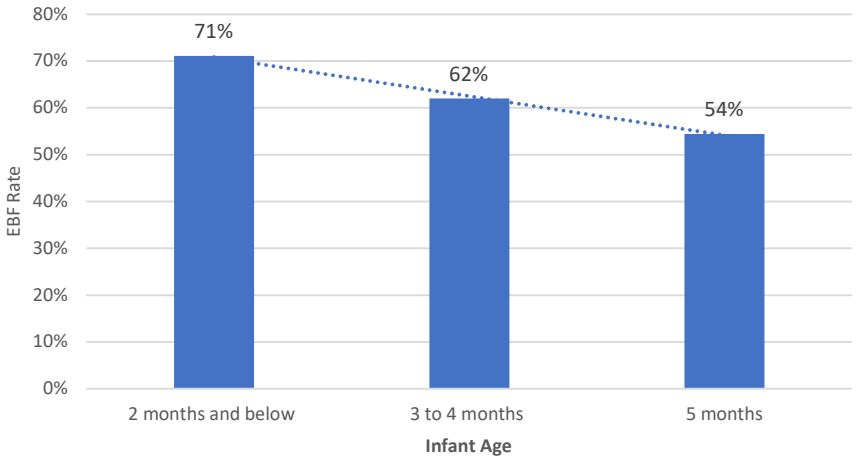


FIGURE 04 EBF reported in the Under Six Months of Age Sample by Infant Age

Mothers' Age and Exclusive Breastfeeding - EBF rates were higher among older mothers, as shown in Figures 07 and 08. In the sample with mothers with children under six months in age, the average percentage increase by age group was 9.2%. There was, however, no association established in the under six months sample (p-value = 0.8). The average increase in EBF rate was 8.5% in the sample of mothers with children aged above six months. A statistically significant association was established between mothers age and the adoption of exclusive breastfeeding (p-value = 0.005) in this group.

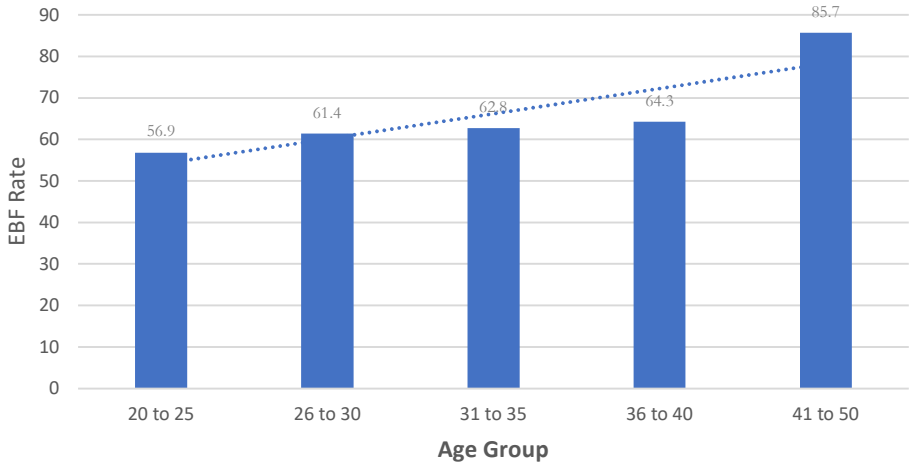


FIGURE 05 EBF in the Under Six Months of Age Sample by Mothers Age

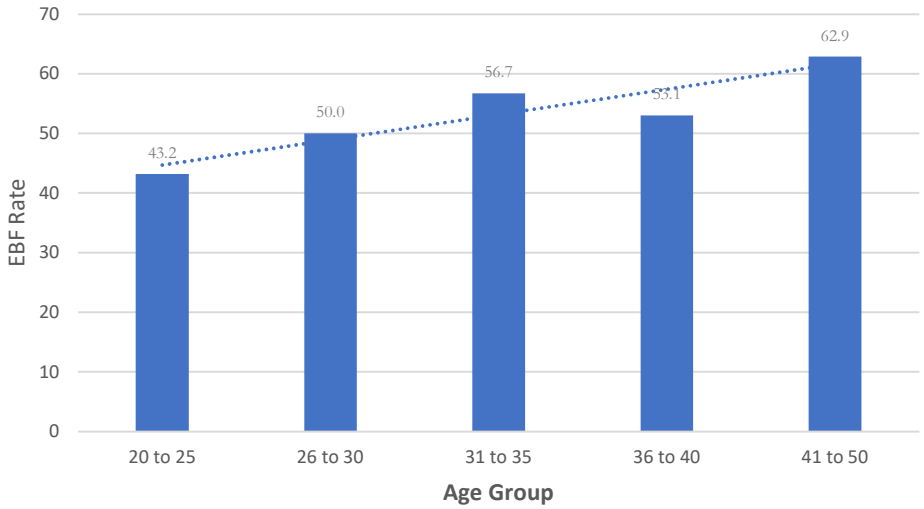


FIGURE 06 EBF in the Over Six Months of Age Sample by Mothers Age

Husband's or Partners' Age and Exclusive Breastfeeding - Overall, exclusive breastfeeding rates were high among women with older (36 years old and above) husbands or partners than among those with younger husbands or partners. In the sample with mothers who had children aged above six months, EBF rates were higher with the older men than the younger husband or partners (p-value = 0.04). This was not significant in the sample of women with children aged under six months.

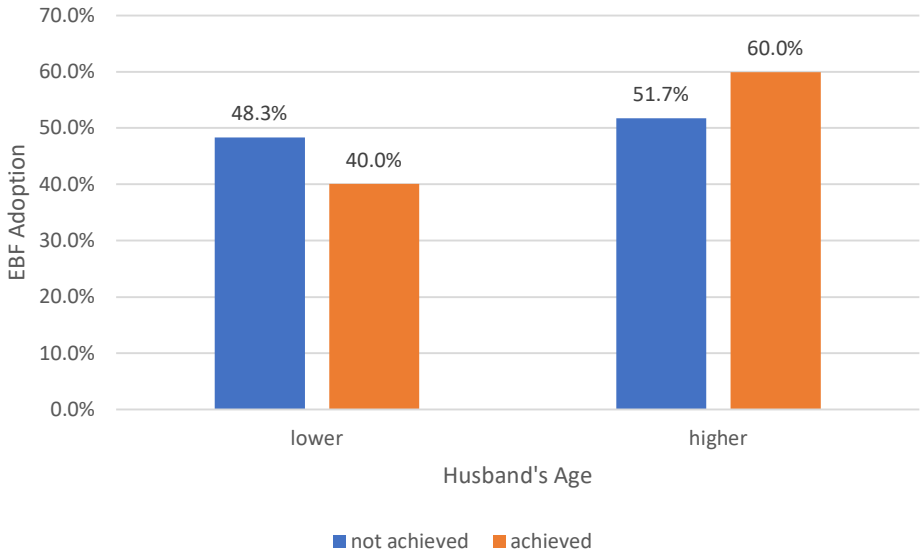


FIGURE 07 Overall EBF Adoption by Husband or Partner Age

Household Type - EBF rates were higher among women who lived in their own homesteads compared to those living in other domicile types or arrangements in both study groups (see Figure 08). A positive association was found between living in one's own household and EBF in the sample of mothers with children above six months in age (p-value = 0.015). This relationship was not found in the study group with women with children under six months in age (p-value = 0.607).

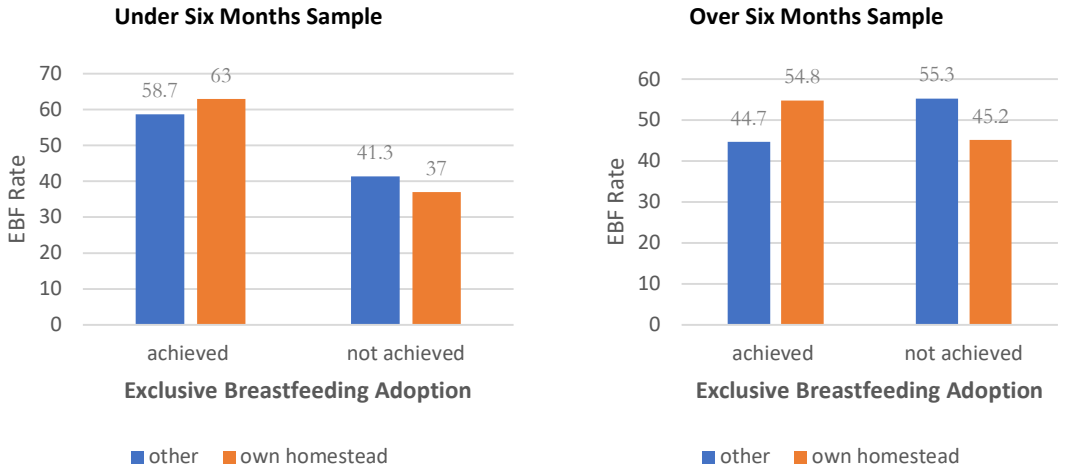


FIGURE 08 EBF in the Over Six Months of Age Sample by Mothers Age

Care Group Membership Duration – Overall, exclusive breastfeeding adoption was higher among women with longer (24 months and above) periods of Care Group participation. In the sample of mothers with children over six months in age, EBF was associated with longer periods (2 years or more) of membership (P-value = 0.049). This association was not found in the group of mothers with children under six months in age (P-value = 0.543, CI 95%).

Time taken to Initiate breastfeeding and Exclusive Breastfeeding – EBF was found to be associated with taking shorter times to initiate breastfeeding post birth. The initiation of breastfeeding within the first hour after birth was strongly and significantly associated with higher EBF rates in both samples (p-value = 0.022, in the sample with mothers of infants under six months in age, and p-value = 0.0001 in the group with mothers who have children older than six months). Among women who took longer times to initiate breastfeeding after

giving birth, and those who either did not remember or know how soon after birth initiation was done, adoption of EBF rates were significantly lower.

Bottle Feeding and Exclusive Breastfeeding - Women who reported practicing bottle feeding (that is giving the child anything through using any container with a teat) were associated with lower EBF rates (p-value = 0.0001) among mothers with infants below six months. Bottle feeding was not measured for the sample of mothers with children over the age of six months.

Traditional Treatment of the Fontanelle and Exclusive Breastfeeding - In both samples, the EBF rates were associated with women who did not traditionally treat their infants for the fontanelle (p-value = 0.001 and 0.0001 for the study groups respectively). EBF rates were lower those treating the fontanelle in infants.

Preventing or Treating Ailments in Infants by Giving Traditional Medicine – Overall, both samples had a strong association with higher EBF rates among mothers who did not use traditional medicines to prevent or treat ailments in infants (p-value < 0.0001 in both groups). Among those with children below six months, 9.2% reported using traditional medicines to treat or prevent ailments. Of these women, 87.5% did not manage to exclusively breastfeed compared to 33.1% among those who do not give traditional medicine. In the sample with women with infants above the age of six months, 16.2% reported giving traditional medicine to their infants. Among these women 85.7% did not manage to EBF compared to 41.6% among those who do not give traditional medicine.

3.6 The Relationship between Women's Satisfaction with Male Partner Involvement and the Adoption of Exclusive Breastfeeding

In order to address study objective three, the association between women's satisfaction with male partner involvement and EBF rates was explored, using two measures of satisfaction. Overall, as shown in Table 10 below, there was a statistically significant association between EBF and high satisfaction with male partner involvement in both samples. However, when weighted by male's actual availability, termed 'effective

satisfaction with male partner involvement in childcare and feeding' no significant association was identified with EBF.

In the sample of mothers with children aged under six months, both intervention and control reflected a significant association between high women's satisfaction with purported spousal support. However, the effect was more pronounced in the intervention area, reflected by a more significant p-value compared to the control. In the sample with mothers with children aged above six months the association was more significant among women in the control.

TABLE 10 Satisfaction with Male Partner Involvement and the Adoption of EBF, by sample

Satisfaction variables	EBF in Control Area		EBF in Intervention Area		Overall EBF	
	X^2	P-value	X^2	P-value	X^2	P-value
Under-Six-month sample						
High satisfaction with partner involvement	8.3	0.004	11.2	0.001	19.0	0.0001
High Effective women's satisfaction	0.3	0.572	2.3	0.131	0.9	0.346
Six-to-23-month sample						
High satisfaction with partner involvement	5.0	0.026	3.7	0.055	7.9	0.005
High Effective women's satisfaction	2.0	0.155	0.01	0.924	0.9	0.346

Following the bivariate analysis described in Table 10 above, variables with p-values ranging from 0.2 and below were selected to for inclusion in building ordinal logistic regression models to establish the relationship between exclusive breastfeeding and women's satisfaction with male partner involvement, while accounting for possible confounding. This was done for each sample separately, given differences in how some variables were measured between the two samples.

Mothers with Children Under-Six Sample Analysis - In the under-six study group ten variables were selected, namely, Care Group membership status, the husband's or partner's age, age difference between couples, the number of rooms in the homestead, the time taken to initiate breastfeeding, the traditional treatment of the fontanelle, giving traditional

medicine, bottle feeding, women's satisfaction with male partner involvement in child feeding and care, and effective women's satisfaction with male partner involvement. (see Appendix I)

In the regression model with these selected variables, forward selection was used to select the variables that would be included in the final model, based on selecting only those with statistically significant relationships (i.e., with p-values at or below 0.05). As such, the final model had four variables depicted in Table 11. Additional regression analyses of these factors by control and intervention area were also conducted, to explore patterns, as shown in Table 12. Both Table 11 and 12 results are presented together.

TABLE 11 Regression Model for Factors Associated with EBF Among Mothers with Infants Under-Six Months

Factor	Odds Ratio	95% CI	p-value
High Women's Satisfaction with Male Partner Involvement	3.7	1.8 7.6	0.0001
Initiation of breastfeeding within the first hour of giving birth	2.9	1.0 8.2	0.041
Not Practicing the Traditional treatment of the fontanelle	6.2	1.8 21.8	0.004
Not Giving traditional medicine	15.0	3.0 74.0	0.001

TABLE 12 Regression Model for Factors Associated with EBF Among Mothers with Children Under Six Months Split by Study Area

	Control Area			Intervention Area		
Under-Six-Month Sample	Odds Ratio	95% CI	p-value	Odds Ratio	95% CI	p-value
High Women's Satisfaction with Male Partner Involvement	3.1	1.1 8.6	0.028	4.7	1.7 13.1	0.004
Initiation of breastfeeding within the first hour of giving birth	2.6	0.6 10.8	0.184	3.5	0.8 16.2	0.107
Not Practicing the Traditional treatment of the fontanelle	4.2	0.7 24.9	0.115	9.6	1.6 57.8	0.014
Not Giving traditional medicine	22.3	2.5 199.5	0.005	9.5	0.9 103.3	0.063

As shown in Table 11, the likelihood of women adopting exclusive breastfeeding increased by 3.7 times among women that were highly satisfied with the support and involvement of

their spouses or partners than women who had low satisfaction with the support or involvement they received among women who have children aged under six months. In the intervention area, women with a high satisfaction were 4.7 times (OR 4.7, 95% CI 1.7 13.1, p-value = 0.004) more likely to exclusively breastfeed. In the control area, women with a high satisfaction were 3.1 times (OR 3.1, 95% CI 1.1 8.6, p-value = 0.028) (see Table 12).

Furthermore, women who initiated Breastfeeding within the first hour of giving birth were found to be 2.9 (OR 2.9, 95% CI 1.0 8.2, p-value = 0.041) times more likely to EBF than women who delayed breastfeeding initiation beyond an hour post-birth. This pattern was, however, not statistically significant in both the intervention and control areas when analysed separately.

The influence of traditionally treating the fontanelle and giving traditional medicine to prevent or treat illness was found to have a negative effect on EBF. Women who did not treat the fontanelle in their infants in this sample were 6.2 (OR 2.9, 95% CI 1.0 8.2, p-value = 0.041) times more likely to EBF than women who treated the fontanelle. This pattern was not statistically significant in both the intervention and control areas separately. Moreover, women who did not prevent or manage illness in infants using traditional medicine in this sample were 15.0 (OR 15.0, 95% CI 3.0 74.0, p-value = 0.001) times more likely to EBF than women who did. In the control area women who did not give traditional medicine to treat or prevent illness in their children were 22.3 (OR 22.3, 95% CI 2.5 199.5, p-value = 0.005) times more likely to EBF than women who did. Nevertheless, this pattern was not statistically significant in the intervention area.

Mothers with Children Over Six Sample - In the over six study group, twelve variables were selected for inclusion in the model. These were the mother's age, Care Group membership status[12], Care Group membership duration, participation in other programs, husband or partner age, the household type, livestock ownership, the time taken to initiate breastfeeding, the traditional treatment of the fontanelle, giving traditional medicine, and women's satisfaction with spousal or partner involvement in child feeding and care. Following the same approach, only variables with p-values less than or equal to 0.05 were

[12] Whether still a Care Group member or not.

selected for inclusion in the final model. In the final model, shown in Table 13, four variables selected were the same as those chosen in the under six group.

TABLE 13 Regression Model for Factors Associated with EBF Among Mothers with Infants Over-Six Months

Factor	Odds Ratio	95% CI	p-value
High Women's Satisfaction with Male Partner Involvement	1.7	1.2 2.4	0.002
Initiation of breastfeeding within the first hour of giving birth	2.5	1.6 3.9	0.0001
Not Practicing the Traditional treatment of the fontanelle	2.1	1.4 3.1	0.001
Not Giving traditional medicine	8.0	4.4 14.4	0.0001

TABLE 14 Regression Model for Factors Associated with EBF Among Mothers with Children Over Six Months Split by Study Area

	Control Area			Intervention Area		
Over-Six-month sample	Odds Ratio	95% CI	p-value	Odds Ratio	95% CI	p-value
High Women's Satisfaction with Male Partner Involvement	1.8	1.1 2.8	0.012	1.8	1.1 3.1	0.024
Initiation of breastfeeding within the first hour of giving birth	3.1	1.1 3.7	0.016	3.5	1.5 6.4	0.002
Not Practicing the Traditional treatment of the fontanelle	2.4	1.4 4.3	0.003	1.8	1.6 57.8	0.066
Not Giving traditional medicine	8.1	4.1 16.5	< 0.0001	9.2	3.1 28.0	< 0.0001

Overall, the model affirmed the association of women's satisfaction with male partner involvement in childcare and feeding and the adoption of exclusive breastfeeding. Overall, in this sample, women that were highly satisfied with the support from their partners or husbands were 1.7 times (OR 1.7, CI 95% - 1.2 2.4, p-value = 0.002) likely to exclusively breastfeed than women who reported low satisfaction. (see Table 13) Women in both the intervention and the control areas who were highly satisfised with the support from their husbands or partners were 1.8 times ([Control – OR 1.8, CI 95% - 1.1 2.8, p-value = 0.012]

[Intervention – OR 1.8, CI 95% - 1.1 3.1, p-value = 0.024]) more likely to exclusively breastfeed than their contemporaries who were less satisfied. While there is no difference between intervention and control, both show that high satisfaction with male partner support is associated with the adoption of exclusive breastfeeding (See Table 14).

In this sample, women that started breastfeeding their infants within one hour of giving birth were 2.5 (OR 2.5, CI 95% - 1.6 3.9, p-value = 0.0001) times more likely to have exclusively breastfed for six months than women who initiated breastfeeding in longer periods after giving birth. (see Table 13) This pattern was also statistically significant in both the intervention and control areas separately. In the intervention area, women who initiated breastfeeding within one hour of giving birth were 3.5 (OR 2.5, CI 95% - 1.5 6.4, p-value = 0.002) times more likely to have exclusively breastfed for six months than women who did not. In the control area, mothers who initiated breastfeeding within one hour of giving birth were 3.1 (OR 3.1, CI 95% - 1.1 3.7, p-value = 0.016) times more likely to have exclusively breastfed for six months than women who took longer to begin breastfeeding after giving birth. (see Table 14)

Among mothers with infants above the age of six months, the impact of traditionally treating the fontanelle and giving traditional medicine to prevent or treat illness also negatively impacted EBF outcomes. In this sample, mothers who did not traditionally treat the fontanelle were 2.1 (OR 2.1, 95% CI 1.4 3.1, p-value = 0.001) times more likely to have exclusively breastfed for six months than mothers who treated their children for the fontanelle. (see Table 13) This pattern was, however, only statistically significant in the control area, where women that did not treat the fontanelle were found to be 2.4 (OR 2.4, 95% CI 1.4 4.3, p-value = 0.003) times more like to have exclusively breastfed for the required six-month duration. (see Table 14)

Table 14 also shows that mothers who prevented or managed illness in their babies using traditional medicine in this sample were 8.0 (OR 8.0, 95% CI 4.4 14.4, p-value = 0.0001) times more likely to have exclusively breastfed for six months than mothers who used traditional medicine to prevent or treat illness in their babies. In the control area women who did not give traditional medicine to their children were 8.1 (OR 8.1, 95% CI 4.1 16.5, p-value = < 0.0001) times more likely to EBF than women who did. In the intervention area

women who did not give traditional medicine to their children were found to be 9.2 (OR 9.2, 95% CI 3.1 28.0, p-value = < 0.0001) times more likely to EBF than women who did.

The effect size was measured using Cramer's V, and a statistic of 0.30 was obtained in the under six months study group. This indicates that women's satisfaction with spousal or partner support in child feeding and care accounts for 30% of the variance in the exclusive breastfeeding rates obtained and affirms that a significant positive relationship exists between the two. In the over six months group, Cramer's V had a statistic of 0.12 which showed that while the association was a positive one, it is not very pronounced.

Chapter 4: Discussion

4.0 Introduction

The previous chapter presented the study findings. This chapter discusses the findings in depth and compares what was found to existing evidence on the subject.

4.1 Summary of the Key Findings

The study sought to determine if an association exists between male involvement in childcare and feeding and the adoption of EBF by women among married heterosexual couples. Women's satisfaction with male partner performance of key supportive behaviours weighted by the time the husband or partner is ordinarily at home was taken as proxy for male involvement. At the same time, the study also attempted to determine if male partner exposure to the Male Champions Campaign had led to improvements in male participation in childcare and feeding regarding support to lactating partners in the time before the infant reached six months in age.

The data demonstrates that there is no significant association between male involvement and the adoption of exclusive breastfeeding. However, this should be better described as no association was found between effective women's satisfaction with male partner involvement and the adoption of exclusive breastfeeding. Instead, there was a significant association between high women's satisfaction with perceived male partner involvement (this being the measures of reported satisfaction only). Overall, women that reported high satisfaction with their husband's or partner's support were more 2.0 (OR) times more likely to exclusively breastfeed than women who reported low satisfaction.

The study results also show that exposure to the Male Champions Campaign led to improved satisfaction with perceived male partner involvement. In this case, women with partners exposed to the Male Champions Campaign were 1.6 times (OR) more likely to be highly satisfied with the support from their spouses or partners than women with partners or husbands who were not exposed to the campaign.

4.2 Discussion of the Findings and Interpretations

Prevalence of Exclusive Breastfeeding

The Amalima baseline survey found an exclusive breastfeeding rate of 44.9% in 2014 (45). The 2014 Multiple Cluster Survey (MICS) for the same period reported a rate of 58.6% for Matabeleland North province, the home province for Tsholotsho District (46). This study established an EBF rate of 61.8% among Amalima Program participants in 2020, while a year earlier the MICS reported an EBF rate of 63.1% for Matabeleland North Province. This study shows a marked improvement in the adoption of EBF in Tsholotsho since 2014. The prevalence of EBF given by the 2019 MICS also resonates with what was found for the Amalima program. However, both of these rates are lower than the Zimbabwe National Nutrition Survey of 2018, which reported Tsholotsho District as having an EBF rate of 91.7% and 74% for the Province (47). These rates, however, were attained from small samples, i.e., total of 24 and 128, respectively, limiting generalisability.

Comparing the intervention areas to the control ones, the adoption of EBF was slightly higher in the control areas by very few percentage points, though not statistically significant. This seems quite logical as all the participants in the study were Care Group members and were all exposed to health and nutrition messaging over some time.

Reported Satisfaction with Spousal Involvement in Childcare and Feeding

Overall, a larger proportion of women in the intervention area reported high satisfaction than in the control as mentioned earlier. In a way, this means women in the intervention areas were generally more pleased with the support they get from their spouses or partners. Moreover, as previously alluded to, women in the intervention area were two times more likely to be highly satisfied with the support from their husbands or partners than in the control.

Another study conducted in Sweden found that feeling supported in breastfeeding was associated with the duration of exclusive breastfeeding (48). Women who felt supported exclusively breastfed for longer periods than women who did not feel supported. In the

above mentioned study support was from a woman's social networks including friends and relatives, as well as attending professionals during childbirth (48).

A study done in Canada also found patterns of influence that are congruent to the main finding in this study, that effective satisfaction was not associated with the adoption of exclusive breastfeeding and satisfaction with perceived support was. Rempel et al (2016) focused on measuring men's influence on women's breastfeeding and relating it to women's breastfeeding intention, duration, and satisfaction (36). Men's influence on breastfeeding was measured using a partner breastfeeding influence scale along with separate interviews that investigated how men supported or influenced breastfeeding, along the lines of activities supporting such as chores and duties at home, helping with childcare and the provision of emotional support (36). They found that women's perceptions about their satisfaction with the responsiveness of their partners in supporting breastfeeding was associated with desirable breastfeeding outcomes (36). In their findings, they argue that evidence suggests that actual support may lead to undesirable breastfeeding outcomes through eliciting feelings that the support tacitly shows that the partner or husband may think she is incapable and unwittingly undermine her perceived self-efficacy (36). As such, the belief that the support is available whenever required or necessary is more likely to lead to the desirable outcomes. Moreover, they also found that fathers had significant influence in the breastfeeding intentions of their partners or spouses and subsequently the breastfeeding behaviours as well (36).

Wang et al (2018), on the other hand, found that EBF outcomes were desirable when the mother believed that her husband also preferred their child to be exclusively breastfed (49). They found that the effect was even greater when both parents agreed to exclusively breastfeed the child (49). In this regard, a key component of the Male Champions Campaign was the provision of man-friendly child feeding and nutrition information. Providing such health communications to men may be able to give both husband and wife a sufficient common knowledge base on childcare and feeding to enable them to both agree on how their infant should be nurtured. Similarly, another study in Australia found that exposing men to childcare and feeding information led to improvements in breastfeeding outcomes (50).

Relationship Between Reported Male Involvement and EBF Practices

In developing the male involvement index the expectation was that satisfaction on its own would not be enough to be reflective as a true measure of male involvement since satisfaction is perceived. As such, to make the measure more reflective, satisfaction was weighted by the given measure of time the husband or partner is ordinarily at home. As specified earlier, this effective satisfaction was then taken as the male involvement index showing its magnitude. However, the study findings showed no relationship between effective satisfaction and the adoption of EBF. A relationship was however established between high women's satisfaction and the adoption of EBF.

The hypothesis that women could find it easier to adopt EBF if men were involved and supportive in childcare and feeding did not fully describe the relationship. While physical support is directly beneficial regarding the reduction of workload and enabling valuable time saving which can be repurposed towards the provision of better-quality childcare and feeding, the study suggests that spousal physical support and presence may not be necessary as it is not associated with the desired outcomes in exclusive breastfeeding. Rather, women's perceptions regarding their satisfaction about the support they get from their spouses or partners (or the belief that the partner or spouse is supportive) is sufficient. In other words, if a woman believes that her partner or spouse is supportive, it is sufficient and is associated with the adoption of EBF. Women that were highly pleased with the perceived support they receive were more likely to EBF than women who were not. Rempel et al also found that direct assistance behaviours were not strongly correlated with higher satisfaction rankings by women (36).

Yourkavitch et al (2017) compared the EBF outcomes from 28 programs with a male involvement strategy to improve the uptake of EBF in sub-Saharan Africa, Asia, Latin America, and the Caribbean area. They separated the programs into high intensity male engagement programs and low intensity engagement programs and compared EBF outcomes between baseline and end line (51). High intensity programs referred to those that engaged men directly at their homes or through creating men's groups as well as using community leaders and/or other men within the communities to encourage the uptake of

EBF in their communities (51). Low intensity strategies were those that appealed to men through large gatherings such as community meetings and mass media (51). They found that engaging fathers led to a statistically significant increase in the adoption of EBF (51). Amalima's approach in this regard was largely a combination of both high and low intensity engagement. High intensity through the direct recruitment of men to form male champion groups and the use of traditional leaders to promote EBF and other recommended health and child feeding practices in their communities; and low intensity using male champion ward review meetings[13], and village and ward football tournaments to garner community support for the adoption of the recommended child feeding practices and public endorsement of the male champions themselves.

Similarly, Bich et al found that engaging fathers was effective in increasing EBF rates when infants were between four and six months in age (52). Likewise, Susin et al found that paternal inclusion in maternity hospital breastfeeding interventions resulted in the attainment of higher EBF rates (53). Another study in Zimbabwe found that spousal approval was also key in attaining the desired EBF outcomes among married women (27). Ogbo et al in a systematic review found that spousal or fathers support had significant influence on women's choice to initiate and sustain breastfeeding. They also found that male partner verbal encouragement had the effect of increasing breastfeeding duration and the adoption of EBF within the first six months (38).

While the Amalima Male Champions Campaign promoted the uptake and provision of verbal support to women to provide encouragement and emotional support, including physical support to reduce the burden of chores and responsibilities that women have; the effects on EBF outcomes were not negative. Similarly to what was found in Amalima, some evidence also suggests that physical and tangible support can lead to improved exclusive breastfeeding outcomes among women with low education, at secondary level and below (similar to the characteristics of women in Tsholotsho District) (54).

[13] Review meetings brought male champions and community leaders together to discuss what they had done and the results of their work, including strategizing about how move going forward.

Other Factors Associated with Exclusive Breastfeeding Beside Male Involvement

The study established several additional factors that were associated with the practice of EBF. In this section, these will be compared with evidence available on the key determinants of EBF in Zimbabwe and other regions that are similar and comparable.

EBF was found to be higher among younger infants and lower among older infants that are below the age of six months. The trend found in the study was not statistically significant but mirrors the national trend. According to the 2015 Demographic Health Survey, in Zimbabwe, EBF rates decline with increases in infant age and the median is at 2.3 months (8). The Amalima Formative research established the reasons for this to be linked with the intention of mothers to keep their babies satisfied for longer periods of time so that they cry less and sleep more allowing the mothers to concentrate on their chores and other duties (12).

EBF rates were found to be higher among older (above the median age of 29) women. Mbuya, Matare et al (2019) found older women tended to be more likely to EBF their infants at the age of three months (which is above the median duration of EBF nationally) than their younger contemporaries (55). It is possible that older women may not be first-time mothers and have the benefit of experience and thus more likely to exclusively breastfeed than younger women. Non-first-time mothers have been found to be more likely to EBF than first time mothers. In this study, however, parity was not found to have an association with EBF. This is largely due to the lack of variability in the samples as most (89%) women were non-first-time mothers. The minimum age for participation in the study was 21, however, Matabeleland North Province has a high adolescent pregnancy rate of 24.0% (56) and the average age at first birth for women in rural areas in the country is 19.8 years (57). In the study the median age at first birth was found to be 20.0 years. As such, the variability in the sample was not sufficient to detect the effects of parity given that the minimum age for participation was 21 years.

EBF rates were high among women with older (36 years old and above) husbands or partners. Other studies did not consider partner or husband age. However, a husband's age has a direct bearing on the age difference among couples and the amount of power one

wields within a relationship has been found to vary by age difference between intimate partners (58). This can also be a factor in phenomena such as gender-based violence and even women's health which have an influence on women's abilities, self-efficacy and decision-making (59) (58).

EBF rates were higher among women who lived in their own homesteads compared to those living in other set ups or arrangements. In this study there was a large proportion of women with their own homes (66.3%). A large body of evidence from Zimbabwe suggests that women experience a lot of social pressure from their social networks and from older influential women such as grandmothers, aunts, or mothers-in-law to mix-feed (27), (13). However, if a large proportion of women have their own homesteads and only 28.7% live either with in-laws or their own parents, it is possible that this negative influence may not be as pronounced as believed. Moreover, no association was found between residence with these potentially influential women and the adoption of EBF. It must also be considered that it is possible that social influence can have an effect even if one does not reside with the source of the influence, for instance, as mentioned earlier women's friends were found to have significant influence over a woman's breastfeeding choices (41) and it is unlikely that friends always reside together. In Zimbabwe, the influence of mothers-in-law is well documented (13), but most women in the Amalima program area were found to reside in their own homesteads.

The WHO recommends early initiation of breastfeeding shortly after birth, within one hour of birth specifically (60). According to the WHO, available evidence suggests women that have skin-to-skin contact with their infants shortly after delivering are more likely to EBF (60). Likewise, this study found that women who initiated breastfeeding within one hour of giving birth were more likely to EBF than women who took longer times to initiate breastfeeding.

Similarly, consistent with global studies, women that did not use containers with teats to feed their infants were found to be more likely to EBF than those that did (61). Logically when such containers are being used to feed infants, they will most likely be used to feed the infants foods and drinks other than breastmilk since the practice of expressing breastmilk seems not to be used. Evidence also exists that shows that bottle feeding bars

the adoption of EBF as it is usually associated with weaning and preference for breastfeeding substitutes (62) (63). In this study, very few women reported giving breastfeeding substitutes. This means the containers with teats were most likely being used for other foods and liquids e.g., water or water with additives which was found to be the principal practice leading to non-adoption of EBF (see Appendix J). However, few women reported feeding using a bottle with a teat.

While almost 40% of women reported leaving their children behind with child minders, none reported expressing milk and not all knew what the infant was fed while they were away. However, no association was found between the practice of using child minders and EBF (see Appendix J). This is a significant gap in EBF promotion as this does not seem to be catered for among resource constrained communities. It is possible that during the time when an infant is left with a child minder a baby may become mix fed, especially if the mother does not express milk and leave for the baby to be fed while she is away. Evidence suggests that expressing milk could be culturally inappropriate for a variety of reasons (64) (65).

In this study, women that did not traditionally treat the fontanelles of their children were much more likely to EBF than those that did. Indeed, there is additional evidence that traditions and culture have an influence on EBF in Zimbabwe (13), (26). Generally, the evidence suggests that traditional and cultural practices can impact the adoption of EBF negatively. For reasons outside the scope of this study, women who treat their babies' fontanelles are somehow more likely to not EBF even though not all fontanelle treatment methods identified require that the infants ingest something.

As discussed earlier, cultural and traditional dictates can have a bearing on the breastfeeding choices of women. Muchacha et al hold that the traditional practice of treating the fontanelle is a cultural requisite to ensure an infant's survival by giving protection from evil spirits and prevent the potential death of the infant by preventing the fontanelle from subsiding (13). They found that 17.1% of women reported practicing this, however, their sample was quite small and not intended for generalisation (13). In this study, a much larger proportion of women was found to practice the treatment of the

fontanelle. Muchacha et al also affirmed that by giving oral remedies to treat the fontanelle women then cannot be considered to EBF. Another study in Zimbabwe found that 'protection feedings' such as these to safeguard an infant's life from a potential sunken fontanelle or some other illness perceived or otherwise, constitute 78.5% among things given to infants that cannot be considered foods, and occur especially in the first two months of life (26).

In parallel, findings from this study showed that women who do not use oral traditional medicines are more likely to EBF than those who do. In this case, oral traditional medicines are not part of the list of exemptions in how EBF is defined and require ingestion. However, the study did not include traditional medicines in the comparison of EBF rates since generally these variables are ignored in most EBF measurements. Despite this, women who treat or prevent ailments in their infants with oral traditional medicines are somehow predisposed to not EBF (also for reasons that were not explored within the scope of this study).

In this study, EBF outcomes were better among women who had been exposed to Care Groups for longer periods of time (24 months and above). However, the differences in the adoption of EBF between intervention and control were not pronounced, most likely since both were exposed to Care Groups. The Care Group Model is being implemented in many countries to respond to the problem of malnutrition and undernutrition among mothers and children under the age of five (66), (67), (68). At end line, the Amalima program[14] found that stunting had been reduced from a baseline 31.7% to 24.5% (69).

The measurement of Exclusive Breastfeeding

Different experts for different purposes use different scales for measuring exclusive breastfeeding. Some experts make use of a 24 hour recall only and others use the 24-hour recall and also enquire about foods and beverages given to the infant since the child was born (70). The second option gives a richer and perhaps more accurate measure of exclusive

[14] However, this cannot be fully attributed to Care Groups alone as Amalima took a multi-sectoral view to responding to food security and malnutrition.

breastfeeding as opposed to the measure given by the infant's feeding in a given day of its life. This variation in measurement makes it difficult to effectively make comparisons across different sets of evidence available. This reflects a need to standardise the measurement of exclusive breastfeeding.

Using the WHO 24-hour recall to measure exclusive breastfeeding was found to over-report the EBF outcomes in a South African study that compared self-report to biological markers (71). This is undesirable and can risk the de-emphasis of exclusive breastfeeding in communities that may need continued support. Other experts note inconsistencies in breastfeeding definitions for research and the use of differing definitions in research and are concerned about potential inaccuracies as a result and the possibility of having less meaningful meta-analyses as a result (72) (73). As such, a call for the standardisation of these definitions and approaches to measurement should be done.

In this study exclusive breastfeeding was measured in two ways, firstly using an adapted version of the WHO 24-hour recall tool to measure current feeding practices along with enquiries about feeding practices at different times (i.e., immediately post-birth, few weeks after birth, and since born) and secondly using the same approach above and also including the cultural and traditional variables of fontanelle treatment and use of oral traditional medicines. In comparing the two rates, the EBF rates without the traditional variables were higher by ten percentage points. This is to be expected as the giving of anything else outside the parameters of exclusive breastfeeding even for societal dictates is tantamount to a failure to exclusively breastfeed. However, not all methods of treating the fontanelle required that the infant ingest something, and still, in all, the practice was correlated with lower EBF outcomes, as with the practice of giving infants oral traditional medicines to treat or prevent illness.

Looking at this issue from a wider lens, the health system in Zimbabwe is periodically in distress (74), and it becomes understandable and perhaps necessary for people to consider alternative treatments including traditional medicines, perhaps even more so in rural areas such as Tsholotsho where stockouts in local health centres are more common than not (75) (76). Moreover, given that fontanelle treatment is cultural and traditional, it is governed by key rights such as the right for self-determination and association. This makes the definition

of exclusive breastfeeding insensitive to the characteristics and contexts of different peoples in favour of modern medicine. In view of this, a debate is necessary among health experts, perhaps in reshaping how exclusive breastfeeding is considered as it may not be ethical to recommend the cessation of cultural practices such as the use of traditional medicines or even perceived protective practices such as the treatment of the fontanelle.

4.3 Strengths of the Study

In taking an experimental approach the study was able to explore in depth the extents of potential correlations between the Amalima interventions and the health outcomes of interest, as well as the relationships between key variables of interest. The sample sizes obtained were also significant enough to make inferences to the wider population of Amalima program participants in Tsholotsho District.

4.4 Limitations of the Study

The study lacks pre-test data and, as such, it is not possible to make comparisons before and after the intervention. The study design determined which individuals will be part of the control and intervention groups based on pre-existing characteristics in terms of participation in programs of interest. Even though participation in the programs of interest was purely voluntary, assignment into the research groups was not. This made the research groups non-equivalent and limited the extent to which generalization of the results to the wider population could be done. Furthermore, the minimum age for participation was set at 21 due to ethical considerations about collecting data on underage mothers or potential victims of statutory rape and child marriages. However, in fact, a significant portion of mothers in Zimbabwe are within this age group. For instance, the country has a high adolescent fertility rate at 115 births per 1000 women aged between 15 and 19 years (77) compared to 101 births per 1000 regionally in sub-Saharan Africa (78). Given this reality, the study left out a key group of mothers with potentially distinct characteristics and thus could be a potential source of bias in the study.

There is also a possibility of bias in the results attained owing to the exclusion of observations from 57 questionnaires, which were removed from analysis as a result of having missing data. The removal could potentially distort trends and measurements.

It is possible that spill over effects of the MC intervention's effects may have occurred in the adjacent wards to the intervention ones (see Figure 3.0), which could make the findings less reliable. The risk of confounding is also quite high, given that there are several determinants that influence the adoption of EBF besides male involvement, the subject of interest. This could make conclusions about any causality determined to be much less definitive. The study also relied on self-reported data which left the study vulnerable to recall bias and possible social desirability bias as well. The study also only took the viewpoint or status of that one point in time. It would have been more valuable to see data on this over time perhaps through following the study participants over the course of time. In addition, since the study was quantitative it failed to explain why some of the trends found where occurring.

Chapter 5: Conclusion and Recommendations

5.0 Conclusion

Exclusive breastfeeding is hailed as the best start a mother can give to her infant. A host of evidence exists that details the many health benefits to both mother and child alike, but uptake of the practice is still not universal even though almost all mothers are biologically capable of it. While EBF as a practice in the country seems to be gaining in adoption by mothers, a great many infants are still not exclusively breastfed, and most are not exclusively breastfed for the optimal period of six months.

In this study, the effect of married women's satisfaction with spousal or partner support on their adoption of EBF was examined. Women who had husbands or partners that were exposed to an intervention giving child feeding and care information while promoting the uptake of key support behaviours were compared to women within the same District whose husbands or partners were not exposed to the intervention. After examining the EBF outcomes and the respective satisfaction the women reported with the support received from their husbands or spouses, the findings showed that EBF rates were higher among women with high satisfaction and a statistically significant association was established.

While the initial hypothesis was that a high effective satisfaction (the male involvement index) would be associated with higher EBF rates, the study found no association between effective satisfaction and the adoption of EBF. In the theory of change, the program underscored the time poverty of women due to the burden of work they have with home chores and on-farm activity, believing that physical support would be more beneficial to the women and the infants alike. However, it is possible that women may not desire the physical support and rather more subtle forms of support would be more effective, given that high perceived satisfaction was found to be associated with the adoption of EBF. These forms of support would be cognitive appeals or influences and would probably be largely verbal in nature, including verbal support for exclusive breastfeeding, encouragement and emotional support, and actions that propagate a sense of responsiveness to the mother's needs. In this way, a mother's perceptions about her husband's support may be better influenced.

While definitive attribution was not possible, the study was able to determine the differences in the characteristics of women in the intervention area and pit them against the characteristics of women in the comparison area. The findings showed that women in the intervention area were more likely to be highly satisfied with their partners or husbands than women in the control. Women in the intervention area were more satisfied with the support they received from their partners than women from the control. In this regard, the Male Champions Approach shows a lot of promise as a mechanism for promoting improved exclusive breastfeeding outcomes. It must be noted, however, that this intervention was not applied on its own but was introduced to complement the efforts of an intervention directly exposing pregnant and lactating women to maternal health and childcare and feeding information. Regardless, the results show that direct appeals to men in a bid to improve breastfeeding support and breastfeeding outcomes can be effective.

The EBF rates found in the study did not vary greatly between intervention and control, which could be a hallmark to the effectiveness of the Care Group intervention that women from both areas were exposed to. The overall program EBF rate was also found to be similar to findings from other studies in the District or Province, showing a marked improvement from the 2014 program baseline. However, they still reflect that a large proportion of infants are not being exclusively breastfed, and that the short duration of EBF is also a fundamental problem needing attention.

This study also identified additional factors associated with EBF. These factors included infant age, mother's age, partner / husband age, living in one's own homestead, longer exposure to Care Group activities, initiation of breastfeeding within the first hour of giving birth, non-use of containers with teats, not treating the fontanelle and not using oral traditional medicines to treat or prevent illness. These findings are consistent with what others have found in similar settings and they will be able to assist health program leaders in future program design and implementation.

5.1 Principal Recommendations for Practice

Scale Up Care Groups in the Promotion of Exclusive Breastfeeding

The differences in EBF rates between intervention and control were very small. At the same

time, an attempt to determine the existence of correlation between Care Group membership and the adoption of EBF was not possible as all study participants had been Care Group members for some time at some point. In view of Care Groups being the common attribute of exposure between all participants and the differences in EBF rates being small between those with husbands exposed to the Male Champions Campaign and those whose husbands or partners were not; it follows that Care Groups could be an effective intervention in promoting exclusive breastfeeding.

Breastfeeding education on its own has been found to be effective in influencing breastfeeding initiation and in increasing breastfeeding duration as well (79) (80). In this study, the length of exposure over time was however found to be correlated with the attainment of higher EBF rates, as rates were higher among women who had been exposed to Care Groups for longer periods (two years and above). Membership to these groups over such protracted periods of time can also serve as a support structure for women to exclusively breastfeed as membership to a group of peers with similar characteristics and circumstances can lead to the development of safe spaces for women where they can express themselves freely and get advice from peers and even assistance as well (depending on potential group cohesion dynamics). In this regard, Care Groups potentially offer both education and support. There is evidence that suggests that the provision of education and the promotion of the development of social support to individuals within their own social networks is effective in increasing breastfeeding duration. Seeing that there is evidence in-country that shows that women discontinue exclusive breastfeeding early before the recommended six months from birth. Thus, having aspects to programming that advocate for increasing the duration of exclusive breastfeeding will potentially improve exclusive breastfeeding outcomes. This means that for better outcomes it may be necessary to promote membership to these groups for longer periods of time.

Engage women early in the Promotion of Recommended Child Feeding and Care Practices

Evidence shows that women are having their first child early while they are relatively young. In this study the youngest participants were aged 21, however, very few were first time mothers. The modal age at first birth was 19 while the median was 20. As such, reaching girls and women with key information on how to nurture and feed children could bolster

intentions to nurture and feed children in recommended ways, which is associated with subsequent sustained adoption of the recommended behaviours and practices. Having a child is sometimes aspirational in women, hence, linking the recommended practices and having these included in the aspirational profiles of having a child among women who do not yet have children could lead to the adoption of those practices.

Nationally, 22.0% of women aged between 15 and 19 have already had their first child, while 5.0% are pregnant (23). In Matabeleland North, teenage childbearing is at 26.0% of women aged between 15 and 19 (23). In this study, 9.8% of the participants had their first child while under the age of 16 and 33.8% had their first child between the age of 17 and 19. This shows that a large proportion of women are having children while still young and dependant on others for most of their needs.

Engage Men to Support the Promotion of Exclusive Breastfeeding

The findings in this study suggest the direct engagement of men for the improvement of EBF outcomes can be successful and effective. In the Amalima Male Champions Campaign this was done through male only peer groups moderated by a male community volunteer (Male Champion) to give nutrition information and advocate for giving support to women through a consultative group discussion within the peer group, which then asks men to try certain supportive behaviours to aid their spouse or partner and make it easier for her to exclusively breastfeed. The findings suggest that exposing men to health and nutrition messaging in this way was associated with higher women's satisfaction about their husbands or partners support in child feeding and care. Women in the intervention area were found to be more likely to be highly satisfied with spousal or partner support than women in the control.

On the other hand, the findings suggest that women that are satisfied with spousal support are more likely to EBF than those who are not. In this regard, the content of male engagement programs will have greater potential success if it builds husband or partner capacities for communicating and showing support, and perhaps even emotional support. Given that satisfaction is more perceived than physical, it seems then that when women

believe that their partners or husbands are responsive to their needs and supportive of exclusive breastfeeding then they can be able to adopt EBF successfully.

Sherriff and Hall hold that that fathers are a "primary source of support" and can influence women's decisions to initiate and continue breastfeeding including when to wean or cease breastfeeding (34). They emphasize the importance to directly train fathers on child feeding and how they can particularly be of assistance in this endeavour.

Design Context Specific Social Behaviour Change Content

To make interventions better poised to lead to the desired EBF outcomes, it is necessary to leverage on promoting the identified environmental conditions that enable adoption of exclusive breastfeeding and the practices and behaviours associated with its adoption. At the same time, the identified potential barriers must be addressed in the content as well to effectively prepare women for the challenges they may face.

For instance, women that used containers with teats were found to be more inclined to not EBF, notwithstanding the potential hygiene problems associated with the use of such containers in rural settings. In this regard, future health promotion messaging content in Tsholotsho District should directly discourage the use of such containers to feed children under the age of six months. Antenatal Care visit and Care Group home visit messaging for mothers should also be able to identify the circumstances surrounding each expectant mother and be able to offer personalised advice that will help the woman be able to adopt EBF. For example, domicile setup was correlated to adoption of EBF. As such, the interview during the visit could establish the expectant mother's living arrangement and offer advice accordingly. In this particular case, women who do not live in their own homesteads could be encouraged to foster support networks for EBF in their social circles, so as to garner support and assistance to be able to EBF their infants. As these women live with a variety of different relatives following their unique living arrangements, having this kind of support in addition to spousal support could also lead to adoption perhaps through bolstering the woman's self-efficacy and confidence. This also underscores the necessity for conducting formative research prior to program start off. Matching programs to the contexts of their intended beneficiaries and identifying motivators for adoption and barriers to adoption, and

moulding interventions to be responsive to what is identified will better position programs for success.

5.2 Research Recommendations for Further Investigation

Further Explore how Male Support Influences Women's Choices on EBF

There is a need to further explore how male partner support influences a woman's intention to exclusively breastfeed and its relationship to EBF. The extent of this study only sought to establish whether a relationship exists but did not seek to understand how this is helpful in the adoption of EBF. The study did, however, show that satisfaction with perceived support was associated with the adoption of EBF, disproving the hypothesis that satisfaction had to be accompanied by actual physical support.

From the findings it seems the physical presence of men at home is not necessary for women to have high perceived satisfaction. The modalities around how this gives high satisfaction will need further exploration through qualitative methods to fully decipher and explain the processes leading to this, including the effects on women's interactions with individuals within their social networks that are advocating for mix-feeding. The evidence that is available affirms the importance and need for male support as an influencing factor in the adoption of EBF and breastfeeding duration (34). However, it is unclear how male partner support leads to the adoption of exclusive breastfeeding.

Further Explore the Effect of Social Support

There is also a need to further explore social support as a construct that supports EBF adoption. Evidence shows that women's child feeding attitudes and beliefs are influenced by several key individuals within their respective social networks. These key people often include grandmothers, aunts, close friends, health workers, and the infant's father. This shows that male partner support is only a component of the potential social support that can be available to a particular woman. As such, the full breadth of social support needs to be investigated to further aid programmers in targeting the people within women's social circles that can develop and give the necessary social support for improved EBF outcomes.

Compare Interventions with Social Support Components against those Without

There is always a scarcity of resources for interventions of any kind. As such, it becomes necessary for program implementers to have precision and certainty in decision making when selecting or designing interventions that will give the best possible results and outcomes. Considering this, there is a need to study how EBF outcomes from interventions with an added male involvement component measure up to those that target mothers and expectant mothers, and those that include a wider social support component beyond male partners only.

Investigate Effect of Women's Satisfaction on EBF Longitudinally

This study reported women's satisfaction from only one point in time. It is, however, also possible that satisfaction could vary over time. Evidently the relatively low satisfaction scores reported by women with children above six months in age could be due to mothers describing current satisfaction and ascribing it to the time when the child was below six months. In such resource poor communities as those found in Tsholotsho, men consider themselves as providers for their families but the reality is that most households are food insecure and general nutrition indicators for women and children are low. It follows that it is probable that women may not be happy with the men when looking at complementary feeding unlike when the child is below six months when the major source of sustenance even if mix feeding is breastmilk. Considering this, future researchers would be better suited with a longitudinal approach that tracks satisfaction and EBF over the time that women are expected to be exclusively breastfeeding.

Explore why the Treatment of the Fontanelle or Use of Traditional Medicine bar EBF

It is important to also attempt to find out why women that give traditional medicine to their infants or treat the fontanelle are more predisposed to not EBF. This enquiry established that women who traditionally treat the fontanelle and those that prevent or manage illness by giving oral traditional medicines are particularly likely to not exclusively breastfeed than women who do not practice these practices. It might also be beneficial to explore ways to make such practices safer for children. Much study may be required to look at feasible ways to control potential hygiene problems around these practices so that they are always safe

for the infants. Perhaps health experts may have to ask to what extent should traditions and cultures of different people be modified to achieve good health outcomes for the communities concerned. And, to what extent is it possible to intervene without necessarily advocating for shifts in culture and tradition.

Address the Practices of Giving Infants Water or Water with Additives and Thin Porridge

The two biggest causes[15] for failure to EBF in this study were identified as the practice of giving infants water or water with additives and the practice of giving the infants thin porridge. Factors driving the motivations to do these practices among mothers were not a component of this enquiry. To further the effectiveness of future programs promoting EBF, there is a need to understand why women do this before the recommended times and directly address these in interventions.

Research Male Involvement in Infant and Young Child Feeding More Broadly

Fatherhood can come either through being a male parent to a child or by acting as a father to a particular child (81). This means that biological fatherhood is not the only form of fatherhood. The definition takes into account the performance of a variety of social functions to a child, whether or not one is a biological parent (31). Such social functions for one to be identified as a father include inter-alia being a disciplinarian, a provider, and a leader or family head (31), all which do not require one to be a biological parent to a child. Men, therefore, who may not be biological parents or part of the child's nuclear family, that take part significantly in the nurturing of children are identified as fathers as well (31). Future studies of male involvement should also incorporate this broader conceptualisation of fatherhood and explore how key indicators in infant and young child feeding are influenced by it.

Investigate Ways to Engage Men in Low Resource Settings

Not all Provinces receive funding for the promotion of EBF. In such instances the existing structures must be used to perform this function. In this case in rural areas such as

[15] Very few mothers reported giving other things. These included drops of oil, infant formula, goat or cow's milk, thin soup or broth, fruit juices or other drinks, and tea or coffee.

Tsholotsho District, this will require village health workers who are female to do this. Given that these regions are largely patriarchal, and women's voices are not always respected the way they should, there is a need to investigate how village health workers can engage with men in meaningful and effective ways to garner the necessary support for women in adopting exclusive breastfeeding.

Further Explore Care Group Effectiveness

The Care Group Approach is now being implemented in several countries globally to improve the health and nutrition outcomes of children and women, following the 1,000 days approach. It is important to further study its effectiveness. This intervention was not the prime focus of this enquiry.

References

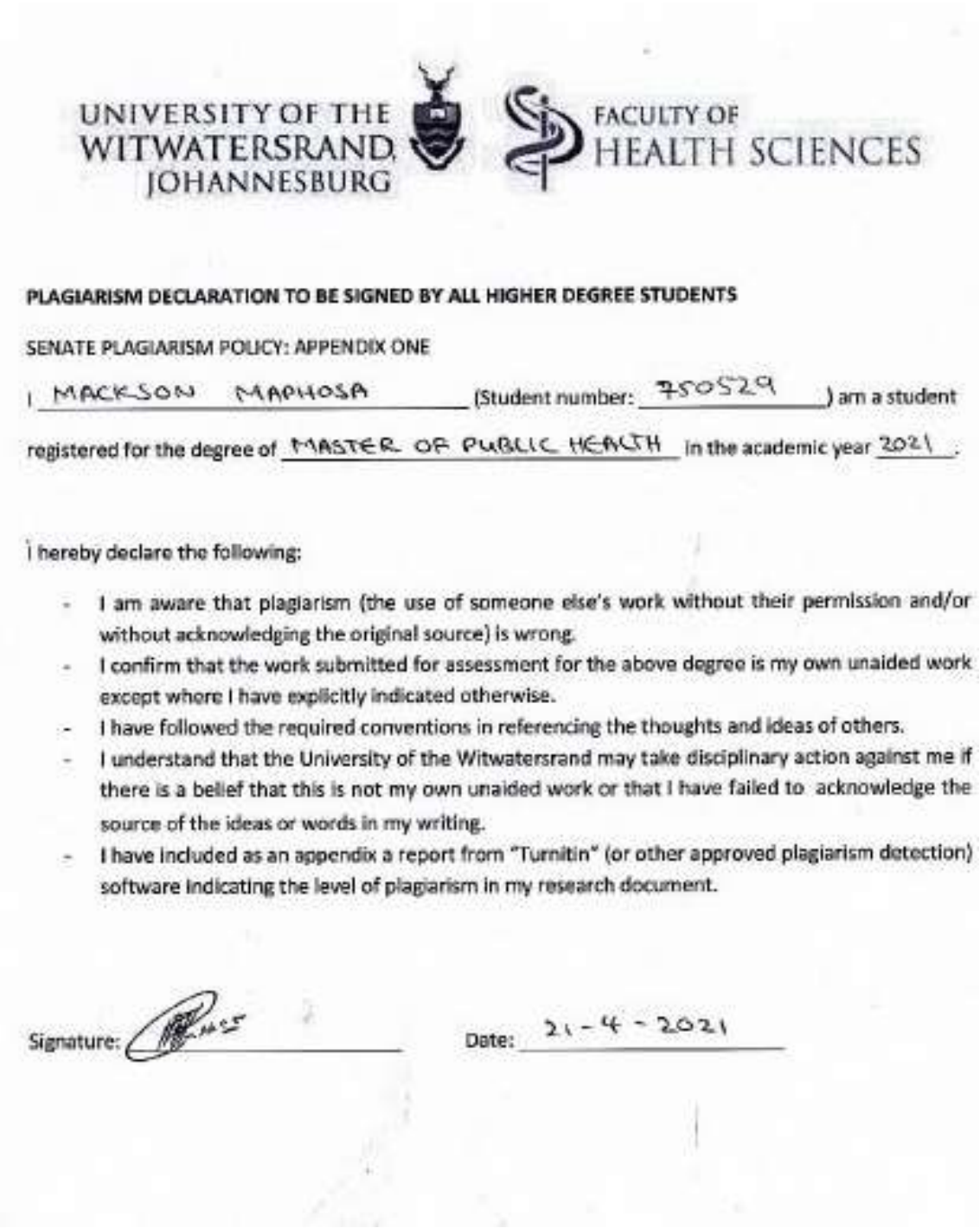
1. (WHO) WHO. Breastfeeding www.who.int: WHO; 2018 [Available from: www.who.int/nutrition/topics/exclusive_breastfeeding/en/.
2. Allen J, Hector D. Benefits of breastfeeding. New South Wales public health bulletin. 2005;16(4):42-6.
3. santé Omdl, Organization WH, Staff WHO, UNICEF., l'enfance FdNUp, UNAIDS. Global Strategy for Infant and Young Child Feeding: World Health Organization; 2003.
4. Chidiebere O, Stanley O, Joy E, Clement E, Ifeyinwa N, Uchenna E. Effect of exclusive breastfeeding on incidences of illness in infant's first 6 months of life. Journal of Pediatrics and Neonatal Care. 2014;1(4):00025.
5. Organization WH. Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals. 2009.
6. Child Y. Infant andYoung Child Feeding Programming Guide. UNICEF, editor. New York: United Nations Children's Fund (UNICEF) New York; 2011 May 2011. 173 p.
7. Agency; ZNS, International; I. Zimbabwe Demographic and Health Survey 2015: Final Report Rockville, Maryland, USA: Zimbabwe National Statistics Agency (ZIMSTAT) 2016.
8. Council; FaN, UNICEF;, ZIMSTAT;, FAO;, FEWSNET;, Care; MoHaC, et al. Zimbabwe National Nutrition Survey. 2018.
9. Zimbabwe National Statistics Agency (ZIMSTAT). Zimbabwe Multiple Indicator Cluster Survey (MICS) 2014, Final Report. Harare, Zimbabwe; 2015.
10. Aderinto AA. Patriarchy and Culture: The Position of Women in a Rural Yoruba Community, Nigeria. The Anthropologist. 2001;3(4):225-30.
11. T; S, L; C, M; A. Amalima Formative Research Report: Infant and young child feeding, care seeking, and water, samitation and hygiene. The Manoff Group Inc; 2015 February 2015.
12. Nankumbi J, Muliira JK. Barriers to infant and child-feeding practices: a qualitative study of primary caregivers in Rural Uganda. Journal of health, population, and nutrition. 2015;33(1):106.
13. Muchacha M, Mtetwa E. Social and economic barriers to exclusive breast feeding in Rural Zimbabwe. International Journal of MCH and AIDS. 2015;3(1):16.
14. Mundagowa PT, Chadambuka EM, Chimberengwa PT, Mukora-Mutseyekwa F. Determinants of exclusive breastfeeding among mothers of infants aged 6 to 12 months in Gwanda District, Zimbabwe. International breastfeeding journal. 2019;14(1):30.
15. CNFA;. Revised Technical Proposal, Amalima, Development Food Assistance Program for Zimbabwe;. Washington DC, USA2013.
16. M; A, M; D, M; M. Amalima Male Champions Strategy. The Manoff Group Inc; 2016.
17. Victora CG, Bahl R, Barros AJ, França GV, Horton S, Krasevec J, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. The Lancet. 2016;387(10017):475-90.
18. Lauer JA, Betrán AP, Barros AJ, de Onís M. Deaths and years of life lost due to suboptimal breast-feeding among children in the developing world: a global ecological risk assessment. Public health nutrition. 2006;9(6):673-85.
19. Engebretsen IM, Moland KM, Nankunda J, Karamagi CA, Tylleskär T, Tumwine JK. Gendered perceptions on infant feeding in Eastern Uganda: continued need for exclusive breastfeeding support. International breastfeeding journal. 2010;5(1):13.
20. Yourkavitch JM, Alvey JL, Prosnitz DM, Thomas JC. Engaging men to promote and support exclusive breastfeeding: a descriptive review of 28 projects in 20 low-and middle-income countries from 2003 to 2013. Journal of Health, Population and Nutrition. 2017;36(1):43.
21. ZIMSTAT X. Zimbabwe Demographic and Health Survey 2005-06. Harare; 2013.
22. Zimbabwe Central Statistical Office, Macro Systems Institute for Resource Development. Zimbabwe Demographic and Health Survey: Central Statistical Office, Ministry of Finance, Economic Planning and …; 2010.

23. Zimbabwe National Statistics Agency II. Zimbabwe Demographic and Health Survey 2015: Final Report. Rockville, Maryland, USA: Zimbabwe National Statistics Agency (ZIMSTAT) and ICF International; 2016.
24. Muchacha M, Mthetwa E. Beyond the bio-medical orthodoxies: Socio-economic and attitudinal impediments to exclusive breast feeding in rural Zimbabwe and possible roles of social workers and interventions to promote its uptake. Social Work. 2015;51(1):63-79.
25. Mundagowa PT, Chadambuka EM, Chimberengwa PT, Mukora-Mutseyekwa F. Determinants of exclusive breastfeeding among mothers of infants aged 6 to 12 months in Gwanda District, Zimbabwe. International breastfeeding journal. 2019;14(1):1-8.
26. Desai A, Mbuya MN, Chigumira A, Chasekwa B, Humphrey JH, Moulton LH, et al. Traditional oral remedies and perceived breast milk insufficiency are major barriers to exclusive breastfeeding in rural Zimbabwe. The Journal of nutrition. 2014;144(7):1113-9.
27. Moyo G, Magaisa T, Pagiwa A, Kandawasvika R, Nyanga L, Gomora Z, et al. Identifying Barriers and Enablers to Exclusive Breastfeeding in Mwenezi and Chiredzi Districts, Zimbabwe. Current Developments in Nutrition. 2020;4(Supplement_2):249-.
28. Asemahagn MA. Determinants of exclusive breastfeeding practices among mothers in azezo district, northwest Ethiopia. International breastfeeding journal. 2016;11(1):1-7.
29. Asare BY-A, Preko JV, Baafi D, Dwumfour-Asare B. Breastfeeding practices and determinants of exclusive breastfeeding in a cross-sectional study at a child welfare clinic in Tema Manhean, Ghana. International breastfeeding journal. 2018;13(1):1-9.
30. Muthiru AW. Factors Influencing Male Involvement In Young Children Feeding Practices: A Case Of Dagoretti Informal Settlements: University of Nairobi; 2020.
31. Clowes L, Ratele K, Shefer T. Who needs a father? South African men reflect on being fathered. Journal of gender studies. 2013;22(3):255-67.
32. Mat Nawi NI, Abdul Hamid SB. Determinants of fathers' involvement in breastfeeding practices in Kuala Selangor. Malaysian Journal of Nutrition. 2021;27(1).
33. Abera M, Abdulahi M, Wakayo T. Fathers' involvement in breast feeding practices and associated factors among households having children less than six months in Southern Ethiopia: a cross sectional study. Pediatr Ther. 2017;7(1):1000306.
34. Sherriff N, Hall V. Rhetoric or reality? Father support in promoting breastfeeding. International Journal of Birth and Parent Education. 2014;1(4):19-22.
35. Sherriff N, Hall V, Panton C. Engaging and supporting fathers to promote breast feeding: A concept analysis. Midwifery. 2014;30(6):667-77.
36. Rempel LA, Rempel JK, Moore KC. Relationships between types of father breastfeeding support and breastfeeding outcomes. Maternal & child nutrition. 2017;13(3):e12337.
37. Rempel LA, Rempel JK. Partner influence on health behavior decision-making: Increasing breastfeeding duration. Journal of Social and Personal Relationships. 2004;21(1):92-111.
38. Ogbo FA, Akombi BJ, Ahmed KY, Rwabilimbo AG, Ogbo AO, Uwaibi NE, et al. Breastfeeding in the community—how can partners/fathers help? A systematic review. International journal of environmental research and public health. 2020;17(2):413.
39. Davidson EL, Ollerton RL. Partner behaviours improving breastfeeding outcomes: An integrative review. Women and Birth. 2020;33(1):e15-e23.
40. Ozbay F, Johnson DC, Dimoulas E, Morgan III C, Charney D, Southwick S. Social support and resilience to stress: from neurobiology to clinical practice. Psychiatry (Edgmont). 2007;4(5):35.
41. Barona-Vilar C, Escribá-Agüir V, Ferrero-Gandía R. A qualitative approach to social support and breast-feeding decisions. Midwifery. 2009;25(2):187-94.
42. Meedya S. Increasing breastfeeding rates up to six months among primparous women: a quasi-experimental study of the effectiveness of the Milky Way Program. Lismore: University of Southern Cross. 2015.

43. Ajike SO, Ogunsanmi OO, Chinenye-Julius AE, Dangana JM, Mustapha AM. Effect of a breastfeeding educational programme on fathers' intention to support exclusive breastfeeding: A quasi-experimental study. African Journal of Reproductive Health. 2020;24(3):59-68.
44. Bich TH, Long TK, Hoa DP. Community-based father education intervention on breastfeeding practice—Results of a quasi-experimental study. Maternal & child nutrition. 2019;15:e12705.
45. Inc II. Baseline Study of the Title II Development Food Assistance Programs in Zimbabwe: Contract #: AID-OAA-M-13-00022. Washington, DC2015.
46. Agency ZNS. Zimbabwe Multiple Indicator Cluster Survey, 2014: Zimbabwe National Statistics Agency; 2015.
47. Council ZFaN. Zimbabwe National Nutrition Survey - 2018. Harare, Zimbabwe2018.
48. Ekström A, Widström AM, Nissen E. Breastfeeding support from partners and grandmothers: perceptions of Swedish women. Birth. 2003;30(4):261-6.
49. Wang S, Guendelman S, Harley K, Eskenazi B. When fathers are perceived to share in the maternal decision to breastfeed: outcomes from the infant feeding practices study II. Maternal and child health journal. 2018;22(11):1676-84.
50. Maycock B, Binns CW, Dhaliwal S, Tohotoa J, Hauck Y, Burns S, et al. Education and support for fathers improves breastfeeding rates: a randomized controlled trial. Journal of Human Lactation. 2013;29(4):484-90.
51. Yourkavitch JM, Alvey JL, Prosnitz DM, Thomas JC. Engaging men to promote and support exclusive breastfeeding: a descriptive review of 28 projects in 20 low-and middle-income countries from 2003 to 2013. Journal of Health, Population and Nutrition. 2017;36(1):1-10.
52. Bich TH, Hoa DTP, Målqvist M. Fathers as supporters for improved exclusive breastfeeding in Viet Nam. Maternal and child health journal. 2014;18(6):1444-53.
53. Rosane Odeh Susin L, Regina Justo Giugliani E. Inclusion of fathers in an intervention to promote breastfeeding: impact on breastfeeding rates. Journal of Human Lactation. 2008;24(4):386-92.
54. Laugen CM, Islam N, Janssen PA. Social support and exclusive breast feeding among Canadian women. Paediatric and perinatal epidemiology. 2016;30(5):430-8.
55. Mbuya MN, Matare CR, Tavengwa NV, Chasekwa B, Ntozini R, Majo FD, et al. Early initiation and exclusivity of breastfeeding in rural Zimbabwe: impact of a breastfeeding intervention delivered by village health workers. Current developments in nutrition. 2019;3(4):nzy092.
56. Naomi N. Wekwete SR, Mr. George Zimbizi National Adolescent Fertility Study - Technical Report. In: Care MoHaC, editor. Harare, Zimbabwe2017.
57. Zimbabwe National Statistics Agency (ZIMSTATS) UNPFU. Zimbabwe Inter-Censal Demographic Survey. In: Development MoFaE, editor. Harare, Zimbabwe2017.
58. Volpe EM, Hardie TL, Cerulli C, Sommers MS, Morrison-Beedy D. What's age got to do with it? Partner age difference, power, intimate partner violence, and sexual risk in urban adolescents. Journal of interpersonal violence. 2013;28(10):2068-87.
59. Wekwete NN, Sanhokwe H, Murenjekwa W, Takavarasha F, Madzingira N. The Association between Spousal Gender Based Violence and Women's Empowerment among Currently Married Women aged 15-49 in Zimba-bwe: Evidence from the 2010-11 Zimbabwe Demographic and Health Survey. African population studies. 2014;28(3):1413-31.
60. (WHO) WHO. Early initiation of breastfeeding to promote exclusive breastfeeding 2019 [updated 11 February 2019 09:29 CET. Available from: https://www.who.int/elena/titles/early_breastfeeding/en/.
61. Batista CL, Ribeiro VS, Nascimento MdDS, Rodrigues VP. Association between pacifier use and bottle-feeding and unfavorable behaviors during breastfeeding☆,☆☆. Jornal de Pediatria. 2018;94:596-601.
62. Batista CL, Ribeiro VS, Nascimento MdDS, Rodrigues VP. Association between pacifier use and bottle-feeding and unfavorable behaviors during breastfeeding. Jornal de Pediatria. 2018;94(6):596-601.

63. Suzely AM, Zina LG, Saliba NA, Saliba O. Association between breast-feeding practices and sucking habits: a cross-sectional study of children in their first year of life. Journal of Indian Society of Pedodontics and Preventive Dentistry. 2008;26(3):102.
64. Horwood C, Surie A, Haskins L, Luthuli S, Hinton R, Chowdhury A, et al. Attitudes and perceptions about breastfeeding among female and male informal workers in India and South Africa. BMC Public Health. 2020;20:1-12.
65. Talbert AW, Tsofa B, Mumbo E, Berkley JA, Mwangome M. Knowledge of, and attitudes to giving expressed breastmilk to infants in rural coastal Kenya; focus group discussions of first time mothers and their advisers. International breastfeeding journal. 2018;13(1):1-7.
66. Davis TP, Wetzel C, Avilan EH, de Mendoza Lopes C, Chase RP, Winch PJ, et al. Reducing child global undernutrition at scale in Sofala Province, Mozambique, using Care Group Volunteers to communicate health messages to mothers. Global Health: Science and Practice. 2013;1(1):35-51.
67. Perry H, Morrow M, Borger S, Weiss J, DeCoster M, Davis T, et al. Care groups I: an innovative community-based strategy for improving maternal, neonatal, and child health in resource-constrained settings. Global Health: Science and Practice. 2015;3(3):358-69.
68. Perry H, Morrow M, Davis T, Borger S, Weiss J, DeCoster M, et al. Care groups II: a summary of the child survival outcomes achieved using volunteer community health workers in resource-constrained settings. Global Health: Science and Practice. 2015;3(3):370-81.
69. IMPLEL. Final Performance Evaluation of the Amalima Development Food Assistance Project in Zimbabwe. In: Award TI-LELA, editor. Washington, DC2020.
70. Greiner T. Exclusive breastfeeding: measurement and indicators. International breastfeeding journal. 2014;9(1):1-6.
71. Mulol H, Coutsoudis A. Limitations of maternal recall for measuring exclusive breastfeeding rates in South African mothers. International breastfeeding journal. 2018;13(1):1-6.
72. Thulier D. A call for clarity in infant breast and bottle-feeding definitions for research. Journal of Obstetric, Gynecologic & Neonatal Nursing. 2010;39(6):627-34.
73. Noel-Weiss J, Boersma S, Kujawa-Myles S. Questioning current definitions for breastfeeding research. International breastfeeding journal. 2012;7(1):1-4.
74. Kidia KK. The future of health in Zimbabwe. Global health action. 2018;11(1):1496888.
75. John Osika DA, Leah Ekbladh, Itamar Katz, Ha Nguyen, Josh Rosenfeld, Taylor Williamson ST. Zimbabwe Health System Assessment 2010. In: Welfare MoHa, editor. Bethesda, MD: Health Systems 20/20 Project, Abt Associates Inc; 2010.
76. Moyo L. Zimbabwe has only two weeks supply of medicines. Centre for Innovation & Technology (CITE). 2019 15th April 2019.
77. Zimbizi MoHaCCMZNFPCZUNPFUNNWSRG. Zimbabwe National Adolescent Fertility Study; Technical Report Harare2016.
78. Neal S, Channon AA, Chandra-Mouli V, Madise N. Trends in adolescent first births in sub-Saharan Africa: a tale of increasing inequity? International journal for equity in health. 2020;19(1):1-11.
79. Meedya S. Increasing breastfeeding rates up to six months among primparous women: a quasi-experimental study of the effectiveness of the Milky Way Program: Southern Cross University; 2015.
80. Meedya S, Fernandez R, Fahy K. Effect of educational and support interventions on long-term breastfeeding rates in primiparous women: a systematic review and meta-analysis. JBI Evidence Synthesis. 2017;15(9):2307-32.
81. Turnbull J, Lea D, Parkinson D, Phillips P, Francis B, Webb S, et al. Oxford advanced learner's dictionary. International Student's Edition. 2010.

Appendix A – Plagiarism Declaration Report



UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

FACULTY OF HEALTH SCIENCES

PLAGIARISM DECLARATION TO BE SIGNED BY ALL HIGHER DEGREE STUDENTS

SENATE PLAGIARISM POLICY: APPENDIX ONE

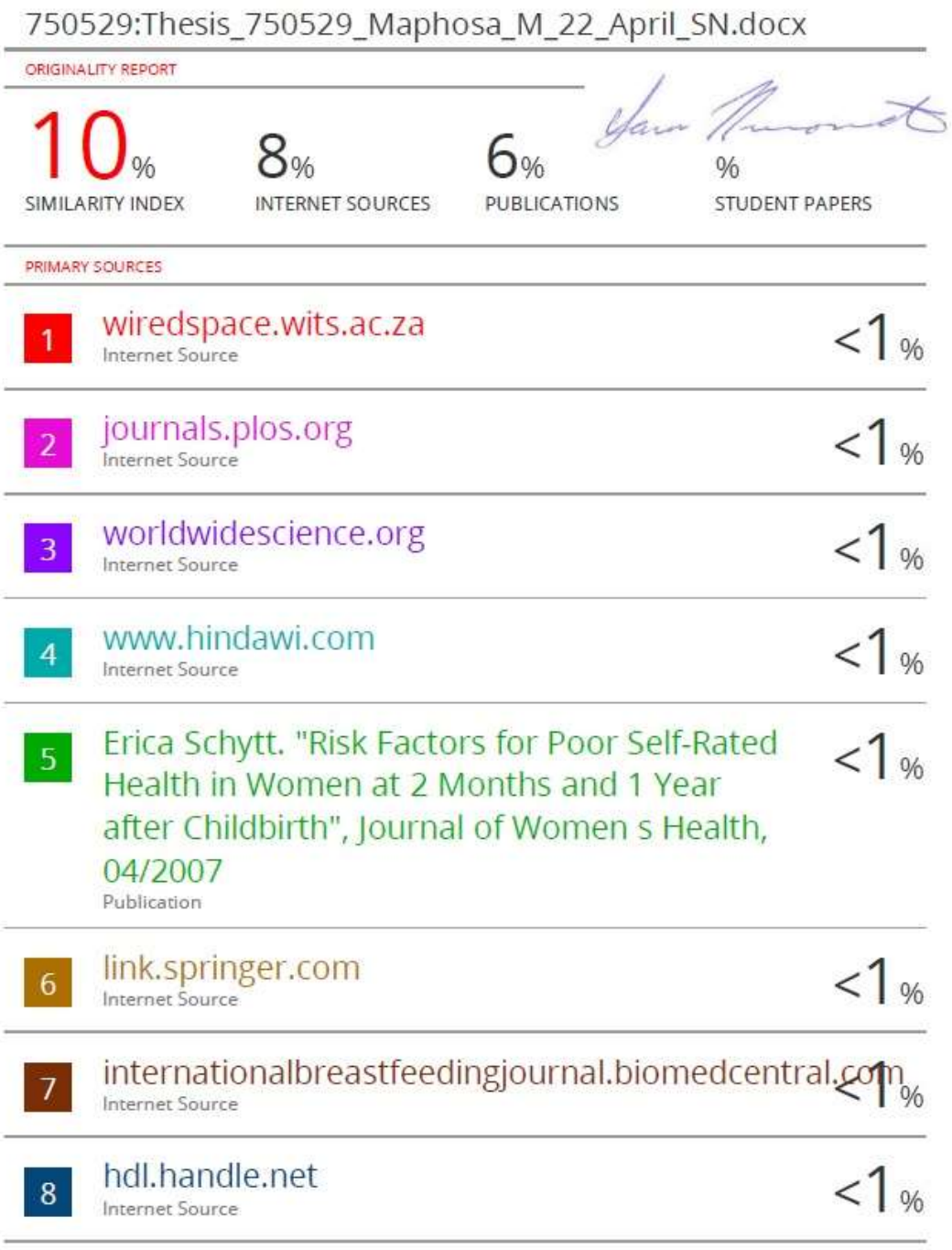
I MACKSON MAPHOSA (Student number: 750529) am a student registered for the degree of MASTER OF PUBLIC HEALTH in the academic year 2021.

I hereby declare the following:

- I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong.
- I confirm that the work submitted for assessment for the above degree is my own unaided work except where I have explicitly indicated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.
- I have included as an appendix a report from "Turnitin" (or other approved plagiarism detection) software indicating the level of plagiarism in my research document.

Signature: _____ Date: 21-4-2021

Appendix B – Turnitin Report



750529:Thesis_750529_Maphosa_M_22_April_SN.docx

ORIGINALITY REPORT

10%	8%	6%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

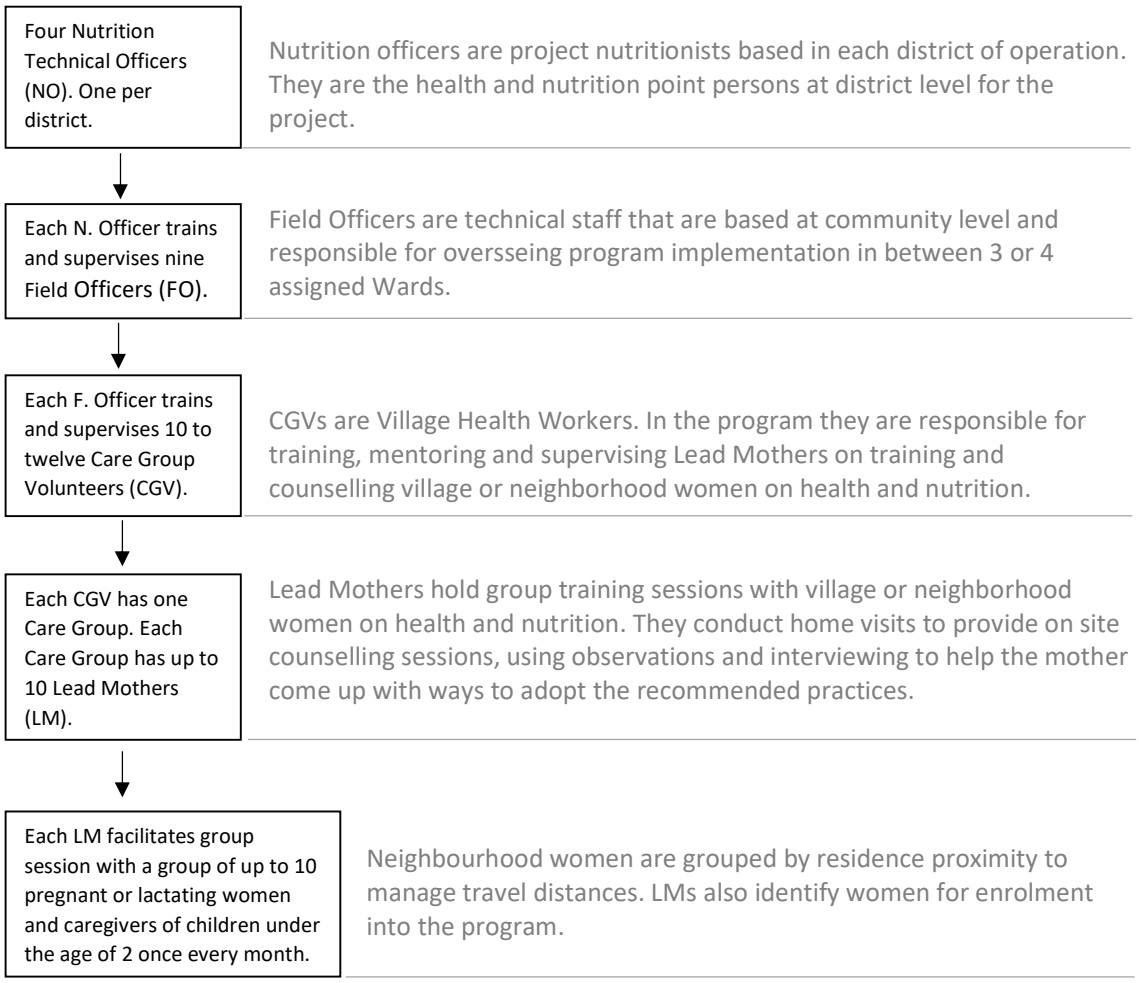
1	wiredspace.wits.ac.za Internet Source	<1%
2	journals.plos.org Internet Source	<1%
3	worldwidescience.org Internet Source	<1%
4	www.hindawi.com Internet Source	<1%
5	Erica Schytt. "Risk Factors for Poor Self-Rated Health in Women at 2 Months and 1 Year after Childbirth", Journal of Women s Health, 04/2007 Publication	<1%
6	link.springer.com Internet Source	<1%
7	internationalbreastfeedingjournal.biomedcentral.com Internet Source	<1%
8	hdl.handle.net Internet Source	<1%

Appendix C – The Care Group Model

The Amalima Care Group Intervention

The Care Group approach uses the cascade training system in which different people at different levels receive training on key topics in a given time frame and then cascade these trainings down level by level up until the information reaches neighbourhood women's groups which comprise the groups of volunteers and groups of pregnant and lactating women who need the knowledge about child feeding.

The figure below depicts the layers and cascades involved. There is one Nutrition Officer per district, 9 ward-based field officers per district, who are both paid project staff. CGVs and LMs are volunteers that cascade the trainings at village or community level.



Appendix D – The Male Champions Approach

MCs are program volunteers selected by the community and trained by Amalima in IYCF and capacitated with facilitation and negotiation for behaviour change skills (16). See Figure 1.

MC Chain of Activities

Inception
- MC receives inception training
- Recruits at least 10 men from village
- Forms football team

Cascade Trainings
- MC receives monthly training from Amalima
- Cascades monthly training to his group
- Holds football sessions with the men

7 Modules
- Continues receiving monthly trainings for 6 months
- Continues cascading to group
- Continues holding football sessions

Soccer
- Takes part in Campaign village football tournaments
- Takes part in Campaign ward football tournaments
- Forms groups to start new cycle

After being trained, each male is charged to recruit at least 10 men in his village to be his group of peers (3). The MC then attends seven one-day trainings monthly, on a specific IYCF topic facilitated by the program's Field Officers or Project Team Leaders in their communities (3). From this point, the MC proceeds to meet his peers and takes them through the same training in an interactive way for not more than 90 minutes (3). In this training short IYCF facts are presented to men along with a list of up to eight key behaviours the men can do to realize optimum care and child feeding for children (3). The men discuss the nutrition facts and debate the behaviours that are recommended for them being moderated by the MC (3). Finally, they are requested to make a commitment to the group to go and try doing the recommended behaviours (3).

MC Recommended Behaviours in Support of EBF

1. Fetch wood in bulk on own,
2. Cut and chop wood to make firewood,
3. Fetch water in bulk on own,
4. Assist in farming activities i.e., land preparation, tillage, planting, weeding, harvesting, and processing for storage,
5. Either monitor the pots while partner / wife is breastfeeding or remove pots from stove and place aside,
6. Play with other children while partner / wife is breastfeeding,
7. Talk and chat casually with wife / partner while she is breastfeeding,
8. Ask wife / partner about her lessons when she comes back from attending Care Group lessons.

Appendix E – The Data Collection Tool

750529 Questionnaire

Interviewer: _____ Checked by: _____ Captured By: _____ Date of capture: _____	**Intervention Area** MC Identifier: _____ Respondent Identifier: _____ Ward: _____ Village: _____ Sample No.: _____
Date of Interview: _____/_____/_____ Day / Month / Year Date of follow up: _____/_____/_____ Rechecked by: _____	**Comparison Area** CG Identifier: _____ Respondent Identifier: _____ Ward: _____ Village: _____ Sample No.: _____

Fill identifiers using given list provided.

INSTRUCTIONS

Greet the respondent and thank her for agreeing to participate in the study. Present yourself and talk about the purpose of your visit. Reassure her of confidentiality and remind her that she can discontinue the interview at any point for whatever reason or if she feels uncomfortable. After ensuring that the household representative understands the purpose of the visit, cordially request for a quiet place where she would be comfortable to have the interview.

PART 1: Demographics and Background

No.	Questions, instructions, and filters	Response Options	Routing Options
1.	What is your age?	_____	
2.	Education level	a.) Primary level ☐ b.) Secondary level ☐	

		c.) Advanced level ☐ d.) College and above ☐ e.) No education ☐	
3.	Marital status *Discontinue interview for single, divorced and widowed women.*	a.) Single ☐ b.) Married ☐ c.) Cohabiting ☐ d.) Divorced ☐ e.) Widowed ☐	
4.	Have you ever been a Care Group member? *Discontinue interview for No response.*	a.) Yes ☐ b.) No ☐	
5.	Are you currently a Care Group member?	a.) Yes ☐ b.) No ☐	If No skip to Q7. If Yes skip Q7.
6.	How long were you a member for? *(indicate time unit, e.g. weeks)*	_____	
7.	How long have you been a member of a Care Group? *(indicate time unit, e.g. weeks)*	_____	Skip to Q8 for Yes in Q5.
8.	Have you taken part in other infant & young child nutrition programs besides Amalima in the past three years?	a.) Yes ☐ b.) No ☐	
9.	Do you live with your mother-in-law?	a.) Yes ☐ b.) No ☐	
10.	Do you live with your sister-in-law?	a.) Yes ☐ b.) No ☐	
11.	Do you live with your mother?	a.) Yes ☐ b.) No ☐	
12.	Do you live together with your husband / partner?	a.) Yes ☐ b.) No ☐	
13.	How old is your husband / partner?	_____	

No.	Questions, instructions, and filters	Response Options	Routing Options
14.	Are you employed?	a.) Yes ☐ b.) No ☐	
15.	What is your source of income? *Multiple choices allowed*	a.) Casual agricultural labour ☐ b.) Casual non-agricultural labour ☐ c.) Subsistence farmer ☐ d.) Immigrant worker ☐ e.) Skilled builder ☐ f.) Cross border trader ☐ g.) Formal employment ☐ h.) Other. Specify? ☐ _____	
16.	Is your husband / partner employed?	a.) Yes ☐ b.) No ☐	
17.	What is your husband's / partner's source of income? *Multiple choices allowed*	a.) Casual agricultural labour ☐ b.) Casual non-agricultural labour ☐ c.) Subsistence farmer ☐ d.) Immigrant worker ☐ e.) Skilled builder ☐ f.) Cross border trader ☐ g.) Formal employment ☐ h.) Other. Specify? ☐ _____	
18.	Is your husband ordinarily away from home?	a.) Yes ☐ b.) No ☐	If No skip to Q20.
19.	For how long is your husband ordinarily away from home?	_____	
20.	What kind of household do you live in?	a.) Husband's family home ☐ b.) Parent's homestead ☐ c.) Other relative's homestead ☐ d.) Own homestead ☐ e.) Other. Specify? ☐	If 'own homestead' skip to Q22.

		_____	
21.	How many rooms does the homestead have?	_____	
22.	How many children do you have? *Ask for babies name given in category 22.a and/or 22.b. Use it to refer to child in questions and probing. If respondent has a child in both categories, select 22.a Collect up to 16 year olds.*	a.) No. of children aged 0-5 months: _____ b.) No. of children aged 6-23 months: _____ c.) No. of children aged 24-59 months: _____ d.) Above 59 months: _____ e.) Total: _____	
23.	When was each of the children born?	a.) _____ _____ Month Year b.) _____ _____ Month Year c.) _____ _____ Month Year d.) _____ _____ Month Year e.) _____ _____ Month Year f.) _____ _____ Month Year g.) _____ _____ Month Year h.) _____ _____ Month Year	

No.	**Questions, instructions, and filters**	**Response Options**	**Routing Options**
24.	Do you and your husband own livestock?	a.) Yes ☐ b.) No ☐	If No, skip to Q28.
25.	How many cattle do you have?	_____	

26.	How many goats and sheep do you have?	_____	
27.	How many chickens do you have?	_____	
28.	On average, how much money does your family make monthly? *Draw amounts in ZAR or RTGS$ by source of income.*	Source 1 _____ _____ Source 2 _____ _____ Source 3 _____ _____	
29.	Do you receive remittances from other family members outside the country?	a.) Yes ☐ b.) No ☐	
30.	Which of these assets do you have in your household? *Call out and tick off.*	a.) Cart ☐ b.) Ox drawn plough ☐ c.) Wheelbarrow ☐ d.) Household agric tools ☐ e.) Cultivator ☐ f.) Ripper plough ☐ g.) Solar equipment ☐ h.) Radio ☐ i.) Television ☐ j.) Motorized vehicle ☐ k.) Grinding mill ☐ l.) Other. Specify? ☐ _____ _____ _____	

PART 2 – Exclusive Breastfeeding

If the child is older than 5 months skip this entire section to question 37.

Add child's name here: _____

No.	Questions, instructions and filters	Response Options	Routing Options
31.	In what month and year was _____ born?	_____ _____ Month Year	
32.	Before giving birth to _____, how many times did you go to the clinic for ANC?	_____	

	Question is about the recent birth, the core baby under investigation.		
33.	Did you ever breastfeed _____?	a.) Yes ☐ b.) No ☐	If No skip to Q34; If Yes to Q35
34.	Please tell me why you did not breastfeed? *Close interview if given response a.*	a.) Medical condition ☐ b. Other ☐ Specify? _____ _____ _____	*Skip to Section 3 if given b, if respondent has another child aged below 23 months. Skip to section 4 if she does not.*
35.	How long after birth did you first put _____ to the breast? *Tick appropriate category from response given.*	a.) Within first hour of birth ☐ b.) Within a few hours ☐ c.) After a few days ☐ d.) Don't know / Don't remember ☐	
36.	Was the baby given anything else to feed in the first day he/she was born?	a.) Yes ☐ b.) No ☐ c.) Don't know ☐	
37.	If yes, what was the baby given? *Do not call out responses. Ask respondent to list all foods given. Tick off multiple possible responses as they are given.*	a.) Plain Water or with additives ☐ b.) Drops of oil ☐ c.) Milk from a wet nurse ☐ d.) Infant formula ☐ e.) Any other milk ☐ f.) Liquid or semi-liquid traditional medicine ☐ g.) Other ☐ Specify? _____ _____ _____	
38.	Was _____ traditionally treated for the fontanelle? (*U____ wetheswa inkanda na?)*	a.) Yes ☐ b.) No ☐ c.) Don't know ☐	
39.	If yes, how was this done?	_____ _____	

		_____ _____ _____	
No.	**Questions, instructions and filters**	**Response Options**	**Routing Options**
40.	In the first few weeks after delivery, was _____ given anything to drink other than breast milk?	a.) Yes ☐ b.) No ☐ c.) Don't know ☐	
41.	If yes above, what was _____ given to drink? *Do not call out responses. Tick off multiple possible responses as they are given.*	a.) Plain Water or with additives ☐ b.) Drops of oil ☐ c.) Milk from a wet nurse ☐ d.) Infant formula ☐ e.) Any other milk ☐ f.) Liquid or semi-liquid traditional medicine ☐ g.) Thin soup or broth ☐ h.) Thin porridge ☐ i.) Fruit juices / other drinks ☐ j.) Tea or Coffee ☐ k.) Other ☐ Specify? _____ _____ _____	
42.	Please list all the liquids, foods and traditional medicines you have fed _____ since his/her birth? *Do not call out responses. Tick off multiple possible responses as they are given.*	a.) Plain Water or with additives ☐ b.) Drops of oil ☐ c.) Milk from a wet nurse ☐ d.) Infant formula ☐ e.) Goat and/or cow's milk ☐ d.) Thin soup or broth ☐ e.) Thin porridge (inembe) ☐ f.) Fruit juices / other drinks ☐ g.) Tea or Coffee ☐ h.) Other ☐ Specify? _____ _____ _____	
43.		a.) Yes ☐ b.) No ☐	

	Has _____ been given any liquid or semi-liquid traditional medicine since he/she was born?		

24 Hour Recall - *Ask respondents to think about what they fed their child the previous day. Ask them to give their responses basing on how they fed their child the previous day.*

No.	Questions, instructions and filters	Response Options	Routing Options
45.	Did _____ drink any liquids yesterday? *Do not call out responses. Tick off multiple possible responses as they are given.*	a.) Breastmilk ☐ b.) Plain Water or with additives ☐ c.) Drops of oil ☐ d.) Milk from a wet nurse ☐ e.) Infant formula ☐ f.) Any other milk ☐ g.) Liquid or semi-liquid traditional medicine ☐ h.) Fruit juices / other drink ☐ i.) Tea or Coffee ☐ j.) Other ☐ Specify? _____ _____ _____	
46.	Did _____ drink anything from a bottle with a teat yesterday or last night?	a.) Yes ☐ b.) No ☐	
47.	Did _____ eat any solid or semi-solid food yesterday during the day or night?	a.) Thin porridge ☐ b.) Thin soup or broth (isobho) ☐ c.) Melon broth (inkovu) ☐ d.) Pap with soup ☐ e.) Fermented maize meal drink (amahewu) ☐ f.) Purchased baby cereals ☐ g.) Other ☐ Specify? _____ _____ _____	

PART 3 – Past Successful Exclusive Breastfeeding

*This section is for women with children **above 5 months in age**. If the child is 5 months and below skip the entire section to question 54.*
*If respondent with child **under 5 months** also has another **below 23 months**, proceed and administer for the older child.*

Add child's name here: _____

No.	Questions, instructions, and filters	Response Options	Routing Options
48.	In what month and year was _____ born?	_____ Month _____ Year	
49.	Did you ever breastfeed _____?	a.) Yes ☐ b.) No ☐	
50.	How long after birth did you first put _____ to the breast? *Tick appropriate category from response given.*	a.) Within first hour of birth ☐ b.) Within a few hours ☐ c.) After a few days ☐ d.) Don't know / Don't remember ☐	
51.	Was the baby given anything else to feed on at this time?	a.) Yes ☐ b.) No ☐ c.) Don't know ☐	
52.	If yes, what was the baby given? *Do not call out responses. Ask respondent to list all foods given. Tick off multiple possible responses as they are given.*	a.) Plain Water or with additives ☐ b.) Drops of oil ☐ c.) Milk from a wet nurse ☐ d.) Infant formula ☐ e.) Any other milk ☐ f.) Liquid or semi-liquid traditional medicine ☐ g.) Other ☐ Specify? _____ _____ _____	
53.	Was _____ traditionally treated for the fontanelle?	a.) Yes ☐ b.) No ☐ c.) Don't know ☐	

54.	If yes, how was this done?	_____ _____ _____ _____	

No.	Questions, instructions and filters	Response Options	Routing Options
55.	In the first few weeks after delivery, was _____ given anything to drink other than breast milk?	a.) Yes ☐ b.) No ☐ c.) Don't know ☐	
56.	If yes above, what was _____ given to drink? *Do not call out responses. Tick off multiple possible responses as they are given.*	a.) Plain Water or with additives ☐ b.) Drops of oil ☐ c.) Milk from a wet nurse ☐ d.) Infant formula ☐ e.) Any other milk ☐ f.) Liquid or semi-liquid traditional medicine ☐ g.) Thin soup or broth ☐ h.) Thin porridge ☐ i.) Fruit juices / other drinks ☐ j.) Tea or Coffee ☐ k.) Other ☐ Specify? _____ _____ _____	
57.	Please list all the foods you fed _____ in the period from his/her birth up until he/she reached six months in age? *Do not call out responses. Tick off multiple possible responses as they are given.*	a.) Plain Water or with additives ☐ b.) Drops of oil ☐ c.) Milk from a wet nurse ☐ d.) Infant formula ☐ e.) Goat and/or cow's milk ☐ f.) Thin soup or broth ☐ g.) Thin porridge (inembe) ☐ h.) Fruit juices / other drinks ☐ i.) Tea or Coffee ☐ j.) Other ☐ Specify? _____ _____	

		_____	
58.	Was _____ been given any liquid or semi-liquid traditional medicine from the time he/she was up until he/she reached six months in age?	a.) Yes ☐ b.) No ☐	
59.	How old was he/she when you first give him/her porridge?	_____	
60.	How old was he/she when you first give him/her water and other liquids? *Call out examples from list provided to explain what other liquids mean.*	_____	
61.	Is he/she still being breastfed?	a.) Yes ☐ b.) No ☐	If no, next question, if yes skip to Q63.
62.	How old was _____ when you stopped breastfeeding?	_____	

PART 4 – Child Minding

NB: *For mothers with children above 5 months in age, ask them to recall about the period when the children were between 0 and 5 months in age.*

No.	Questions, instructions, and filters	Response Options	Routing Options
63.	Do/did you use child minders?	a.) Yes ☐ b.) No ☐	If No skip to Q69.
64.	How often do/did you leave _____ with child minders?	a.) Once a week ☐ b.) Twice a week ☐ c.) More than twice a week ☐ d.) Once a month ☐ e.) Never ☐	
65.	How long do/did you leave the child with the child minder?	_____	

66.	Who do/did you leave _____ with? Multiple responses possible	a.) Husband / partner ☐ b.) Mother-in-law ☐ c.) Mother ☐ d.) Sister ☐ e.) Child's paternal aunt ☐ f.) Child's older sibling ☐ g.) Crèche ☐ h.) Other ☐ Specify? _____ _____ _____	
67.	Do you know what _____ is/was fed during the time he/she is/was with the child minder?	a.) Yes ☐ b.) No ☐ c.) Don't know ☐	If yes, go to next question.
68.	What is/was _____ given fed by child minders?	a.) Plain Water or with additives ☐ b.) Expressed milk ☐ c.) Milk from a wet nurse ☐ d.) Infant formula ☐ e.) Any other milk ☐ f.) Pap with broth or soups ☐ g.) Thin soup or broth ☐ h.) Thin porridge ☐ i.) Fruit juices / other drinks ☐ j.) Tea or Coffee ☐ k.) Other ☐ Specify? _____ _____ _____	

No.	Questions, instructions, and filters	Response Options				
		Tick response given. ✓				
73.	My husband / partner always either monitors the pots for me or removes the pots from stove while I am breastfeeding.	Strongly Agree 5	Agree 4	Neither agree nor disagree 3	Disagree 2	Strongly Disagree 1
74.	My husband / partner plays with my other children while I am breastfeeding.	Strongly Disagree 1	Disagree 2	Neither agree nor disagree 3	Agree 4	Strongly Agree 5
75.	My husband / partner talks and chats casually with me while I am breastfeeding.	Strongly Agree 5	Agree 4	Neither agree nor disagree 3	Disagree 2	Strongly Disagree 1
76.	My husband / partner always asks about my lessons when I come back home from attending Care Group lessons.	Strongly Disagree 1	Disagree 2	Neither agree nor disagree 3	Agree 4	Strongly Agree 5
77.	My husband / partner knows how a child is nurtured from birth till they reach 6 months in age.	Strongly Disagree 1	Disagree 2	Neither agree nor disagree 3	Agree 4	Strongly Agree 5
78.	My husband / partner regularly comments in discussions with family members about how our baby should be fed.	Strongly Agree 5	Agree 4	Neither agree nor disagree 3	Disagree 2	Strongly Disagree 1

Appendix F – Clearance Certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

R14/49 Mr Mackson Maphosa

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M1911161

NAME: (Principal Investigator)	Mr Mackson Maphosa
DEPARTMENT:	Public Health Tsholotsho District, Zimbabwe
PROJECT TITLE:	Father's involvement in child feeding and the adoption of exclusive breastfeeding by mothers in rural Zimbabwe: A quasi-experimental study
DATE CONSIDERED:	29/11/2019
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Dr Sara Nieuwoudt and Mrs Pamela Ncube-Murakwani
APPROVED BY:	CB Penny Dr CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	07/02/2020

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary on the Third Floor, Faculty of Health Sciences, Phillip Tobias Building, 29 Princess of Wales Terrace, Parktown, 2193, University of the Witwatersrand. I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report**. The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in **November** and will therefore be due in the month of **November** each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature

Date 10-02-2020

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix G – Information Sheet on Study

Hello madam!

My name is _____ (Recruiting Field Officer Name). I am a Field Officer supporting Mackson Maphosa, a colleague, is doing a study to explore how fathers' involvement in child feeding is a factor in women's' adoption of exclusive breastfeeding, as part of the conditions necessary in partial fulfillment of the Masters in Public Health with the University of Witwatersrand in South Africa.

We would like to invite you to be a participant in the study. However, before you decide whether or not to participate, we would like you to understand more about the research and what it involves.

Purpose of the study

The study seeks to help us understand what influence male involvement in infant and young child nutrition has on women's ability to adopt exclusive breastfeeding. We intend to do this by evaluating the Amalima *Indoda Emadodeni* Male Champions Campaign. This will be done by comparing the views of women from the Male Champion campaign wards to those of women from the non-male champion wards in the Amalima program area, about exclusive breastfeeding and the nature of support from spouses or partners.

Participants

Mothers who have children between 0-23 months of age can participate. They must be 21 years old or older but below the age of 49. We wish to talk to a total of about 700 women here in Tsholotsho district.

What you will be asked if you participate in the study

If you decide to participate, a trained interviewer will interview you privately in a room either at the local community hall, clinic or place where you regularly hold Amalima trainings; at a time and date that you will set at the end of this conversation should you agree to participate. The interviewer will ask a series of questions about your child, your homestead, and husband. The interviewer will ask you questions about how you feed your child or have fed him or her in the past.

Risks for participating in the study

There are almost no risks for participating in this study. This is because we will just obtain information from you through questions. This is not a test of how much you know. It is only intended to help us gather information about how you feed your baby and about your husband's performance of specific household activities such as fetching water and chopping wood. This is information will help us learn more about how to improve the feeding of children. You may feel some discomfort from answering questions for about an hour or

two, or perhaps be uncomfortable due to the questions. We will try to minimize any discomfort as much as we can. However, if you feel uncomfortable at any moment during the interview, please tell the interviewer or supervisors. Moreover, you can choose to stop the interview at any point should you so wish.

Benefits for participating in the study
There will not be any direct benefit to you. However, the information from this study will the potential to benefit many women and children in the future, because it could be used to help improve future nutrition programs for young children.

Participation in this study is completely voluntary.

You have the right to say no if you do not wish to participate. If you participate, remember you also have the right to leave the study at any time. You are also not compelled to answer any question that you do not wish to answer.

Confidentiality

The information you will provide during the interview is strictly confidential. It will only be available to Mackson Maphosa and his supervisors. Only anonymous information will be shared with Amalima program managers or the donors on request. To ensure confidentiality, the information will be kept without names and if the results are published or presented no names will be used as well.

If you have any questions about the study, you are welcome to ask the Mackson Maphosa at any time. You can also ask the local supervisor for the study, Mrs. Pamela Murakwani as well. Mackson Maphosa is reachable on 0772779655 while Pamela can be reached on 0774777228.

If you decide to take part in the study, you will be asked to read and sign a consent form on the day of the interview. This form will show and confirm that you willingly accept to participate in the study.

After signing the consent form, this will mean that:

- You have read and understood the information in the consent form
- You have addressed any concerns and questions with the interviewer.
- You decided to participate in the study out of your own free volition.
- In signing, you also understand that you are not wavering any of your legal rights.

Ethical Clearance

This study has been approved by the Human Research Ethics Committee (Medical) of the University of the Witwatersrand, Johannesburg (“Committee”). A principal function of this Committee is to safeguard the rights and dignity of all human subjects who agree to

participate in a research project and the integrity of the research. The reference is M1911161.

If you have any concern over the way the study is being conducted, please contact the Chairperson of this Committee who is Professor Clement Penny, who may be contacted on telephone number 011 717 2301, or by e-mail on Clement.Penny@wits.ac.za. The telephone numbers for the Committee secretariat are 011 717 2700/1234 and the e-mail addresses are Zanele.Ndlovu@wits.ac.za and Rhulani.Mukansi@wits.ac.za

Distress Protocol

In the unlikely event that the interview makes you very uncomfortable and distressed, we have engaged the local primary healthcare centers to provide professional counselling to you. Our team members will immediately stop the interview and transport you to the clinic and also bring you back home after the session.

Below is a list of the clinics and the respective counsellors who will provide this service.

List of Clinics and Counselors

Ward	Clinic	Counselor	Contact	Designation
1	Samahuru Clinic	Sister Sithole	0772964791	Nurse in charge
2	Dlamini Clinic	Thamsanqa Dhlomo	0772571313	Nurse
3	Mtshwayeli Clinic	Nonhlanhla Mlalazi	0773534826	Nurse
4	Mlagisa Clinic	Everjoy Ndou	0773269157	Nurse
5	Sipepa Clinic	Sister Dzuke	0784245332	Nurse in charge
6	Jimila Clinic	Patience Moyo	0715868709	Nurse
7	Pumula	Catherine Ngwane	0775707786	Nurse
8	Sikente Clinic	Sister Bhebhe	0774401264	Nurse in charge
9	Mpanedziba Clinic	Misozi Ndlovu	0771161853	Nurse
10	Sikente Clinic	Sister Bhebhe	0774401264	Nurse in charge
11	Sikente Clinic	Sister Bhebhe	0774401264	Nurse in charge
12	Tsholotsho Urban	Pascar Ncube	0717485423	Nurse
13	Tsholotsho Urban	Pascar Ncube	0717485423	Nurse
14	Makaza Clinic	Sister Garira	0773212465	Nurse in charge
15	Makaza Clinic	Sister Garira	0773212465	Nurse in charge
16	Shaba Clinic	Hlengiwe Mpofu		Nurse
17	Bubude Clinic	Sister Nkiwane		Nurse in charge
18	Nkunzi Clinic	Thabani Nyathi		Nurse
19	Chefunye Clinic	Mduduzi Gumpo		Nurse
20	Nkunzi Clinic	Thabani Nyathi		Nurse

Appendix H – Informed Consent Form (English)

I _____
Name and Surname
willingly agree to participate in this study. The purpose and methodology of the study have been explained to me and I have understood them. I understand that this means that I agree to being interviewed in-depth.

I accept to participate in this study on condition that:

1. I can withdraw from participation at any point of my choosing.
2. I am not compelled to answer any question and can choose not to respond.
3. The Ministry of Health and The University of the Witwatersrand have approved that the study be done.
4. My participation will be anonymous and the information I give treated with great confidentiality.
5. The grouped results from all participants and not my individual results will be shared and/or published.
6. The interview will be done in a private and safe area.
7. If I should become uncomfortable, counselling will be provided to me.
8. There is no remuneration for my participation.

Study Participant:

_____	_____	_____
Printed name and surname	Signature	Date

Research Assistant:

_____	_____	_____
Printed name and surname	Signature	Date

Appendix I – Bi-variate Analysis for Exclusive Breastfeeding

Factor	Mothers with Children Under 6		Mothers with Children Over 6	
	X^2	P-value	X^2	P-value
Study area	0.5	0.468	0.7	0.397
Mothers' Age	0.04	0.847	7.8	0.005
Education	2.7	0.262	2.6	0.459
Care Group Membership Status	2.8	0.097	3.5	0.061
Care Group Membership Duration	0.4	0.543	3.9	0.049
Exposure to other similar programs	0.1	0.814	1.9	0.169
Residence with mother-in-law	0.4	0.527	0.01	0.943
Residence with sister-in-law	0.2	0.636	2.0	0.157
Residence with mother	1.1	0.305	0.1	0.732
Residence with husband or partner	0.1	0.729	0.9	0.339
Husband or Partner Age	9.3	0.156	17.3	0.008
Mothers' employment status	0.3	0.584	0.1	0.794
Couple age difference	16.3	0.061	12.2	0.589
Length of time spent away by husband	0.4	0.994	4.7	0.454
Living in own homestead	0.3	0.607	5.9	0.015
Number of rooms in homestead	10.3	0.174	11.9	0.454
Parity	0.3	0.585	1.4	0.239
Number of antenatal care clinic visits	11.8	0.457	-	-
Total monthly household income	0.3	0.959	3.6	0.466
Time taken to Initiate breastfeeding	9.7	0.022	20.4	0.0001
The Practice of Bottle Feeding	15.4	0.0001	-	-
The Practice of Treating the Fontanelle	10.59	0.001	24.6	0.0001
Giving traditional medicine	18.2	0.0001	68.5	0.0001
Use of child minders	0.0001	0.991	1.9	0.167
Frequency of using child minders	2.1	0.726	2.4	0.665
Women's satisfaction with partner involvement	19.0	0.0001	7.9	0.005
Effective women's satisfaction	2.0	0.152	0.9	0.346

Appendix J – Other Findings

Practices Leading to the Failure to Exclusively Breastfeed (additional analysis)

Further analysis was conducted to explore which liquids and/or foods were introduced to infants in the first six months, as well as the timing of that introduction, to inform future programming. This has been placed among the appendices as this analysis was not central to the research objectives presented in Chapter 1.

Almost all women managed to exclusively breastfeed on the day their infants were born. Overall, 2.3% of the research participants failed to exclusively breastfeed during this period.

TABLE 15 Exclusive Breastfeeding on the Day the Infant was Born

	Control		Intervention		Total	
Day of birth	n	%	n	%	n	%
EBF Achieved	85	**96.6**	84	**98.8**	169	**97.7**
EBF Not achieved	3	3.4	1	1.2	4	2.3
Total	88	100	85	100	173	100

Those that failed to exclusively breastfeed at this time gave their babies infant formula (n = 1, 0.6%), plain water or water with additives (n = 2, 1.2%) and other foods or liquids (n = 1, 0.6%). However, in the first few weeks post-birth, 17.9% of the overall sample of mothers with children under six months of age failed to exclusively breastfeed.

TABLE 16 Exclusive Breastfeeding in the First Few Weeks Post-birth

	Control		Intervention		Total	
First weeks	n	%	n	%	n	%
EBF Achieved	73	82.9	69	81.2	142	82.1
EBF Not achieved	15	17.1	16	18.8	31	17.9
Total	88	100	85	100	173	100

As shown in Table 17, in the first weeks of life, 15.0% failed to EBF because of giving plain water or water with additives to their babies. A large proportion (83.9% of those who failed to EBF at this time) of the mothers failed to exclusively breastfeeding due to giving their infant water or water with additives. Very few mothers in this time gave other things such as drops of oil (1.2%), infant formula (1.2%), goat or cow's milk (0.6%) and other foods or liquids (1.2%).

TABLE 17 Practices Leading to the Failure to EBF in the First Few Weeks Post-birth

Practice	Control		Intervention		Total	
	n	%	n	%	n	%
Giving water/water with additives	14	15.9	12	14.1	26	15.0
Giving infant formula	1	1.1	1	1.2	2	1.2
Giving goat or cow's milk	-	-	1	1.2	1	0.6
Other foods or liquids	-	-	2	2.4	2	1.2

From birth until the time the infant reached six months in age the biggest cause for the failure to exclusively breastfeed was the practice of giving the infants water or water with additives, that is 26.7% of mothers in the under six study group. (see Figure 09) The second biggest cause for failure to adopt EBF was the practice of giving the infants thin porridge. Other causes were reported by very few women and included giving drops of oil, infant formula, goat or cow's milk, fruit juices or other drinks, and tea or coffee. (see Table 18)

TABLE 18 Practices Leading to the Failure to EBF Since Birth in Sample of Mothers with Infants below Six Months in age

Practice	Control n = 88		Intervention n = 85		Total n = 173	
	n	%	n	%	n	%
Giving water/water with additives	23	26.1	23	27.1	46	26.7
Giving drops of oil	3	3.4	-	-	3	1.7
Giving infant formula	2	2.3	1	1.2	3	1.7
Giving thin porridge	4	4.6	6	7.1	10	5.8
Giving goat or cow's milk	3	3.4	3	3.5	6	3.5
Giving thin soup or broth	-	-	-	-	-	-
Giving fruit juices or other drinks	-	-	6	7.1	6	3.5
Giving tea or coffee	-	-	-	-	-	-
Other	2	2.3	2	2.4	4	2.3

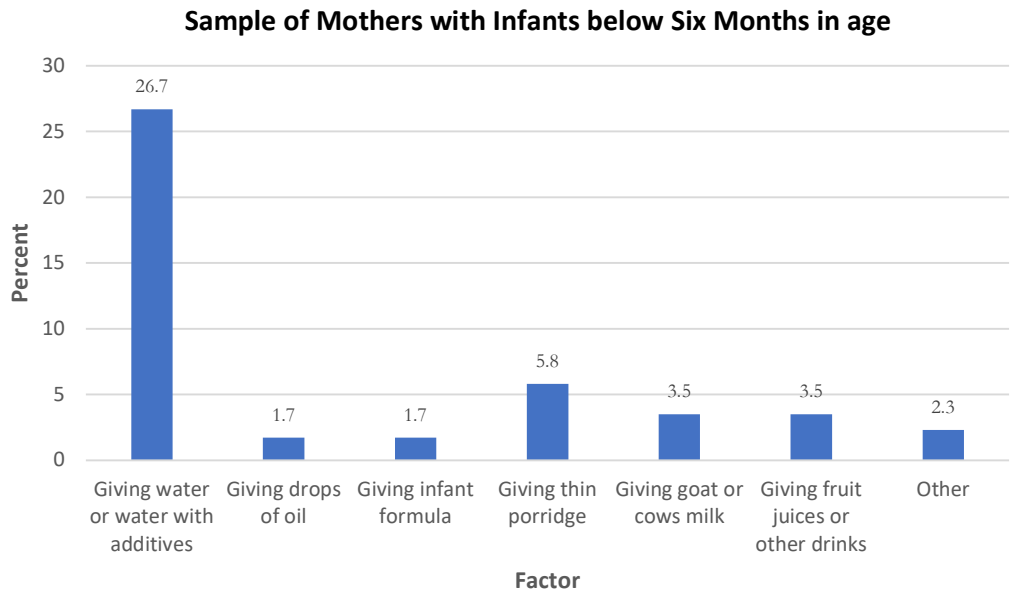


FIGURE 09 Reasons for Failure to Exclusively Breastfeed from Birth

In the sample of mothers with children over the age of six months, the practice of giving infants water or water with additives was also the leading cause of failure to exclusively breastfeed, with 33.7% of the mothers reporting this practice. (see Figure 10) The proportions of mothers reporting this practice was similar in both the intervention and control groups (i.e., 34.1% and 33.4% respectively). (see Table 19) Compared to the sample of mothers with children under six months in age, this practice was slightly less pronounced with 26.1% reporting practising it in the control group and 27.1% in the intervention group.

TABLE 19 Practices Leading to the Failure to EBF Since Birth in Sample of Mothers with Infants above Six Months in age

Practice	Control n = 383		Intervention n = 270		Total n = 653	
	n	%	n	%	n	%
Giving water/water with additives	128	33.4	92	34.1	220	33.7
Giving drops of oil	3	0.8	2	0.7	5	0.8
Giving infant formula	6	1.6	10	3.7	16	2.5
Giving thin porridge	49	12.8	36	13.3	85	13.0
Giving goat or cow's milk	3	0.8	5	1.9	8	1.2
Giving thin soup or broth	4	1.0	-	-	4	0.6
Giving fruit juices or other drinks	2	0.5	2	0.7	4	0.6
Giving tea or coffee	3	0.8	-	-	3	0.5
Other	26	6.8	22	8.2	48	7.4

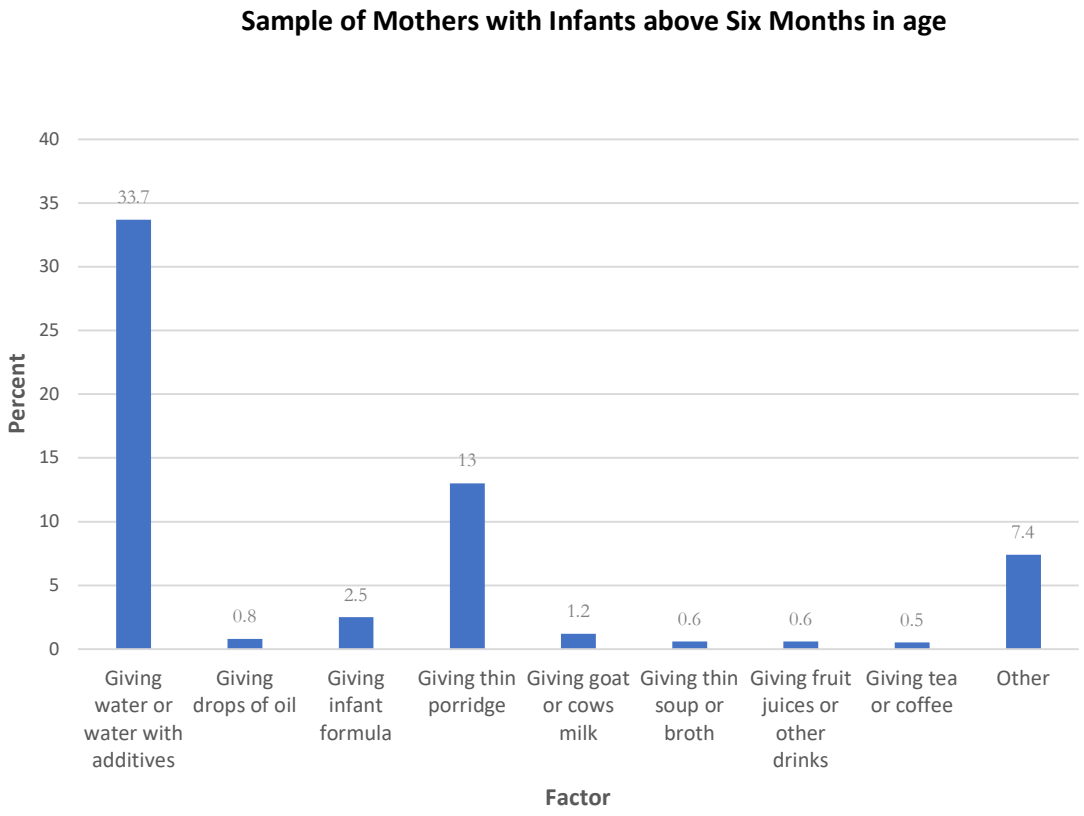


FIGURE 10 Reasons for Failure to Exclusively Breastfeed from Birth

Like the first sample, the second biggest cause for failure to adopt EBF in this study sample was the practice of giving the infants thin porridge. Overall, 13.0% of women in the sample with mothers with children aged above six months in age reported giving thin porridge to their children. The third chief cause was giving other foods or drinks, reported by 7,4% of women in this study group.

Women reported other causes in this study group including giving drops of oil, giving infant formula, giving thin porridge, giving goat or cow's milk, giving thin soup or broth, giving fruit juices or other drinks, and giving tea or coffee. However, these practices were reported by very few women. (see Table 19) None of the mothers reported giving thin soup or broth and giving tea or coffee in the under six study group compared with 0.6% an 0.5% respectively in the over six group.

The Practice of Using Child Minders (additional analysis)

Overall, 37.6% of all the research participants use or used a child minder before their infants reached the age of six months. Of these, 70.8% use or used child minders two or more times per week.

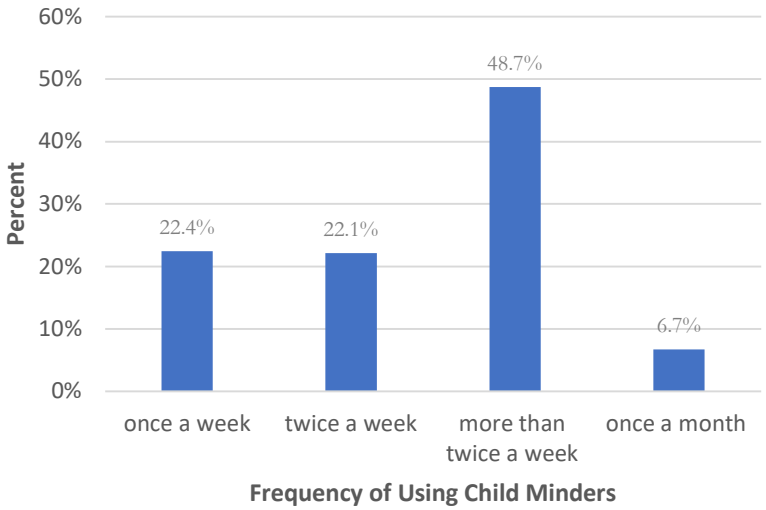


FIGURE 11 The Frequency of the Use of Child Minders

The majority (68.1%) left the infant with the child minder for a period of up to 1 hour, while 27.6% left the child with the minder from above an hour up to three hours.

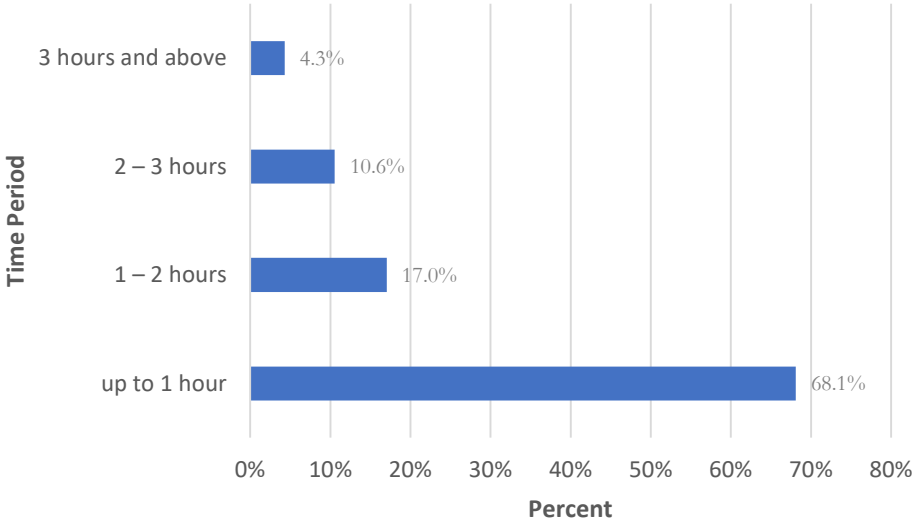


FIGURE 12 The Amount of Time Infants are Left with Child Minders

During this time however, no mothers reported expressing and leaving milk for the baby to be fed. Among mothers with infant above the age of 6 months, 34.2% reported that they did not know what their babies were fed or given during the time they left them with child minders while 28.1% reported not having knowledge of what the child was fed among mothers with children below six months. Child minding was however not found to have an association with the adoption of exclusive breastfeeding.