

**BARRIERS TO COMPLIANCE TO EXCLUSIVE BREASTFEEDING AND TIMELY  
INTRODUCTION OF COMPLEMENTARY FEEDING PRACTICES IN ETHIOPIA**

by

**MESFIN TESFAY TEKLE**

submitted in accordance with the requirements

for the degree of

**MASTER OF PUBLIC HEALTH**

at the

**UNIVERSITY OF SOUTH AFRICA**

**SUPERVISOR: PROF LM MODIBA**

November 2015

Student number: 45 100 365

## DECLARATION

I declare that **BARRIERS TO COMPLIANCE WITH EXCLUSIVE BREASTFEEDING AND TIMELY INTRODUCTION OF COMPLEMENTARY FEEDING PRACTICES IN ETHIOPIA** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.



Mesfin Tesfay

**SIGNATURE**

(Mesfin Tesfay Tekle)

28 November 2015

**DATE**

# **BARRIERS TO COMPLIANCE WITH EXCLUSIVE BREASTFEEDING AND TIMELY INTRODUCTION OF COMPLEMENTARY FEEDING PRACTICES IN ETHIOPIA**

STUDENT NUMBER: 45 100 365  
STUDENT NAME: MESFIN TESFAY TEKLE  
DEGREE: MASTER OF PUBLIC HEALTH  
DEPARTMENT: HEALTH STUDIES, UNIVERSITY OF SOUTH AFRICA  
SUPERVISOR: PROF LM MODIBA

## **ABSTRACT**

This study aimed at exploring Barriers to compliance with exclusive breastfeeding and timely introduction of complementary feeding practices in Ofla District, Tigray Region in Ethiopia.

A quantitative exploratory descriptive study was conducted to explore and describe the barriers that restrict mothers /caregivers to comply with exclusive breast feeding practice until six months and with introduction of solid, semi-solid and soft foods at six months in Ofla District. Data were collected using structured questionnaire, from a total of 112 samples of which 75 mothers and care givers with children aged 0-5 months and 38 children aged 6-8 months participated. The data were entered into a computer and analysed though the Statistical Package for Social Sciences (SPSS) software.

The findings revealed that there are barriers related Doer mothers and Non-Doer mothers perceived susceptibility, perceived severity, perceived benefits, perceived barriers, perceived self-efficacy, cues for actions, perceived social acceptability and positive and negative attitudes towards exclusive breastfeeding and initiation of complementary feeding. On the other hand, the participant's perception of both groups with regard to perception of Divine (God's) Will on two child feeding practices was insignificantly the same. Both groups perceived that children could get sometimes malnourished because of spiritual or supernatural causes.

## **KEY WORDS**

Exclusive breastfeeding; initiation of complementary feeding; perceived susceptibility; Perceived severity; Perceived action efficacy; perceived social acceptability; perceived self-efficacy; cues for action: perception of Divine Will, positive attributes.

## **ACKNOWLEDGEMENTS**

I would like to express my deepest gratitude to my advisor Prof LM Modiba, for her continued advice, expert guidance and concerned supervision. This study would not have been possible without her continuous supervision and valuable input

My thankfulness goes also to Sebele Hailu, for she has been the very source of my inspiration to join this programme.

To all the participants of this study in Ofla District, Tigray Region, Ethiopia who volunteered to share personal and emotional information. I thank you all.

## *Dedication*

*This dissertation is dedicated to my wife, W/ro Birikti Habte, for her persistent love, support and encouragement during the course of this study.*

*In addition, my love goes to my daughters, Lina (who is still with us spiritually) and Hilina, and my son Samuel, whose patience and understanding was kindling light of courage that helped me to uphold my work to the end.*

## Table of Contents

<b>CHAPTER 1</b> .....	<b>1</b>
<b>ORIENTATION TO THE STUDY</b> .....	<b>1</b>
1.1 INTRODUCTION.....	1
1.2 BACKGROUND OF THE STUDY.....	1
1.3 PROBLEM STATEMENT .....	3
1.4 AIM OF THE STUDY.....	4
1.4.1 Research objectives .....	4
1.4.2 Research questions .....	5
1.5 SIGNIFICANCE OF THE STUDY.....	5
1.6 DEFINITION OF CONCEPTS AND TERMS .....	5
1.6.1 Conceptual definitions .....	5
1.6.2 Operational definitions.....	7
1.7 FOUNDATION OF THE STUDY .....	9
1.8 RESEARCH DESIGN AND METHODS.....	11
1.8.1 Paradigm.....	11
1.8.2 Research design .....	11
1.9 SCOPE OF THE STUDY .....	12
1.10 STRUCTURE OF THE DISSERTATION.....	12
1.11 CONCLUSION.....	12
<b>CHAPTER 2</b> .....	<b>13</b>
<b>LITERATURE REVIEW</b> .....	<b>13</b>
2.1 INTRODUCTION.....	13
2.2 INFANT FEEDING PRACTICES, TRENDS AND CONSEQUENCES .....	14
2.2.1 Infant feeding practices .....	14
2.2.2 Trends of infant feeding practices globally, in Ethiopia and in the study Region, Tigray.....	15
2.2.3 Consequences of sub-optimal infant feeding practices.....	16
2.3 THEORY OF BARRIER ANALYSIS AND INFANT FEEDING PRACTICES .....	16
2.3.1 Theory of barrier analysis.....	16
2.3.2 Barriers to exclusive breast feeding and complementary feeding practices .....	18
2.3.2.1 Perceived-social acceptability in contrast with exclusive breast feeding and complementary feeding practices.....	19
2.3.2.3 Negative and positive attitudes in contrast with exclusive breast feeding and complementary feeding practices.....	25

2.3.2.4	Perceived-severity, perceived susceptibility and perceived action efficacy versus exclusive breast feeding and complementary feeding practices.....	28
2.3.2.5	Cues for action in contrast with exclusive breast feeding and complementary feeding practices.....	29
<b>CHAPTER 3.....</b>		<b>32</b>
<b>RESEARCH DESIGN AND METHODS .....</b>		<b>32</b>
3.1	INTRODUCTION.....	32
3.2	RESEARCH DESIGN.....	32
3.3	RESEARCH METHOD.....	33
3.3.1	Sampling.....	33
3.3.1.1	Population.....	33
3.3.1.2	Sampling.....	34
3.3.1.2	Sample.....	36
3.3.2	Data collection.....	37
3.3.2.1	Data collection approach and method.....	37
3.3.2.2	Development and testing of the data collection instrument.....	38
3.3.2.3	Characteristics of the data collection instrument.....	38
3.3.2.4	Data collection process.....	39
3.3.2.5	Ethical considerations related to data collection.....	40
3.3.3	Data analysis.....	41
3.4	INTERNAL AND EXTERNAL VALIDITY OF THE STUDY.....	42
3.4.1	Internal validity.....	42
<b>CHAPTER 4.....</b>		<b>43</b>
<b>ANALYSIS, PRESENTATION AND DESCRIPTION OF THE RESEARCH FINDINGS .....</b>		<b>43</b>
4.1	INTRODUCTION.....	43
4.2	DATA MANAGEMENT AND ANALYSIS.....	43
4.3	RESEARCH RESULTS.....	44
4.3.1	Sample characteristics of participants.....	44
4.3.2	Age and gender of index child.....	44
4.3.3	Child feeding practices.....	45
4.3.3.1	Age appropriate breastfeeding (exclusive breastfeeding).....	45
4.3.3.2	Timely introduction of complementary food.....	46
4.3.4	Barriers to comply with exclusive breast feeding and timely initiation of complementary feeding practices.....	46
4.3.4.1	Barriers to comply with exclusive breast feeding practice.....	46
4.3.4.2	Barriers to comply with initiation of complementary feeding practice.....	53
4.4	CONCLUSION.....	60

<b>CHAPTER 5.....</b>	<b>61</b>
<b>CONCLUSION AND RECOMMENDATIONS.....</b>	<b>61</b>
5.3 SUMMARY AND INTERPRETATION OF THE RESEARCH FINDINGS .....	62
5.3.1 Barriers to exclusive breast feeding in Ofla District.....	62
5.3.2 Barriers to comply with timely initiation of complementary feeding practice .....	66
5.4 RECOMMENDATIONS .....	69
5.6 CONCLUSION .....	70
REFERENCES.....	72

## LIST OF TABLES

Table 4.1	Socio-demographic characteristic of the respondents (N=113) .....	44
Table 4. 2	Age and gender distribution of the Index children (N=113) .....	45
Table 4.3	Barriers of exclusive breast feeding practices reported.....	48
Table 4.4	Barriers related to positive attributes to exclusive breastfeeding reported.....	51
Table 4.5	Barriers related to timely initiation of complementary feeding reported .....	53
Table 4.6	Mothers Perception of Divine Will on timely initiation of complementary .....	55
Table 4.7	Positive attributes to timely Initiation of complementary feeding reported .....	58

## LIST OF FIGURES

Figure 4.1	Infant feeding practices of mothers .....	45
Figure 4.2	Barriers related to negative attributes to exclusive breastfeeding reported .....	52
Figure 4.3	Negative attributes to timely Initiation of complementary feeding mothers reported.....	59

**LIST OF ANNEXURES**

Annexure 1	Ethical Clearance.....	77
Annexure 2	Request to conduct the study at the Study District (Ofa Woreda, Tigray Region) .....	78
Annexure 3	Permission to conduct the study the study at the Study District (Ofa Woreda, Tigray Region) .....	79
Annexure 4	Questionnaire.....	80

**LIST OF ABBREVIATIONS**

<b>AOR</b>	Odds Ratio
<b>CSA</b>	Central statistical Agency
<b>CSA</b>	Ethiopian Demographic and Health survey
<b>FAO</b>	Food and Agricultural Organization
<b>FMOH</b>	Federal Ministry of Health
<b>IYCF</b>	Infant and Young Child Feeding
<b>NGO</b>	Non-Governmental Organization
<b>NNP</b>	National Nutrition Programme
<b>SPSS</b>	Statistical software for Social Sciences
<b>UNICEF</b>	United Nations Children's Fund
<b>USAID</b>	United States of America International Aid
<b>WHO</b>	World Health Organization

# CHAPTER 1

## ORIENTATION TO THE STUDY

### 1.1 INTRODUCTION

This chapter has 11 sections. The first section is the introduction. The second section discusses the background information to the study. The third, fourth and fifth sections discuss statement of the problem of the study, the aim of the study and the significance of the study. The seventh section describes the definitions of terms used in the study, respectively. The sixth section presents definition of terms and concepts used in the study, while the seventh describes the foundation of the study. The eighth section describes the research design and the methods used in the study and the scope of the study and followed by the ninth section that outlines the structure of the study. The chapter closes with the conclusion.

### 1.2 BACKGROUND OF THE STUDY

Infant and young child feeding are the cornerstones of care for childhood development (WHO 2008:34). Studies estimate that 32% of children of less than five years of age in developing countries are stunted (UNICEF 2013:IV). According to the 2011 Ethiopian Demographic and Health Survey (CSA), the national prevalence of stunted children is at 44.4% (CSA 2012:162). Stunting in early life is associated with adverse functional consequences including poor cognition and educational performance, low adult wages, lost productivity and increased risk of nutritional-related chronic diseases (WHO 2007:23). Lack of appropriate breastfeeding and complementary feeding practices are the main causes of stunting (UNICEF 2013:5). To date, according to the 2011 CSA report, in Ethiopia, rates of exclusive breastfeeding and introduction of complementary foods at six months are unsatisfactory. About 40% of children less than 6 months of age are not exclusively breastfed and 51% children who are between 6-9 months age are not introduced to complementary foods in a timely fashion (CSA 2012:163).

In the study region, in Tigray, the prevalence of stunting is 51.4%, which is the second highest region in the country in stunting prevalence (CSA 2012:162). In this region, the

two infant feeding practices that help to avert stunting are less practiced among the majority of infants. The current baseline survey in the study region, for example, shows that only 68.5% of children of less than six months were exclusively breastfed and only 48.4% of children between six and nine months were introduced to complementary foods timely (Alive & Thrive 2010a:33).

Global Infant Feeding Recommendations state that breastfeeding should start as early as within 1 hour of birth and should be continued for at least six months. After six months, breast milk alone cannot be enough for a child as the nutrient requirements of the child increases; hence the child should start and be supplemented through complementary feeding (WHO 2008:24). According to the National Health recommendation, infants across all districts in Ethiopia should be exclusively breastfed for the first six months of life. Thereafter, to meet their nutritional requirements, infants should start nutritionally adequate and safe complementary foods at six months while breastfeeding continues up to two years of age and beyond to achieve optimal growth, development, health and prevent stunting mainly among children of under two years of age (FMOH 2012:20). To this effect, the Ethiopian government has also set the goal of reducing the prevalence of stunting to 30% by 2015 (GFDRE 2013:10). In order to achieve this goal, known high impact interventions must be in place. The *Lancet* (2013:15) indicates that 10 proven nutrition-specific interventions with the largest predicated effects in reducing child stunting and child mortality are improving of infant feeding practices, including exclusive breastfeeding and appropriate complementary feeding practices. However, the majority of mothers or caregivers in many places in Ethiopia including in the study region, do not practice such optimal feeding practices due to a number of factors.

Several factors are cited as reasons of suboptimal feeding practices in Ethiopia in general and in the study region, Tigray, in particular. Many of these are related with universally known barriers that mothers or caregivers have to comply with optimal exclusive breastfeeding and initiation of complementary feeding practices (Alive & Thrive 2010a:13). These barriers are predominantly related to one's culture, social norms, beliefs, behaviours and regulations of specific area (Institute 2010:45). This means that barriers known in one geographical area might not necessarily be taken as barriers in other areas because cultural and social norms are extremely different from one district against the other with a region, especially in the context of Ethiopia (USAID

2011:24). Moreover, it is imperative that breastfeeding and infant feeding intervention programmes for a specific audiences should take into account each audience's social and cultural beliefs, collecting data for each community to identify specific action-oriented behaviours and lastly, to suggest steps to overcome barriers to change (USAID 2011:22). District specific barriers to comply with certain behaviour can also be studied based on public health behavioural theories. One of it is theory of barrier analysis.

Theory of barrier analysis is underpinned by two theories, namely; Health Belief Model and Theory of Reasoned action (Davis 2007:11). As Davis (2007:11) explains, the Health Belief Model focuses on six determinants of behaviour, namely; perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues for action and perceived self-efficacy. In contrast, Theory of Reasoned Actions focuses on one determinant which is perceived social acceptability (Davis 2007:11). Therefore, the Barrier Analysis method all-in-all encompass on eight behavioural determinants, which are on reasons why someone does or does not do something.

Based on this theory, the researcher has assessed district specific barriers to comply with optimal exclusive breastfeeding and timely introduction of complementary feeding practices. The analysis was done by way of assessing the behavioural barriers among mothers or caregivers in the study district who have not been carrying out the two infant feeding actions, namely; the Non-Doers, who were not breastfeeding, and the Doers, who have been breastfeeding.

### **1.3 PROBLEM STATEMENT**

Ethiopia falls under countries that support the WHO recommendations. Therefore, infants across all districts in Ethiopia should be exclusively breastfed for the first six months of life and thereafter to start complementary foods while continuing breastfeeding up to two years of age and beyond in order to prevent stunting among children of under two years of age (Government of the Federal Democratic Republic (Ethiopia) 2013a:14). However, in Ethiopia, the rates of both of these infant feeding practices are unsatisfactory (CSA 2012:165). Only 40% of the infants who are aged 0-5.9 months are exclusively breastfed and half (51%) of the infants who are between 6-9 months age are introduced with complementary foods in a timely fashion (CSA 2012:165).

The rate of exclusive breastfeeding in the study region is a little bit higher than the national average, which is 68.5%, but lower as measured by the WHO standards (Alive & Thrive 2012:23). The rate of timely introduction of complementary foods, on the other hand, remains below the national average, which is 48.4% (Alive & Thrive 2012:23). This implies that both rates of infant feeding practices in the study region are not well practiced by many mothers or caregivers. The reason that these mothers do not adhere to both of these infant feeding practices is due to the barriers they have to comply with the infant feeding practices (Alive & Thrive 2010a:23). There are many barriers that mothers reported that they could not adhere fully to the recommended infant feeding practices. These barriers are related to cultural, social norms, beliefs, behaviours and regulations that are specific to the study district. However, in the study district, a study that investigates the specific barriers which mothers or caregivers have to comply with pertaining to exclusive breastfeeding and timely introduction of complementary feeding practices has not been conducted and published. As a result, specific behavioural change communication interventions that enhance these two infant feeding practices in the study district have not been designed.

#### **1.4 AIM OF THE STUDY**

This study investigated the barriers to compliance with exclusive breastfeeding and timely introduction of solid, semi-solid and soft foods among mothers or caregivers in Ofla District, Tigray region in Ethiopia. The study contributes in providing regional policy makers and non-governmental organizations (NGOs) with relevant information and recommendations for future planning on infant feeding behavioural change and communication interventions.

##### **1.4.1 Research objectives**

The research objectives of this study are as follows:

- To explore and describe the barriers that restrict mothers/caregivers to comply with exclusive breastfeeding practice until six months in Ofla District.
- To explore and describe the barriers that restrict mothers/caregivers to comply with introduction of solid, semi-solid and soft foods at six months in Ofla District.

## **1.4.2 Research questions**

The study sought to answer the following research questions:

- What are the barriers that restrict mothers/caregivers to comply with exclusive breastfeeding until six months in Ofla District?
- What are the barriers to that restrict mothers/caregivers to comply with the introduction of solid, semi-solid and soft foods at six months of age in Ofla District?

## **1.5 SIGNIFICANCE OF THE STUDY**

The main focus of this study was to assess the barriers preventing mothers or caregivers to comply with the two optimal infant feeding practices, namely; exclusive breastfeeding and introduction of complementary foods at six months in Ofla District, Tigray region. The two infant practices if practiced optimally can reduce malnutrition, particularly stunting among children of less than two years of age. However, there are many regional and local specific barriers that put off mothers or caregivers to practice optimal feeding behaviours in the study district. Understanding the specific determinants of suboptimal feeding practices is essential in order to develop targeted cost-effective interventions mainly in a resource-poor environment such as in Ofla District. Thus, this study is significant to identify specific factors that affect exclusive feeding and introduction of complementary feeding at six months practices so that the district health office, donors and NGOs shall focus on specific result-oriented behavioural change communication interventions that enhance these two infant feeding practices in Ofla District.

## **1.6 DEFINITION OF CONCEPTS AND TERMS**

### **1.6.1 Conceptual definitions**

The conceptual definitions of the key terms used in this study are indicated below.

**Barrier:** A behaviour or practice that obstructs or considered as a limit in order to perform optimal exclusive breastfeeding and timely introduction of complementary foods at six months (Microsoft Encarta ... 2010).

**Cues for actions:** Something that prompts or reminds somebody to do something (Microsoft Encarta ... 2010). Strategies to activate one's readiness (Davis & Thomas 2008:12).

**Doer:** Somebody who does a particular thing or who takes action instead of just thinking or talking about it (Microsoft Encarta ... 2010).

**Exclusive breastfeeding:** Infants who receive breast milk (including milk express or form a wet nurse), and allows to receive ORS, drops, syrups, vitamins, minerals, medicines but does not receive anything else (WHO 2008:5).

**Introduction of complementary feeding:** Infants who receive breast milk (including milk express or form a wet nurse), solid or semi-solid foods, allows the infant to receive any food and liquid including non-human milk and formula milk (WHO 2008:6).

**Perceived barriers:** One's belief about the tangible and psychological costs of the advised action or perceived effect of each condition in making behavioural performance difficult or easy (Davis & Thomas 2008:12).

**Perceived benefits:** One's belief in the efficacy of the advised action to reduce risk or seriousness of impact (Davis & Thomas 2008:12).

**Perception of Divine Will:** Person's belief that it is God's Will (or the gods' will) (Davis & Thomas 2008:12).

**Perceived self-efficacy:** One's confidence in one's ability to take action or people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives (Davis & Thomas 2008:12).

**Perceived social acceptability (perception of social norms):** Whether or not an action/practice someone does is socially acceptable by a community, family and to others that are important to him/her (Davis & Thomas 2008:13).

**Perceived susceptibility:** Also called perceived vulnerability, refers to one's perception of the risk of or the chance of contracting a condition or one's belief regarding the chance of getting the condition (Davis & Thomas 2008:13).

**Perceived severity:** One's belief of how serious a condition and its consequences are or the degree people deem a particular condition is serious and includes how people perceive the deleteriousness of a serious event or outcome (Davis & Thomas 2008:13).

### ***Stunted growth***

## **1.6.2 Operational definitions**

The main variables employed in this study are operationally defined as indicated below.

### **Exclusive breastfeeding**

It refers to infants 0-5.9 months who received only breast milk during the previous day of the survey. The feeding includes breast milk by a wet nurse and expressed breast milk. A mother/caretaker of who has a living child aged 0-5.9 months will be asked to recall whether or not she gave only breast milk or expressed milk to the child the previous day before the survey.

### **Introduction solid, semi-solid and soft foods**

It refers to infants 6-8.9 months of age who receive breast milk (including milk expressed or from a wet nurse), solid, semi-solid and soft during the previous day of the survey. A mother/caretaker of who has a living child aged 6-8.9 will be asked to recall whether or not she gave solid, semi-solid and soft foods to the child the previous day before the survey.

The independent variables of the study helped to measure barriers to compliance with the desired actions, that is, the two dependent variables. Under the barrier analysis method, the variables were as indicated below.

### **Perceived susceptibility**

Whether or not the mother/caregiver believes that her child will not be in a problem if she does not exclusively breastfeed and start feeding complementary foods before or long after six months.

### **Perceived severity**

Whether or not the mother/caregiver believes that her child will not get a serious problem if she does not exclusively breastfeed and start feeding complementary foods before or long after six months.

### **Perceived action efficacy**

Whether or not the mother/caregiver believes that exclusive breastfeeding and introduction of complementary foods at six months for a child does not help for child health growth and does not prevent a child from being malnourished and related problems.

### **Perceived social acceptability**

Whether or not the mother/caregiver believes that exclusive breastfeeding and introduction of complementary foods at 6 months for a child is socially accepted in her community, her family and others those are important to her.

### **Perceived self-efficacy**

Whether or not the mother/caregiver thinks that to exclusively breastfeed and to give complementary foods for her child at 6 months are easy. Whether or not the mother/caregiver thinks that she has ability (skills or knowledge), access, time and money to do so.

## **Cues for action**

Whether or not the mother/caregiver can remember to exclusive breastfeeding and to start feeding complementary foods for her child at 6 months and remembers the appropriate way of doing these two feeding actions.

## **Perception of Divine Will**

Whether or not the mother/caregiver beliefs that her child is undernourished because God says so.

## **Positive attributes**

These are things to do with the mother's preferences. Whether or not the mother/caregiver when she exclusively breastfeeds her child and start feeding complementary foods at 6 months, gives her enjoyment because she feels good that she has done what a mother/caregiver should do for her child.

## **1.7 FOUNDATION OF THE STUDY**

The theoretical framework underpinning this study was Theory of Barrier Analysis. Theory of Barrier Analysis is derived from two theories, namely; Health Belief Model and Theory of Reasoned Action (Davis 2004:11). As Davis (2004:12) explains, the Health Belief Model focuses on six determinants of behaviour, namely; perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues for action and perceived self-efficacy. In contrast, Theory of Reasoned Action focuses on one determinant which is perceived social acceptability. Therefore, the Barrier Analysis method all-in-all encompasses eight behavioural determinants. These are the reasons why someone does or does not do something or a desired positive behaviour. According to Davis (2004:12), barrier analysis can also be used at a start of a behaviour change programme to determine key messages and activities for intervention. It can be also useful to study an on-going programme focusing on behaviours that have not been changed very much despite repeated efforts, for the purpose to understand what is keeping them from making a particular change on the behaviours.

There are factors that influence a mother to decide, practice and adopt optimal exclusive breastfeeding and introduction of complementary foods when her child completes six months. These factors can be based on the mothers' motivation (for example on how she thinks that the child will benefit) or the absence of things that blocks her from doing it, for example, favourable environment, perhaps a job that allows her to perform the feeding actions as required).

These factors are related to the mother's perceptions on different issues which Davis (2004:15) characterised as perceived susceptibility, perceived severity, perceived benefits, perceived barriers, perceived self-efficacy, and cues for actions, perceived social acceptability and perception of Divine (God's) Will. What these barriers mean in terms of a mother/caregiver to compliance with the two infant feeding practices, which the researcher is interested to study, are summarised below.

- Perceived susceptibility; if the mother thinks that nothing bad (a health problem) could happen to her child if she does not do the two infant feeding practices, then she will not do the infant feeding practices.
- Perceived severity; if the mother thinks that nothing serious or annoying (a health problem) could happen to her child if she does not do the two infant feeding practices, then she will not do the infant feeding practices.
- Perceived efficacy; if the mother thinks that the infant feeding actions which are promoted do not work to help her child or prevent her child from being malnourished, thus then she will not do the infant feeding practices.
- Perceived social acceptability; if the mother thinks that her neighbours, family, or others important to her would criticise her for adopting the infant practices, then she may not do the practices regardless of her personal opinion.
- Perceived self-efficacy; If the mother thinks that doing the infant feeding practices is difficult to do (due to ability, access and cost related reasons), then she may not do the practices.
- Cues for action; if the mother does not remember to do the infant feeding actions or can't remember the actions, then her knowledge and opinion about the actions (whether it works) does not matter.

- Perception of Divine(God's) Will; If the mother believes that it is God's Will in order her child to nurtured and grow health on God's Will, then she may not do the infant feeding practices.

## **1.8 RESEARCH DESIGN AND METHODS**

### **1.8.1 Paradigm**

This study used a positivist research paradigm. Positivist paradigm is a scientific method referring to a general set of orderly, disciplined procedures used to inquire information (Polit & Beck 2008:14). In a positivist paradigm, reality exists in a real world driven by natural causes and the inquirer is independent from those being researched and findings are not influenced by the researcher (Polit & Beck 2008:14). The research method that this paradigm requires is quantitative research (Polit & Beck 2008:15).

Thus, the researcher used a quantitative research method that goes with the positivist paradigm to guide the study.

### **1.8.2 Research design**

The research design used in this study is a quantitative, exploratory, descriptive, and correlational. The nature of the study was cross-sectional.

Descriptive correlational survey is one of the research designs that a quantitative research paradigm uses when the purpose of the study is to observe, describe, and document aspects of a situation as it naturally occurs (Polit & Beck 2008:274) and when large amounts of data are needed to be analysed in a sensible way (Trochim 2007:251

The researcher's aim in this study was to describe and explore the different types of barriers preventing mothers to comply with infant feeding practices, namely; exclusive breast feeding and timely introduction complementary feeding rather than to infer cause-and-effect relationships. The researcher explored the different types of barriers without manipulating any of the variables but simply observed the correlation between the feeding practices and the likely barriers to comply with as they are; hence a descriptive correlational study design was in use.

Cross-sectional designs involve the collecting data once where the phenomena under the study are captured during one period of data collection; this is in contrast to longitudinal designs where data are captured and analysed at more than one point over an extended period (Polit & Beck 2008:207). This type of design is appropriate for describing phenomena at a fixed period in time (Polit & Beck 2008:208). Data were collected at a point in time; hence the nature of this study was a cross-sectional type.

## **1.9 SCOPE OF THE STUDY**

The study was limited to assessing the barriers of compliance to exclusive breastfeeding and introduction of complementary feeding at six months. In this study, the barriers to compliance with other core infant and young child feeding practices were not included.

## **1.10 STRUCTURE OF THE DISSERTATION**

Chapter 1 outlines the research problem and rationale for the purpose, objectives and significance of the study. Chapter 2 covers the literature review for the study. Chapters 3 and 4 describe the research methodology and data analysis and interpretation, respectively. Chapter 5 concludes the study, presents findings and recommendations for practice and future use.

## **1.11 CONCLUSION**

This chapter discussed the research problem, purpose and significance of the study. The barriers preventing mothers or caregivers to comply with the two optimal infant feeding practices were emphasised, namely; exclusive breastfeeding and introduction of complementary foods at six months in Ofla District, Tigray Region in light of the theory of barrier analysis. The conceptual definitions of terms used in the study, the research methodology, scope and limitations were also discussed in this section. The next chapter discusses the literature reviewed for the study.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

In general, this literature review assesses the optimal infant feeding practices recommended by the World Health Organization (WHO), the trends, possible consequences due to sub-optimal feeding practices and behavioural determinants that impede mothers to adhere to the optimal infant feeding behaviours globally, in Ethiopia and particularly in Ofla Region. The body of the review has three main sections and nine sub-sections.

The first section is the introduction. The second section discusses globally recommended infant feeding practices, trends, their benefit and the consequences that results from sub-optimal infant feeding practices.

The third section discusses the theory in which the intended study is based on the theory of barrier analysis. The theory underpins on two theories, namely; Health Belief Model and the Theory of Reasoned Action theories. Eight behavioural barriers, namely; perceived acceptability, perceived social acceptability; negative and positive attitudes, perceived severity, perceived sustainability, perceived action efficacy and cues for action are discussed in this section. The concepts of each of these behavioural determinants are theorised in relation with of the two most important study variables of this research, namely; exclusive breast feeding and timely initiation of complementary feeding at six months by reviewing several studies conducted around the world including in Ethiopia and the study region.

The chapter ends with the conclusion. This section revises what is been discussed in the previous sections briefly, and concludes by highlighting the aim of this intended study is.

## **2.2 INFANT FEEDING PRACTICES, TRENDS AND CONSEQUENCES**

### **2.2.1 Infant feeding practices**

Infant and young child feeding (IYCF) practices are vital for children under two years of age. WHO and UNICEF's global recommendations for optimal infant feeding, as set out in the Global Strategy, are initiation of breastfeeding within one hour of birth, exclusive breast feeding for the first six months of life (180 days) and continued breast feeding up to the age of two years and beyond together with safe, age-appropriate feeding of solid, semi-solid and soft foods starting at six months of age (WHO & UNICEF 2013:8). UNICEF (2013:19) explains that ensuring optimal breastfeeding in the first six months and complementary feeding practices have profound impact on a child's survival, health, development and prevents almost one fifth of deaths of children under five years age.

Breastfeeding, for instance, has a profound impact on a child's survival, health, nutrition and development. Breast milk provides all of the nutrients, vitamins and minerals an infant needs for growth for the first six months (FAO 2013:11). Breast milk has other benefits. As Linkages (2010:13) explains, for example, breast milk carries antibodies from the mother that help combat disease and the act of breastfeeding itself stimulates proper growth of the mouth and jaw, and secretion of hormones for digestion and satiety. Moreover, breastfeeding also creates a special bond between mother and baby and this bond has positive repercussions for life, in terms of stimulation, behaviour, speech, sense of well-being and security and how the child relates to other people. Furthermore, evidences also show that breastfeeding lowers the risk of chronic conditions later in life, such as obesity, high cholesterol, high blood pressure, diabetes, childhood asthma and childhood leukaemia (Mukuria 2009:13).

Apart from the child, breastfeeding also has benefits to the mother. Breastfeeding, for example, reduces risks of breast and ovarian cancer later in life, helps women return to their pre-pregnancy weight faster, and lowers rates of obesity (WHO 2013:14). Furthermore, breastfeeding can control fertility. WHO (2013:14) explains that exclusive breastfeeding is associated with a natural method of birth control and about 98% protection can be made in the first six months after birth.

Moreover, adequate complementary feeding of infants from six months to two years of age is particularly important for growth, development and the prevention of malnutrition (Linkages 2010:3). WHO (2013:13) recommends that as the child reaches six months of age, breastfeeding is no longer necessary to meet the nutritional needs of the infant; hence complementary foods should be introduced timely right at this time. According to the WHO (2013:14), the complementary foods that need to be introduced at six months of the child's age, need to be adequate, prepared from variety of foods that cover the nutritional needs of the growing child and should be given in appropriate way based on the principles of psycho-social care of a child or responsive feeding.

### **2.2.2 Trends of infant feeding practices globally, in Ethiopia and in the study Region, Tigray**

Poor breastfeeding and complementary feeding practices are widespread around the world. Globally, only 39% of infants less than 6 months old were exclusively breastfed in 2012 and the majority receiving some other food or fluid in the early months and only 60 % of children aged 6-8 months receive solid, semi-solid or soft foods (UNICEF 2013:12). Among 50 countries with available trend data, the majority (40 countries) has posted gains in exclusive breastfeeding rates since 1995 (UNICEF 2013:13). However, to date many children are not exclusively breastfed, mainly in the developing countries (WHO 2013:12).

In the developing world, in 2012, only 36 % of 0-5 month olds are exclusively breastfed, 60 % of 6-8 month olds are breastfed and given complementary foods and 55 % of 20-23 month olds are provided with continued breastfeeding (WHO 2013:14).

In Ethiopia, breastfeeding is nearly universal but exclusive breastfeeding is not common. According to the Ethiopian Demographic and Health Survey (CSA), for instance, nearly half (48 %) of children less than 6 months old are not exclusively breastfed (CSA and 2012:167). Moreover, in Ethiopia, complementary foods are not introduced in the right time. The CSA (2011:167) shows that over half (51.4%) of the infants aged 6-8 months of age were not introduced with solid, semi-solid and soft foods at six months of age.

In the study region, Tigray, trends of child feeding practices are poor as compared to the practices in other regions in Ethiopia. The CSA does not provide information of the prevalence of infants who are exclusively breastfed and introduced complementary foods at six months by region. But other proxy indicators such as pre-lacteal feeding are low in the region. CSA (2012:163) describes that only 26.6% infants received pre-lacteal feeding and the median duration of breastfeeding among children born in the last three years before the survey is low 3.1 months.

Nevertheless, an institution-based study recently conducted in the capital of the region, in Mekele town in 2013 indicated that the prevalence of exclusive breastfeeding is 85% while timely initiation of complementary feeding at the age of six months was 62.8% (Shumey, Meaza & Yemane 2013:1050). Moreover, 19.7% of mothers initiated complementary feeding before the age of six months and 17.5% mothers had initiated complementary feeding beyond six months in this study town (Shumey et al 2013:1050).

### **2.2.3 Consequences of sub-optimal infant feeding practices**

Child malnutrition can manifest itself in several ways. UNICEF (2013:7) explains that child nutrition is most commonly assessed through the measurement of child's weight and height, as well as through biochemical and clinical assessment. The consequences of sub-optimal infant feeding practices among children thus, can also be manifested in the form wasting, underweight and stunting. Wasting reflects acute sub-optimal or malnutrition, while underweight is common form of sub-optimal or malnutrition that includes stunting and wasting but stunting reflects chronic sub-optimal or malnutrition happened during the most critical periods of growth and development in early life (UNICEF 2013:7).

## **2.3 THEORY OF BARRIER ANALYSIS AND INFANT FEEDING PRACTICES**

### **2.3.1 Theory of barrier analysis**

Theory of Barrier Analysis is underpinned by two theories, namely; Health Belief Model and Theory of Reasoned action (Davis 2004:11). The Health Belief Model focuses on six determinants of behaviour, namely; perceived susceptibility, perceived severity,

perceived benefits, perceived barriers, cues for action and perceived self-efficacy (Davis 2004:12). In contrast, Theory of Reasoned Action focuses one determinant which is perceived social acceptability. Therefore, the Barrier Analysis method all-in-all encompass on eight behavioural determinants which are reasons why someone do or does not do something or a desired positive behaviour. Davis (2004:12) explains that barrier analysis can also be used at a start of behaviour change programme to determine key messages and activities for intervention. Moreover, as he explains, it can be also useful to study an on-going programme focusing on behaviours that have not been changed very much despite repeated efforts, for the purpose to understand what is keeping them from making a particular change on the behaviours.

There are factors that influence a mother to decide, practice and adopt optimal exclusive breastfeeding and introduction of complementary foods when her child gets six months. These factors can be based on the mothers' motivation (for example on how she thinks that the child will benefit) or the absence of things that blocks her from doing it (for example, favourable working environment, perhaps a job that allows her to perform the feeding actions as required).

These factors, as Davis (2004:15) describes, are related to the mothers' perceptions on different issues characterised as perceived susceptibility, perceived severity, perceived benefits, perceived barriers, perceived self-efficacy, and cues for actions, perceived social acceptability and perception of Divine (God's) Will. When translated in terms of compliance, the barriers that a mother/caregiver has to adhere to the infant feeding practices are briefly described below:

- Perceived susceptibility; if the mother thinks that nothing bad (a health problem) could happen to her child if she does not do the two infant feeding practices, then she will not do the practices.
- Perceived severity; if the mother thinks that nothing serious or annoying (a health problem) could happen to her child if she does not do the two infant feeding practices, then she will not do the practices.
- Perceived efficacy; if the mother thinks that the infant feeding actions which are promoted does not work to help her child or prevents her child from being malnourished, thus then she will not do the practices.

- Perceived social acceptability; if the mother thinks that her neighbours, family, or others important to her would criticise her for adopting the infant practices, and then she may not do the practices regardless of her personal opinion.
- Perceived self-efficacy; if the mother thinks that doing the infant feeding practices is difficult to do (due to ability, access and cost related reasons), then she may not do the practices.
- Cues for action; if the mother does not remember to do the infant feeding actions or can't remember the actions, then her knowledge and opinion about the actions (whether it works) does not matter.
- Perception of Divine (God's) Will; if the mother believes that it is God's Will in order her child to be nurtured and grow healthy on God's Will, then she may not do the infant feeding practices.

### **2.3.2 Barriers to exclusive breast feeding and complementary feeding practices**

Several factors are cited as reasons of sub-optimal feeding practices in Ethiopia in general and in the study region, Tigray, in particular. Many of these are related with universally known barriers that mothers have to comply with optimal exclusive breastfeeding and initiation of complementary feeding practices (Alive & Thrive 2010b:31). These barriers are predominantly related to one's culture, social norms, beliefs, behaviour and regulations of specific area (Institute 2010:12). The barriers known in one geographical area might not necessarily be taken as barriers in other areas because cultural and social norms are extremely different from one district against the other within a region, especially in the context of Ethiopia (USAID 2011:12). Moreover, USAID (2011:12) explains that it is very important to take into account each audience social and cultural beliefs, in order to identify specific action-oriented behaviours and to lastly suggest steps to overcome barriers to positive breastfeeding and infant feeding practices. District specific barriers to compliance to certain behaviour thus, can be studied based on public health behavioural theories. One of it is Theory of Barrier Analysis.

Based on this theory, the researcher intends to assess district-specific barriers to compliance with optimal exclusive breastfeeding and timely introduction of complementary feeding practices. The analysis will be done by way of assessing the behavioural barriers among mothers who have not been carrying-out the two infant

feeding actions, the Non-Doers, and mothers who have been practicing the feeding actions, the Doers in the Ofla District. Therefore, the aim of this study is to assess and understand what is keeping mothers from doing sub-optimal infant-feeding practices in the Ofla District, which is a critical step in the development and implementation of behavioural change focused intervention programme; hence to make the needed improvements in the study district.

In this regard, the researcher used this theory as a stepping stone to study the key behavioural determinants of exclusive breastfeeding and timely introduction of complementary feeding optimal practices among mothers. Studies conducted across the world show that the behavioural determinants or barriers to compliance with the recommended infant feeding practices are related to the eight behavioural determinants in which this researcher is most interested to study. The sections below brief the behavioural components of barrier analysis theory in relation to the infant feeding practices.

### ***2.3.2.1 Perceived-social acceptability in contrast with exclusive breast feeding and complementary feeding practices***

According to Davis (2004:17), perceived social acceptability refers to a behavioural determinant whether or not people believe that the action is socially acceptable by the community, their family, or to others that are important to them. This implies that if a mother thinks that her neighbours, family or others important to her would criticise her for complying with the recommended infant feeding practice, she may not do it regardless of her personal opinion.

There are several studies conducted around the world that show that perceived social acceptability related behavioural determinants could be barriers to compliance with the recommended infant feeding practices. Some of these studies in which this researcher has come about are the following:

In a study conducted in Podar, West Africa, for instance, exclusive breast feeding practices were heavily influenced by cultural beliefs. In this region, women did not start breastfeeding until they are blessed by a religious ceremony and newly born babies are given an elixir, which mothers believe that the elixir cures all ills and gives an eternal life

(Schwartz 2009:38). Similarly, a study conducted in the Federal capital territory in Nigeria shows that herbal infusions diluted in water were given for newly born babies, because giving herbal medicine to newly born babies is recommended by grandmothers as they believe that practice protects the baby from illness (PATH & CARE 2011:8). Moreover, in this region, grandmothers believe that breast milk does not have enough water for a baby thus influence mothers to use herbs both for bathing and for feeding babies from birth on and to give water right after birth (PATH & CARE 2011:8). Likewise, a study conducted in South West Nigeria also shows that mother-in-laws as an essential figure in deciding on the need for breastfeeding and who promote that newborn infants require additional supplements such as herbal concoction to guard against infections (Ogunleye 2012:5).

Similarly, in Zambia, there are traditional beliefs that encourage mothers to introduce water, watery foods before a baby reaches six months of age (PAHO & WHO 2011:10). A formative research conducted in Tigray region, in Ethiopia, shows similar perceptions among mothers. In this region, faulty traditional beliefs that protect mothers to adhere with the recommend infant feeding practices were imposed mainly by grandmothers and family members. In this region, grandmothers advise mothers to give fenugreek juice for a newly born baby as they think that fenugreek juice will protect the baby from being exposed to intestinal worms and they also advise mothers to substitute breast milk with other liquids such as cow's milk (Alive & Thrive 2010c:2). A similar study conducted in Southern Region in Ethiopia also shows that mothers were heavily influenced by family members and neighbours. As a result, most mothers feed their under six months of age babies liquids such as cow's milk than breast milk, because mothers were told that this practice would help babies to sleep, thus they themselves would be at peace , hence mothers to focus on household work (Alive & Thrive 2012:13).

Regarding the recommended complementary feeding practices, studies also show that there are many misconceptions among mothers associated with perceived social acceptability determinants. The study conducted by Alive and Thrive (2012:12), in Tigray Region in Ethiopia, for example, shows that most mothers introduce complementary foods to their babies later than six months. This was because mothers were influenced by the misconceptions that community leaders and even some of community health promoters had about when a baby should start complementary foods. In this region, there is a misconception that a child who is only six months of age should

not eat solid or semi-solid foods. This was because, the community thoughts foods other than breast milk will expose the baby to illness and perceived that baby's stomach is not ready to digest mainly meat and other animal source foods at six months of age. Another study conducted in the Southern Region in Ethiopia also shows similar finding. In this region, family members, community leaders and mainly husbands did not want mothers to adhere to the WHO recommended complementary feeding practices. Most importantly, husbands in this region appear to influence their wives regarding to feeding their infants including when their babies should start complementary foods because husbands are the one who provides food to the whole family and controls family finances (Alive & Thrive 2012:2). Similarly, a review made by USAID on various studies on infant and young child feeding practice in some regions in Africa shows that there are perceived-social acceptability related taboos that deter mothers to comply with optimal infant feeding practices. In Nigeria, for example, women did not provide complementary foods to their babies at the right time, especially animal source food such as meat and eggs because doing so is a taboo and mainly grandmothers did not accept this practice (USAID 2011:3). Another study conducted in Southern Nigeria shows that the main obstacles to exclusive breastfeeding identified were maternal employment, pressure from family, while encouragements from husbands (51%) and nurses/midwives (46%) social pressure (67%) and personal determination/experience (65%) have increased the adherence to exclusive breast feeding (Ogunleye 2012:5, 7).

### ***2.3.2.2 Perceived-self efficacy in contrast with exclusive breastfeeding and complementary feeding practices***

Another behavioural determinant to optimal infant feeding practices is related to the mother's perceived self-efficacy about the practices. Perceived self-efficacy is whether or not a person thinks that the preventive actions, in this regard, optimal infant feeding practices, are easy to do for her/him (Davis 2004:17). This implies that if a mother thinks that adhering to the recommended infant feeding practices is very difficult because she does not have the skill, access to supplies and thinks that it is costly in terms of finance and time, then she may not be willing to work out the optimal infant feeding practices.

Studies show that most mothers did not adhere to the optimal infant feeding practices due to their own and other family members perceived self-efficacy related behavioural factors on optimal infant feeding practices. These include mothers and/or their

husbands' awareness towards optimal infant feeding practices, educational level and access to health services, food and time. Studies conducted in Ethiopia, Kenya, Uganda and Zambia show that limited awareness about infant feeding practices among mothers and their low education level is found to be a determinant factor to adhere to factor for both exclusive feeding and timely introduction of complementary foods at six months. In these countries, as USAID (2011:13) explains, mothers did not know that breast milk is a sufficient source food for infants of under two years of age that provides all of the nutrients, vitamins and minerals the infant needs for growth for the first six months, and no other liquids or food are needed. Moreover, in these countries, mothers complement breast milk either with water, soft food or cow's milk because they think that breast milk is insufficient for a baby who is under six months of age (Nankumbi 2012:34). Similarly, a study conducted in both Southern and Northern regions in Ethiopia shows that mothers perceive that a baby who is under six months of age cries while he/she is breastfeeding, it is interpreted as the mother did not have sufficient breast milk, as a result, the mother complement her breast milk with other foods for babies (Alive & Thrive 2012:13). A cross-sectional study conducted in Goba District, in Southeast Ethiopia also shows that mothers' misconception on the sufficiency of breast milk for a baby who is under six months of age is considered as a main reason for early breastfeeding cessation or early introduction of complementary foods (Tesfaye 2012:5). Similarly, in Southwest Nigeria, mothers and grandmothers perceive that breast milk is not self-sufficient, especially in the first six months of birth thus, babies are fed other foods in addition to breast milk (Ogunleye 2012:5). Thus, these studies show that in some places in Africa, including in Ethiopia, breast milk is misinterpreted as insufficient source food that does not provide all of the nutrients, vitamins and minerals that an infant who is under six months of age needs for optimal growth.

With regard to timely initiation of complementary feeding at six months, studies conducted in Africa shows mother's low awareness on optimal infant feeding practices as one of the determinant factors for mothers not adhere to practice optimal feeding practices. A study conducted in Podar, West Africa, for example, shows that women's level of understanding about infant feeding practices becomes a determinant factor to adhere to the timely initiation of complementary feeding at six months. In this region, women think that exclusive breastfeeding is superior to complementary feeding, besides mothers did not know that complementary food is initiated for a baby at six months of age; as a result, most mothers initiate giving of complementary foods lately after six

months (Schwartz 2009:37). Likewise, in Ogun State in Nigeria, most mothers provide complementary foods either before six months or long after six months of age because they did not know the exact age when complementary foods should be introduced for their babies (BC 2010:34).

The educational level of mothers is also found to be one determinant factor for many to adhere to recommended infant feeding practices. Ashenafi (2013:7) explains that in a study conducted in Mekele town in Tigray Region, Ethiopia, higher maternal educational level, high school and above was noted to increase with odds (AOD = 2.361) of timely initiation of complementary feeding. Moreover, this study shows that husbands' educational level, high school and above was noted to favour with odds (AOD = 2.991) to timely initiation of complementary feeding (Ashenafi 2013:7). This implies that education is believed to enable the husbands to understand their wives and provide help and approval to what mothers would like to do to keep the child healthy. Another study conducted in urban informal settlements, in Nairobi Kenya shows similar finding. Kimani-Murage, Fotso, Kyobutungi, Mutua, Gitau, and Yatich (2011:7) indicate that mothers with at least secondary level education had 10% lower hazards of introducing foods early and lower than secondary level education was associated with earlier cessation of breastfeeding. Thus, improved maternal education enhances mothers' understanding and appreciation of the demands and benefits of introducing complementary feeding timely, and empowers them to resist external interferences and pressures related to mother's perceived self-efficacy. Although it is contrary to the result obtained from the Ethiopian Demographic Health Survey, one study conducted in Goba District, South Eastern Ethiopia shows that maternal education status and exclusive breastfeeding did not show any significant association (Tesfaye 2012:5). In this study, a declining trend of exclusive breastfeeding practice with the higher maternal education status was shown.

Access to health services is also one factor for most mothers to adhere to recommended infant feeding practices. An institution based cross-sectional study conducted in Mekele town, from Tigray Region in Ethiopia, for example, shows that mothers who attended at least one antenatal visit have (AOR = 2.845) feed their babies exclusively for six months and initiated complementary foods at six months than those who did not attend antenatal care (Ashenafi 2013:7). Moreover, in a study conducted in urban settlement in Nairobi, Kenya shows that mothers who delivered at home were

more likely to introduce complementary foods earlier than those who delivered in a health facility (Kimani-Murage et al 2011:9). It is believed that mothers who deliver in a health facility in most cases receive breastfeeding counselling in the Ethiopian context (Alive & Thrive 2010a:6).

Access to food at household level is also found to be a determinant factor for adherence to the recommended infant feeding practices, mainly to adherence to timely initiation of complementary foods at six months. In Northern Uganda, for example, lack of money to buy food and insufficient food with which to feed were reported as the main reasons that many mothers did not start complementary food for their children at six months (Mokori 2012:173). A formative research conducted in Tigray and Southern Region in Ethiopia, also show that food insecurity is the main reason that many mothers were not able to comply with the recommended complementary feeding practices (Alive & Thrive 2010a:2). In these two regions, most mothers introduce complementary foods later than six months of age and failed to offer variety of food types and unable to give extra food for babies when sick or recover from illness because of unavailability of enough food at the household level (Alive & Thrive 2010b:33). Most mothers in Southern and Northern Region in Ethiopia, also perceive that a mother with low economic status is undernourished, thus cannot produce sufficient breast milk which is enough for a baby who is over two months age. As a result, breast milk is supplemented with other foods even though babies did not complete their six months of age (Alive & Thrive 2012:15). The absence of food at household level is figured out as one barrier to compliance with recommended complementary feeding practices in Ethiopia, the new National Nutrition Programme Policy (NNP) in Ethiopia initiates to link food-insecure households with children under two years of age to social protection services and nutrition sensitive livelihoods economic opportunities (GFDRE 2013:18). Another study conducted in Zambia also shows that due to lack of food at household level, most mothers did not feed enough food for themselves. Thus, it is interpreted that these mothers could not produce sufficient and nutritionally adequate breast milk; as a result, babies are complemented with additional complementary foods even though they did not complete their six months of age (USAID 2011:4).

Availability of ample time and workload among mothers is also found to be a barrier to mothers to comply with optimal infant feeding practices. Regarding exclusive breast feeding, for example, a study conducted in Federal Capital Territory in Nigeria and in

one region in Zambia show that mothers did not exclusively breastfed their babies for six months because of lack of ample time as most of them had to go for farming (PATH & CARE 2011:8). Likewise, a study conducted in Mekele in Tigray Region in Ethiopia shows that house-wife mothers were more likely to initiate complementary feeding timely than those mothers who work (Ashenafi 2013:6). This can be attributed to workload among breastfeeding mothers that housewives usually stay at home and would not be obliged like mothers who are working to wean early to go to work. Moreover, a significant difference among employed and unemployed mothers with regard to exclusive breastfeeding was observed. In Goba District, in Southeast Ethiopia learned that unemployed mothers (73%) had exclusively breastfed their babies for six months than those employed (33%) (Tesfaye 2012:5).

Studies show that barriers to comply with optimal infant feeding practices are also related to mother driven or child driven activities. In rural Uganda, for example, most women did adhere to exclusive breastfeeding practice because mothers got exhausted from childbirth process babies did not properly suck the breast and due to insufficient milk production. As a result, they give water or cow's milk as the baby is born (Nankumbi 2012:376). Similarly, in Ogun State in Nigeria, complementary food is introduced usually between the age of three and four months due to perceived lactation insufficiency (BC 2010:34). Likewise, introduction of watery foods for infants who are younger than six month age, when the mother is not close by is common in Zambia (PATH & CARE 2011:10).

### ***2.3.2.3 Negative and positive attitudes in contrast with exclusive breast feeding and complementary feeding practices***

In addition to the behavioural determinants explained above, there are things that are sometimes associated with a given preventive action that make a person more likely to do positive behaviour or less likely to do a given negative behaviour (Davis 2004:20). Davis (2004:20) explains that these things are not anything to do with health or other aspects of community development nor do they necessarily have to do with other barriers. This applies in terms of infant feeding such things are related to a mothers' personal preferences and practices: what gives the mother enjoyment and fulfilment in life by being practicing the recommended infant feeding practices (positive attribute),

and things that she dislikes (negative attributes) of the action determine mothers' to adhere to the recommended infant feeding practices (Davis 2004:20).

Regarding the negative attitudes that deter mothers to adhere to practice the recommended infant feeding are practices related to actions, and norms that mothers thought being doing these actions, they would not make them enjoy and feel good as a mother. There are few studies that this researcher has come across with which such negative activities deter mothers to comply with optimal infant feeding behaviours. These studies show that perceived milk insufficiency, the perception of mothers that a baby continued to be hungry after feeding, fear of infant becoming addicted to breast milk, lack of husbands' support, mothers' perception that breastfeeding is too tiring, babies refused breast milk, mothers' losing weight and feeling dizzy at times during breastfeeding, as constraints to adhere to recommended infant feeding practices. Mothers sometimes perceive that their breast-milk is not sufficient for their baby. As a result, they did not enjoy giving only breast milk alone for babies although they knew that their babies should be exclusively breastfed for six months. A study conducted in Ogun State in Nigeria shows that most mothers believe that breast milk alone cannot satisfy infants, and water or herbal teas are obligatory to quench thirst and promote normal development (BC 2010:34). Similar to Vhembe District of Limpopo Province, in Nigeria mothers perceived that their infants were not satisfied with breast milk alone, and were always crying and could not sleep thus, they give complementary foods for their infants before they reach six months of age (Mushaphi 2010:40). Likewise, Tewodros (2009:16) discusses that most mothers in Ethiopia perceived that breast milk is insufficient and it is seen primarily because food and water were required to satisfy the need of the child. A similar study conducted in Tigray and Southern Region in Ethiopia also shows that most mothers believe that infants who are below six months of age need water because they felt breast milk is insufficient and without water the baby will be thirsty and perceive that babies could not live without water and without it the spirit dies (Alive & Thrive 2012:14). Country based literature reviews on infant and young child feeding made by USAID in various countries in Africa also show that different kinds of liquids and foods are given for babies of below six months of age. In Haiti, for example, provision of water is considered as necessity in most regions in the country especially during the hot seasons and mothers give sugar water as they felt that breast milk is insufficient and help infants to sleep well (USAID 2011:3). In Mozambique, most mothers thought that infants cry sometimes because they are thirsty for water as

the water in the breast milk does not quench babies' thirstiness. Similarly, in Mali, breast milk is considered as food not as liquid, hence water is given to quench thirst (USAID 2011:3). In Zambia, initiating complementary foods before six months is related with the need to satisfy the baby's hunger, as most parents thought that breast milk is not enough by itself for the baby (PATH & CARE 2010:10).

Similarly, a formative research conducted in Southern Region in Ethiopia shows that cow's milk and other foods are introduced to babies who are less than six months of age even though mothers knew that such practice is not recommended. This was because mothers think that breast milk cannot provide all the child's nutritional needs, and when the mother is not well-nourished they think that breast milk alone would not be adequate for the baby, thus complementary foods are introduced earlier before six months (Alive & Thrive 2012:3).

There are also factors related to baby's behaviour in which mothers take as a reason for not adhering to recommended infant feeding practices. A study conducted in Southwest Nigeria shows that the practice of non-exclusive breastfeeding is associated with mothers fearing that their babies will be addicted to breastfeeding (Ogunleye 2012:5). In Ethiopia, a formative research conducted in Tigray Region, shows that most parents did not start complementary food at six months, because they think that if a baby starts complementary food at this age the baby's appetite will be stimulated and babies will develop a habit of taking more food than the family could afford to provide in the future (Alive & Thrive 2010a:2).

There are also reasons that mothers did not adhere to exclusive breastfeeding practice mainly due to mothers' perception that breastfeeding is too tiring, babies refused breast milk, mothers' losing weight and feeling dizzy at times during breastfeeding. A study conducted in Southwest Nigeria shows that about 22% mothers perceive that breastfeeding is too tiring, 22% reported that babies refused breast milk, 20% mothers' perceive that they would lose weight and 20% feel dizzy at times during breastfeeding and 11% simply felt that they are not breastfeeding well. As a result they introduce complementary foods before six months of the baby' age (Ogunleye 2012:6). Likewise, a formative research conducted in Zambia shows that the process of expressing breast milk is most strongly opposed by women, because they thought that such practice is not accustomed/natural or a hygienic way to feed infants and they do not enjoy doing it,

even though they knew that expressed breast milk is given for a baby whose mother is away from home (PATH & CARE 2010:10). In Lescheto, infants are given liquids in addition to breast milk between one to six months of age, because mothers have faith in that such practice protects illness; and in Ethiopia water and cow's milk is given for babies of under six months, because mothers perceive that such practice reduces abdominal cramps and protects the baby from illness (USAID 2011:3).

There are few studies that this researcher has come about in regard to the positive attitudes that mothers adhere to practice the recommended infant feeding practices related behaviours, actions, and norms that mothers think that by being doing these actions they would enjoy and be fulfilled with in their life. One of this in a study conducted in Southern Nigeria mothers positively adhered to exclusive breastfeeding because they perceive that breastfeeding as a normative expectation of being a mother (99%), felt breastfeeding helped babies to grow in a normal pattern (66%) and strengthens the physical and spiritual bond between them and their children and labelled themselves as exemplary models of a good mother, "priceless gold" and to achieve this social status, mothers perceive that they should sacrifice for their children, especially through the practice of exclusive breastfeeding (Ogunleye 2012:5).

#### ***2.3.2.4 Perceived-severity, perceived susceptibility and perceived action efficacy versus exclusive breast feeding and complementary feeding practices***

**Perceived-severity:** whether or not the person believes that the problem or disease is very serious, another behavioural determinant (Davis 2004:16). If a mother does not think that a serious problem could happen to her baby if she does not follow the optimal feeding practices, she may not take any actions to practice the desired infant feeding practices. This means that if a mother did not think that a serious health problem would happen unless she adheres to the recommended infant feeding practices, she would not do the practice even though she knew how and what to do about the recommended infant feeding practices.

**Perceived-susceptibility:** one of the most important determinant for any behaviour to be completed/done depends on whether or not a person believes in the problem could happen to him/her as the result of not doing the positive behaviour (Davis 2004:15). If a

mother thinks that nothing will happen to her baby even she does not follow the optimal infant feeding practices, she will not do the practice. This means that in order to adhere to recommended infant feeding practices, a mother could think that a health problem will happen to her and her child or need to dread that she might or her child is a victim as the result of not adhering to the practices.

**Perceived-action efficacy:** whether or not the person believes that the prevention action actually works (Davis 2004:16). If a mother think that optimal infant feeding practices do not really work to prevent under-nutrition and disease, thus the probability of doing the recommended infant feeding practices will be increased. In this regard, for a mother to adhere to the recommended infant feeding practices she need to believe that the practices actually prevents child malnutrition.

There is no literature that the researcher has come about so far that explains the behavioural factors related to infant feeding practices related with regard to perceived-severity, perceived-susceptibility and perceived-action efficacy, to this date.

#### ***2.3.2.5 Cues for action in contrast with exclusive breast feeding and complementary feeding practices***

Whether or not a person can remember to do the preventive action and steps involved in doing the preventing action refers to cues to action (Davis 2004:18). If a mother does not remember for how long to exclusively breastfed and when exactly to start complementary food her baby, then her prior knowledge of and opinion about the recommended infant feeding practices (whether it works or not) does not matter.

The researcher in this regard was not able to find related studies. However, one formative study conducted in the Southern Region in Ethiopia shows that timely and targeted counselling to mothers has improved their adherence to optimal feeding practices. A focus on timed and targeted counselling and incorporation of a peer mother support group contributed to changes in infant and young child feeding practices among mothers (WV 2009:16). In this study area, even though most mothers knew that optimal infant feeding practices are important to improve the child's health, it was difficult for them to remember when to start breast milk after birth and introduce complementary foods for their babies. Thus, health extension workers and community health workers

noted that achieving a change in practices requires frequent, repeated counselling so that mothers will be able to remember the exact time when exactly to start the infant feeding practices (WV 2009:16). Another study conducted in Southwest Nigeria also indicates that regular involvement of mothers in health education on breastfeeding during antenatal and postnatal visits at health facility level has improved the exclusive breastfeeding experience of many mothers (Ogunleye 2012:6).

The researcher in this literature review intends to assess district specific barriers to compliance with optimal exclusive breastfeeding and timely introduction of complementary feeding practices. The study measured the different behavioural determinants explained in terms of the eight perceived behavioural barriers among mothers to practice to the exclusive breast feeding and timely introduction of complementary foods at six months. The analysis will be done by way of assessing the behavioural barriers among mothers who have not been carrying-out the two infant feeding actions, the Non-Doers, and mothers who have been practicing the feeding actions, the Doers in the study district. Therefore, the aim of this study is, to assess and understand what is keeping mothers from doing suboptimal infant-feeding practices in the study district, which is a critical step in the development and implementation of behavioural change focused intervention programme to make the needed improvements in Ofla District.

## **2.4 CONCLUSION**

Optimal infant and young child feeding (IYCF) practices recommended by WHO IYCF guidelines are very important for optimal growth, health and development of children. Adherence to optimal IYCF practices, mainly during the period from birth to age of two is important in order to prevent stunting; an irreversible health problem if once happened during the period of childhood linear growth. The two most important IYCF practices that help to prevent under two stunting among under two years of age, namely: exclusive breastfeeding and timely introduction of complementary feeding are less practiced in the study region. This is mainly due to the barriers related to mothers' perceived self-efficacy, perceived social acceptance and negative and positive attitudes to compliance with the desired/optimal IYCF practices.

Studies have been conducted but most have not provided the depth of information in this region that might be necessary to develop behavioural change focused interventions specifically in regard to the barriers to compliance with optimal exclusive breast feeding and timely introduction of complementary practices in the study area. Studies show that practices of infant feeding among women are influenced by their locally specific social, cultural, economic and personal circumstances and barriers to comply with those practices. Understanding the elements of behavioural barriers to compliance with optimal infant and young child feeding practices is thus essential for the development of a targeted intervention to enhance infant feeding practices in the study population.

As evident from the many studies cited in this review of the literature, there is much room for improvement in exclusive breastfeeding and timely introduction of complementary feeding practices if perceived behavioural barriers to adhere to these infant feeding are identified and well addressed in the study district, in Tigray region in Ethiopia. Therefore, conducting a research on infant feeding practices and beliefs in Ofla District in Tigray Region in Ethiopia is a critical step in the development and implementation of an intervention programme to make the needed improvements.

## **CHAPTER 3**

### **RESEARCH DESIGN AND METHODS**

#### **3.1 INTRODUCTION**

This chapter has five sections. The first section is the introduction. The second section discusses about the research design. The third section discusses about the research method used in the study. In this section, sampling methods, data collection and data analysis procedures are explained. The fourth section explains the internal and external validity of the study, followed by the conclusion.

#### **3.2 RESEARCH DESIGN**

A quantitative, exploratory, descriptive correlational research design that employed the nature of the cross-sectional study was used. Descriptive correlational survey is one of the research designs that a quantitative research paradigm uses when the purpose of the study is to observe, describe, and document aspects of a situation as it naturally occurs (Polit 2008:274) and when large amounts of data are needed to be analysed in a sensible way (Trochim 2007:25).

The aim of this study was to explore and describe the different types of barriers mothers have to comply with in infant feeding practices, namely; exclusive breastfeeding and timely introduction complementary feeding rather than to infer cause-and-effect relationships. Thus, the researcher explored the different types of barriers without manipulating any of the variables but simply observed the correlation between the feeding practices and the likely barriers to comply with as they were; hence a descriptive correlational study design was used.

Cross-sectional designs involve the collection of data once: the phenomena under the study are captured during one period of data collection, unlike longitudinal designs that data are captured at more than one point over an extended period (Polit 2008:207). This type of design is appropriate for describing phenomena at a fixed period in time (Polit

2008:208). Data for this study were collected at a point in time; hence the nature of the study was cross-sectional.

### **3.3 RESEARCH METHOD**

#### **3.3.1 Sampling**

Sampling is the process of selecting a portion of the population to represent the entire population so that inferences about the population can be made (Polit 2008:339). The researcher used probability sampling method. Probability sampling method is the general term for samples selected in accordance with probability theory, which typically involves some random selection mechanism (Babbie 2010:196). There were two reasons the researcher chose probability sampling than non-probability sampling method. The first one is that the research method that the researcher used to guide the dissertation was quantitative method which utilises only probability sampling methods. The second one is that the researcher wanted to study the barriers preventing mothers or caregivers in the study district to comply with optimal exclusive breastfeeding and timely introduction of complementary foods practices. This was done by taking representative samples of mothers or caregivers (mother or caregiver-child pair) with children of under one year from whole population under the study in the study district. This was intended to generalise the findings from the few studied to the whole study population in the district.

##### ***3.3.1.1 Population***

###### *Site population*

The site population was the population of Ofla District (called Ofla Woreda in the local language). This district is one of the districts of Debubawi Zone of the Tigray Regional state. The district is bordered on the south by Alemata, on the west by the Amhara region, on the north by Endamohoni and on the east by Raya Azebo (CSA 2007:25). The district has 19 sub-districts (called kebeles in local language). According to report from Central Statistical Agency in Ethiopia, in mid-year 2012 the district has a population of about 143,146 of which about 72,861 were women; about 7,729 are children with less than two years of age and about 4,008 are with less than one year of

age. According to the same report, no urban inhabitants were reported. With an area of 1,019.76 square kilometres, Ofla District has a population density of 124.43, which was greater than the zone average of 53.91 persons per square kilometre. A total of 29,571 households were counted in this district, resulting in an average of 4.29 persons in a household and 28,717 housing units (CSA 2007:22).

The population or universum is theoretically specified aggregation of the elements of a study (Babbie 2010:199). Thus, the population of interest of this proposed study was all mothers or caregivers of the study district, from Ofla.

### ***3.3.1.2 Sampling***

#### *Site target population*

According to Babbie (2010:199) and Polit and Beck (2008:338), target population is the aggregate of cases about which the researcher would like to generalise. In this study, the researcher used the findings from the study to generalise to all mothers or caregivers in Ofla District, Tigray Region. As a result, the target population of this study were all mothers and caregivers in Ofla District.

#### *Site sample frame*

According to Polit and Beck (2008:344), a sampling frame is a technical name for the list of elements from which the sample will be drawn. Similarly, Babbie (2010:208) describe a sampling frame as a list or quasi list of units composing a population from which a sample is selected. In this regard, the sampling frame which was in use for the study was all 19 sub-districts (kebeles) in Ofla District (Woreda).

#### *Accessible sites*

The accessible or source population is the aggregate of cases that conform to designated criteria and that are accessible as subjects for a study (Polit 2008:338). In this study, the accessible or the source population were all mothers or caregivers, in Ofla District who had a child in less than one year.

There are 19 sub-districts in the study district which all were accessible. However, in this study, only five sub-districts were randomly selected.

### *Site sampling technique*

A key consideration in assessing a sample in a quantitative study is its representativeness. According to Polit and Beck (2008:340), a representative sample is one whose key characteristics closely approximate those of the population. This can be made through systematic random sampling. A specific type of probability sampling technique called systematic sampling was used in this study. In addition, systematic random sampling is a type of probability sampling which the  $K^{\text{th}}$  unit in a list is selected for inclusion in the sample (Babbie 2010:211). Polit and Beck (2008:348) argue that in most cases, systematic random sampling is preferable to simple random sampling because the same results are obtained in a more efficient manner. Besides, systematic random sampling, according to Polit and Beck (2008:348), can also be applied to lists that have been stratified. In this study, the researcher wanted to use systematic random sampling method in order to select study units, mothers or caregivers from the study district who can unbiasedly represent many others so that inference from the sample about others were made statistically possible.

The sampling strategy to select the study sub-districts from the total 19 districts was as indicated below:

- The 19 Kebeles were stratified into five groups based on the agro-ecological proximity of the sub-districts.
- From each stratum, one sub-district was selected through a lottery method, thus a total of five sub-districts were selected. These sub-districts were then the actual study sites from which the study units, mothers or caregivers, were selected for the study.

The sampling strategy applied to select each study units; mothers' or caregivers, from each study sub-district was as follows:

- The sampling frame used for this study was the family folder record that was available in each study district.

- All mothers or caregivers who had a child less than one year old in each sub-district were listed. The list was accessed from the family folder record which was placed at each health post in each randomly selected sub-district.
- The total sample size calculated for this study was divided into each sub-district based on the probability of proportionate to the sub-districts population size.
- Thus, from each sub-district, the study participants were selected through systematic random sampling from the list.

### **3.3.1.2 Sample**

#### *Site sample size*

A sample is not primarily an end in itself but rather a means helping to explain some facet of the population (Strydom, Fouché & Delport 2005:195). It is further explained that many factors influence the size of the sample. These are heterogeneity of the sample, desired degree of accuracy, type of sample, available resources and the number of variables to which the data are grouped.

The sample size for the study was determined based on the sample size estimation that WHO uses to calculate the two core infant and young child feeding practice indicators (exclusive breast feeding among 0-5 month's age of children and introduction of solid, semi-solid and soft foods 6 to 8 months age). As WHO (2010:53) explains, in order to calculate the two indicators, assuming an estimate of 50%, proposes a percentage point of 95% confidence interval and a design effect 2 for both indicators. Based on these assumptions, WHO advises that a sample of 75 children aged 0 to 5 months of age to measure exclusively breastfed children and a sample of 38 children aged 6 to 8 months to measure children who introduced solid, semi-solid and soft foods are enough and can give statistically significant results.

Thus, based on the WHO estimation a total of 112 samples of which 75 mothers and care givers with children aged 0 to 5 months and 38 children aged 6 to 8 months were sampled for the study.

### **3.3.2 Data collection**

#### ***3.3.2.1 Data collection approach and method***

The data collection approach that was used in this study was a structured approach that consists of a set of questions (sometimes called items) in which both the wording of the questions and, in most cases response alternatives are predetermined (Polit & Beck 2008:414). This approach provides a greater uniformity of responses which are more easily processed than unstructured type (Babbie 2010:256). Although this approach, as Babbie (2010:88) explains, has some disadvantages because the approach is weak on validity, represents a least common denominator in terms of assessing people's attitudes, orientations, circumstances and experiences and only helps to collect self – recalls of past experience and actions. It also has several advantages over unstructured approach. Structured approach is generally strong on reliability; is useful in describing the characteristics of the larger population; helps to ask many questions in a given topic; helps to define concepts in ways most relevant to the proposed research goals; is easy to apply the same definitions uniformly to all study units; and it provides a greater uniformity of responses and are more easily processed than unstructured type (Babbie 2010:256).

A quantitative research method was used in order to frame this study. This was because technically a quantitative method requires gathering of empirical evidence mainly numerical data using structured instruments from sample participants. Thus, the findings can be generalised to the individuals other than those who participated in the study. Moreover, it is only through such data collection approach that the researcher can ask exactly the same questions to all the study units, thus to impute the same intent to all study units giving a particular response. Furthermore, data for quantitative studies such as this one are collected according to a structured plan that indicates what information to be gathered and how to gather it (Polit & Beck 2008:371).

A self-report method of data collection was used in this study. This method is one type of data collection approach which helps to gather data by questioning people (Polit & Beck 2008:369). As Polit and Beck (2008:368) further explain, it is strong in directness and variability and is very helpful to gather retrospective data about activities occurring in the past or information about behaviours, feelings, values and opinions through direct

communication with participants. This study depended on mothers' and care givers' self-report to assess their current practices on infant feeding and the behavioural barriers preventing them to comply with these practices by inquiring them to answer based on their retrospective understanding and actions. Thus, a self-report data collection method was used for this study.

### ***3.3.2.2 Development and testing of the data collection instrument***

A pre-test of the instrument means conducting of a pilot administration of the data-collection instrument to assure that the instrument can be clearly understood by the participants and that it captures the required data (Polit & Beck 2008:329). A pre-test or pilot study was conducted with six participants with children aged 0-5 months and another six with children aged 6-8 months selected from the study sub-district from which the main study was not conducted. However, these participants were not included in the main study. Few changes were made after the pre-test, as some respondents did not clearly understand few of the questions. The questionnaire was also given to expert researchers found in the study region and to the researcher's supervisor, to examine for validity and reliability. These 10 participants were not included in the main study.

### ***3.3.2.3 Characteristics of the data collection instrument***

In a structured data collection, as Polit and Beck (2008:317-318) explain, wording of the questionnaire is pre-determined, and standardised and the same technique or instrument needs to be used with all respondents. Moreover, data collected can be quantified with ease and the questionnaire needs to be self-effacing to a certain extent as it is permissible to study participants to respond without intrusion (Polit & Beck 2008:317). In this study, the data collection instrument was developed by the researcher based on literature review to gain knowledge on infant and young child feeding practices mainly on exclusive breastfeeding and complementary feeding practices. In addition, the data collection instrument investigated the possible determinants that prevent mothers/caregivers to comply with optimal infant feeding practices based on knowledge of the behaviour of the study, and the theory of barrier analysis and the information collected in order to address the objectives of the study. Thus, the data collection instrument developed was used to collect data and collected information from each study participant.

The questionnaire was first developed in English language, and then translated into the local language of the study area and then back to English to ensure the consistency of the questions posed.

The questionnaire used in this study was divided into five sections. The first section comprised the demographic information of the participants and the participants' child; the second section covered infant and young child-feeding practices of the participant's child; the third section probed the participants' perception on the barriers to both exclusive breastfeeding and to initiate complementary feeding practices.

#### ***3.3.2.4 Data collection process***

In this study, data from a sample of participants was obtained by means of enumerator (data collectors). Extensive training was given for the enumerators as to how to properly utilise the instrument and code the verbal responses of participants into the structured questionnaire. This method was chosen because most of the study participants in the study district are illiterate, thus self-administered data collection method was not applicable. Moreover, accessing to the study participants through telephone or any other electronic or print media was difficult. As a result, information from study participants was gathered through face-to-face encounter. The questions were read by the data collectors to participants and their responses were recorded in the questionnaire.

#### ***Reliability of the instrument***

Reliability refers to the dependability of a measurement instrument, thus the instrument yields similar results when applied repeatedly (Strydom et al 2005:194). In this study, in order to enhance the reliability of the data collection instrument, the instrument was reviewed by the supervisor. Therefore, its appropriateness, clarity, relevance, and adequacy of the items in the questionnaire were examined. Practical training was given to the field workers as the questions posed in the instrument were structured, thus interference from field workers who were likely to ask questions inconsistently was circumvented.

### *Validity of the instrument*

Validity encompasses the entire experimental concept and established whether the results obtained meet all the requirements of the scientific research method. Validity defines the strength of the final results and whether they can be regarded as accurately described the real world (Babbie 2010:567). In this study, a structured questionnaire was used as the result the consistency of the information collected in the study was enhanced.

#### ***3.3.2.5 Ethical considerations related to data collection***

During the data collection, the following ethical considerations were made by the researcher.

##### *Informed consent*

All study participants were provided with clear and adequate information to help them reach an informed decision before they participate in the research. A written consent form was prepared and provided to all study participants who can read and for those who cannot read the information which was written on the consent form was read by the enumerators/data collectors.

##### *Voluntary participation and withdrawal from the research*

All the study participants were informed that participation in the study was completely voluntary. They were informed that they can refuse to participate in the interview or answer any questions at any time; that even after agreeing to participate in the study that they can withdraw at any time in case of any inconvenience; and that their withdrawal from the study would not prevent them from receiving any services related health or otherwise in the community.

##### *Confidentiality*

Confidentiality and the right to participate in the research were explained in clear terms that all the study participants could understand. The names of the participants were not

recorded on the questionnaire neither reported in any project document and all their answers were strictly confidential. Their names were not written on the consent form to show only their acceptance.

There were no physical risks posed to the study participants as well as to their child as a result of their participation in this study. This was because the study participants were not involved in any physical examination and intervention/treatment.

All the study participants were informed that they have the right and an easy access to the researcher in case of any adverse events or when injury or harm (physical, social, psychological) attributable to their participation in the study was experienced or if had any questions about the study and/or any adverse events may happen upon them due their participation in the study. For this purpose, the researcher's address was disclosed to them.

#### *Permission to conduct the study*

Ethical clearance was requested and granted by the University of South Africa Ethics Committee (University of South Africa, Departmental Higher Degrees Committee) before the study commenced, prior to this, the research proposal and data gathering instrument were submitted for approval (Annexure 1). A copy of the approval was attached to the research proposal and was sent to the Government of the National Regional State of Tigray, Bureau of Health with a letter seeking permission to conduct the study at the study district in Tigray Region The request was granted by the Regional Bureau of Health (Annexure 2 and Annexure 3).

#### **3.3.3 Data analysis**

Polit and Beck (2008:451) explain that data analysis is when the data collected through research is systematically organised, summarised, evaluated and interpreted (Polit & Beck 2008:451). In this study, the data collected was edited and entered into a computer in SPSS 20 statistical software version produced 2011 by IBM cooperation and its licensors 1989, 2011. The analysis was done using this software. The results presented in descriptive statistics such as frequencies and percentages and response questions of the questionnaire were evaluated by using the Chi-square test. All tests are two-sided and the critical p-value <0.05 was used.

## **3.4 INTERNAL AND EXTERNAL VALIDITY OF THE STUDY**

### **3.4.1 Internal validity**

Internal validity is a term describing a measure that accurately reflects the concept it intended to measure (Babbie 2010:153). It is concerned with the validity of inferences that there is truly an empirical relationship or correlation between the presumed cause and effect (Polit 2008:286). Internal validity is important in hypothesis-testing (Strydom et al 2005:194). This study conducted was descriptive-correlation in nature, thus did not need to measure and control issues related with internal validity of the study.

- **External validity**

External validity is a type of validity which is mostly important in descriptive correlation study in which the researcher will be concerned about. Polit and Beck (2008:287) explain that external validity is concerned with about inferences about observed relationships will hold over variations in persons, setting, time, or measures of the outcome. This means that external validity is concerned with generalisability of relationships or relationships observed in a study sample which can be generalised to a larger population. This is also the concern of quantitative-descriptive correlational study on which the researcher will focus.

In order to enhance external validity, the researcher followed the principles of the quantitative research design at all stages of the study. A statistically representative sample was carefully selected randomly from the target population.

## **3.5 CONCLUSION**

This chapter covered five sections Research methodology, including the design, purpose, research objectives, research setting, population, and sample, sampling method, data collection, measures to ensure reliability and validity, and ethical considerations were discussed. Chapter 4 discusses the data analysis and interpretation.

## **CHAPTER 4**

### **ANALYSIS, PRESENTATION AND DESCRIPTION OF THE RESEARCH FINDINGS**

#### **4.1 INTRODUCTION**

This chapter has four sections. The first section is the introduction. The second section discuss about data management and analysis. The third section discusses the results of research. In this section, barriers preventing mothers to comply with the recommended exclusive breastfeeding and timely initiation of complementary foods based on the different constructs are discussed. The conclusion provides a summary of the chapter.

#### **4.2 DATA MANAGEMENT AND ANALYSIS**

With the assistance of trained enumerators, data were collected from a total of 113 mothers with a structured questionnaire (Annexure 4). Data cleaning procedures were done, first, during the actual data collection period by the supervisor to ensure the completeness of the questionnaires filled in every day by the enumerators. The second data cleaning was done by the researcher before the data entered into a computer. Data entry was made by the researcher into a computer in SPSS 20 Software, 2011 version. The third data cleaning was done after all the questioners were entered into the computer before the actual data analysis was started. At this stage outliers and invalid values were cleaned. The data analysis was done through this software. Summary statistics were used for each response. The results are presented in descriptive statistics such as frequencies and percentages and response questions of the questionnaire were evaluated by using the Chi-square test. All tests are two-sided and the critical p-value <0.05 was used.

## 4.3 RESEARCH RESULTS

### 4.3.1 Sample characteristics of participants

A total of 113 mothers are included in the study. Table 4.1 illustrates the age, religion, marital status and education level of the participants. The mean age of the participants was 26.22 (SD: 4.53) years.

All the participants were Christian orthodox. In terms of marital status, the majority (56%) followed by living together with conceptual marriage (22%). Nearly one-third of the participants (71%) never read and write, while about 30% read and write but were not involved in normal schooling.

**Table 4.1 Socio-demographic characteristic of the participants (N=113)**

<b>Variables</b>	<b>N (%)</b>
<b>Participant's relation to the index child</b>	
Mothers	113 (100%)
<b>Mean age of the participants</b>	26.22 (SD: 4.53)
<b>Participants religion</b>	
Orthodox Christian	113 (100%)
<b>Participants marital status</b>	
Single	2 (2%)
Married	63 (56%)
Divorced	14 (12%)
Separated/currently living alone	9 (8%)
Living together/conceptual marriage	25 (22%)
<b>Participants educational status</b>	
Do not read and write	80 (71%)
No formal education but reads and writes	30 (27%)
Completed primary school	13 (2%)

### 4.3.2 Age and gender of index child

Data shown in Table 4.2 depict the age and gender of the index child, and the majority (52%) of the children were females. About 64% of the children were between the 0 and 5.9 months of age, while the rest were between the age of 6 and 11.9 months of age.

**Table 4.2 Age and gender distribution of the index children (N=113)**

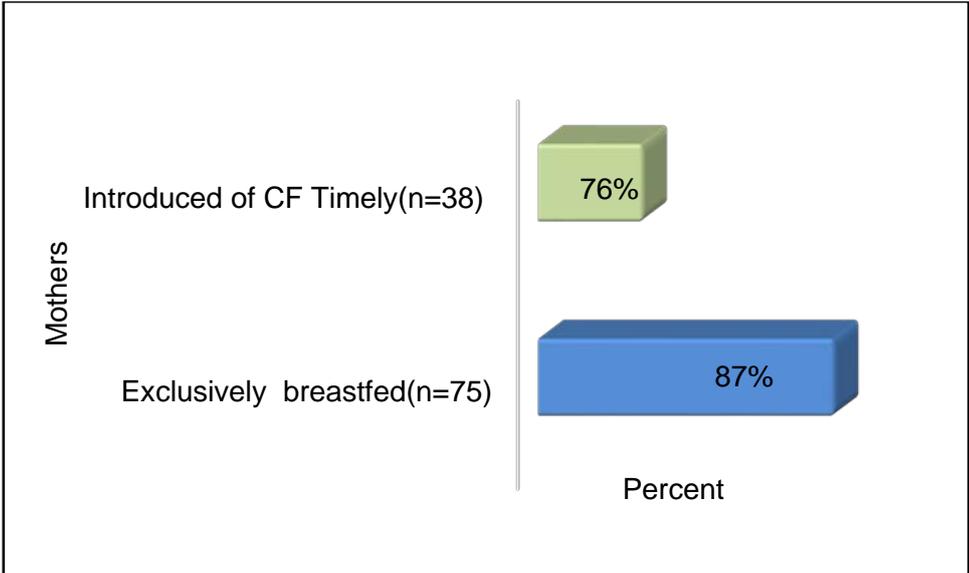
Variables	N (%)
Participants relation to the index child	
Mothers	113 (100%)
Age of the index children	
0-5.9 months	75 (66%)
6-11.9 months	38 (34%)
Sex of the index children	
Male	54 (48%)
Female	59 (52%)

**4.3.3 Child feeding practices**

The child feeding practices mothers about of the surveyed children in terms of age appropriate breastfeeding and timely initiation of complementary feeding were assessed. The results are as discussed below.

**4.3.3.1 Age appropriate breastfeeding (exclusive breastfeeding)**

According to WHO, age appropriate breastfeeding is defined as proportion of infants 0-5 months of age who received only breast milk during the previous day. Among children aged 0-5 months, 87% had received only breast milk in the reference period.



**Figure 4.1 Infant feeding practices of mothers (N=113)**

#### ***4.3.3.2 Timely introduction of complementary food***

Timely introduction of complementary food is an important IYCF indicator. According to the recommendation of WHO, it is measured based on the proportion of infants 6-8 months of age who received food in the preceding day of the survey. In this survey, 76% of children in the aforementioned age category ate any solid, semi-solid or soft food in the reference period.

#### **4.3.4 Barriers to comply with exclusive breast feeding and timely initiation of complementary feeding practices**

Mothers with children aged 0 to 5.9 months of age are asked to report the barriers they have had to comply with the WHO recommended exclusive breastfeeding practices. Similarly, others with children of age 6 to 11.9 months are asked to report the barriers they have had to comply with timely initiation of complementary feeding practices. The Chi-square results are as indicated afterward.

##### ***4.3.4.1 Barriers to comply with exclusive breast feeding practice***

The Chi-square test results for the questions presented for mothers for both that practice (Doers) and did not practice (Non-Doers) of exclusive breast feeding practices are presented in Table 4.3. The concepts related to the barriers mothers have to comply with exclusive breastfeeding practices explained by perceive susceptibility, perceived severity, perceived action efficacy, perceived social acceptability, perceived self-efficacy, cues for action and the negative and positive attributes had shown significant difference between mothers who did the action and others who did not at p-value <0.05. However, with regard to questions related to perception of God's Will, significant difference was not observed between the Doers and Non-Doers of the action.

The analysis shows that Doers, who exclusively breastfed and the Non-Doers, who did not breastfeed their children in Ofla District (Woreda) had different perceptions about the practice of infant feeding.

### *Perceived susceptibility and exclusive breast feeding practices*

The p-value of the two questions that explain the construct of perceived-susceptibility indicated significant values. The proportion of Doers (54%) who believe that a child could suffer from any illness unless the child exclusively breastfeed with only breast milk until the age of six months were significantly more than the Non-Doers (20%). The difference was significant at 0.035 levels ( $\chi^2=1.44$ , df 1, 2-tailed  $p<0.05$ ). Similarly, the percentage of Doers (68%) who perceived that their child could be malnourished significantly more than the Non-Doers (18%) ( $\chi^2=5.151$ , df 1, 2-tailed  $p<0.05$ ). This indicates that most of the Non-Doers are not aware of the fact that their children could be malnourished and a child who is under age of six months of age could suffer from any sickness unless the child exclusively breastfeed with only breast milk than the Doers did. As the result, Non-Doers possibly will not be following the appropriate feeding practice for their infant or that they believe that there is other cause of malnutrition that they cannot control.

### *Perceived severity and exclusive breast feeding practices*

With regard to perceived severity, there was significant difference between the Doers and the Non-Doers of exclusive breastfeeding practice. Almost all Doers (99%) perceived that malnutrition is a serious problem than few Non-Doers (20%). The difference was significant at 0.000 levels ( $\chi^2=58.21$ , df 2, 2-tailed  $p<0.05$ ). This indicates that most of the Non-Doers are not at a level of understanding that malnutrition is a serious problem among children. As the result, they might not be in a position to exclusively breastfeed their under six months of age children with only breast milk than the doers did. However, additional information is needed to understand the basic motivation for this difference among the two groups.

### **Perception of Divine Will and exclusive breast feeding practices**

In terms of perception of Divine Will, there was no significant difference in response between the two groups of mothers. A few percentage of Doers than the Non-Doers believe that it's God's Will that some children got sick (doers, 57% versus non Doers 80%) at p-value  $>0.05$ . Similarly, Doers who believe that children got malnourished because of some supernatural or spiritual things were a bit less than the Non-Doers

(Doers, 31% versus non Doers 15%) at p-value >0.05. This indicates that the perception of mothers about the Divine Will in terms child feeding among mothers of both groups did not show significance variation.

**Table 4.3 Barriers of exclusive breast feeding practices reported**

<b>Barriers reported</b>	<b>Doer (n=65)</b>	<b>Non-Doer (n=10)</b>	<b>Chi-square</b>	<b>d f</b>	<b>P-Value</b>
<b>Perceived susceptibility</b>					
Perceived that their child could be malnourished	68%	20%	5.151	1	0.023
A child could suffer from any illness unless the child exclusively breastfeed with only breast milk until the age of six months	54%	18%	1.24	2	0.035
<b>Perceived severity</b>					
Perceived that malnutrition is a serious problem	99%	20%	58.209	2	0.000
<b>Perception of Divine Will</b>					
It's God's will that some children are malnourished	57%	80%	2.212	1	0.333
Children sometimes could get malnourished due to spiritual or supernatural causes	31%	15%	1.086	2	0.211
<b>Perceived action efficacy</b>					
Thought exclusive breastfeeding of infants with only breast milk until six months can prevent malnutrition	90%	18%	37.61	2	0.000
<b>Perceived social acceptability</b>					
Husband/partner approves if I exclusively breastfeed my baby with only breast milk until the child completes 6 months	60%	2%	13.91	1	0.000
Health care providers approves if I exclusively breastfeed my baby with only breast milk until the child completes 6 months	37%	100%	13.71	1	0.000
<b>Perceived self-efficacy</b>					
Easy to exclusive breastfeed my baby with only breast milk until the baby gets 6 months old	95%	2%	52.71	1	0.001
<b>Cues for action</b>					
It's easy to remember to exclusively breastfeed my baby with only breast milk until the baby gets 6 months old	95%	20%	38.763	1	0.001

### *Perceived action efficacy and exclusive breast feeding practices*

With regard to perceived action efficacy, there was significant difference between the Doers and the Non-Doers of exclusive breastfeeding practice. About 90% of the Doers compared to few Non-Doers (18%) thought that exclusively breastfeeding of infants with only breast milk until six months could prevent malnutrition among children. The difference was significant at 0.000 levels ( $\chi^2=37.61$ , df 2, 2-tailed  $p<0.05$ ). This indicates that most of the Doers than Non-Doers realise that malnutrition could happen among children if they did not exclusively breastfeed for six months.

### *Perceived social acceptability and exclusive breast feeding practices*

Social acceptability measures the social norms about exclusive breastfeeding in Ofla District. Mothers are asked who among their families and health care providers (husband/partner, grandmother, grandfather father-in-law, mother-in-law, friends, and health care providers) mostly approves if they want to comply with exclusive breast feeding practices. The participant mothers from both group (Doers and Non-Doers) mentioned that their husbands/partners and health workers mostly accepted the practice of exclusive breastfeeding. The Chi-square results were significant among the two participant groups in terms of the people that approves the action, for example, husband/partners (60% Doers, 2% Non-Doers,  $\chi^2=13.91$ , df 1, 2-tailed  $p<0.05$ ) and health care workers (37% Doers, 100% Non-Doers,  $\chi^2=13.71$ , df 1, 2-tailed  $p<0.05$ ).

### *Perceived self-efficacy and exclusive breast feeding practices*

With regard to perceived self-efficacy about 95% of the Doers compared to a small percentage of Non-Doers (2%) perceived that it is easy to exclusively breastfeed their baby with only breast milk until the baby gets six months old. The difference was significant at 0.001 levels ( $\chi^2=52.71$ , df 1, 2-tailed  $p<0.05$ ). This indicates that overall perceived self-efficacy variation among the two groups shows that Doers believe that it is easier to exclusively breastfed their children than the Non-Doers did so. However, it needs to be studied further regarding why and how easy it is to do the action for the Doers than the Non-Doers.

### *Cues for action and exclusive breastfeeding practices*

The results for cues for action in this study indicate that there was a significant difference between doers (95%) and Non-Doers (20%) in that it is easy for most of Doers to recall to exclusively breastfeed their babies only with breast milk until the baby was six months old. The difference was significant at 0.001 levels ( $\chi^2=38.76$ , df 1, 2-tailed  $p<0.05$ ).

### *Positive attributes and exclusive breast feeding practices*

In this study, the construct of positive attributes of exclusive breastfeeding was explained by two topics. These are perceived benefits of exclusive breastfeeding, which includes nine questions and the things a mother like about when she exclusively breastfed her baby, which is explained by three questions (Table 4.4). As Table 4.4 shows, two out of the nine questions that explain perceived benefits of exclusive breastfeeding and two out of the three questions that explain the things a mother like when she exclusively breastfed show statistically significant difference between the Doers and the Non-Doers of the action.

In terms of perceived benefits of exclusive breastfeeding, the majority of the Doers (82%) compared to the Non-Doers (19%) perceived that exclusive breastfeeding prevents their baby from becoming sick. The difference was significant at 0.0001 levels ( $\chi^2=16.83$ , df 1, 2-tailed  $p<0.05$ ). Nevertheless, the percentage of Doers who perceived that exclusive breastfeeding help to boost their baby's intelligence (performs well at school) were smaller (2%) compared to the Non-Doers (20%). The difference was significant at 0.001 levels ( $\chi^2=13.16$ , df 1, 2-tailed  $p<0.05$ ). The Doers' answer to this question seems to vary with other responses.

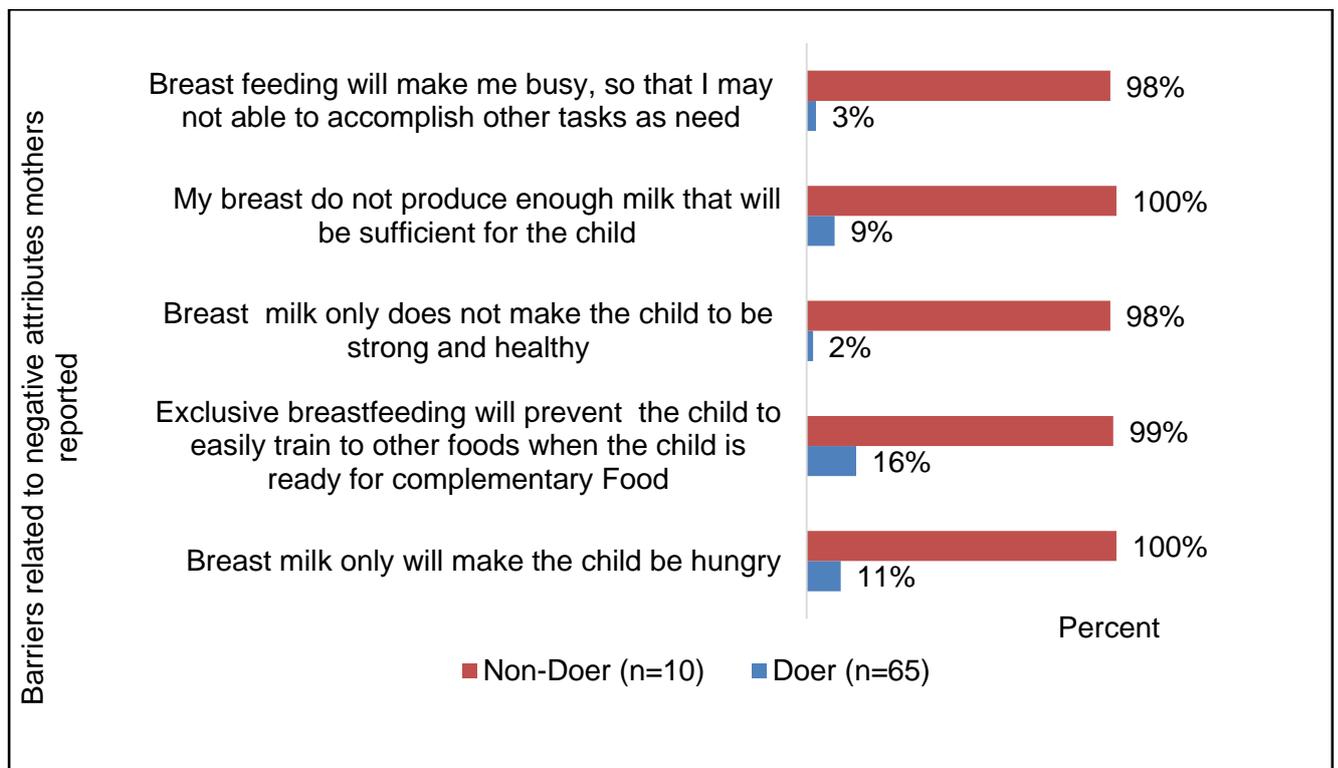
**Table 4. 4 Barriers related to positive attributes to exclusive breastfeeding reported**

<b>Barriers related to positive attributes</b>	<b>Doer (n=65)</b>	<b>Non-Doer (n=10)</b>	<b>Chi-square</b>	<b>df</b>	<b>P-Value</b>
<b>Perceived benefits of exclusive breastfeeding</b>					
Prevents my baby from becoming sick	82%	19%	16.83	1	0.0001
If baby is sick it helps my baby to recover quickly from illness	5%	1%	0.48	1	0.485
It helps to boost my child's intelligence (performing well at school)	2%	20%	13.16	1	0.001
It reduces my stress level and risk of postpartum depression	5%	20%	3.219	1	0.073
It can help keep me from becoming pregnant	5%	20%	3.219	1	0.073
It won't need to buy expensive supplements to feed my child until six months	5%	20%	3.219	1	0.073
<b>The things mother like about when exclusively breast fed their babies</b>					
I feel that I'm giving my infant all the nutrients he/she needs to be healthy	15%	1%	1.775	1	0.183
I'm giving my infant all the nutrients he/she needs for optimal brain development	2%	10%	4.457	1	0.001
My breast milk is good enough quality to nourish my infant so that he/she does not need any other food, water, or infant formula until he/she completes 6 months of age	41%	1%	6.263	1	0.001

With regard to the things a mother likes about when she exclusively breastfed her baby, a small percentage of the doers (2%) compared to the Non-Doers (10%) believe that exclusive breastfeeding will benefit the baby to acquire all the nutrients needed for optimal brain development. The difference was significant at 0.001 levels ( $\chi^2=4.46$ , df 1, 2-tailed  $p<0.05$ ). On the other hand, a larger percentage of does (41%) compared to the Non-Doers (1%) perceived that breast milk is good enough quality to nourish a child so that the child does not need any other additional food, water, or infant formula until the child completes 6 months of age. The difference was significant at 0.001 levels ( $\chi^2=6.263$ , df 1, 2-tailed  $p<0.05$ ).

### Negative attributes and exclusive breast feeding practices

With regard to the negative attributes, both groups (Doers and Non-Doers) were asked about bad consequences and disadvantages they thought about if they practice the recommended exclusive breastfeeding action. A total of five questions are presented to them. Figure 4.2 shows the respondents reply to these questions. The Doers' and the Non-Doers' response to these questions implied that a larger percentage of Non-Doers compared to the Doers had a negative perception towards exclusive breastfeeding due various reasons as explained one after another underneath.



**Figure 4.2 Barriers related to negative attributes to exclusive breastfeeding reported**

All Non-Doers (100%) compared to a small percentage of Doers (11%) perceived that giving only breast milk for a child will made the child hungry. The difference was significant at 0.0001 levels ( $\chi^2=38.77$ , df 1, 2-tailed  $p<0.05$ ). Almost all Non-Doers (99%) compared a small percentage of doers (16%) perceived that exclusive breastfeeding hinders the child to easily train to other foods when the child is ready for other solid foods. The difference was significant at 0.001 levels ( $\chi^2=31.22$ , df 1, 2-tailed  $p<0.05$ ). Similarly, almost all Non-Doers (98%) compared to very small percentage

Doers (2%) perceived that breast milk by itself does not make the child to be strong and healthy unless it is supplemented by other foods. The difference was significant at 0.001 levels ( $\chi^2=66.22$ , df 1, 2-tailed  $p<0.05$ ). Remarkably, all Non-Doers (100%) compared to a small percentage of Doers (9%) perceived that their breast did not produce enough milk that could suffice for their child. The difference was significant at 0.001 levels ( $\chi^2=45.48$ , df 1, 2-tailed  $p<0.05$ ). Moreover, nearly all Non-Doers (98%) compared to very small percentage of Doers (3%) perceived that breast feeding will make them busy hinder them to accomplish other tasks as needed. The difference was significant at 0.0001 levels ( $\chi^2=59.74$ , df 1, 2-tailed  $p<0.05$ ).

#### **4.3.4.2 Barriers to comply with initiation of complementary feeding practice**

The Chi-square test results for the questions presented for both group of (Doers) and (Non-Doers) of timely initiation of complementary feeding are presented in Table 4.5. The constructs related to the barriers mothers have to comply with timely initiation of complementary feeding practices are explained by perceived susceptibility, perceived severity, perceived action efficacy, perceived social acceptability, perceived self-efficacy, cues for action and the negative and positive attributes. The analysis shows that there was significant difference between mothers who did the action and those who did not at  $p$ -value  $<0.05$  for with regard to these constructs in Ofla District. However, with regard to questions related to perception of God's Will, insignificant difference was observed between the Doers and Non-Doers of the action.

**Table 4.5 Barriers related to timely initiation of complementary feeding reported**

<b>Barriers reported</b>	<b>Doer (n=28)</b>	<b>Non-Doers (n=10)</b>	<b>Chi-square</b>	<b>df</b>	<b>P-Value</b>
<b>Perceived susceptibility</b>					
Perceived that their child could be malnourished	61%	100%	5.52	1	0.019
Thought that a child could suffer from any illness if he/she not given complementary foods at six months of age	81%	50%	3.40	1	0.044
<b>Perceived severity</b>					
Perceived that malnutrition is a serious problem	93%	50%	9.01	1	0.001

Barriers reported	Doer (n=28)	Non-Doers (n=10)	Chi-square	df	P-Value
<b>Perception of Divine Will</b>					
It's God's will that some children are malnourished	29%	50%	1.35	1	0.222
Children sometimes could get malnourished due to spiritual or supernatural causes	28%	50%	1.50	1	0.220
<b>Perceived action efficacy</b>					
Think that introducing appropriate complementary to your child at the age of 6 months can prevent malnutrition	93%	50%	9.06	1	0.003
<b>Perceived social acceptability</b>					
Husband/partner approves if you give your child appropriate complementary feeding at the age of 6 months	53%	100%	7.05	1	0.008
Health care providers approves if you give your child appropriate complementary feeding at the age of 6 months	64%	1%	7.07	1	0.007
<b>Perceived self-efficacy</b>					
Easy for me to feed my child with complementary foods when he/she completes 6 months old	96%	45%	11.95	1	0.001
<b>Cues for action</b>					
It's easy to remember to feed my child with complementary foods when he/she completes 6 months old	96%	55%	16.24	2	0.000

### *Perceived-susceptibility and initiation of complementary feeding practice*

With regard to the perceived susceptibility, two questions are presented to both groups (Doers and Non-Doers) to assess their perceived susceptibility towards timely initiation of complementary feeding. These questions are related to mother's perception about likelihood of child malnutrition and the illness that results from failure of timely initiation of complementary feeding (Table 4.5). The study shows that all Non-Doers (100%) compared to more than 50% the Doers (61%) perceived that their child could be malnourished. The difference was significant at 0.019 levels ( $\chi^2=5.53$  df 1, 2-tailed  $p<0.05$ ). This implies that the Non-Doers compared to the Doers are more cognisant that malnutrition could manifest among children. Nevertheless, the percentage of Doers (81%) compared to half of the Non-Doers (50%) perceived that a child could get sick if she/he fed with foods other than breastmilk before the child gets six months. The difference was significant at 0.044 levels ( $\chi^2=1.44$ , df 1, 2-tailed  $p<0.05$ ). This implies

that about eight out of the 10 Doers follow the appropriate timing when a child should start complementary food, while about half of the Non-Doers (five out of the 10 Non-Doers) did not.

*Perceived severity and initiation of complementary feeding practice*

With regard to perceived-severity, there was significant difference between the Doers and the Non-Doers of the practice of the recommended complementary feeding (Table 4.5). About Doers (93%) perceived that malnutrition is a serious problem compared to those about half of the Non-Doers (50%). The difference was significant at 0.001 levels ( $\chi^2=9.01$ , df 1, 2-tailed  $p<0.05$ ). This indicates that almost half of the of the recommended complementary feeding practice did not understand that malnutrition is a serious problem compared to those doers. However, additional information is necessary to apprehend the basic motivation for this difference among the two groups.

*Perception of Divine Will and initiation of complementary feeding practice*

In terms of perception of Divine Will, there was no significant difference in response between the two groups of mothers. Table 4.6 shows the percentage of Doers and Non-Doers who believe that it's God's Will that some children got sick and who believe that children got malnourished because of some supernatural or spiritual things. The statistical test show that there was no significance difference ( $p$ -value  $>0.05$ ) between the Doers and Non-Doers in terms of their perception to God's Will to child feeding.

**Table 4.6 Mothers perception of Divine Will on timely initiation of complementary**

<b>Barriers reported</b>	<b>Doers (n=28)</b>	<b>Non-Doers (n=10)</b>	<b>Chi-square</b>	<b>df</b>	<b>p-value</b>
<b>Perception of Divine Will</b>					
It's god's will that some children are malnourished.	<b>29%</b>	<b>50%</b>	<b>1.359</b>	<b>1</b>	<b>0.222</b>
Children sometimes could get malnourished due to spiritual or supernatural causes.	<b>28%</b>	<b>50%</b>	<b>1.503</b>	<b>1</b>	<b>0.220</b>

### *Perceived action efficacy and initiation of complementary feeding practice*

With regard to perceived action efficacy, there was significant difference between the Doers and the Non-Doers of the complementary feeding action (Table 4.5). About 93% of the Doers compared to half of Non-Doers (50%) thought that introduction of complementary food when a child completes six months could prevent the child from becoming malnourished. The difference was significant at 0.003 levels ( $\chi^2=9.06$ , df 2, 2-tailed  $p<0.05$ ). This indicates that the majority of the Doers compared to half Non-Doers comprehend that malnutrition could happen among children if they did not start giving of complementary foods timely at the right age.

### *Perceived social acceptability and initiation of complementary feeding practice*

With regard to perceived social acceptability, mothers are asked who among the different people close to them mostly approves if they want to comply with the recommend timing to give complementary foods to their children. Table 4.5 shows the results. The participant mothers from both group (Doers and Non-Doers) mentioned that the people who mostly accept the right timing to initiate complementary food for children were their husband/partner and health workers. The Chi-square results was significant among the two participant groups in terms of the people that approves the action, for example, all the Non-Doers (100%) compared to more than half of the Doers (53%) reported that their husband/partner is the one who mostly approved if the mother wanted to start complementary food as the child completes six months of age ( $\chi^2=7.06$ , df 1, 2-tailed  $p<0.05$ ). However, those who reported that the action is approved mostly by the health workers were significantly very few of Non-Doers (1%) compared to the majority of Doers (64%). The difference was significant at 0.007 levels ( $\chi^2=7.07$ , df 1, 2-tailed  $p<0.05$

### *Perceived self-efficacy and initiation of complementary feeding practice*

With regard to perceived self-efficacy, about 96% of the Doers compared to 55% Non-Doers perceived that it is easy to give complementary food when their child finishes six months of age (Table 4.5). The difference was significant at 0.001 levels ( $\chi^2=11.95$ , df 1, 2-tailed  $p<0.05$ ). This indicates that the overall perceived self-efficacy towards timely initiation of complementary food among the two groups was virtuous, but doing the

action was easy for the majority of Doers compared to the Non-Doers. However, it needs further study why and how it is easy to do the action for most of the Doers than the Non-Doers of the action.

#### *Cues for action and initiation of complementary feeding practice*

The construct of cues for action in this study indicates a significant difference between Doers and Non-Doers in memorising to initiate complementary foods at the right age ( $p$ -value  $>0.05$ ). About 96% of the Doers compared to six-in-10 (45%) the Non-Doers recalled the right age of their child and timing to start complementary food to their child (Table 4.5). The difference was significant at 0.0001 levels ( $\chi^2=16.243$ ,  $df$  1, 2-tailed  $p<0.05$ ). This indicates that most of the Doers of the action did correctly remember when to initiate complementary food for a child, while there were many Non-Doers (40%) who did not correctly recall.

#### *Positive attributes and initiation of complementary feeding practice*

In this study, the construct of positive attributes mothers to comply with the recommended timing of commencing complementary food to children was explained by two topics. These are perceived benefits of complementary food, which includes two questions and the things mothers like about when giving complementary foods to their children, which is explained by another two questions (Table 4.7). As this table shows, one out of the two questions that explain perceived benefits of complementary feeding and both questions explain the things mothers like when they give complementary food to their children show statistically significant difference between the Doers and the Non-Doers of the actions.

**Table 4.7 Positive attributes to timely initiation of complementary feeding reported**

Positive attributes	Doer (n=28)	Non-Doers (n=10)	Chi-square	df	P-Value
<b>Perceived benefits in giving a variety of foods from the age of 6 months in addition to breast milk.</b>					
To meet the requirements of the essential minerals	99%	98%	0.467	1	<b>0.54</b>
To complement breast milk	1%	67%	21.156	1	<b>0.000</b>
<b>Things mother like about when giving CF at six months</b>					
To fill baby's stomach so that baby will not cry	7%	81%	20.17	1	<b>0.000</b>
It is essential for my baby to grow smart and strong	99%	18%	15.23	1	<b>0.003</b>

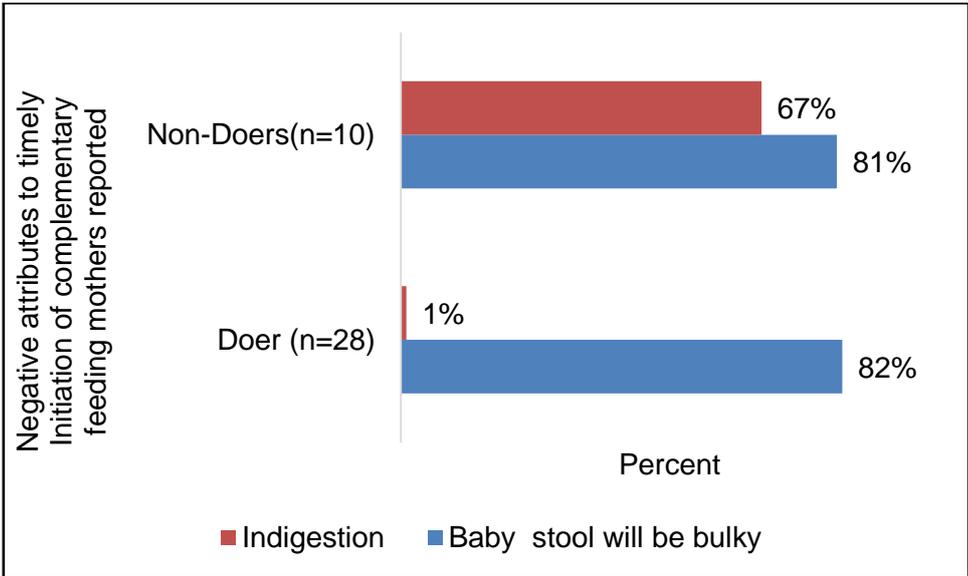
In terms of perceived benefits, for example, the result shows that the majority of the Non-Doers (67%) compared to few Doers (1%) perceived that initiation of complementary food for a child at six months complements breast milk. The difference was significant at 0.0001 levels ( $\chi^2=21.16$ , df 1, 2-tailed  $p<0.05$ ). This indicates that the majority of the Non-Doers compared to the Doers of the action perceived that breastmilk need to be complemented by other solid foods when a child completes six months of age.

With regard to the things mother like about timely initiation of complementary food, almost all Doers (99%) compared some Non-Doers (18%) perceived that initiation of complementary food at six months is essential for a child to grow, be smart and strong. The difference was significant at 0.001 levels ( $\chi^2=15.23$ , df 1, 2-tailed  $p<0.05$ ). The answer to this question by the Doers seems varying with the response they gave to the previous question which explains the perceived benefits both groups of mothers reported about complementary feeding. However, this result is indicative that the Doers of the action gave complementary food to their children at the right age because they believe that doing so helps their children to grow, be smart and strong, while the Non-Doers did not so.

Similarly, a small percentage of the Doers (7%) compared to the majority of Non-Doers (81%) believe that it is good to give complementary foods for a child even before the child gets six months in order for the child get full in its stomach so that the baby will not cry. The difference was significant at 0.0001 levels ( $\chi^2=20.17$ , df 1, 2-tailed  $p<0.05$ ). This implies that the Non-Doers of the action, who gave complementary foods to their children before their children reach six months old, wrongly perceived that if a child cries thus, the child is hungry as the food the child gets from breastmilk is not enough.

*Negative attributes and initiation of complementary feeding practice*

With regard to the negative attributes both groups (Doers and Non-Doers) are asked about the things and disadvantages, they perceive if they comply with the recommended complementary feeding action. Two questions are presented to them. Their response to these questions is presented in Figure 4.3. As the figures shows in this study, the Doers and the Non-Doers response towards only one question was statically significant. About 67% of Non-Doers compared to very small percentage of Doers (1%) perceived that giving of variety of foods in addition to breastmilk for a child who completed six months causes' indigestion. The difference was significant at 0.0001 levels ( $\chi^2=21.156$ , df 1, 2-tailed  $p<0.05$ ).



**Figure 4.3 Negative attributes to timely Initiation of complementary feeding mothers reported**

#### **4.4 CONCLUSION**

In this chapter, data were analysed, presented and interpreted in accordance with the three sections of the questionnaire, namely; background characteristics of mothers, their practice towards the WHO recommended exclusive breastfeeding practices and timely initiation of complementary feeding and the barriers the respondents had to comply with these recommended child feeding practices. Based on the findings of this study conclusions and recommendations are made, these together with the limitation and concluding remarks of this study will be discussed in the next chapter.

## **CHAPTER 5**

### **CONCLUSION AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

This chapter has six sections. The first section is the introduction. The second section discusses about research design and method of the study. The third section discusses the summary and interpretation of the research findings. In this section, barriers preventing compliance with the WHO recommended exclusive breastfeeding and timely initiation of complementary food practices in the study district are discussed. The fourth section is the conclusion, followed by section five, the recommendation section and the last section which is limitation of the study.

#### **5.2 RESEARCH DESIGN AND METHOD**

In this study, the researcher has used an exploratory, descriptive correlational research design that employed the nature of cross-sectional study. The researcher's aim in this study was to describe and explore the different types of barriers mothers have to comply with infant feeding practices, namely; exclusive breast feeding and timely introduction complementary feeding. Thus, the researcher has explored the different types of barriers without manipulating any of the variables but simply observed the correlation between the feeding practices and the likely barriers mothers have to comply with these practices, in Ofla District, in Tigray Region in Ethiopia.

A probability sampling method was used in this study. In order to select participant mothers or caregivers from the study district, a systematic random sampling method was used. The sample size was determined based on the sample size estimation that WHO uses to calculate the two core infant and young child feeding practice indicators (exclusive breast feeding among 0-5 month's age of children and introduction of solid, semi-solid and soft foods 6 to 8 months age). Thus, based on the WHO estimation, a total of 113 samples where 75 mothers and care givers with children aged 0-5 months and 38 children aged 6-8 months were sampled for the study. A structured data collection instrument was used. Data were collected by trained enumerators. The data

collected was cleaned through SPSS software and the analysis was done through this software by the researcher.

### **5.3 SUMMARY AND INTERPRETATION OF THE RESEARCH FINDINGS**

#### **5.3.1 Barriers to exclusive breast feeding in Ofla District**

The analysis of the questionnaire results suggest that a total of 38 participant mothers with children aged 0-5.9 months of age participated in this study, in Ofla District. These mothers are grouped into two participant groups. Mothers who practiced the WHO recommended exclusive breastfeeding practices were called 'Doers' in this study while others who did not do the action, called "Non-Doers" of the action. About 87 % of the mothers have done the recommended practice (Doers), while the rest 13% did not (Non-Doers). The Doers and the Non-Doers reported the barriers they have whether or not to comply with this practice. The results from the analysis are the following.

With regard to perceived-susceptibility, the majority of Doers (54%) of the recommended action compared to the small percentage of Non-Doers (18%) perceived that a child could suffer from any illness unless the child is exclusively breastfed with only breast milk until the age of six months. The p-value shows that there is significant difference among the two groups. This implies that one reason that Doers are adhered to this appropriate infant feeding practice in the study district, because they perceived that their child could be malnourished and suffer from any sickness unless the child is exclusively breastfeed with only breast milk. On the other hand, the Non-Doers' perception towards exclusive breast feeding practice was limited. The Non-Doers thought that this feeding practice has nothing to do with child malnutrition and child sickness; as a result, they did not adhere to execute the practice.

With regard to perceived-severity, almost all Doers (99%) compared with few Non-Doers (20%) in the study district perceived that malnutrition is a serious problem (<0.05). This indicates that the Non-Doer mothers did not think that a serious problem could happen to their children whether or not they comply with exclusive breastfeeding. As a result, they did not follow the appropriate exclusive breastfeeding action than those Doers did. The Doers, on the other hand, perceived that malnutrition could be resulted from doing inappropriate breastfeeding practice. Therefore, mothers' behaviour related

to the degree of their perception towards the severity the problem that might result from doing or not doing exclusive breastfeeding, could be one barrier to mothers to comply or not with the recommended practice in the study district. However, additional information is needed to understand the basic motivation for this difference among the Doers and Non-Doers of the action the study district.

In terms of perception of Divine Will, the p-value does not show significant difference between both groups, the Doers and the Non-Doers of exclusive breastfeeding in the study district. Both groups of mothers believed that it is God's Will in order for a child to nurture and grow healthy (Doers, 57% versus Non-Doers 80%), p-value >0.05. This implies that both groups in the study district believed that it's Divine Will rather than the perception to comply with the recommended feeding practice in order to enhance the nutrition status of their children. However, there could be other reasons that Doers have increased perception of control regarding the nutrition status of their children. The Non-Doers, on the other hand, possibly will accept as true that they cannot change the health of their child due to Gods' Will.

The result to the question to with regard to perceived action efficacy shows that the majority of the Doers (90%) compared to few Non-Doers (18%) thought that exclusive breastfeeding of infants with only breast milk until six months could prevent the occurrence of malnutrition among infants. This indicates that the Doers in the study district realise that malnutrition could happen among children if they did not exclusively breastfeed. Conversely, the Non-Doers did not, because they thought that exclusive breastfeeding may not work to help to prevent a child from being malnourished.

The response to the question related to perceived social acceptability shows that both participant groups (Doers and Non-Doers) mentioned that among others husbands and health workers are the ones who mostly accept if mothers are to comply with recommended exclusive breastfeeding. The p-value in terms of the people that approves the action, for example, husband/partners (60% Doers, 2% Non-Doers, and health care workers (37% Doers, 100% Non-Doers) was significant, with a p-value <0.05. This indicates that the Doer mothers do the appropriate breastfeeding action because their husbands accept their wives' action. On the other hand, the Non-Doer mothers did not because their husbands disapprove if they want to comply with the appropriate practice, regardless of their personal opinion. Conversely, however, all Non-

Doers reported that the health workers are the ones who mostly approve if they want to comply with the appropriate breastfeeding practices, although health workers are not as such influential people who approve the action of exclusive breastfeeding for the Doers than their husbands did. This also indicates that although the health workers are ones who approve if Non-Doers adhere to the appropriate practice, they did not practice, because they could be influenced by the disapproval from their husbands.

With regard to the perceived self-efficacy, the p-value shows that there was significant difference in response between the two participant groups. About 95% of the Doers compared to few Non-Doers (2%) perceived that it is easy to exclusively breastfeed their babies with only breast milk until the baby gets six months old. The variation in response among the two groups shows that Doers believed that it was easier to exclusively breastfeed their children than the Non-Doers did so. This implies that the Non-Doer mothers thought that exclusive breastfeeding is difficult task to accomplish due the reasons, for example, ability, access and cost related reasons. However, it needs further study why and how easy to do the action for the Doers than to the Non-Doers in the study district.

The results for cues for action in this study indicate that there was a significant difference between Doers (95%) and Non-Doers (20%), at a p-value of  $<0.05$ . This implies that it was easy for most of Doers to recall to exclusive breastfeed their babies with only breast milk until the baby gets six months. However, it was difficult for Non-Doers for many reasons that cannot be explained with the limited information collected in this study. Nevertheless, this study shows that if the mother does not remember to do the infant feeding actions or cannot remember the actions, then her knowledge and opinion about the actions (whether it works) does not matter.

In this study, the two participant group's answer towards the questions related to positive attributes of exclusive breastfeeding practices showed significant difference. In terms of perceived benefits of exclusive breastfeeding, for example, the majority of the Doers (82%) compared to the Non-Doers (19%) perceived that exclusive breastfeeding prevents their baby from becoming sick. This implies that the Doers of the action do the action because they perceived that in doing the appropriate action could results in an affirmative benefit on their children's health. Conversely, Non-Doers either did not

realise the benefits of breastfeeding or doing the appropriate action did not give them enjoyment/fulfilment in life, hence did not comply with the appropriate feeding practice.

The p-value shows that there was a significant difference among the two participant groups with regard to the things mother like about when they practice exclusive breastfeeding. A small percentage of Non-Doers (10%) compared with other few Doers (2%) believe that exclusive breastfeeding will benefit a baby to get all the nutrients needed for optimal brain development. In the study district, the majority of both Doers and Non-Doers had limited awareness that breastfeeding has a benefit for a child to get the essential nutrients for growth. But, the Non-Doers had better understanding than the Doers. Therefore, this finding implies that the Doers of the action did practice the appropriate action because other reasons they might have positively perceived as indicated somewhere in this study. On the other hand, a larger percentage of Doers (41%) compared to few Non-Doers (1%) perceived that breast milk is good enough quality to nourish a child so that the child does not need any other food, water, or infant formula until the child completes six months of age. Therefore, this is indicative that the Non-Doers in the study district give other foods to their children who are under six months of age because they perceived that breastmilk by itself is not enough for a baby of this age, while the Doers recognise that exclusive breast feeding (breastmilk) is complete by itself for a child until six months.

A significant difference was observed among the participant groups (Doers & Non-Doers) in responding the different questions presented with regard to negative attributes to the practice of exclusive breastfeeding. All Non-Doers (100%) compared to a small percentage of Doers (11%) perceived that only breast milk will make the child be hungry, p-value <0.05. Almost all Non-Doers (99%) compared to some Doers (16%) perceived that exclusive breastfeeding will not help a child to train to other foods when the child is ready for complementary foods, p-value <0.05). Similarly, almost all Non-Doers (98%) compared to very small percentage Doers (2%) perceived that only breast milk does not make the child to be strong and healthy, p-value 0.05. Remarkably, all Non-Doers (100%) compared to some Doers (9%) perceived a mothers breast do not produce enough milk that will be sufficient for a child who is less than 6 months of age, p-value <0.05. Moreover, nearly all Non-Doers (98%) compared to very small percentage of Doers (3%) perceived that breastfeeding will make mothers to be busy, so that they may not able to accomplish other tasks as needed, p-value <0.05.

Collectively, the Non-Doers of the practice in the study district did not adhere to the recommended infant feeding practices because of some perceived barriers related to behaviours, actions and norms that mothers believed that doing the practice would not make them enjoy and feel good as a mother. These barriers could also be related to perceived milk insufficiency, the perception baby continued to be hungry after feeding, fear of infant becoming addicted to breast milk, mothers' perception that breastfeeding is too tiring, and feeling dizzy at times during breastfeeding, as constraints to adhere to recommended infant feeding practices in the study district.

### **5.3.2 Barriers to comply with timely initiation of complementary feeding practice**

The analysis of the questionnaire results suggests that a total of 75 participant mothers with children aged 6 to 11.9 months of age participated in the study in Ofla District. These mothers are grouped into two participant groups. Mothers who timely initiated complementary foods, called 'Doers' in this study and others who gave complementary food before or long after their child get six months old, called "Non-Doers of the action. About 76 % of the mothers have done the recommended practice (Doers), while the rest 24% did not (Non-Doers). The Doers and the Non-Doers had reported the barriers they have to whether or not to comply with this practice. The results from the analysis are presented below.

The participant groups response to the question related to perceived susceptibility was significantly varied at p-value <0.05. The majority of Doers (81%) compared to half Non-Doers (50%) perceived that a child could get sick if it is fed with foods other than breastmilk before the child gets six months. This implies that most Doers are aware that if a child starts complementary food before six months, the child could be predisposed to illness. As a result, Doers follow the appropriate timing to introduce complementary food to children, while the Non-Doers' perception in this regard was limited; hence did not adhere to this appropriate practice.

With regard to the response to the question related to perceived - severity, many Doers (93%) compared to about half Non-Doers (50%) perceived that malnutrition is a serious problem, p-value <0.05. This indicates the majority of the Doers believe that malnutrition is a serious problem among children compared to those Non-Doers who perceived that malnutrition is not a problem among children. Most of the Doers, in the study district,

thus followed the recommended timing to introduce complementary foods than those about half of the Non-Doers who did not adhere to this feeding practice because they wrongly perceived that malnutrition is not a serious health problem. However, additional information is necessary to apprehend the basic motivation for this difference among the two groups in the study district.

In terms of perception of Divine Will, there was no significant difference in response between the two group of mothers, (Doers 28% versus Non-Doers 50%),  $p$ -value  $>0.05$ . This implies both groups had equal perception to Gods' Will and believed that children might get malnourished due to supernatural or spiritual causes. This could also indicate that both groups have the perception that their children's' nutritional status was controlled by other factors, which they do not have a control to change by themselves.

The study shows that there was significant difference between the Doers and the Non-Doers with regard to the response to the question related to perceived action efficacy. Almost all Doers (93%) compared to half of Non-Doers (50%) in the study district thought that timely introduction of completely food could prevent children from becoming malnourished. This indicates that the most Doers perceived that malnutrition could happen among children if they did not start complementary food for a child at the right age. On the other hand, the Non-Doers thought that such infant feeding actions do not work to help a child from becoming malnourished, thus did not adhere to the recommended practice.

The response to the question related to perceived social acceptability to comply with timely initiation of complementary food presented to both participant groups shows significant difference. All Non-Doers (100%) compared to a little above half of Doers (53%) mentioned that husbands were the ones who mostly approve if a mother is to comply with the recommended timing of initiation of complementary food,  $p$ -value  $< 0.05$ . However, most Doers (60%) compared to very few Non-Doers (1%) mentioned that health workers are the ones who mostly approves if a mother wants to comply with this action. This indicates that the Non-Doers did not comply with practice of timely initiation of complementary food even though their husbands did approve the practice. Therefore, the reason why the Non-Doers, in the study district, did not comply with this appropriate practice could be emanated from other reasons or misconceptions associated with other behavioural barriers. On the other hand, for most Doers knew that

if they do this practice that it is socially accepted by both their husbands and health workers; as a result, they are motivated to comply with the recommended practice.

With regard to perceived self-efficacy, there was significant difference with the response given by both participant groups. Nearly all Doers (96%) compared to more than half Non-Doers (60%) perceived that it is easy to give complementary food when their children completes six months of age,  $p$ -value  $<0.05$ . This indicates that the overall perceived self-efficacy towards timely initiation of complementary food among the two groups was virtuous, but doing the action was easy for the majority of Doers compared to rest about 40% Non-Doers. In the study district, the reason why the Non-Doers did not adhere to the practice could be related to scarcity of supplies and/or, related to the less skill of mothers to prepare food for their children and thought that it is costly to prepare children's food in terms of finance and time. However, it needs further study why it was easy to do the appropriate practice for most of the Doers than the Non-Doers and how easy was the action for the Doers and difficult for the Non-Doers of the practice in Ofla District.

The response of the participant groups to the question related to cues for action in order to comply with timely initiate complementary food shows significant difference in the study district. In this study, it was easy for about 96% of the Doers compared to six-in-ten (60%) of the Non-Doers to recall the right time when to start complementary food to their child,  $p$ -value  $<0.05$ . This indicates that one reason that the Doers complied with this practice is that because the Doers recalled exactly when to introduce complementary foods for their children. On the other hand, the Non-Doers about (40%) did not, because it was difficult for them to recall when exactly to start to introduce complementary foods for their babies.

There was significant variation among the two participant groups' response to the questions related to perceived benefits of timely initiation of complementary food. The majority of the Non-Doers (67%) compared to the few Doers (1%) perceived that initiation of complementary food for a child before six months complements breast milk,  $p$ -value  $<0.05$ . This indicates that the majority of the Non-Doers compared to the Doers introduced complementary foods for their child before the child completes six months because they perceived that breastmilk by itself is not complete thus, thought that it is was good to supplement with other solid foods in order the child to satisfy or get the

required amount of food the child needs. However, the Doers perceived that only breastmilk is sufficient for under six month's old child. As a result, they complied with the recommended timing of complementary feeding. Similarly, a small percentage of the Doers (7%) compared to the majority of Non-Doers(81%) liked that it is good to give complementary foods for a child even before the child gets six months in order to satisfy child's starvation so that the baby would not cry.

In this study, there was significant difference among the two participant groups with regard to their response to questions related to the things they like about timely initiation of complementary food. Almost all Doers (99%) compared to few Non-Doers (18%) perceived that initiation of complementary food at six months was essential for a child to grow, be smart and strong,  $p$ -value  $<0.05$ . This implies that what gives enjoyment and fulfilment in life for the Doer mothers was when they see their children grow strong and smart. Moreover, Doers perceive that complying with the practice of timely initiation of complementary foods would help them to be proud that their children grow well so that they will be happy about it. Thus, one reason that Doers group did the practice was not because practice is associated with a given preventive action that makes them more likely to do positive behaviour but with something related to what they like to do about.

In this study, there was significant difference among the two participant groups response to the question related to negative attributes of the timely initiation of complementary feeding. About 67% of Non-Doers compared to almost nil Doers (1%) perceived that provision of variety of foods in addition to breastmilk for a child who completes six months of age causes' indigestion,  $p$ -value  $<0.05$ . This implies that Non-Doers in the study district believe that introduction of solid foods for children at six months consequences a problem on the child such as indigestion, thus such perceived misconception among these group deterred them to introduce complementary foods at the recommended age but late after the recommended time.

#### **5.4 RECOMMENDATIONS**

This study was effective in the understanding of common barriers related to the WHO recommended exclusive breastfeeding and timely initiation of complementary feeding practises in Ofla District, in Tigray Region in Ethiopia. The study can lead to effective

future intervention for the improvement of malnutrition prevention projects, hence to decrease child mortality in the study district.

The list below shows the recommendations from this study characterised by the different barriers related mother's perceptions to comply with the WHO recommended exclusive breastfeeding and timely initiation of complementary feeding practices:

- Increase awareness of the prevention of illness and malnutrition in the study district.
- Increase knowledge about importance of exclusive breast feeding and timing of introduction of complement food in the study district.
- Improve the mothers knowledge/recall on appropriate exclusive breast feeding and timely initiation of complementary food though targeted and timely focused counselling in the study district.
- Improve mother's perception on God's Will to child feeding and malnutrition.

## **5.5 LIMITATIONS OF THE STUDY**

- In this study, the methods used to collect data are restricted to the inquiry of quantitative information; as a result, it was difficult to put a detail explanation under each perceived barrier reflected by the study participants as to why certain barriers are positively or negatively help mothers to comply or not with the recommended infant feeding practices in the study district.
- The data collection process also did not take account of any stratification of the participants by income and educational level; there may have been further analysis possible if the data had been differentiated by such socio-demographic characteristics.

## **5.6 CONCLUSION**

In this study, the different barriers reflected by mothers in order to comply with the WHO recommended exclusive breastfeeding and timing of initiation of complementary feeding practices was studied in Ofla District, in Tigray Region in Ethiopia. The study shows that that there are barriers related to mothers' perceived susceptibility, perceived severity,

perceived benefits, perceived barriers, perceived self-efficacy, cues for actions, perceived social acceptability and mothers positive and negative attitudes towards these two feeding practices. The barriers to comply or not with the recommended feeding practices reflected by the participant groups, Doers and Non-Doers, were significantly different with regard to these perceptions. On the other hand, the participant's perception of both groups with regard to perception of Divine (God's) Will on two child feeding practices was insignificantly the same. Both groups perceived that children could get sometimes malnourished because of spiritual or supernatural causes.

## REFERENCES

Alive & Thrive. 2010a. *Infant and Young Child Feeding in Communities: A Rapid Assessment in Tigray and SNNPR*. Addis Ababa, Ethiopia. Retrieved from: [www.aliveandthrive.org](http://www.aliveandthrive.org) (accessed 22 March 2013).

Alive & Thrive. 2010b. *IYCF practices, beliefs, and influences in Tigray Region, Ethiopia*. Addis Ababa, Ethiopia. Retrieved from: [www.aliveandthrive.org](http://www.aliveandthrive.org) (accessed 22 March 2013).

Alive & Thrive. 2010c. *Practices, IYCF practices, beliefs, and influences in SNNP region, Ethiopia*. Addis Ababa, Ethiopia. Retrieved from: [www.aliveandthrive.org](http://www.aliveandthrive.org) (accessed 22 March 2013).

Alive & Thrive. 2012. *Perception, practice and promotion of infant feeding practices: Results and program implications of assessments in Bangladesh, Dhaka*. Retrieved from: [www.aliveandthrive.org](http://www.aliveandthrive.org) (accessed 22 March 2013).

Babbie, E. 2010. *The practice of social research*. 12<sup>th</sup> edition. USA: Wadsworth.

Central Statistical Agency (Ethiopia). 2007. *Ethiopian population and housing census results, Addis Ababa, Ethiopia*.: Central Statistical Agency.

Central Statistical Agency (Ethiopia). 2012. *Ethiopia Demographic and Health Survey 2011, Addis Ababa, Ethiopia and Calverton, Maryland*. USA: Central Statistical Agency and ICF International.

CSA see Central Statistical Agency.

Davis, Jr. 2004. *Barrier analysis: A tool for improving behavior change communications in child survival and community development programmes*. Retrieved from: <http://barrieranalysis.fhi.net.htm> (accessed 26 May 2013).

Davis, Jr., & Thomas P. 2008. *Barrier analysis facilitator's guide: A tool for improving behavior change communication in child survival and community development programs*. Washington, DC: Food for the Hungry.

Kimani-Murage, Elizabeth W, Madise, N, Fotso, J, Kyobutungi, C, Mutua , M, Gitau, T & Yatch, N. 2011. Patterns and determinants of breastfeeding and complementary feeding practices in urban informal settlements, Nairobi Kenya. *BioMed* 11(396).

Food and Agricultural Organization. 2013. *FAO corporate document repository: The family nutrition guide:Feeding babies aged 0-6 months*. Retrieved from: <http://www.fao.org> accessed (accessed 29 January 2013).

Federal Democratic Republic (Ethiopia). Ministry of Health. 2013. *National nutrition program: June 2013-June 2015*. Ethiopia: Government Printer.

FAO see Food and Agricultural Organization.

GFDRE see Government of the Federal Democratic Republic (Ethiopia). Ministry of Health.

Government of the Federal Democratic Republic (Ethiopia). Ministry of Health. 2013a. *National strategy for infant and young child feeding*. Addis Ababa: Government Printer.

Government of the Federal Democratic Republic (Ethiopia). Ministry of Health. 2013b. *National nutrition programme June 2013-June 2015*. Addis Ababa: Government Printer.

Institute, NN. 2010. *Complementary feeding practices - evidence-based: Communication for optimal complementary feeding*, Kolkata: Nestle Nutrition Institute.

Lancet. 2013. Maternal and child nutrition. *Maternal and child Nutrition: Building Momentum for Impactt .The Lancets* 4:15-39.

Linkages. 2010. *Policy dialogue on infant feeding*. Retrieved from: <http://www.linkagesproject.org> (accessed 5 November 2013).

Mokori A., and Orikushaba P. 2012. Nutritional status, complementary feeding practices and feasible strategies to promote nutrition in returnee children aged 6-23 months in northern Uganda. *South African Journal of Clinical Nutrition* 25(4) : 173-179

Mukuria, A. 2009. Infant and young child feeding updates. Calverton, Maryland. USA: USAID.

Microsoft Encarta 2009 for Windows. Encarta Dictionaries. 2010. [CD-ROM]. Available at: microsoft Corporation, USA.

Mushaphi, LF. 2010. Infant-feeding practices of mothers and the nutritional status of infants in the Vhembe District of Limpopo Province. Venda: *South African Journal Of Clinical Nutrition* 21(2) 36-41.

Nankumbi, J. 2012. Feeding practices and nutrition outcomes in children: examining the practices of caregivers living in a rural setting. *ICAN: Infant, Child and Adolescent Nutrition* 4(6):102-103.

Ogunleye, OM. 2012. Constraints to exclusive breastfeeding practice among breastfeeding mothers in Southwest Nigeria: implications for scaling up. *International Breastfeeding Journal* 7(5):1-10.

PATH & CARE. 2011. *Formative assessment on infant and young child feeding practices in federal capital territory*. Nigeria: Government Printer.

Polit, D & Beck CT. 2008. *Nursing research: Generating and Assessing evidence for nursing practice*. 8<sup>th</sup> edition. New York: Lippincott Williams & Wolters Kluwer.

Schwartz, HL. 2009. Infant feeding practices and beliefs among women in Podar, West Africa. Unpublished Master's dissertation. San Jose State University: San Jose.

Shumey, A, Meaza D & Yemane, B. 2013. Timely initiation of complementary feeding and associated factors among children aged 6 to 12 months in Northern Ethiopia: an institution-based cross-sectional study. *BMC Public Health* 13(1): 1050.

Strydom, H, Fouche ,CB & Delpont, CSL. 2005. *Research at grass roots level: For the social science and Human service professionals*. 3<sup>rd</sup> edition. Pretoria: Van Schaik.

Tesfaye, Setegn. 2012. Factors associated with exclusive breastfeeding practices among mothers in Goba district, south east Ethiopia: A cross-sectional study. *International Breastfeeding Journal* 7(17):1-8.

Tewodros, AJ. 2009. Determinants of exclusive breastfeeding practices in Ethiopia. *Ethiopian Journal of Health Development* 23(1):12-18.

Trochim, WM. 2007. *Research methods*. USA: Atomic Dog.

UNICEF see .United Nations Children's Fund.

United Nations Children's Fund. 2013. *Scaling up nutrition in 12 high burden countries in Eastern and Southern Africa: A focus on preventing child stunting*. UNICEF.

United States of America International Aid . 2011. *Summary of sociocultural and epidemiological findings on infant and young child feeding in 11 countries*. Retrieved from: [www.iycn.org](http://www.iycn.org) (accessed 22 March 2013).

USAID see United States of America International Aid

WHO and UNICEF see World Health Organization and United Nations Children's Fund.

WHO see World Health Organization.

World Health Organization. 2013. *Ten facts about breastfeeding*. Retrieved from: [www.who.int/features/factfiles/breastfeeding/facts/en/index9.html](http://www.who.int/features/factfiles/breastfeeding/facts/en/index9.html) (accessed 4 November 2013).

World Health Organization and United Nations Children's Fund. 2013. *Global strategy for infant and young child feeding*. Geneva: WHO.

World Vision (Ethiopia). 2009. *Formative research. 2009 Report*. Ethiopia.

WV see World Vision.

# ANNEXURES



**UNIVERSITY OF SOUTH AFRICA  
Health Studies Higher Degrees Committee  
College of Human Sciences  
ETHICAL CLEARANCE CERTIFICATE**

**HSHDC/219/2013**

Date: 16 October 2013 Student No: 4510-036-5  
Project Title: Barriers to compliance with exclusive breastfeeding and timely introduction of complementary feeding practices in Ethiopia.  
Researcher: Mesfin Tesfay Tekle  
Degree: Masters in Public Health Code: DIS4986  
Supervisor: Dr LM Modiba  
Qualification: D Cur  
Joint Supervisor: -

**DECISION OF COMMITTEE**

Approved  Conditionally Approved

*[Signature]*  
Prof L Roets  
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE

*[Signature]*  
Prof MM Moleki  
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES



Open Rubric

Annexure 2 Request to conduct the study at the Study District (Ofla Woreda, Tigray Region)



13 MARCH, 2014  
UNISA-ET/KA/ST/29/13-03-14

**TIGRAY REGIONAL STATE HEALTH BUREAU  
MEKELLE**

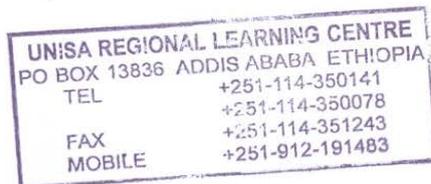
Dear Madam/Sir,

The University of South Africa (UNISA) extends warm greetings to you and the staff of your esteemed bureau. By this letter, we want to certify that Mr. Mesfin Tesfay Tekle (student number 45100363) is a Master of Public Health (MPH) student at UNISA. He is doing his research under the title ***“Barriers to compliance with exclusive breastfeeding and timely introduction of complementary feeding practices in Ethiopia: the case of Tigray Debubawi Zone.”***

Currently, he is at the stage of data collection for which he has secured ethical clearance from the Department of Health Studies (UNISA) – please find attached. This is therefore to kindly ask you to issue him ethical clearance that will allow him to collect the necessary data for his research.

Regards,

Tsige GebreMeskel Aberra  
DD: Academic and ICT Support  
UNISA – Ethiopian Centre for Graduate Studies



University of South Africa  
Regional Learning Center  
P.O. Box: 13836, Addis Ababa, Ethiopia  
Telephone: +251 11 435 2244 / +251 11 435 0078  
Facsimile: +251 11 435 1242/ 43/ 44  
Mobile: +251 912 19 1483  
www.unisa.ac.za

**Annexure 3 Permission to conduct the study the study at the Study District (Ofla Woreda, Tigray Region)**

ብሄራዊ ክልላዊ መንግስቲ ትግራይ  
ቢሮ ሓለዋ ጥዕና



The Government of the National Regional  
State of Tigray, Bureau of Health

ቁጽ 151/365/06  
ዕለት 20/08/06

ናብ ኦሪጋ ወረዳ ጥዕና ቤት ዕ/ት  
ኮረም

**ዋኒት፡- ምትሕብባር ይምልከት፡፡**

ኣብ The University of south Africa (UNISA) ናይ 2<sup>ይ</sup> ዲግሪ ተምሃራይ ዝኾኑ ኣይተ መስፍን ተስፋይ ተኸል "TO STUDY THE BARRIERS TO COMPLIANCE TO EXCLUSIVE BREASTFEEDING AND TIMELY INTRODUCTION OF COMPLEMENTARY FEEDING PRACTICES IN OFLA DISTRICT, TIGRAY REGION , ETHIOPIA" ዝብል ዕንጻት ክካይዱ ስለዝተደለየ ሓበሬታ ኣብ ምሃብ ኣድላይ ዘበል ምትሕብባር ክግበረሎም የተሓሳስብ፡፡



ወናሪ መለስ ንዕብዮትን ዝላን !!  
ኣታኸልቲ ኣብርሃ ደበው  
ምክትል ቢሮ ሓላፊ

7 034-4-40-02-22 034-4440-31-10 ፋክስ 251-4-40-88-30 Fax ኣ.መ.ድ.ል tigrayhealth@ethionet.et E-mail መቐለ, ትግራይ, ኢትዮጵያ Mekelle, Tigray, Ethiopia

## Annexure 4 Questionnaire

### Consent

My name is \_\_\_\_\_ and I'm working for M.T. Tekle who is an MPH student at UNISA University at the Addis Ababa Regional Campus. The student is conducting an assessment on the Barriers to Compliance with exclusive breastfeeding and timely introduction of complementary feeding in this district (woreda). Based on this assessment the student will write a dissertation as partial fulfilment of the requirements of for the degree of Master of Public Health.

I would very much appreciate your participation in this survey since you are a mother or primary caretaker of a child aged less than 12 months, living in the Woreda of Ofla[ Kebele or sub-district (*select one*)]. I would like to ask you about your child's breastfeeding and complementary feeding practice and some behavioural related questions in regard to these two infant feeding practices.

The questionnaire usually takes between 20-30 minutes to complete. Whatever information you provide will be kept strictly confidential and will not be shown to other persons who are not associated with this study. Also, no identifying information about you will be kept with the survey responses, including this consent. Participation in this survey is completely voluntary and you can chose not to answer any individual questions or all of the questions. You may stop participation at any time. However, I hope that you will participate fully in this survey since your views are important in benefiting the community and woreda (district)

There will be no risks to you and your child's health when participating in this study.

Do you have any questions about the survey?

Please let me know if anything I have stated is not clear and I will be happy to explain it further to ensure you understand.

VERBAL CONSENT GIVEN TO INTERVIEW, CHECK BOX

Do you accept participating in the survey?

Yes  No

Contact information

If you have any further question about the survey, please contact M T Tekle, who leads this survey. His telephone # is 251 911 403 048

## Individual interview questionnaire

No.	Questions and filters	Coding Categories	Skip pattern
<b>Section 1 background characteristics of the respondent and index child</b>			
101	Questionnaire Number which include EA & Household Number <b>(to be numbered before interview)</b>	Questionnaire # _____ EA/village ..... HH # _____	
102	<b>Respondent Screening</b>  “Are you the mother or primary caregiver of the infant /child who is less than 12 months of age?”	Yes .....1 No .....2	<b>No →END SURVEY NOW</b>
103	To which age group of the child is this household selected?	0-5.9 months .....1 6-11.9 months .....2	
104	Age of the child <b>(Look at the age sheet and enter the child’s age in months)</b>	[__ __] MONTHS	
105	Sex of the child	Male .....1 Female .....2	
106	Name of Interviewer and supervisor	Interviewer..... signature..... Supervisor .....signature .....	
107	Date of interview	...../.....	
108	Time started the interview	...../.....	
109	The index child’s relation to the respondent?	Mother .....1 Father .....2 Care giver .....3 Other specify .....	

No.	Questions and filters	Coding Categories	Skip pattern
110	Age of the respondent?	Age in complete years..... I don't know.....(88)	
111	Religion of the respondent?	Orthodox Christian .....1 protestant .....2 catholic .....3 Muslim .....4 Other specify.....5 Not relevant/ no religion.....6	
112	Marital status of respondent	Single .....1 married .....2 widow.....3 divorced.....4 separated/currently living alone.....5 Polygamous.....6 Conceptually married.....7	
113	Education status of the respondent	Does not write and read .....1 No formal education but reads and Writes completed primary school.....2 Completed secondary school.....3 Above secondary school.....4	
<b>Section 2 - Infant and young child feeding practices</b>			
200	Was ( <b>NAME</b> ) breastfed yesterday during the day or at night?	Yes .....1 No .....2 I don't know ....98	
201	Did ( <b>NAME</b> ) eat any solid, semi-solid, or soft foods yesterday during the day or at night?	Yes .....1 No .....2 I don't know ....98	→ 203 → 203

No.	Questions and filters	Coding Categories	Skip pattern
	IF 'YES' PROBE: What kind of solid, semi-solid, or soft foods did ( <b>NAME</b> ) eat?		
202	How many times did ( <b>NAME</b> ) eat solid, semi-solid, or soft foods other than liquids yesterday during the day or at night?	Number of times  __ __  I don't know ..... 98	
203	Yesterday (during the day or the night) did you give any of the following liquids to ( <b>NAME</b> ) the child?  <i>Read the list of liquids starting with plain water</i>		
1	Water	Yes 01 No 02	
2	Baby formula (Edget milk, S-27 etc)	Yes 01 No 02	
3	Any other kind of milk (cow/goat milk, etc)	Yes 01 No 02	
4	Fruit juice (made at home)	Yes 01 No 02	
5	Fruit juice or sodas (purchased, packaged)	Yes 01 No 02	
6	Water-based liquids, teas, sugar water, coffee	Yes 01 No 02	
204	Did your child ( <b>NAME</b> ) eat (or drink) any of the following foods yesterday (during the day or night)?		

No.	Questions and filters	Coding Categories	Skip pattern
1	Any porridge	Yes 01 No 02	
2	Any gruel	Yes 01 No 02	
3	Any commercially fortified food (Cerifam, Fafa, Farmixt milk, Favena, Berta, Mother's Choice)	Yes 01 No 02	
4	Bread, pasta, or any other foods made from oats, maize, barley, wheat, sorghum, millet or other grain	Yes 01 No 02	
5	Injera or kita	Yes 01 No 02	
6	Any white potatoes, white yams, Bulla, Kocho, Kasava or any other food made from roots	Yes 01 No 02	
7	Any pumpkin, carrot, squash or sweet potato that are yellow or orange inside	Yes 01 No 02	
8	Dark green leafy vegetables (example: Kale, spinach or Amaranth leaves)	Yes 01 No 02	
9	Any other vegetables (starchy vegetables: plantain)	Yes 01 No 02	
10	Any liver, kidney, heart or organ meats	Yes 01 No 02	
11	Any meat? ( which does not include any organ meats, dry meat, any chicken ducks or other birds)	Yes 01 No 02	
12	Any dry meat?	Yes 01 No 02	

No.	Questions and filters	Coding Categories	Skip pattern
13	Any chicken ducks or other birds	Yes 01 No 02	
14	Any eggs	Yes 01 No 02	
15	Any fresh or dried fish or shell fish	Yes 01 No 02	
16	Any food made from beans, peas, lentil or pulses	Yes 01 No 02	
17	Any nuts or seeds such as peanuts, sesame, sunflower seeds	Yes 01 No 02	
18	Any milk product like cheese, yogurt	Yes 01 No 02	
19	Any food made from oil, fat or butter	Yes 01 No 02	
20	Any Ready to use therapeutic foods (like plumpy nuts, F100)	Yes 01 No 02	
21	Candies or chocolates, cakes rice, biscuits, cookies	Yes 01 No 02	
22	Any other solid or semi-solid food (ASK RESPONDENT IF CHILD ATE ANYTHING NOT ON THIS LIST)	Specify: _____ 01 No 02	
<b>Section 3 Barriers for both Exclusive Breast feeding and Complementary Feeding</b>			
300	Do you think your child could be malnourished?	Yes .....1 No .....2 I don't know .....98	
301	Do you think malnutrition is a serious problem?	Yes .....1 No .....2 I don't know .....98	→ 303 → 303

No.	Questions and filters	Coding Categories	Skip pattern
302	If yes, how severe is it?	Not severe .....1 Severe .....2 I don't know .....98	
303	Is it God's/Alahe's will that some children are malnourished?	Yes .....1 No .....2 I don't know .....98	
304	Why is that some children in your community get malnourished and others do not ?	Specify .....	
306	Do children sometimes get malnourished due to spiritual or supernatural causes?	Yes .....1 No .....2 I don't know .....98	
<b>Section 4 Barriers related Exclusive Breast Feeding</b>			
400	Do think that your child could suffer from any illness if he/she is not exclusively breastfeed with only breast milk until the child gets six months old ?	Yes .....1 No .....2 I don't know .....98	→ 402 → 402
401	If yes ,what are the illness	Diarrhoea.....1 Allergies .... 2 Cold ....3 Infections ....4 Others(specify) .....	
402	Do you think exclusive breastfeeding of infants with only breast milk until six months can prevent malnutrition?, a	Yes .....1 No .....2 I don't know .....98	→ 404 → 404
403	If yes, to what degree?	A little .....1 Somewhat .....2 A lot .....3 I don't know .... 98	

No.	Questions and filters	Coding Categories	Skip pattern
404	Who do you think will <b>approve</b> if you exclusively breastfeeding your child with only breast milk until the child gets 6 months of old?	Husband/partner .....1 Grandmother .....2 Grandfather .....3 Mother-in-law .....4 Father-in-law .....5 Friends .....6 Health care providers.....7 Any other relatives .... 8 No one.....9	
405	Which of the above people (among those listed in <b>Q 404</b> ) is most important to you?	Husband/partner .....1 Grandmother .....2 Grandfather .....3 Mother-in-law .....4 Father-in-law .....5 Friends .....6 Health care providers.....7 Any other relatives .... 8 No one.....9	
406	Who do you think will <b>disapprove</b> if you exclusively breastfeeding your child with only breast milk until the child gets 6 months of old ?	Husband/partner .....1 Grandmother .....2 Grandfather .....3 Mother-in-law .....4 Father-in-law .....5 Friends .....6 Health care providers.....7 Any other relatives .... 8 No one.....9	

No.	Questions and filters	Coding Categories	Skip pattern
407	Which of the above people (among those listed in (Q 406 ) is most important to you?	Husband/partner .....1 Grandmother .....2 Grandfather .....3 Mother-in-law .....4 Father-in-law .....5 Friends .....6 Health care providers.....7 Any other relatives .... 8 No one.....9	
408	Would it be easy for you to exclusive breastfeed your child with only breast milk until the child gets 6 months old?	Yes .....1 No .....2 I don't know .....98	→ 410 → 410
409	If <b>yes</b> , what makes it easy for you to exclusive breastfeed your child with only breast milk until the child gets 6 months old?	Specify/list .....	
410	If <b>No</b> , what makes it difficult if you exclusively breastfeed your child with only breast milk until the child gets 6 months old?	Specify/list .....	
411	Would it be easy for you to remember to exclusively breastfeed your child with only breast milk until the child gets 6 months old?	Yes .....1 No .....2 I don't know .....98	→ 413 → 413

No.	Questions and filters	Coding Categories	Skip pattern
412	If <b>yes</b> , what would make you remember to exclusively breastfeed your child with only breast milk until the child gets 6 months old?	Specify.....	
413	What benefits do you see by exclusively breastfeeding your child with only breast milk until the child gets 6 months old?	Prevents my baby from becoming sick .....1 if baby is sick of it helps my baby to recover quickly from illness .....2  It helps to boost my child's intelligence(performing well at School).....3  It reduces my stress level and risk of postpartum depression .....5 It can help keep me from becoming pregnant .....6  It won't need to buy expensive supplements to feed my child until six months.....7  Others (specify) .....	
414	What are the things you like about exclusive breastfeeding your child with only breast milk until the child gets 6 months old?	I feel that I'm giving my infant all the nutrients he/she needs to be healthy ...1  I'm giving my infant all the nutrients he/she needs for optimal brain development .....2  My breast milk is good enough quality	

No.	Questions and filters	Coding Categories	Skip pattern
		<p>to nourish my infant so that he/she does not need any other food, water, or infant formula until he/she completes 6 months of age.....3.</p> <p>It is the best way to show your love for your baby.....4</p>	
415	<p>What do you see as the bad things or disadvantages of exclusive breastfeeding your child with only breast milk until the child gets 6 months old?</p>	<p>Breast milk only will make the child be hungry.....1</p> <p>Exclusive breastfeeding will not help the child to get help train to other foods when the child completes 6 months old .....2</p> <p>Breast milk only does not make the child to be strong and health.....3</p> <p>My breasts do not produce enough milk that will be sufficient for the child .....4</p> <p>Exclusive breastfeeding will make you busy , so that other tasks will not be accomplished as needed.....5</p>	

No.	Questions and filters	Coding Categories	Skip pattern
		Others (specify) .....6	
<b>Section 5 Barriers related Complementary Feeding</b>			
500	Do think that your child could suffer from any illness if he/she is not given complementary foods, such as rice, corn, fish, meat, milk, eggs, beans, groundnuts, banana, mango etc?	Yes .....1 No .....2 I don't know .....98	→ 502 → 502
501	If yes ,what are the illness	Specify/list .....	
502	Do you think introducing appropriate complementary to your child at the age of 6 months can prevent malnutrition?	Yes .....1 No .....2 I don't know .....98	→ 504 → 504
503	If yes, to what degree?	A little .....1 Somewhat .....2 A lot .....3 I don't know .... 98	
504	Who do you think will <b>approve</b> if you give your child appropriate complementary feeding at the age of 6 months?	Husband/partner .....1 Grandmother .....2 Grandfather .....3 Mother-in-law .....4 Father-in-law .....5 Friends .....6 Health care providers.....7 Any other relatives .... 8 No one.....9	

No.	Questions and filters	Coding Categories	Skip pattern
505	Which of the above people (among those listed in <b>Q 504</b> ) is most important to you?	Husband/partner .....1 Grandmother .....2 Grandfather .....3 Mother-in-law .....4 Father-in-law .....5 Friends .....6 Health care providers.....7 Any other relatives .... 8 No one.....9	
506	Who do you think will <b>disapprove</b> if you give your child appropriate complementary feeding at the age of 6 months?	Husband/partner .....1 Grandmother .....2 Grandfather .....3 Mother-in-law .....4 Father-in-law .....5 Friends .....6 Health care providers.....7 Any other relatives .... 8 No one.....9	
507	Which of the above people (among those listed in <b>Q 506</b> ) is most important to you?	Husband/partner .....1 Grandmother .....2 Grandfather .....3 Mother-in-law .....4 Father-in-law .....5 Friends .....6 Health care providers.....7 Any other relatives .... 8 No one.....9	
508	What types of foods are considered taboo for children in	Specify/list..... .....	

No.	Questions and filters	Coding Categories	Skip pattern
	your community?	.....	
509	Would it be easy for you to feed your child with complementary foods at when he/she completes 6 months old?	Yes .....1 No .....2 I don't know .....98	→ 511 → 511
510	If <b>yes</b> , what makes it easy for you to feed your child with complementary foods at when he/she completes 6 months old?	Specify/list .....	
511	If <b>No</b> , what makes it difficult for you to feed your child with complementary foods at when he/she completes 6 months old?	Specify/list .....	
	<b>Cues for action</b>		
512	Would it be easy for you to remember giving complementary foods to your child when he/she completes 6 months?	Yes .....1 No .....2 I don't know .....98	→ 514 → 514
513	If <b>yes</b> , what would make you remember giving complementary foods to your child when he/she completes 6 months?	Specify.....	
	<b>Positive attributes</b>		
514	What benefits do you see in giving your child a variety of foods from the age of 6 months in addition to breast milk?	To meet the requirements of the essential minerals .....1  To complement breast milk.....2  To fill my baby's stomach and so baby cries less.....3	

No.	Questions and filters	Coding Categories	Skip pattern
		It is essential for my baby to grow smart and strong.....4  Other(specify).....	
515	What are the things you like about giving appropriate complementary feeding to your child?	Specify.....	
516	What do you see as the bad things or disadvantages in giving your child a variety of foods from the age of 6 months in addition to breast milk?	My infants stool will be bulky.....1 Indigestion.....2 Other(specify).....3	

***That is the end of our questionnaire. Thank you very much for taking time to answer these questions and consenting to participate in this survey. We appreciate your help.***