Determinants of Breastfeeding in Amhara Region

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This is to certify that the thesis prepared by Abate Sidelel Wolde, entitled: *Determinants of Breastfeeding in Amhara Region* and submitted in partial fulfillment of the requirements for the Degree of Master of Science (Population Studies-Reproductive health) compiles with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Abstract

Determinants of Breastfeeding in Amhara Region

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Background: *Exclusive breastfeeding up to 6 month after birth and optimum breastfeeding with appropriate complementary food from 6th to 24th month and beyond is vital for children healthy development and growth. Breastfeeding is a common practice in Ethiopia as a whole and in Amhara region in particular. However, there are different obstacles regarding different breastfeeding practices.*

Objectives: *This study is aimed at assessing different breastfeeding practices and investigating the key determinants of breastfeeding in Amhara region on children that were born in two years preceding the 2011 Ethiopian Demographic and Health Survey.*

Method: *Raw data which were collected in 2011 Ethiopian Demographic and Health Survey by administering stratified two stages (Enumeration Area and household) cluster sampling method were used to study different breastfeeding practices and key determinants of breastfeeding.*

Result: *The prevalence of exclusive breastfeeding was 71.6%. Continued breastfeeding at one year and at two years were 98.8% and 90.5% respectively. The median duration for any breastfeeding, exclusive breastfeeding and predominant breastfeeding were 32.7, 4.6 and 7.4 months respectively. Child age, child size at birth and person who usually decides on respondents' health care for exclusive breastfeeding; child size at birth, current marital status and mothers occupation appear to be determinant early breastfeeding initiation whilst child sex, mothers' age and untrained traditional birth attendant tend to influence pre-lacteal feeding practices.*

Conclusion: *A range of socio-economic and demographic characteristics are found to affect breastfeeding. Educating parents (i.e both mothers and fathers of children) and entering breastfeeding education to the school system are recommended to achieve successful child feeding practice.*

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LIST OF ABBREVIATIONS

AAP - American Academy of Pediatrics

AHRQ - Agency for Healthcare Research and Quality

AIDS - Acquired Immune Deficiency Syndrome

ANC - Antenatal Care

BFI – Breastfeeding Initiation

CDC - Centers for Disease Control and Prevention

CSA - Central Statistics Agency

EBF - Exclusive Breastfeeding

EDHS - Ethiopian Demographic and Health Survey

FGD – Focus Group Discussion

GTP – Growth and Transformation Plan

HIV - Human Immunodeficiency Virus

HSDP IV – Health Sector Development Programme IV

IYCF - Infant and Young Child Feeding

MDGs – Millennium Development Goals

MoFED – Ministry of Finance and Economic Development

MoH - Ministry of Health

NSW - New South Wales

PASDEP – Plan for Accelerated and Sustained Development to End Poverty

PNC - Postnatal Care

SCT - Social cognitive Theory

SIDS - Sudden Infant Death Syndrome

UNICEF - United Nations Children's Fund

USAID – United States Agency International Development

WHO - World Health Organization

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Human breast milk is specific for human babies and it is ideal infant feeding (American Academy of Pediatrics, 2005). Breast milk contains all necessary nutrients, antibodies and other factors important for growth and development which makes uniquely a perfect food for babies and it is sustainable, safe and available (National Institute for Health and Clinical Excellence, 2005). Breastfeeding has been identified as an important child survival strategy by the World Health Organization (WHO) and United Nations Children's Fund (UNICEF). As WHO and UNICEF suggested, breast milk remains a superior food for babies, since it contains optimal amounts of fats, sugar, water and protein needed for their growth and development (UNICEF, 1990).

The growth and development of infant and child is influenced by a range of complex factors, including genetic, immunological, socio-cultural, psychological, nutritional, environmental, economic and political influences (Yngve, 2001). Among these factors, nutrition plays decisive role not only for the growth and development, but, also for the future survival of infant and child. The newborn child or infant needs his/her mother's breast milk crucially to show all sided development and to satisfy his/her nutritional needs. Breastfeeding has also high benefits for mothers (Raffle, 2011).

With analyzing trends and differentials in breastfeeding, Hirschman and Butler, (1981) explained that structural and cultural patterns are influencing the traditional breastfeeding practices particularly duration and timing. According to them modernization, urbanization, higher education and secularization have tended to create a common national culture that is different from regional, ethnic and socioeconomic traditions of child rearing and socialization. After the 18^{th} and 19^{th} century industrial transformation in the Western World, mothers in many urban centers began decreasing the intents of breastfeeding due to their work requirement and commitment. Especially, breastfeeding had declined significantly from 1900 to 1960 due to negative social attitudes towards the practice and the development of infant formula (Riordan, 1980). The prevalence and

duration of breastfeeding has also declined in many parts of the world for variety of social, economic and cultural reasons with the introduction of modern technologies and the adoption of new life styles. The important things attached to the previous traditional practices have been noticeably reduced in many societies. As WHO, (1989) stated, unknowingly health services also contributed to the decline of breastfeeding either by failing to support and encourage mothers to breastfed or by introducing routines and procedures that interfere with the normal initiation and establishment of breastfeeding by separating mothers from their infants at birth, giving glucose water by bottle and tea before lactation has been initiated, and routinely encouraging the use of breast-milk substitutes. This health worker condition also supported by Gynaecol, (1998) in India and Quinn et al. (2006) study conducted in Ethiopian.

Even though some negative attitudes still remain, with many interventions, breastfeeding has revived again after 1960 (Nathoo et al., 2009). As Centers for Disease Control and Prevention's (CDC) indicated, there are many evidence based interventions which were/are and will be conducted to improve breastfeeding practices (Shealy, 2005).

Breastfeeding has crucial importance for both newborn infant and mothers (KFL & A Public Health, 2008). Breastfeeding, especially exclusive breastfeeding is associated with a natural (though not fail-safe) method of birth control (i.e, 98% protection in the first six months after birth). It also reduces risks of breast and ovarian cancer later in life, helps women return to their pre-pregnancy weight faster, lower rates of obesity and enhances bonding between the mother and the baby (Moore, 2007). Exclusive Breastfeeding for the first 6 months to newly born baby is also important method to prevent the transmission of HIV/AIDS from mother to child as opposed to mixed feeding (WHO, 2009; Coutsoudis, 2001; Coovadia, 2007). Besides, as mentioned by Kramer (2003) Britton (2007) breastfeeding plays great role in reducing infant morbidity and mortality.

In resource limited areas where malnutrition is a major cause of infant and child death, breastfeeding is also regarded as main solution for infants' survival (WHO, 2003). Extreme poverty, natural disasters, and warfare have a devastating impact on most of the infants. However, the simple act of breastfeeding can save numerous lives and

increase the chances of survival of infants and young children (WHO, 2003). Because of these and other things, in recent years, there has been an increasing interest in the promotion of breastfeeding as the best feeding method for babies (Breastfeeding Handbook, 2010). Hence, more emphasis has been given to breastfeeding practices throughout the world. The promotion of breastfeeding especially, in developing countries like Ethiopia is becoming a public health issue (WHO, 2003).

In Ethiopia, the prevalence and duration of breastfeeding is very high. According to the 2011 EDHS, the median and the mean duration of breastfeeding practice was 25 months (CSA and ICF International, 2012). Among regions, the median duration of any breastfeeding practice range from the lowest of 16.7 months in Somali region to the highest of 32.7 months in Amhara region, whilst, the median and mean duration of exclusive breastfeeding at national level is 2.3 and 4.2 months respectively. The median and mean predominant breastfeeding, that is breastfeeding in combination with plain water, water-based liquids, or juices were also 5.3 and 6.9 months, respectively (CSA & ICF International, 2012). On the other hand the Infant and Young Child Feeding (IYCF) indicators derived from the 2011 EDHS showed that almost seven children of every ten (66%) under the age of two have received age-appropriate breastfeeding, while one out of ten (12 percent) children use a bottle with a nipple. Ninety-six percent of the children continued breastfeeding at one year, whereas 82 percent continued breastfeeding up to two years. Like 2011 EDHS, similar patterns of breastfeeding had been observed in the previous two EDHSs conducted in 2000 and 2005

Exclusive breastfeeding also varies between 70% during 0-1 months to 32% for infants' aged 4-5 months in the country (CSA and ICF International, 2012). Since Exclusive Breastfeeding decreases as infant age increases, the normal relation and feeding practice that is affected by many reasons is going to cripple child development and leads to stunting, wasting and underweight.

1.2 Statement of the Problem

The World Health Organization (WHO), United Nations Children's Fund (UNICEF) and other organizations promote breastfeeding as one of the key effective low-cost interventions to enhance child survival (WHO, 2003). Exclusive breastfeeding for the first six months of life and continued breastfeeding for up to two years and beyond have been widely accepted as the gold standard of infant nutrition in both developed and developing countries (UNICEF, 1999). However, ensuring such pattern of breastfeeding is not an easy task. As observed from studies conducted in Canada (Nathoo et al., 2009) and U.S.A (Hirschman and Butler, 1981), the influence of modernization is deteriorating the prevalence and duration of breastfeeding from time to time. People usually change their traditional life style as they get education, proper health facilities and engaged in modern occupation system (Hirschman and Butler, 1981). Almost in major parts of the world, mothers either wean breastfeeding within a short period of time after birth or feed extra food besides breast milk within the first 6 months. Breastfeeding is the result of a complex mutual effect of biological, physical, cultural and psychological factors. Biological and physical conditions such as caesarean delivery, health center births, breastfeeding difficulties including nipple pain, insufficient milk supply are the most common reasons women give for cessation and continuation of breastfeeding (Meedya, Fahy, & Kable, 2010). Psychological Factors that affect breastfeeding initiation and duration are directly related to the mother's intra and interpersonal processes, maternal confidence, shyness, stage of change, health belief etc., and primary groups including family, friends, peers, that provide social identity, support, and role definition (Yngve, 2001). Cultural setting as mothers learn - or fail to learn - how to breastfeed from those around them also affects breastfeeding. Breastfeeding knowledge, when it exists, is passed down from mother to daughter in the form of consistent patterns of practices and concepts (Cynthia Good Mojab, 2000). So, great differences exist regarding breastfeeding duration, frequency of feeds, suckling time, and complementary feeding among individuals and countries because of the aforementioned reasons.

Even though there is strong culture of breastfeeding in Ethiopia, still variations observed in many of breastfeeding practices across regions. Based on 2011 EDHS data, Amhara region showed less breastfeeding practices compared to majority of regions, especially, in early initiation of breastfeeding and pre-lacteal feeding. There is, however, insufficient information on the reasons behind the variation in breastfeeding practices in the region. Little is also known about the factors that affect such practices. To fill this information gap and contribute to the way and means of improving the patterns of breastfeeding in the region, efforts was made to identify factors affecting breastfeeding practices, reasons for pre-lacteal feeding increase and why early initiation is low.

1.3 Objectives of the study

The general objective of this study is to investigate the determinants of different types of breastfeeding and to find out reasons why pre-lacteal feeding is high whilst early breastfeeding initiation is low. In light of this, the study has the following specific objectives.

1. To measure the prevalence of different breastfeeding experience by age in the region,
2. To see the situation of complementary feeding practices together with breastfeeding especially in the introduction (i.e. 6-8 months) period,
3. To explore the key determinants of exclusive breastfeeding, early breastfeeding initiation and pre-lacteal breastfeeding practices
4. To suggest policy relevance implication of the study.

1.4 Significance of the Study

Several studies attempted to show the health and nutrition importance of breastfeeding in many developing countries including Ethiopia. In Ethiopia a considerable amount of researches such as Setegn et al. (2012) in Goba district; Dessalegn Tamiru and Shikur Mohamed (2013) in Arba minch zuriya; Berhe et al (2013) in Mekele town and Abera (2012) in Harar city were conducted at wereda level and specific area related to specific

cases, especially on exclusive breastfeeding. However, no study has been done in Amara region level in connection breastfeeding and its determinants.

In developing countries like Ethiopia, IYCF is associated with a number of serious problems. For many of newborn infants and children, it is linked with morbidity and mortality. Hence examining IYCF and getting available data especially, about factors those determine breastfeeding have great importance for professionals who participate in designing strategies related to IYCF. Therefore, the findings of this research will be useful for organizations that are working towards improving child survival and developing intervention strategies that is expected to improve the practices of breastfeeding. In addition, the study will help to assess whether proposed level of exclusive breastfeeding prevalence targeted in the Health Sector Development Program IV (HSDP) to reach 70% by 2015 is going to be achieved or not.

1.5 Operational Definition of Terms

Any Breastfeeding – any type of breastfeeding including exclusively, predominantly or with any supplements, such as milk and solids (Alemayehu et al, 2009).

Complementary feeding - Feeding with breast milk and other liquid, solid and semi-solid food includes human and non-human milk (WHO, 2008).

Cultural factors - population beliefs, norms and local myths about breastfeeding and infant feeding practices.

Duration of Breastfeeding-the length of the time that infants who were initially breastfed continue to receive breast milk until weaning, even if it receives other food.

Exclusive Breastfeeding (EBF) - Feeding from the breast (directly or expressed) received by an infant from his mother or wet nurse as the only source of nourishment excluding all other liquids/solids (particularly non-human milk or formula) with the exception of vitamin and mineral supplements/medicines and oral rehydration therapy (WHO, 2008).

Mixed feeding or partial breastfeeding - an infant receives breast milk and any food or liquids including non-human milk and formula (WHO, 2008).

Predominant breastfeeding - Feeding with breast milk supplemented with certain water based infusions such as water, fruit juice, ritual liquids or oral re-hydration therapy. It excludes feeding with liquids or other solid foods particularly non-human/ formula milk (WHO, 2008).

Pre-lacteal foods – non-breast milk feeds given to infant before breastfeeding is initiated (WHO, 2008).

Replacement feeding -feeding an infant of less than 6 months with milk other than breast milk, in conditions where a mother has no opportunity to breastfeed

HAPTER TWO: REVIEW OF RELATED LITERATURE

es Related Breastfeeding

y and Breastfeeding: - Different theories suggest different approaches for oung Child Feeding especially, about breastfeeding. Some researchers in the and nutrition have found Pierre Bourdieu's theoretical framework very icians, public health advisors, nutritionists and others have been attempting reastfeeding rates for the last few decades, with varying degrees of success 010). However, health-related behaviours do not occur in isolation. By the importance of social circumstances it is possible to improve g of infant feeding, thereby improving the ability to increase breastfeeding in For instance Amir (2011 has introduced some of Pierre Bourdieu's ideas researchers interested in infant feeding should consider testing **social** ine with Bourdieu's concept of *habitus* food and nutrition practices such as is governed by culture and norms that gained from social environment.

edge', that is the meanings and experiences influenced by the social s in which people live, is considered a more useful concept than attitudes or acknowledges that individuals exist within a social environment (Coveney, dividual's mental framework is shaped by his or her past experiences and nment (Robinson, 2003). So, based on social theory, breastfeeding is social environment or society experiences. Mothers learn - or fail to learn - tfeed from those around them. They are socialized to breastfeed - or not to eir babies. Breastfeeding knowledge, when it exists, is passed down from ughter in the form of consistent patterns of practices and concepts (Cynthia 2000). Women whose family and social environment is characterised by

information and behaviour by observing the behaviour of others. According to SCT, behavioural determinants are grouped into 4 categories: self-efficacy, outcome expectations, socio-structural factors, and goals (Bandura, 1986, 2004).

Self-efficacy may be one of the main predictors of behaviour according to the SCT and other social cognition models. Bandura (1998) suggested that people's beliefs in their personal efficacy can be developed and changed by 4 main sources of experiences. These are mastery experiences, experiences provided by social models, social persuasion and reduction of stress reactions. The experience gained through this process helps to improve one's confidence in their ability to overcome obstacles. It is argued in the SCT that success helps to improve one's efficacy while failure may instead undermine it (Bandura, 1998). Seeing others like them succeeding helps to strengthen people's beliefs about their own ability to succeed in behaving in a particular way. Competent models can therefore help those who observe them to develop skills needed to meet the demands in their environment. Increase in self-efficacy or boosting confidence in the ability to perform a particular behaviour through social persuasion might occur when people are constantly told that they have the capability to do it (Bandura, 1998).

High maternal breastfeeding self-efficacy has been reported to be associated with prolonged breastfeeding. Women's breastfeeding self-efficacy is influenced by exposure to breastfeeding, her perception of being supported, her own breastfeeding experiences and physical-mental status. In a qualitative study among low-income mothers lack of exposure to breastfeeding was reported as a failure factor to enhance self-efficacy and commitment to successful breastfeeding. The positive influence of support, on breastfeeding self-efficacy has also been reported in many studies (Shahla, 2010).

According to Bandura (1998), the socio-structural factors within SCT are grouped as facilitators and impediments. The facilitators include those factors in the social set-up or environment that will encourage behavioural performance. An example of socio-cultural factors that facilitates breastfeeding is the support given to breastfeeding mother by other family members who take over some of her daily chores so that she can dedicate more time to breastfeed the baby. The media messages a mother is exposed

to may also act as facilitators if they are supportive of breastfeeding. The woman's workplace is another example that can act as a facilitator if it has a policy in place that is positive to breastfeeding. .

2.2 Breastfeeding General

Breastfeeding is a fundamental public health issue, (WHO, 2008). It promotes health, prevents disease and helps to contribute reducing health differences between the haves and not haves (Consultation Version, 2012). Longer breastfeeding is encouraged by the World Health Organization (WHO) and the Department of Health, Social Services and Public Safety as the optimal method for infant feeding and growth (WHO, 2009). As breastfeeding provides the foundation for a healthy start in life and prevents disease in the short and long terms for both babies and their mothers, it has been recognized as important way to nourish and nurture young children (Consultation Version, 2012). Breastfeeding is the most effective health promoting and disease preventive activity mothers can do. It is an essential process and decisive to ensure infant growth, development, immunization and birth spacing (UNICEF, 1990). During the first year of life, infants undergo a rapid growth and development that is not occurred at any other period in their life. In view of this, WHO recommends that infants should be breastfeed for optimal time period and weaning should occur after second year of life (UNICEF; 1990).

As a classical set of definition being made by WHO in 1993 and repeated in 2001, infant feeding (breastfeeding) has been classified in various ways over the years. Some of these are Exclusive breastfeeding, predominant feeding, partial or mixed feeding, replacement feeding and complementary feeding (WHO; 1993, 2001). Among these breastfeeding types exclusive breastfeeding has invaluable importance for both newborn infants and mothers.

2.3 Benefits of Breastfeeding

It is widely acknowledged that breast milk provides infants with all the nutrients and immune factors they need for healthy growth and development (AAP, 2005). Breast milk

is a unique, constantly changing, nutritional and protective substance that also contains bioactive (affecting living organisms) substances including antibodies, enzymes, long chain fatty acids and hormones. Breast milk is also easy to digest (Consultation Version, 2012).

As stated in KFL & A Public Health (2008), breastfeeding has uncountable benefit for newborn infants. It provides the best food that is always fresh and ready; increases protection against ear, chest, and stomach infections; promotes better brain development; protects against meningitis; increases protection against allergies; increases protection against illnesses such as childhood diabetes, Crohn's disease (inflammatory bowel disease), and Celiac disease (inability to absorb fat); may increase protection against Sudden Infant Death Syndrome (SIDS); and helps to promote proper jaw and teeth development. It also helps to have less obesity.

Moreover, breastfeeding in general and particularly exclusive breastfeeding considered as best advantages for mothers who breastfed their babies for a proper time with optimum frequency (i. e 6-8 times per day). Some of the advantages of exclusive breastfeeding include that it helps the uterus to return to its normal size and controls bleeding after birth; to use up the extra fat gained during pregnancy; to protect against cancer of the breast and ovary; to keep bones strong; promotes closeness and touching with baby; saves money and time with no formula to buy or prepare, and reduces garbage in our world (KFL & A Public Health, 2008).

On the other hand, as U.S. Department of Health and Human Services, (2011) stated and confirmed by American Academy of Pediatrics (AAP, 2011 and 2012), the importance of breastfeeding can be categorized as health effects, psychological effects, economic effects and environmental effects.

The **health effects** of breastfeeding are well known in both developed and developing countries in that breast milk is uniquely suited for infant's nutritional needs and is a live substance with unparalleled immunological properties which protect against illness and disease for mothers and newborn infants (Lawrence RA and Lawrence RM, 2010).

In 2007, in the U.S.A the Agency for Health care Research and Quality (AHRQ) published a summary of systematic reviews and meta-analyses on breastfeeding and maternal and infant health outcomes in developed countries (Chung, 2007). The AHRQ report reaffirmed the health risks associated with formula feeding and early weaning from breastfeeding. With regard to short-term risks, formula feeding is associated with increases in common childhood infections, such as diarrhea and ear infections. The risk of acute ear infection, also called acute otitis media, is 100 percent higher among exclusively formula-fed infants than in those who are exclusively breastfed during the first six months (Chung, 2007). The risk associated with some relatively rare but serious infections and diseases, such as severe lower respiratory infections and leukemia are also higher for formula-fed infants. The risk of hospitalization for lower respiratory tract disease in the first year of life is more than 250 percent higher among babies who are formula fed than in those who are exclusively breastfed at least four months (Bachrach, 2003).

Compared with mothers who breastfeed, those who do not breastfeed also experience increased risks for certain poor health outcomes. For example, several studies have found the risk of breast cancer to be higher for women who have never breastfed (Bernier, 2000). Similarly, the risk of ovarian cancer was found to be 27 percent higher for women who had never breastfed than for those who had breastfed for some period of time (Chung, 2007). In general, exclusive breastfeeding and longer durations of breastfeeding are associated with better maternal health outcomes.

The **psychological effect** of breastfeeding is attributed to the increases in the desire to have senses of bonding or closeness between mothers and their infants. In humans, oxytocin induces a state of calm, and reduces stress. It may enhance feelings of affection between mother and child, and promote bonding. Pleasant forms of touch stimulate the secretion of oxytocin, and prolactin. Skin-to-skin contact between mother and baby after delivery helps both breastfeeding and emotional bonding (Moore, 2007). Some women indicate that the psychological benefit of breastfeeding, including bonding more closely with their babies if they breastfed and the most important influence on their decision to

breastfeed (Bai, 2009). Breastfeeding may also help to lower the risk of postpartum depression, a serious condition that almost 13 percent of mothers experience. This disorder poses risks not only to the mother's health but also to the health of her child, particularly when she is unable to fully care for her infant (O'Hara, 1996). Breastfeeding has consistently been associated with improved cognitive scores and is likely to be able to prevent the onset of childhood and adolescent obesity, a condition that can seriously harm the child's self-esteem and overall psychosocial development. Human milk contains bioactive compounds that are not typically present in infant formulas and are essential for optimal central nervous system development.

In addition to health and psychological effects of breastfeeding, there are **economic benefits** such as saving expenditures for infants' formula, fewer health insurance claims of healthy infant, less employee time off to care sick children and increased productivity (U.S. Department of Health and Human Services, 2011). Breastfeeding may also provide significant economic benefits in terms of reducing both direct and indirect costs. The direct costs that might be reduced or averted would relate to physician, clinic, hospital, laboratory, and procedural fees. Other direct economic benefits to a family may be no or reduced costs to buy infant formula for the first year after birth (Weimer, 2001). The cost of commercial breast milk substitutes is unaffordable for the vast majority of families in the developing world. Breast milk substitutes need huge amount of money to be purchased by families, but breastfeeding requires only small amount food for mothers in order to produce breast milk. Besides, importing and purchasing of breast milk substitutes consume developing counties economy, especially their scarce foreign exchange (UNICEF, 1999).

On the **environmental side of benefit**, breastfeeding human milk is a natural, renewable food that acts as a complete source of babies' life and does not need packages like infant formulas that fill the environment as wastes. For every one million formula-fed babies, 150 million containers of formula are consumed (Gartner, 2005). In addition, infant formula must be transported from the place of manufacture to retail locations, such as

grocery stores. On the other hand, breastfeeding requires no containers, no paper, no fuel to prepare, and no transportation to deliver. It also reduces the carbon footprint by saving precious global resources and energy (U.S. Department of Health and Human Services, 2011).

2.4 Global glance of Breastfeeding Situation

Nowadays, the WHO recommends an exclusive breastfeeding period for the first six months of life, with the introduction of solid foods, thereafter and continued breastfeeding until age two or more. However, many mothers are not able or choose not to breastfeed their babies as recommended by WHO. As mentioned in OECD (Organization for Economic Cooperation and Development) family database, around 2005, the proportion of children who ever breastfed varied from less than 70% in Ireland and France to100% in Norway, Denmark and Sweden (OECD Family database, 2009).

The proportion of children being breastfed declines with age everywhere in OECD countries. Almost half of all infants, three months of age are being exclusively breastfed, however, it declines to 25% by the time infants are six months.

Based on the American Academy of Pediatrics (AAP) information, in the United State breastfeeding initiation rate around 2012 was 75%. However, it varied according to socio-demographic and cultural differences in the country. For example, the breastfeeding initiation rate for the Hispanic or Latino population was 80.6%, but for the non-Hispanic black or African American population, it was 58.1%. Among low-income mothers, the breastfeeding initiation rate was 67.5%, another it was 84.6% for those with a higher income,. Disparities were also observed across age, as mothers younger than 20 years initiated breastfeeding at a rate of 59.7% compared with the rate of 79.3% among mothers older than 30 years. In non-Hispanic black mothers younger than 20 years, the initiation rate was 30%.

Depending on a study made by Guo et al., (2013) on breastfeeding rates in central and western China in 2010, overall 98.3% infants had been breastfed. However, only 59.4% had initiated breastfeeding early within one hour after birth, and only 55.5% and 9.4% infants had continued breastfeeding for one and two years respectively. Exclusive breastfeeding was however, limited 28.7% of infants younger than 6 months. The author further suggested that, early initiation of breastfeeding was positively associated among those who at least made five antenatal clinic visits and negatively associated among those who deliver by caesarean or in a referral facility.

As Quinn et al., (2005) who conducted a study some of the developing countries such as Ghana, Bolivia and Madagascar found out that the national rates for early initiation of breastfeeding were low; Ghana having the lowest rate (25%) followed by Madagascar (34%) and Bolivia (39%). According such study results, the rates for exclusive breastfeeding among infants younger than 6 months were similar in Bolivia and Madagascar (50% and 47%, respectively) while considerably lower in Ghana (31%).

In Ethiopia, three round EDHSs in 2000, 2005 and 2011 were conducted throughout the country by CSA with funding by USID. Based on these surveys, breastfeeding is nearly universal in the country. Ever breastfeeding practice was about 96% in 2000 and 2005, though showed a slight improvement that is increased to 97.5% in the 2011. Early initiation of breastfeeding within one hour, that is very important for a number of cases was, however, low in all of the three surveys: i. e. 51.8% in 2000, 69.1% in 2005 and 51.5% in 2011 (CSA, and ORC Macro 2001, 2006; CSA ICF International 2012). Though this happened, breastfeeding initiation within 24 hour was better than within one hour initiation and has showed progress; i. e. 75.4% in 2000, 85.7% in 2005 and 80.2% in 2011 (CSA, and ORC Macro 2001, 2006; CSA ICF International 2011). The other basic and very important breastfeeding practice that is exclusive breastfeeding was 54% in

2000, 49% in 2005 and 52% in 2011 (CSA, and ORC Macro 2001, 2006; CSA ICF International 2012). Despite showing consistent patterns across time at national level, there are considerable variations in the level and patterns of breasfeeding by region and place of residences. For instance in Amhara region, ever breastfeeding was 96.7% in 2000, 97.1% in 2005 and 96.5% in 2011. In the same way early breastfeeding initiatin within one hour was 32% in 2000, 62.6% in 2005 and 37.5 in 2011. Breastfeeding initiation within 24 hour was 50.8% in 2000, 77.4% in 2005 and 66.9% in 2011. The region was among the lowest comparing with other regions, especially in breasfeeding initiations.

2.5 Determinants of Breastfeeding

As a global public health recommendation, with the exception of very few medical conditions, infants should be exclusively breastfed for the first six months of life (WHO, WHO Global Strategy on infant feeding, 2002). However, the present day global exclusive breastfeeding rate is about 35% which is less than half (50%). As indicated in many researches, there are many factors which affect breastfeeding in general and exclusive breastfeeding practice in particular. On the other hand, these factors that impose negative or positive influences on breastfeeding practices and duration time are not the same throughout the globe. As Karen Webb, (2005) indicated, there are many approaches to investigate factors influencing breastfeeding, but no two studies find out the same factors using comparable methods. The woman decision regarding breastfeeding is also believed to be influenced by a complex array of factors (New South Wales Centre for Public Health Nutrition, 2004). The degree of factors influencing the duration of breastfeeding and practices are also different from place to place, country to country and even from woman to woman (Karen Webb, et al, 2005).

Despite the variations in the outcome of the different studies, some of the works of Yngve, (2001), New South Wales Centre for Public Health Nutrition (2004), AAP

(2000), Dyson (2006) and others indicate the factors such as maternal age, marital status, maternal literacy, religious affiliation, infant sex, infant birth weight, alcohol consumption and cigarette smoking, mother attitudes towards breastfeeding, availability of lactation support and community setting, employment and social status of woman have either positive or negative effects on breastfeeding.

A study made by Perez-Escamillia and colleagues (1995) in three Latin American countries (Brazil, Honduras and Mexico) revealed that lower socio-economic status (in Honduras and Mexico), prior planning on breastfeeding duration (in all of the 3 countries), maternal unemployment (in Brazil and Honduras), hospital delivery facilities that had breastfeeding promotion services, and having a baby girl (in Brazil and Honduras) were all positively associated with breastfeeding. In a similar study to assess factors associated with exclusive breastfeeding in Accra, Ghana, Aidam and colleagues (2005) reported that delivery at hospital or polyclinic, prior intention or planned breastfeeding at birth, higher education, socioeconomic status, and positive attitudes towards breastfeeding considered as the most essential supporting factors for breastfeeding.

Another study made by Chudasama et al. (2009) also stated that the risk factors for early weaning were birth order, consecutive delivery less than 24 months, maternal age below 20 years and paternal occupational in the study area that led to early weaning and denoted as weakened breastfeeding factors. Similar study in Syria and Jordan run by Akour et al. (2010) also showed that breastfeeding intention was significantly associated with positive attitudes to breastfeeding, previous breastfeeding experience and the presence of supportive partner.

In connection with socio-cultural factors affecting timing and duration of breastfeeding, there are some cultural and practical obstacles to the practice of breastfeeding. Of particular importance, however, are those surrounding childbirths, timely initiation of breastfeeding within 1 hour after birth may be delayed (Adetugbo, 1997). Colostrum has been regarded as unclean and unsuitable for feeding babies, and pre-lacteal feeds are commonly given. Pre-lacteal feeds involve giving the baby other fluids and feeds before

initiating breastfeeding. Among various reasons for giving pre-lacteals are the design to satisfy certain rituals takes significant position, whereas others are mainly associated to the need to provide means of providing nourishment for the baby while waiting for the mother's milk to flow (Adetugbo, 1997).

In Klang, Malaysia, a study conducted by Tan, (2009) found out that women of Chinese origin working mothers those with high household income and with male infants were more likely not to practice exclusive breastfeeding compared to their counter parts. To the contrary, non-working women, women of Malaysian origin those with low household income and having female child showed positive association towards exclusive breastfeeding practice.

Based on Guo and colleagues, (2013) findings in central and western China, Exclusive breastfeeding among children younger than 6 months was positively associated with delivery in a referral-level facility. Breastfeeding was not associated with maternal age or education, ethnic origin or household wealth. Surveyed rates of exclusive and continued breastfeeding were mostly lower than in other nations.

2.6 Breastfeeding Determinants in Ethiopia

In Ethiopia, different researchers such as Quinn, et al. (2006), Sefene et al (2013), UNICEF (2011), Bezawit et al, (2013) and Abera (2012) had conducted studies in connection with factors influencing breastfeeding (especially exclusive breastfeeding) practices. However, the outcome of these studies significantly vary depending on the study area conditions, health facilities, mothers' and children characteristics, family perception and the settings of the communities in which the study was conducted.

Using the 2005 Demographic and Health Survey data and focusing on determinants of exclusive breastfeeding practice in Ethiopia, Alemayehu and colleagues (2009) found out that breastfeeding was associated significantly with maternal education level, current marital status, child age and economic status. No statistically significant association was, however, observed with regard to maternal age, place of residence, current employment, access to media, attending ANC and sex of the child.

Another study investigated by Setegn and colleagues (2012) on factors associated with EBF practices among mothers in Goba district, south east Ethiopia, however, identified that the prevalence of EBF was 71.3% and mothers' employment and age of the infants were important predictors of with EBF. Results of studies in general revealed that contrary the recommendation of the national as well as the global Infant and Young Child Feeding (IYCF) guidelines, large proportion of infants were not exclusively breastfed during the first six months.

Similarly Dessalegn Tamiru and Shikur Mohamed (2013) who conducted research on maternal knowledge of optimal breastfeeding practices and associated factors in rural communities of Arba Minch Zuria and revealed that maternal knowledge was directly related with parental education level, attending ANC, having the radio, using family planning and giving birth by health workers. They furthermore suggested that maternal knowledge which was supported by strong community based education, elders (community leaders) and professionals (health workers) counseling services were needed to ensure optimal infant and young child feeding.

A study on determinant of breastfeeding practices among mothers attending public health facilities in Mekele town by Berhe et al (2013) place of delivery, ANC services and mode of delivery are predominant factors influencing timely initiation of breastfeeding. According to them, women generally have received information about the importance of exclusive breastfeeding when they go for antenatal care visits, or after they delivered their babies. This study also revealed that employment status, mother's initiation of breastfeeding and child's age are factors highly with breastfeeding especially EBF practice.

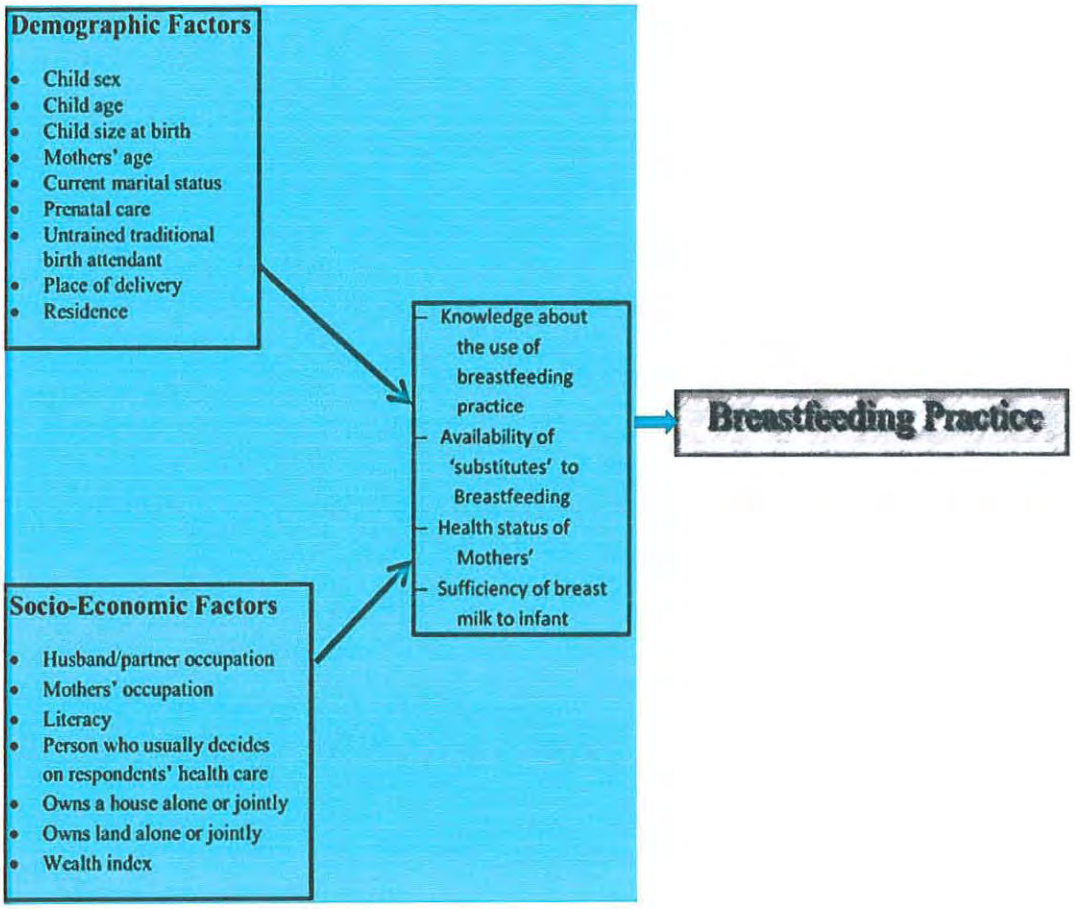
As clearly seen in the EDHS surveys, there were also variation between sexes, among regions, in residences, within economic status, mothers' education, places of delivery and assistances at delivery. The recent EDHS, 2011 results stated that, female infants were luckier than their counter part male infants. The median duration of EBF was 2.9 and 1.8 months for female and male respectively. The residential differences indicated that the median EBF for urban was 0.6 months, whereas it was 2.5 months for rural residences.

Observing these variations and to solve the problems of health and nutrition, the country has designed HSDP IV which targets increasing the proportion of exclusively breastfed infants under age 6 months to 70 percent by 2015. Trial also on progress to improve breastfeeding practices throughout the country.

2.7 Conceptual Framework

This conceptual framework is designed and organized by the researcher from different research in order to show the relationship between explanatory and dependent variables.

Figure 1.Conceptual framework



Source: Organized and developed by the researcher from a review of related literature, 2014.

2.8 Hypotheses of the Study

In order to fulfill the objectives of the study and to provide possible answer to the research problem, the following hypotheses were tested whilst investigating factors affecting breastfeeding practice in Amhara region.

1. There would be inverse relationship between maternal age at birth and pre-lacteal feeding breastfeeding experience.
2. Mothers with no work are expected to initiate breastfeeding earlier than mothers those having work.
3. Male children are supposed to be given more pre-lacteal foods than female children.
4. Literate Mothers' are expected to have positive relationship with timely initiation of breastfeeding.
5. Poor mothers are expected to breastfeed for longer duration than having middle income and rich mothers.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals with how the study was conducted, the way data collection procedure run and how the data analyzed to achieve the objective of the study and statistical tests were carried out.

3.2 Research design

This study was household based descriptive and analytical study that was designed to measure and explore reasons for delayed breastfeeding initiation and pre-lacteal feeding in particular and determinants of breastfeeding in general. The study employs both quantitative and qualitative methods.

3.3 Study location

The study was carried out in urban and rural areas of Amhara region. Based on the recently conducted 2011 EDHS data and field observation, it was aimed to argument the statistical findings.

Administratively, Amhara region is divided into ten zones, one special woerda and one special urban zone. The region covers an area of 154,708 square KM. and it is the second largest region in the country (CSA, 2013). Based on the result of the May, 2007 Population and Housing Census of Ethiopia, and projection made by CSA, subsequently the population of Amhara region in July 2011 was 19,211,994 of which 9,633,991were males and 9,578,003 were females (CSA, 2013).

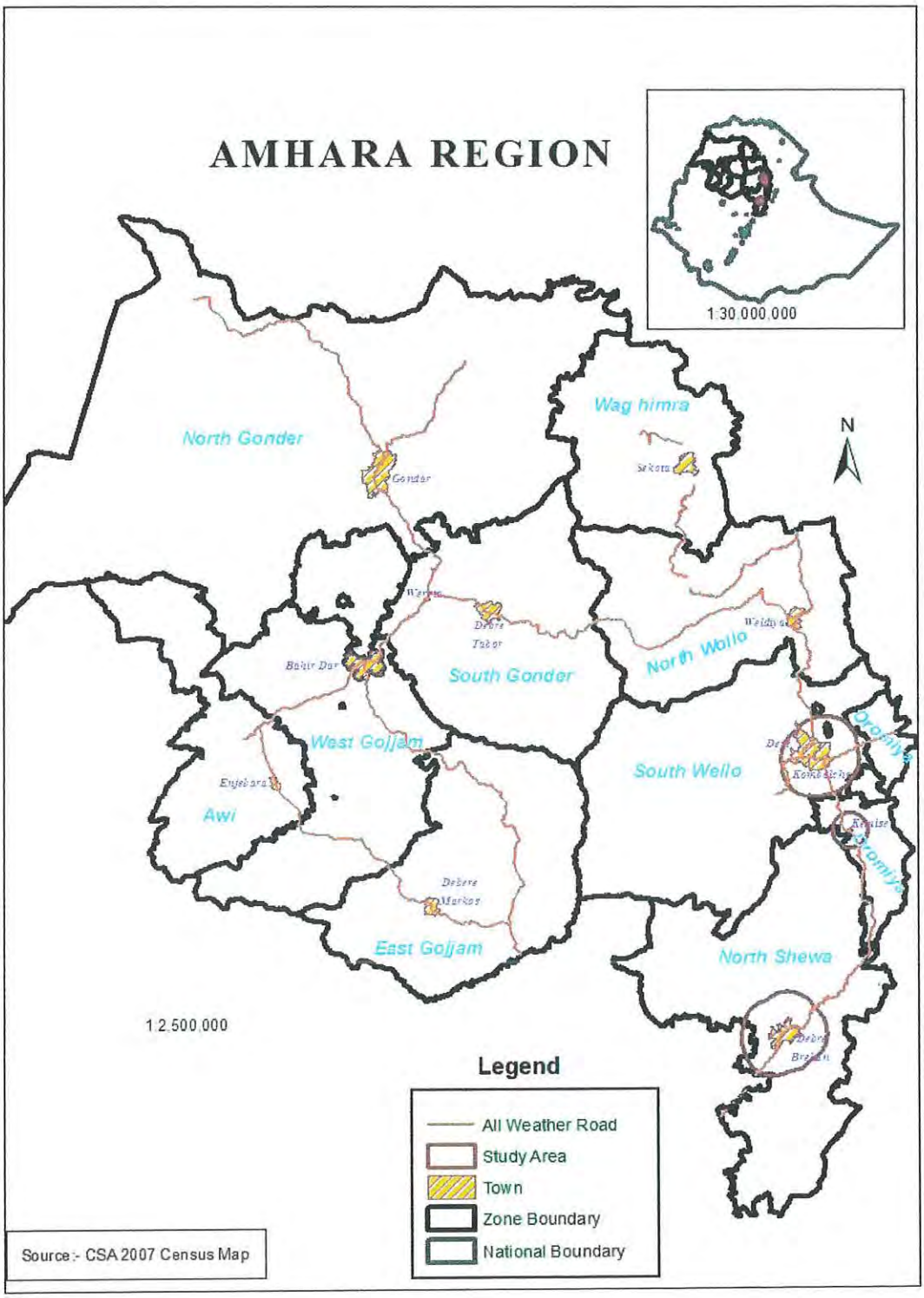


Figure 2. Study area map (Amhara region)

3.4 Study Variables

3.4.1 Dependent Variable

The dependent variable in this study were Exclusive Breastfeeding, Breastfeeding initiation and Pre-lacteal feeding which were based on current status of breastfeeding as was defined by mothers' response about their child feeding practices 24 hour preceding the 2011EDHS interview date.

3.4.2 Independent Variables

The independent variables are:-

Variables	Classification
Child Sex	*Male, Female*
Child age	*0-5, 6-11, 12-17 and 18-23 months*
Child Size at Birth	*Small and average, Large*
Mothers' Age	*15-34, 35-49*
Mothers' Literacy	*Literate, Illiterate*
Current Marital Status	*Never in union, In Union*
Prenatal care	*No, Yes*
Untrained Traditional Birth Attendant	*No, Yes*
Places of delivery	*Home, Health Facilities*
Place of residence	*urban, rural*
Husband Occupation	*Agriculture, Others*
Mothers occupation	*Not working, Agricultural, Others*

Person who usually decides on Respondent's Health care	*Respondent and husband, husband and others*
Owns a house jointly or Alone	*Does not own, owns a house*
Owns Land Alone or jointly	*Dose not own, owns land*
Household Size	*<= 5, > 5*
Wealth Index	*Poor, Middle and Rich*

3.5 The Sample Design and Selection

The 2011 EDHS sample was selected using stratified two stage cluster design and EAs were the sampling unites for the first stage. 624 EAs which were distributed to 187 EAs for urban and 437 EAs for rural areas were selected throughout the country. Households which were found in the selected EAs comprised the second stage of sampling. From complete list of household in the selected EAs, 17817 were selected as representative by systematic random sampling techniques for final interview whilst 16702 were successfully interviewed yielding a household response rate of 98% (CSA and ICF International, 2012).

A total of 17385 eligible (15-49 aged) women were identified for individual interview from the sampled 16702 households and completed interviews were conducted for 16515 women, yielding a response rate of 95%. From individual women interviews a total of 11654 children aged 0-59 months found and 476 of them were included the children file data set for Amhara region. (For detail information, EDHS 2011 report).

3.6 Data extraction procedure

Beside quantitative data generated from the 2011 EDHS conducted by CSA and ICF International, qualitative information was also gathered from South Wollo, Oromiya and North Shoa administrative zones using Focus Group Discussion (FGD) and key informant interview techniques. Detailed and general information on breastfeeding

practice in the region was collected from key informants such as, nurses, religious and local leaders, health extension workers and elderly women experienced in breastfeeding in line with the society's culture that they currently living in. In addition, FGD was carried out among women having children in the last five years with different experiences of breastfeeding and background characteristics: age, education, work status, religion and ethnic belonging. Four different FGDs were conducted among younger and older women.

Both the in-depth interview and FGD were led by the researcher being assisted by two experienced female in doing so. The assistances were very helpful as they are local residents to be known the community and familiar with cultural issues. They were trained for one day in advance before the interview and FGD on how to ask questions keep records and approach respondents.

Open ended and non-directive questions were prepared to serve as an interview schedule and discussion guide before collecting the qualitative data.

3.7 Data Analysis

The 2011 EDHSs data were tabulated organized and coded based on DHS data arrangement principles using Statistical Package for social Sciences (SPSS) version 20.

Descriptive and summary statistics such as frequencies, percentages, means, standard deviation and median were used to describe the variables demographic and socio-economic characteristics whilst multivariate analyses were run using binary logistics regression in order to observe the association between dependent and independent variables. To identify associated factors for each of the breastfeeding experiences i. e early breastfeeding initiation, pre-lacteal feeding and exclusive breastfeeding, a bivariate logistic regression was performed for each independent variable. Then, different multivariate logistic regression were fitted for demographic and socio-economic variables separately and jointly to determine independent predictors of breastfeeding. The qualitative data captured using the field notes was also transcribed into English to organize the interview and discussion outcomes. The transcribed data then after were read carefully, categorized and summarized by thematic areas (thematic framework analysis).

Finally, the interview data were triangulated with the quantitative data to explain the findings of the study.

3.8 Ethical Issues

The research had approval from Addis Ababa University College of Development Studies, Center for Population Studies. The letter of approval that was issued by the center was delivered for each of the concerned offices whilst collecting qualitative data and obtaining the data set. Permission was also obtained from Administrative office and Health bureau of Amhara regional state, respective zones and weredas where qualitative data were collected.

Each of the interviews and participants of the FGDs were also informed about the objective and the requested for consensus to the interview. The interview and discussion were conducted only after obtaining approval agreement in verbal form.

CHAPTER FOUR: FINDINGS OF THE STUDY

4.1. Background Characteristics of Socio-Economic and Demographic Variables

A total of 476 children who were born in two years preceding the 2011 EDHS are included in the study. The age of the children considered in the study ranged from 0 to 24 months which is an optimal recommended age range for breastfeeding. Among the children, males accounted 51.7% while females were 48.3%. The sex ratio was about 108.5% indicating that there were about 100 female to 109 male children. The median and mean ages of children were 11 and 10.83 months respectively. Based on EDHS 2011, 27.1% of the children were 0 - 5 months, 24.6% 6–11 months, 26.5% 12-17 months and 21.8% of them 18-23 months. According to the mothers' view, the size of babies at birth varied from small to large: 81.1% of the infants were small or medium whilst the remaining 18.9% of the babies were considered to be large in size upon birth.

Regarding mothers' ages, the distribution was more concentrated in the active reproductive (15-34) age group which accounted for a little bit more than half (56.3%) of the mothers. The rest were the oldest age group, (35-49 years) who had a share of 43.7% of mothers. The median and mean age was 28.17 and 28.99 year respectively (Table 4:1).

Table 4.1: Based on 2011 EDHS Data, the Distribution of selected Socio-economic and Demographic characters of respondents in Amhara Region: 2011

	Background Characteristics	N	%		Background Characteristics	N	%
1	**Child Sex**			10	**Place Residence**		
	• male	246	51.7		• urban	39	8.2
	• female	230	48.3		• rural	437	91.8
2	**Child Age**						
	• 0 - 5	129	27.10	11	**Husbands/Partners Occupation**		
	• 6 - 11	117	24.60		• Agriculture	410	87.6
	• 12 - 17	126	26.50		• Others	58	12.4
	• 18 - 23	104	21.80	12	**Person who Decides on respondents health care**		
3	**Child Size at Birth**				• Respondent and husband	337	76.9
	• Small and Average	386	81.1		• Husband and others	101	23.1
	• Large	90	18.9	13	**Family Size**		
4	**Mothers' Age**				• <= 5	223	46.8
	• 15-34	268	56.3		• >5	253	53.2
	• 35-49	208	43.7	14	**Owns a House Alone or Jointly**		
5	**Literacy**				• Does not own	84	17.6
	• Illiterate	387	81.3		• Owns house	391	82.1
	• literate	88	18.5	15	**Owns Land Alone or Jointly**		
6	**Current Marital Status**				• Does not own	171	35.9
	• not in union	46	9.7		• Owns Land	305	64.1
	• In union	430	90.3	16	**Respondents Occupation**		
7	**Prenatal care**				• No work	204	43.3
	• No	284	59.8		• Agricultural	205	43.5
	• Yes	191	40.2		• Others	62	13.2
8	**Untrained traditional birth attendant**			17	**Wealth Index**		
	• No	370	77.7		• Poor	243	51.1
	• Yes	106	22.3		• Middle and rich	233	48.9
9	**Place of Delivery**						
	• Home	434	91.2				
	• Health Facilities	42	8.8				

More than four fifth (81.3%) of the mothers in the Amhara region did not have any formal education and were illiterate. The great majority (90.3%) was in union. 91.8% reside in rural areas and 91.2% of them delivered their child at home. About 22.3% of the mothers were assisted by untrained traditional birth attendant.

About three fourth of the mothers had the right to decide about their health either on their own or jointly with their husband/partners, whereas 82.3% of them owned a house by themselves or jointly with others; four out of ten were landless. 87.6% of the husbands/partners were engaged in agriculture while the rest 12.4% worked in other professions such as managers, salesmen, clerical services or as skilled and unskilled workers.

In connection to the mothers occupation group, 43.5% were agrarian, 13.2% were engaged in other professions such as manager, sales, skilled and unskilled work during the survey time. The remaining 43.3% of the mothers had no known occupation, but did domestic activities or were housewives.

Almost half (51.1%) of the mothers were poor, 48.9% were either middle income owners or rich. Slightly less than half, 46.8% of the mothers were living in a household that had <= 5 family member (size), while the majority (53.2%) of the mothers had more than 5 members.

4.2. Breast feeding prevalence by age

As indicated here in Table 4.2b, except for plain water, additional feeding with breast milk is not so common in Amhara region. Only 4% of the children were given non breast milk and 2.2% of children were introduced to complementary foods in ages 0 - 5 months. 19.9%, one in five of the children were fed breast milk with plain water which was higher than that of the national figure (18.6%) in the same age group. Of the total children 71.6% were exclusively breastfed at 0 - 5 or under 6 months of age. It is much higher than the figure at the country level (52%) and slightly higher than the HSDP IV target of 70% by 2015. Concerning the subgroups of infants who were exclusively breastfed, the

rate has decreased from 80.6% of children aged 0-1 months to 75.8% of children age 2-3 months and further to 56.5% for those aged 4-5 months (Table 4:2a).

Like at the national level, complementary food is not common in the Amhara region. Only 2.2% of children were fed complementary foods at 0-5 months or under 6 months age (Table 4:2b). When children reached 6-8 months, they should get complementary foods, but as the result indicated, only 37.0% had received either semi-liquids or solid foods together with breast milk (Table 4:2a).

In general, the breastfeeding duration was as high as that of the national level but the highest compared to most of the regions in three forms (exclusive breastfeeding, any breastfeeding and predominant breastfeeding) of breastfeeding. Continued breastfeeding at one year (children aged 12-15 months) and continued breastfeeding at two years (children aged 20-23 months) were relatively high 98.8% and 90.5% respectively (Table 4:2b).

Table 4.2a: Percent distribution of youngest children under two years who are living with their mothers according age increasing in months and the percentage currently breastfeeding in Amhara Region: 2011

Age in months	Not breastfeeding	Exclusively breastfed	Breastfeeding and consuming plain water	Breastfeeding and consuming non-milk liquids	Breastfeeding and consuming other milk liquids	Breastfeeding and consuming complementary foods	Total	Percentage of currently breastfeeding	Weighted number of youngest children under two years living with the mother	Unweighted number of youngest children under two years living with the mother
	%	%	%	%	%	%	%	%		
0-1	1.8	80.6	16.1	0.0	1.5	0.0	100.0	98.2	109	47
2-3	3.2	75.8	14.5	0.0	3.1	3.4	100.0	96.8	65	32
4-5	2.3	56.5	28.9	0.0	8.0	4.3	100.0	97.7	82	40
6-8	0.0	31.6	25.6	3.9	1.9	37.0	100.0	100.0	105	49
9-11	1.9	4.6	11.6	8.5	1.8	71.6	100.0	98.1	122	59
12-17	0.8	4.0	10.2	3.5	0.0	81.5	100.0	99.2	247	119
18-23	7.2	3.1	1.0	2.0	0.0	86.7	100.0	92.8	190	98

Table 4.2b: Percent distribution of youngest children under two years who are living with their mothers by breastfeeding status in age and the percentage currently breastfeeding in Amhara Region: 2011

Age in months	Not breast-feeding	Exclusively breastfed	Breastfeeding and consuming plain water	Breastfeeding and consuming non milk liquids	Breastfeeding and consuming other liquids	Breastfeeding and consuming complementary foods	Total	Percentage of currently breastfeeding	Weighted number of youngest children under two years living with the mother	Unweighted number of youngest children under two years living with the mother
	%	%	%	%	%	%	%	%		
0-3	2.3	78.8	15.5	0.0	2.1	1.3	100.0	97.6	174	79
0-5	2.3	71.6	19.9	0.0	4.0	2.2	100.0	97.7	256	119
6-9	1.6	23.7	19.5	8.3	2.2	44.7	100.0	98.4	146	67
12-15	1.2	4.7	10.6	2.5	0.0	81.0	100.0	98.8	170	81
12-23	3.7	3.6	6.2	2.9	0.0	83.6	100.0	96.6	437	217
20-23	9.5	0.0	0.0	1.6	0.0	88.9	100.0	90.5	121	64

4.3.1. Current breastfeeding, Ever Breastfed and Bottle Feeding

Breastfeeding in Amhara region was common and a universal child feeding practice. Among children who were born in two years preceding the 2011 EDHS in the region, 96.5% of them had ever breastfed at some point of time in the past. It was lower than the Oromiya 98%, SNNP 97.9%, Tigray 97%, Dire Dawa 99.1% but higher than Addis Ababa 93.4%. During the specified period, only 3.5% of children were never breastfed. Considering changes, ever breastfeeding was almost the same in the region in the three EDHSs; 2000 (96.5%), 2005 (97.6%) and 2011 (96.5%) (CSA and ORC Macro, 2001, 2006; CSA and ICF International, 2012).

Regarding the coverage, the current status of breastfeeding was very high during the interview period. About 91.4% of children were breastfed in any form of breastfeeding. Bottle feeding that is not supported by many health organizations was not commonly practiced in the region both in urban (9.8%) or rural (3.41%) areas. At regional level only 4.3% of the children drank from a bottle with a nipple prior to one day of the interview.

4.3.2. Early (Timely) Breastfeeding Initiation

Early initiation of breastfeeding is the proportion of children born in the last 24 months who were put on the breast within one hour of birth (WHO, 2008).

Based on the mothers' response, 37.5% of children were put on the breast within one hour after birth. In addition, together within one hour breastfeeding initiation, 66.9% of children were put on breast within one day (24 hour) after birth. On the other hand 29.7% of children started breastfeeding a day or more than a day after birth (Table 4.3). These figures indicate that breastfeeding initiation both within an hour or within one day were among the lowest compared to other regions and the country's total practice mentioned in EDHS 2011 report.

4.3.3. Pre-lacteal feeding

Pre-lacteal feeding is a kind of feeding infant take other than breast milk within the first three days after birth. Pre-lacteals undermines breastfeeding exclusively since it

introduces infections and reduces infant-mother bonding. According to 2011 EDHS data, pre-lacteal feeding practice was high in Amhara region and common both in urban and rural areas. Nearly half (47.9%) of the mothers gave pre-lacteal liquid or semi-liquid foods to their newly born infants within three days after birth. Among these mothers, 75.7% of them gave fresh butter, before infants properly started breastfeeding. Besides, 1.3% of children were fed on non-breast milk; 1.7% of children drank plain water; 6.1% of children were given sugar or glucose water, 2.6% of the children were given sugar or salt water solution and 3.5% of children were fed tea/infusions by their mothers or care givers. The most common pre-lacteal feeds were; fresh butter, non-breast milk, plain water, sugar or glucose water, sugar or salt solution, tea/infusions, honey and others.

Compared to the other regions practices and to the country's total, Amhara region was one of the highest in pre-lacteal feeding next to Somali regional state (39%) (CSA and ICF International, 2012). Pre-lacteal feeding is not recommended by WHO, UNICEF and other health institutions. It may be the cause for early infection in infants or may be the cause of decreases breast milk production and a decreased infants suckling interest.

4.3.4. Exclusive Breastfeeding

Another breastfeeding experience that is considered in this study is exclusive breastfeeding. The prevalence of exclusive breastfeeding in Amhara region was 71.6%; it was the highest in the country. Exclusively breastfeeding in the region has, however, decreased from 80.6% of children age 0-1 months to 75.8% of children age 2-3 months and further to 56.5% at age 4-5 months (Table 4:2a).

Based on EDHS 2011, the prevalence of exclusive breastfeeding (71.6%) in Amhara region was higher than Oromiya (46.6%), SNNP (52.8%), Tigray (58.6%), Somali (19.0%), Benishangul Gumuz (45.0%), Addis Abab city administration (35.7%), Dire Dawa city administration (40.0%) and the country's total 54.3% in 2000, 49.0% in 2005 and 52% in 2011 (CSA and ORC Macro, 2001, 2006; CSA and ICF International, 2012).

4.3.5. Predominantly breastfeeding

Predominantly breastfeeding is a kind of breastfeeding practice in which children were given water, water based liquid, fruit juice, and ritual fluids in addition to breast milk. Predominant breast feeding experience rate in Amhara region was among the highest (91.5%) in the country next to Tigray (92.0%). Regarding to the sub-groups, the percentage of children who predominantly breastfed decreasing from 96.6% of infants aged 0-1 months to 90.4% of those aged 2-3 months and further to 60.4% of infants aged 6-8 months. The duration of predominant breastfeeding was 7.4 median months which was highest in the country. However, as shown in Table 4:2b, the consumption of non-milk liquids i.e. juice, soup and any liquids other than water were nil for age 0-5 or under 6 months. On the other hand, feeding plain water together with breastfeeding was 19.9% for ages 0-5 or under 6 months. These realities clearly indicates that predominant breastfeeding in the region was the only combination of breast milk and plain water.

4.3.6 Breastfeeding & consuming complementary foods

Though longer duration of breastfeeding is supported and encouraged by many organizations and publication; it, however, has little relevance for the growth of children who are 6-24 months and beyond without complementary foods. Children should be fed extra foods besides breast milk beyond 6 months of age as feeding only breast milk is not enough and does not satisfy their food requirements. As explained by Spyrides and colleagues (2008), extended predominant breastfeeding after 6 months leads to inferior equilibrium weight and height. In Amhara region the duration of predominant breastfeeding with high combination of plain water was longer than seven months. So as Spyrides suggested the possibility of an imbalance in weight and height would be high in the region.

The introduction of complementary foods in the region for 6-8 months of age was too low. According to EDHS 2011 data, almost half of the children or 48.2% not took any complementary foods a day before the interview. In relation to monthly intake of complementary foods, slowly increasing from no infant fed complementary foods at age

0-1 months to 3.4% of children age 2-3 months and further increasing to 4.3% of children age 4-5 months. In general, only 2.2% of children were fed complementary foods during 0-5 or under 6 months of age. This was encouraging, because infants should be exclusively breastfed in this time interval. However, complementary feeding rate (37.0%) among children aged 6-8 months for the region was low. This indicates that continued breastfeeding was not supported by complementary foods. According to the National strategy for IYCF (MOH, 2004) explained in 2004, continued breastfeeding along with complementary foods between 6 to 24 months is essential to decrease the risk of morbidity and mortality, especially in population with high risk of contamination. Though the strategy recommends that long time breastfeeding should be supported by complementary foods, breastfeeding in Amhara region was not effective as its duration. Introducing additional foods either in the form of semi-liquids or solid during 6-8 months of age is thus very crucial for the continuation of infants' for all sided growth and development. Lack of optimum breastfeeding and appropriate complementary food amount and types is believed to result in increased stunted height. It may be the reason why stunted growth is the highest (52%) in the Amhara region. Stunted height prevalence rate at the national level is the lowest (10.0%) for children under 6 months but increases as children age increases (CSA and ICF International, 2012).

4.4. Results of multivariate analysis

4.4.1. Determinants of Exclusive Breastfeeding (EBF)

Exclusive breastfeeding was practiced by 24.3% of children exactly at the time when the survey was conducted. With regard to the association of exclusive breastfeeding practice to socio-economic and demographic settings, bivariate and multivariate analyses were conducted on selected variables. These variables were Child sex, Child age, Child size at birth, Mothers' age, Literacy, Current marital status, Prenatal Care, Place of delivery, Husbands'/partners' occupation, Person who usually decides on respondent's health care and Wealth index. Each variable was assessed independently using binary logistic regression to differentiate whether they are predictors of exclusive breastfeeding or not.

Before running binary logistics regression model, efforts were made to check for multicollinearity effects. The inter-correlations among variables were checked by collinearity diagnosis with linear regression (Pallant, 2011). As shown in Table 4:4, there was no variable having tolerance less than 0.1 or 1/VIF < 0.1. Tolerance less than 0.1 indicated a multi-collinearity effect or high inter-correlation among independent variables.

The goodness of fit of a model which describes the dependent variable was tested by Hosmer and Lemeshow test. The test showed the fitness of the model. This implies that the model is well fitted with the data.

Table 4:4 the tolerances and variance inflation factors indicating inter-correlation among each independent variable

Variables	**Collinearity Statistics**	
	Tolerance	**VIF**
Child age	0.971	1.030
Sex of child	0.936	1.069
Child size at birth	0.951	1.051
Mothers' childbearing age	0.990	1.010
Literacy	0.861	1.161
Current marital status	0.957	1.045
Prenatal Care	0.893	1.120
Place of delivery	0.754	1.326
Husband/partner's occupation	0.750	1.333
Person who usually decides on respondent's health care	0.962	1.039
Wealth index	0.870	1.149

After checking the multi-collinearity effects, each variable was tested using bivariate analysis that provides gross effect (see model one in Table 4:5). Accordingly, Child's age, Child's size at birth and the Person who usually decides on respondent's health care

were found to have statistically significant effect and strong association with exclusive breastfeeding. The other socio - economic and demographic variables; namely Child sex, Mothers' age, Literacy, Current Marital Status, Prenatal Care, Place of delivery, Husbands/partners occupation, and Wealth index had not had significant association with exclusive breastfeeding.

The second model in Table 4:5 was to observe the effects of demographic variables. The result showed us that only child age and child size at birth were statistically significant almost with the same odds and standard error to the gross effect result. In the third model, three socio-economic variables were tested and the only person who usually decides on respondent's health care was found to have significant effect. Finally, all socio-economic and demographic variables were tested in Model 4. Only three of the independent variables (Child Age, Child Size at birth and person who usually decides on respondent's health care) made statistically significant contribution to the model and managed to predict determinants of exclusive breastfeeding. The strongest predictor of EBF was child age group 18-23 that shows children in such age group were 99% less likely to exclusively breastfed than those in age group 0-5 months. The odds ratio value of 3.18 for small and average child size indicates that compared to a child having large size at birth, there is 3.18 more chances of exclusive breastfeeding for those having small or medium size. This implies that mothers are giving maximum care to children whose size is small and medium in the region than others.

Table 4.5: Gross and net effects of logistics regression indicating determinants of exclusive breastfeeding in Amhara region, EDHS 2011

Variables	Classification	N	%	Model 1 (Gross effect) Odds (S.E)	Model 2 Demographic Odds (S.E)	Model 3 Socio-economic Odds (S.E)	Model 4 Total Model Odds (S.E)
Child sex	male	246	51.7	0.77 (0.22)	0.6 (0.31)		0.53 (0.33)
	Female (ref)	230	48.3	1.00	1.00		1.00
Child age	0 – 5 (ref)	129	27.1	1.00	1.00		1.00
	6 - 11	117	24.6	**0.07*** (0.33)**	**0.06*** (0.35)**		**0.06*** (0.38)**
	12 - 17	126	26.5	**0.02*** (0.50)**	**0.02*** (0.51)**		**0.01*** (0.54)**
	18 - 23	104	21.8	**0.01*** (0.74)**	**0.01*** (0.76)**		**0.01*** (0.77)**
Child size at birth	Small and Average	386	81.1	**1.99* (0.32)**	**2.68* (0.42)**		**3.18* (0.46)**
	Large (ref)	90	18.9	1.00	1.00		1.00
Mothers age	15-34	268	56.3	0.70 (0.22)	0.59 (0.30)		0.57 (0.32)
	35-49 (ref)	208	43.7	1.00	1.00		1.00
Current marital status	Never in union	46	9.7	0.78 (0.39)	0.59 (0.51)		0.45 (0.86)
	In union (ref)	430	90.3	1.00	1.00		1.00
Prenatal Care	No	284	59.7	1.46 (0.23)	1.83 (0.32)		1.78 (0.34)
	Yes (ref)	191	40.1	1.00	1.00		1.00
Place of Delivery	Home	434	91.2	1.33 (0.41)	0.79 (0.56)		0.58 (0.67)
	Health Facilities (ref)	42	8.8	1.00	1.00		1.00
Literacy	Illiterate	387	81.3	1.34 (0.30)		1.26 (0.33)	1.89 (0.46)
	Literate (ref)	88	18.5	1.00		1.00	1.00
who usually decides on respondent's health care	Respondent and husband	337	76.9	**2.07* (0.31)**		**2.30* (0.32)**	**2.53* (0.41)**
	Husband and others (ref)	101	23.1	1.00		1.00	1.00
Husband/ partner's occupation	Agriculture	410	87.6	1.33 (0.36)		1.40 (0.39)	2.03 (0.56)
	Others (ref)	58	12.4	1.00		1.00	1.00
Wealth index	Poor	243	51.1	0.96 (0.22)		0.96 (0.24)	0.66 (0.35)
	Middle and rich (ref)	233	48.9	1.00		1.00	1.00

ref = reference category

**** < 0.001 and * < 0.05 level Significant (2-tailed): Data source, CSA 2011 EDHS*

4.4.2. Breastfeeding initiation

Early breastfeeding initiation after birth was one of the weaknesses of breastfeeding experiences in Amhara region. As indicated in the three EDHS reports, the region was among few least ranked regions in the country in early breastfeeding initiation experience. The recent- 2011 EDHS data, showed that only 37.5% of infants were introduced to breastfeeding within one hour after birth. The remaining 59.1% were initiated after one hour delay whilst the remaining about 3.5% of infants were not breastfed immediately after birth or sometimes delayed.

Many studies were conducted at different time and places in order to know what factors affected mothers' decision to start breastfeeding on time or not. However, as mentioned earlier the results varied at different times and places as breastfeeding is a function of different factors subject to individual characteristics and the community in which the mother is living (Humphreys, 1998 and Tarrant RC,2010).

A bivariate analysis was performed in order to see the association between each of the independent variables and breastfeeding initiation within one hour after birth. The socio-economic and demographic variables included in binary logistic regression model were child sex, child size at birth, mothers' age at child birth, current marital status, untrained traditional birth attendance, place of delivery, land ownership status, respondent occupation and wealth index.

Results of bivariate logistics regression analysis shows that child size at birth (OR = 0.62; $P < 0.05$), currently not in marital life (OR = 0.40; $P < 0.05$), engagement in agricultural (OR = 0.64; $P < 0.05$), and other types occupations such as professional managers, sales, clerical skilled and unskilled work (OR = 0.37; $P < 0.01$), had statistical significant effect on the timing of breastfeeding initiation (Table 4:6).

Like the bivariate analysis, child size at birth with (OR = 0.60; $P < 0.05$), being not in union at the time of the survey (OR = 0.42; $P < 0.05$) and engagement in agriculture activities (OR = 0.65; $P = 0.05$) and others respondents occupations (OR = 0.36; $P < 0.01$) were found to have statistically significant effect on initiation of breastfeeding. The

strongest predictor was respondent's engagement in agricultural activity indicating that mothers with agricultural occupation were 35% less likely to initiate breastfeeding within one hour when compared to mothers who have no work at all. Mothers who think that their newly born infants with small and average size at birth are also 40% less likely to initiate breastfeeding within one hour of delivery (Table 4:6).

The rate of breastfeeding initiation within one hour after delivery was 37.5% in Amhara region which is more or less similar to Somali region 39% (CSA and ICF International, 2012), Missippi, U.S.A 38% (Khoury et al, 2005) and worldwide 37%. The result was much lower in other regions of Ethiopia, Oromiya 52.6%, SSNP 66.5%, Harari 64.6%, Addis Ababa 62%, Dire Dawa 66% (CSA and ICF International, 2012) and other towns such as Arba Minch Zuriya 57.2% (Dessalegn Tamiru et al, 2013) and Mekele town 78% (Berhe et al, 2013).

Table 4.6: Gross and net effects of logistics regression indicating determinants of breastfeeding initiation in Amhara region, EDHS 2011

Variables	Classification	N	%	Model 1 (Gross effect) Odds (S.E)	Model 2 Demographic AOR (S.E)	Model 3 Socio-economic AOR (S.E)	Model 4 Total Model AOR (S.E)
Child sex	Male	246	51.7	0.85 (0.19)	0.80 (0.20)		0.82 (0.20)
	Female (ref)	230	48.3	1.00	1.00		1.00
Child size at birth	Small and Average	386	81.1	**0.62* (0.24)**	**0.61* (0.24)**		**0.60* (0.25)**
	Large (ref)	90	18.9	1.00	1.00		1.00
Mothers age	15-34	268	56.3	0.82 (0.19)	0.84 (0.19)		0.84 (0.20)
	35-49 (ref)	208	43.7	1.00	1.00		1.00
Current marital status	Not in union	46	9.7	**0.40* (0.39)**	**0.42* (0.39)**		**0.42* (0.40)**
	In union (ref)	430	90.3	1.00	1.00		1.00
Untrained traditional birth attendant	No	370	77.7	1.14 (0.23)	1.17 (0.24)		1.14 (0.25)
	Yes (ref)	106	22.3	1.00	1.00		1.00
Place of delivery	Home	434	91.2	1.03 (0.34	1.09 (0.35)		0.80 (0.39)
	Health Facilities (ref)	42	8.8	1.00	1.00		1.00
Owns land alone or jointly	Does not own	171	35.9	0.96 (0.20)		0.99 (0.21)	1.03 (0.23)
	Owns Land (ref)	305	64.1	1.00		1.00	1.00
Respondent's occupation	No work (ref)	204	43.3	1.00		1.00	1.00
	Agricultural	205	43.5	**0.64* (0.20)**		**0.65* (0.21)**	**0.65* (0.21)**
	Others	62	13.2	**0.37** (0.34)**		**0.36** (0.34)**	**0.36** (0.36)**
Wealth index	Poor	243	51.1	0.95 (0.19)		0.90 (0.20)	0.96 (0.21)
	Middle and rich(ref)	233	48.9	1.00		1.00	1.00

ref = reference category

*** < 0.01 and * < 0.05 level Significant (2-tailed): Data source, CSA 2011 EDHS*

4.4.3 Pre-lacteal Feeding

Early initiation of breastfeeding and exclusive breastfeeding are key interventions to achieve millennium development goals in the reduction of child malnourishment (MDG 1) and reduction in child mortality (MDG 4). However, as seen in reality both early breastfeeding initiation within one hour and exclusive breastfeeding for 6 months are hindered by pre-lacteal feeding. In all circumstances pre-lacteal feeding undermines exclusive breastfeeding, hinders proper breastfeeding initiation, introduces infections and reduces infant-mother bonding (Ganga and Sudharrsan, 2012). Pre-lacteal feeding practices in the Amhara region were among the highest in Ethiopia (CSA and ICF International, 2012).

Regarding the association and determinant factors, bivariate and multivariate binary logistics regression analyses were conducted to differentiate whether variables such as child sex, child size at birth, mothers age, literacy, untrained traditional birth attendant, place of delivery, place of residence, state of land and house ownership, Husband/partner's occupation and Wealth index had association with pre-lacteal feeding or not. The bivariate binary logistics analysis provides gross effect showed that being a male child (OR = 1.73; $P < 0.01$), mothers in early and peak reproductive age (OR = 1.62; $P < 0.05$), delivering at home (OR = 2.15; $P < 0.05$), husband/ partner engagement in agriculture activities (OR = 2.20; $P < 0.05$ and being poor (OR = 1.53; $P < 0.05$) had more likelihood engagement in pre-lacteal feeding whilst being not assisted by untrained tradition birth attendant (OR = 0.61; $P < 0.05$), living in urban areas (OR = 0.40; $P < 0.05$), reduces the likelihood of practicing pre-lacteal feeding (Table 4:7 Model 1)

Similar to the gross effect model, the multivariate analysis results after controlling other variables show that having a male child (OR = 1.76; $P < 0.01$) and being a younger mother (OR = 1.57; $P < 0.05$) accelerates pre-lacteal feeding while not being supported by an untrained traditional birth attendant upon delivery (OR = 0.62; $P < 0.05$) significantly reduces pre-lacteal feeding. (See Table 4:7 Model 4)

Table 4.7: Binary logistics regression indicating gross and net effects of demographic and socio-economic variables on pre-lacteal feeding in the Amhara Region, 2011

Variables	Classification	N	%	Model 1 (Gross effect) Odds (S.E)	Model 2 Demographic Odds (S.E)	Model 3 Socio-economic Odds (S.E)	Model 4 Total model Odds (S.E)
Child sex	Male	246	51.7	**1.73** (0.19)**	**1.85** (0.20)**		**1.76** (0.20)**
	Female (ref)	230	48.3	1.00	1.00		1.00
Child size at birth	Small and Average	386	81.1	1.13 (0.24)	1.26 (0.25)		1.71 (0.26)
	Large (ref)	90	18.9	1.00	1.00		1.00
Mothers age	15-34	268	56.3	**1.62* (0.20)**	**1.60* (0.20)**		**1.57* (0.20)**
	35-49 (ref)	208	43.7	1.00	1.00		1.00
Untrained traditional birth attendant	No	370	77.7	**0.61* (0.23)**	**0.62* (0.24)**		**0.62* (0.24)**
	Yes (ref)	106	22.3	1.00	1.00		1.00
Place of delivery	Home	434	91.2	**2.15* (0.36)**	1.47 (0.42)		1.45 (0.45)
	Health Facilities (ref)	42	8.8	1.00	1.00		1.00
Place of residence	Urban	39	8.2	**0.40* (0.39)**	0.54 (0.44)		0.92 (0.53)
	Rural (ref)	437	91.8	1.00	1.00		1.00
Owns a house alone or jointly	Does not own	84	17.70	0.61 (0.26)		0.57 (0.30)	0.57 (0.31)
	Owns house (ref)	391	82.30	1.00		1.00	1.00
Owns land alone or jointly	Does not own	171	35.9	1.01 (0.97)		1.39 (0.23)	1.42 (0.24)
	Owns Land (ref)	305	64.1	1.00		1.00	1.00
Husband/ partner's occupation	Agriculture	410	87.6	**2.20* (0.31)**		**1.96* (0.33)**	1.62 (0.40)
	Others (ref)	58	12.4	1.00		1.00	1.00
Wealth index	Poor	243	51.1	**1.53* (0.19)**		1.39 (0.20)	1.29 (0.21)
	Middle and rich (ref)	233	48.9	1.00		1.00	1.00

ref = reference category

*** < 0.01 and * < 0.05 level Significant (2-tailed): Data source, CSA 2011 EDHS*

CHAPTER FIVE:DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Discussion

Feeding breast milk to off springs is a natural phenomenon for mammals; breastfeeding was declined in human beings following the industrial revolution as mothers' labour was needed in the emerging industries. It was also aggravated after 1900 when evaporated cow milk and infant formula covered the market in large quantities. (Nathoo, 2009). However, after 1960s, as the result of many interventions regarding breastfeeding, it revived again all over the world, especially in developed nations (Hallie J, 1985).

Even though breastfeeding is widely acknowledged as appropriate methods of infants feeding everywhere in human society there is no similar practices throughout the planet. They are affected by socio-economic and demographic settings (Al-Kohji et al, 2012).

Among many breastfeeding practices, there are three key experiences which affect the whole breastfeeding process. These are:

- Exclusive breastfeeding
- Early (timely) breastfeeding initiation
- Pre-lacteal feeding

As indicated by Ganga and Sudharsan (2012) such three key practices (i.e exclusive breastfeeding, timely breastfeeding initiation and pre-lacteal feedings) are very crucial in achieving MDG 1-reduction in child malnutrition and MDG 4-reduction in child mortality.

Based on these realities this research was performed to identify the determinants of breastfeeding in Amhara region by fitting separate model for exclusive breastfeeding, early (timely) breastfeeding initiation and pre-lacteal feeding practices.

Regarding the determinants of exclusive breastfeeding, the multivariate analysis showed that child age, person who usually decides on respondent's health care and child size at birth were found to be the predictors of exclusive breastfeeding (Table 4:5 Model 4). Infants aged 6-11 months were 94% less likely to be exclusively breastfed compared to infants aged 0-5 months. Likewise infants' age 12-17 months were 99% less likely to be exclusively breastfed compared to infants aged 0-5 months. This indicated how exclusive breastfeeding was sharply decreasing in the region after the age of 6 months. At the end of 6th months and beginning of the 7th month there might be children who were not easily introduced to complementary foods. This may be the reason why we observed only few children (6%) having a chance to exclusive breastfeeding at the age group or 6-11 months. Finding of the study in general was similar to many other studies (Alemayehu, et. al, 2009; Setegn et al, 2012; Kok Leong Tan, 2012.

Child size at birth was one of the predictor of exclusive breastfeeding practice. Small and average sized children were more than 3 times likely to exclusively breastfed compared to large sized children. On the other hand, children who had mothers participating in decision making on their health care were more than two and half times likely to be exclusively breastfeed to their counterparts. Mothers might be encouraged by their participation in decision making to exclusive breastfeeding.

Even though the statistical analysis became insignificant, based on the key informants' response and FGD summary, current marital status, mothers age and mothers education had influence on breastfeeding in general and exclusive breastfeeding in particular. As mentioned by the participants of the FGD, older women are better in breast feeding their babies than younger mothers. Supporting this generalization one of key informant said that, *"Younger mothers are reluctant in breastfeeding their child as they are more concerned for their physical appearance and beauty"*. In addition, mothers in union are often breastfeeding their child than mothers not in union. The participants explained that the support from their partners is essential in breastfeeding.

As explained earlier, the prevalence of exclusive breastfeeding in Amhara region was 71.6% and it is the highest from all other regions in the country. This was also confirmed

by FGD and key informants response. Almost all key informants reported that mothers had exclusively breastfed their babies from 5 to 6 months age. They told the researcher that they were educated by HEW how to breastfed, when to breastfed, and the duration of breastfeeding in general and exclusive breastfeeding in particular.

Breastfeeding soon after giving birth is one of the basic and important elements in breastfeeding. The World Health Organization recommends early initiation of breastfeeding within 1 hour of giving birth (Indicators for assessing infants and young child feeding practices. (WHO, 2008). Establishment of lactation within hours after birth may have important consequences on the biological and emotional health of the newborn infant (Holman, Grimes, 2003). It could also reduce neonatal mortality and morbidity. The infant could get natural immunity by suckling the first milk known as colostrum. The first milk (colostrum) present at birth is critical in boosting an infant's immune system and encouraging the passage of the first stool (Boston, Massachusetts Department of Public Health, Bureau of Family Health and Nutrition, 2008). A mother also receives positive benefits due to the release of oxytocin which causes uterine contraction and reduces maternal blood loss. Besides, early initiation of breastfeeding and skin to skin contact after birth hastens mother–infant interactions and promotes a strong and healthy relationship between mother and child.

Even though timely (early) breastfeeding initiation is very important, only 37.5% of children began breastfeeding within one hour in Amhara region. It was similar to the national rates of Bolivia 39%, higher than Ghana 25% (Quinn et al, 2005) and lower than western china 59.4% (Guo et al, 2010).

Children who were small and average sized at birth were 40% less likely to be initiated into breastfeeding within one hour than larger sized children. It might also be because the children lack of alertness to breastfeeding. Among the total mothers, currently not in marriage unions were 58% less likely to initiate breastfeeding within one hour compared to mothers currently in union. Similar results were also observed in Khoury et al U.S.A (2005) and Al-Kohji et al Syrian and Jordanian (2010) findings. Lack of positive support from a husband/partner might discourage mothers from starting breastfeeding on time.

The key informants and FGD participants also confirmed that mothers with partners' support are happier in breastfeeding initiation on time than mothers not in marriage union. Concerning the issue, one of the key informant aggressively stated, *"How can I happily start breastfeeding when I lack support from my husband?"*

On the other hand, working mothers were less likely to initiate breastfeeding timely than mothers with no work. Agricultural workers mothers were 35% times less likelihood to start breastfeeding than mothers not having work. Mothers with different works i.e professional managers, sales, clerk, skilled and unskilled worker were 64% times less likely to initiate breastfeeding within one hour than mothers who had no work. Having conducted the study in U.S.A Khoury colleagues (2005) had also revealed the same condition.

Breastfeeding pattern established in the neonatal period influences the long term behavior. The practice of pre-lacteal feeds has negative impacts for both exclusive breastfeeding and breastfeeding initiation in particular and breastfeeding practices in general. The intake of pre-lacteal feeds decreases the suckling interest of the infant for colostrum-the first food and immunity for infants.

As shown in the multivariate logistics regression the prevalence of pre-lacteal feeding was higher for male children than females. Male children were about two times likelihood to be fed pre-lacteals compared to female children. This was also clearly confirmed by qualitative information obtained from participants of FGD and key informants. According to them, fresh butter to infants after give birth is common in the region. Based on the FGD summary, mothers gave fresh butter for three reasons. First, mothers thought that their breast milk was not enough for the infants need. Second, there is a belief that *"if a baby especially a male infant takes fresh butter immediately after birth before starting breastfeeding, the child will have good and calm character in future"*. Thirdly, there is a belief that *"giving fresh butter to a newborn infant is helpful for sound adjustment in later age"*. Due to such socio-cultural reasons pre-lacteal feeds especially, giving fresh butter to newborns is common everywhere in Amhara region. But recently, due to the education given by HEW, giving fresh butter for infant is declining.

However, mothers were still giving sugar solution and 'Tena Adam' with hot water. One FGD participant says in the discussion, "*we give sugar solution by spoon immediately after birth, because they might get hungry until our breast gives proper milk. We also give TENA ADAM with hot water, because it helped to prevent stomach ache*".

The prevalence of pre-lacteal feeding was (1.6 times) higher among younger mothers compared to older mothers. Mothers who were not attended by untrained traditional birth attendants were 40% less likely to give pre-lacteal foods to their infants than mothers who were attended by untrained traditional birth attendants. Untrained traditional birth attendants were observed to encourage pre-lacteal feedings.

5.2 Limitation of the Study

The EDHS surveys were designed to collect data at national level. The sample size also based on that concept and to use the data mainly at country level. Using these data for region or lower administrative level will decrease the sample size representativeness for same cases. That is why the researcher faced some problems in the study. For instance the sample sizes between urban and rural are difficult to make comparison.

5.3 Conclusion

Optimum breastfeeding together with sufficient amount of complementary food for children under two years is crucial for the existing and future growth and development. As mentioned in many literatures, breast milk is not only seen from feeding point of view but for its health advantage which is immense in early childhood, in later adolescent, adulthood and even old age. Considering these issues, WHO and UNICEF repeatedly advise and encourage mothers to breastfeed their children up to 6 months exclusively, from 6 – 24 months and beyond breast milk together with complementary foods.

Breastfeeding in Ethiopia and in Amhara too is a universal child feeding process and a cultural one too. As this research revealed from EDHS 2011, FGD and key informants mentioned and pointed out in the past two EDHSs, the duration of breastfeeding in the Amhara region was more than 30 months which was encouraging. But contrary to this

reality, there was discrepancy between the childrens' development and breastfeeding in the region.

To assess the prevalence of breastfeeding in different age, descriptive statistics had been used in data analysis. As a result of this analysis IYCF indicators of breastfeeding status were identified for the region. Based on these indicators it could be possible to judge the weakness and strengths of breastfeeding in Amhara region. The indicators can give highlights about different breastfeeding experiences.

Regarding breastfeeding experiences, the duration of breastfeeding was high in the region. Continued breastfeeding at one year (12-15 moth age) and at two years (20-23 month age) were 98.8% and 90.5% respectively. The prevalence of exclusive breastfeeding was relatively high compared to other regions. The duration of any breastfeeding, exclusive breastfeeding and predominant breastfeeding were 32.7, 4.6 and 7.4 median moths respectively.

On the other hand breastfeeding with complementary foods was not common in the region. The prevalence of complementary foods between ages 6 to 8 months was 37.0% which indicted how the complementary food intake was low espccially in the introduction period.

To identify the key determinants of breastfeeding 17 (seventeen) explanatory variables were selected to predict three key breastfeeding experiences namely; exclusive breastfeeding, early breastfeeding initiation and pre-lacteal feeding. The determinants were identified using logistics regression. Accordingly, child age, child size at birth and person who usually decides on respondent's (mothers) health care was found to be the very important predictors of exclusive breastfeeding while considering early breastfeeding initiation child size at birth, current marital status and respondents' occupation were found to be determinants of early breastfeeding initiation. Likewise child sex, mothers' age and untrained traditional birth attendant were found to explain the variation in pre-lacteal feeding.

Even though not significant in statistical analysis, marital status, mother age, mother education husband/partner education and wealth were considered as important factors in breastfeeding especially, for pre-lacteal feeding by FGD participants and key informants.

5.4 Recommendation

This study has identified that exclusive breastfeeding duration was encouraging and its prevalence was about to reach to HSDP's target 70% by 2015. But extending exclusive breastfeeding beyond 6 month after birth has negative impacts. Breast milk is not enough for child development beyond 6 month of age. Mothers should introduce additional food to children at the end of 6^{th} month. This study has also revealed that lack of complementary food is a common phenomenon in the Amhara region and has arisen from the complementary introduction period (6-8 moths). Lack of appropriate feeding at this time hinders the growth and development of the infant. FGD and key informants have also expressed the fact that supplementary feeding after 6 months of age is a function of the child's interest to demand for additional food and availability of such food in a given household.

This indicates that mothers should be educated by experts how to prepare infant foods different from others, when to start complementary foods and what amount or quantity they should feed. Mothers should follow well studied feeding procedure considering the local area child feeding methods.

Early breastfeeding initiation is one of the breastfeeding problems in the region and determined by childe size at birth, current marital status and mothers occupation. As child size at birth is mainly depends on mother feeding condition in pregnancy, support and proper feeding is needed for pregnant woman. In addition men should also be educate how to support their partners in making decision to breastfeed their child. As 22.3% of mothers were assisted by untrained traditional birth attendant, educating these birth attendants will be important to minimize pre-lacteal feeding practice.

Pre-lacteal feeding in Amhara region is related to socio-cultural settings and lack of knowhow regarding the importance of colostrum. Hence, intervention is needed regarding pre-lacteal feeding and its consequences.

The sample size used in this research was small and lacks some representativeness for some cases. For instance to calculate the median duration of exclusive breastfeeding between urban female and male children, there was no enough sample size for urban. In this regard, the researcher suggested another survey concerning breastfeeding and maternity care that cover the whole region with enough sample size representing all zones and cultures of the society. In general from its importance view of point to mothers and children and to bring about changes in the society, the researcher would try to suggest the inclusion of breastfeeding education in the school curriculum.

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Annexes I

QUESTIONS FOR FOCUS GROUP DISCUSSION (FGD)

Good morning and welcome to our session. Thanks for taking the time to talk with us about breastfeeding. My name is **Abate sidelel** and assisting me is ..... I am postgraduate student in Addis Ababa University working graduation research paper on breastfeeding in Amhara region and she is working to assist me in this local area.

The purpose in meeting with you today is to learn from your thoughts, feelings, and experiences aboutbreastfeeding in your area. Your insights will help meto know about breastfeeding experiences in this area and to suggest valuable ideas in my research.

Anything you tell us is confidential. Nothing you say will be personally attributed to you in any reports that result from this focus group discussion. All of thereportswill not be written in individual comment form addressing to a particular person.

Your participation in this focus group is totally voluntary. Are you willing to answer for questions explained in the FDG guide?

Do you have any questions before we begin?

Q1. How often mothers Bf their children in this community? Why?

Q2. What are the main challenges of breastfeeding?

Q3. Could someone mention about the importance of BF?

Q4. When do mothers often start breastfeeding? Why? Is there any pre-lactation experience in your local area? If there is pre-lactation experience, what is the reason to this experience?

Q5. What is your understanding of exclusive breastfeeding in this area? How long do they exclusively breastfeed their babies? Why?

Q6. What are the most important advantages of exclusive breastfeeding practice? What are most known challenges as well?

Q7. What factors do you think are affecting child BF? How and why?

Annexes II

KEY INFORMANT INTERVIEW GUIDE

I am gathering information to study the determinants of breastfeeding in Amhara region. The main objective of this study is to examine determinants of breastfeeding in Amhara region so as to suggest possible and appropriate recommendations for promoting breastfeeding in the region.

The study seeks your kindly views, opinion, attitudes and experiences on the factors that affect breastfeeding duration, initiation and its change over time in order to make effective analyses and to suggest valuable ideas to promote breastfeeding.

I am aware of your busy time, but because of your vast knowledge and experience, you are selected for this study. I kindly ask you to grant an interview. Note that the information you give will be treated with confidentiality. Nothing you say will be personally attributed to you in any reports that result from this interview. All of the reports will not be written in individual comment form addressing to a particular person. I am grateful to you for sparing your time to listen to me in this interview and to give all necessary information about breastfeeding in this area.

Date of interview .....

Time started .....

Time ended .....

Interviewee Health worker/gov. employee/elders

1. Kebele and Wereda

2. Age

3. Sex

4. Duration

Q1. What policies, guidelines, programmes or any written document have been implemented in your area concerning breastfeeding or IYCF?

.....

.....

Q2. How maternity services are given by HEW in your Kebele?

.....

.....

Q3. Why do mothers' breastfeed their children? Why not?

.....

.....

Q4. In your view, what are the importance of breastfeeding for both mothers and their babies?

.....

.....

Q5. What are the community's belief and attitudes towards breastfeeding in this area?

.....

.....

Q6. When do mothers usually begin breastfeeding their babies after delivery? How common is colostrum feeding? Why? Explain.

.....

.....

Q7. Are babies given any extra nourishment as soon as they are born? Why? What sort of?

.....

.....

Q8. What factors usually influence initiation of breastfeeding among mothers in this area?

.....

.....

Q9. On average, for how long mothers' exclusively breastfed their babies?

.....

.....

Q10. At what age do mothers usually introduce supplementary feeds to their babies? Why?.....

.....

Q11. For how long do mothers breastfed their children?

.....

.....

Q12. What factors influence the duration of breastfeeding among mothers?

.....

.....

Q13.At what age children often given weaning food? Why?

.....

.....

Q14. Could you tell me some of the problems associated with breastfeeding?

.....

.....

Q15. In your opinion what are the factors that promote breastfeeding among mothers in this community?

.....

.....

Q16. In your view, how dose participation in economic activities affect Bf?

.....

.....

DECLARATION

I hereby declare that the thesis entitled. *Determinants of Breastfeeding in Amhara Region* has been carried out by me under the supervision of Dr. Eshetu Gurmu College of Development Studies Center for Population Studies, Addis Ababa University, Addis Ababa during the year 2014 as a part of Master of Science program in Population Studies Reproductive Health. I further declare that this work has not been submitted to any other University or Institution for the award of any degree or diploma.

Abate Sidelel Wolde

Signature: _____

Addis Ababa University

Addis Ababa

Date: June, 2014

This Thesis has been submitted for examination with my approval as University Advisor.

Eshetu Gurmu (PhD)

Signature _____