# BREASTFEEDING INITIATION, EXCLUSIVE BREASTFEEDING AND ASSOCIATED FACTORS AMONG MOTHERS IN GOBA WOREDA, BALE ZONE, SOUTHEAST ETHIOPIA

**BY:**

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**THESIS TO BE SUBMITTED TO THE DEPARTMENT OF POPULATION AND FAMILY HEALTH, COLLEGE OF PUBLIC HEALTH AND MEDICAL SCIENCES, JIMMA UNIVERSITY; IN PARTIAL FULFILMENT FOR THE REQUIREMENTS FOR DEGREE OF MASTERS OF PUBLIC HEALTH IN REPRODUCTIVE HEALTH (MPH/RH).**

**June, 2010**

**Jimma, Ethiopia**

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## Abstract

**Background:** Breastfeeding benefits both maternal and infant health and it is an integral part of reproductive health. In addition as it is the most cost effective infant feeding option it has also economic and developmental benefit. To achieve its health or developmental advantage, it has to be initiated timely, should be exclusive for the first six months, promoted and protected. If so breastfeeding could avert 13-15% of infants' mortality. In Ethiopia, breastfeeding practices especially timely initiation and exclusive breastfeeding have been affected by many factors. Although, the national infant and young child feeding guideline has been in place since 2004 and on implementation, there is no study which evaluated maternal practices in the study area in this regard.

**Objective:** The overall objective of this study was to assess the level of timely initiation of breastfeeding (TIBF), the frequency and duration of exclusive breastfeeding (EBF) and associated factors among mothers in Bale Zone, Goba Woreda, South East, Ethiopia, 2009/10.

**Methods and materials:** A community-based cross-sectional study that included both quantitative and qualitative methods of data collection was employed. Six hundred and eight mothers were selected by stratified cluster sampling technique. The qualitative data was obtained from 23 respondents. The quantitative data was analyzed by **SPSS-16**.0 and manual thematic analysis was used for the qualitative data.

**Result:** The prevalence of TIBF and EBF were 52.4% and 71.3%, respectively. Attendance of formal education, being urban resident, institutional delivery and postnatal counselling on BF were significantly associated with TIBF ($P<0.05$). The median duration of EBF was 3 months and median frequency of EBF was six times per day. Unemployment, age of infants(less than 2 months), not introducing pre-lacteal food in the first three days after delivery, parity and TIBF were directly associated with EBF for the first 6 months. On the multivariable logistic model, being urban residence (AOR=4.1[95%C.I: [2.31-7.30]) and getting postnatal advice/counselling (AOR=2.7[1.86-3.94]) were independent predictors of timely initiation of breastfeeding. Employment status (unemployment) (AOR=10.4[1.51-71.50]), age of infants(less than 2 months) (AOR=5.6[2.28-13.60]) and average monthly income of mothers (501-1000 ET B/month) (AOR=0.4[0.14-0.90]) were predictors of exclusive breastfeeding.

**Conclusion:** Socio-demographic and economic factors, obstetric and health service related practices/factors were found predictors of TIBF and EBF. Integrated and targeted interventions which encompass all responsible bodies starting from policy makers to the community level are recommended to achieve acceptable limit of timely initiation and exclusive breastfeeding as well as the fourth millennium development goal.



***Key Words: Timely initiation, Exclusive, breast feeding, Goba, Ethiopia***

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## Acronyms

| | |
|---|---|
| AIDS | Acquired Immuno-Deficiency Syndrome |
| ANC | Ante Natal Care |
| BF | Breast-Feeding |
| EBF | Exclusive Breast-Feeding |
| EPI | Expanded Program on Immunization |
| HEW | Health Extension Worker |
| IYCF | Infant and Young Child Feeding |
| PBF | Predominant Breast-Feeding |
| PNC | Post Natal Care |
| SPSS | Statistical Package for Social Science |
| TIBF | Timely Initiation of Breast-Feeding |
| WHO | World Health Organization |

# Chapter 1: Introduction

## 1.1. Background

Breastfeeding is a foundation practice for appropriate care and feeding of newborn infants (1). It is the normal way to feed all infants. Immediate and long-term health problems are increased in infants who are fed infant formula or other foods. The World Health Organization Expert Consultation recommended exclusive breastfeeding for the first six months of life and continued breastfeeding up to two years of age or beyond (2).

The benefits of breast-feeding (BF) to both infants and mothers are now evident. Especially in recent years, it has been proven that improved breastfeeding in the neonatal period helps to reduce morbidity and mortality of infants and children, and promotes maternal health, baby health, growth, and development in the first year and beyond in both developing and developed countries. Breastfeeding prevents infants against common childhood diseases like gastrointestinal infections, otitis media, pneumonia and meningitis. The promotion, protection and support of breastfeeding is an exceptionally cost-effective strategy for the prevention of childhood disease, particularly in developing countries. Establishing good breastfeeding practices in the first days after birth is critical to the health of the infant and to breastfeeding success. Initiating breastfeeding is the easiest and most successful when a mother is physically and psychologically prepared for birth and is informed, supported and confident in her ability to breastfeed and care for the newborn. Early initiation of breastfeeding and exclusive breastfeeding until six months is not only the easiest and most successful way in influencing survival after the first month of life but also has a direct impact on the health of the newborn (1, 4, 5).

Early initiation of breastfeeding is characterized as putting the newborn to the breast within one hour of birth and is measured using the indicator: timely initiation of breastfeeding. Exclusive breastfeeding means that the infant receives only breast milk and the rate of exclusive breastfeeding is the percentage of infants, aged less than six months, who receive only breast milk and no other solids or liquids, including water, with the

exception of drops or syrups consisting of vitamin or mineral supplements or medicines(1).

Promotion of exclusive breastfeeding is the single most cost effective intervention to reduce infant mortality in developing countries. Non-exclusive breastfeeding can increase the risk of dying due to diarrhea and pneumonia among 0–5 month old infants by more than two-fold (5).

In Ethiopia breastfeeding is nearly universal. Ninety-six percent of children, both urban and rural, have been breastfed during some period in their lives and this varies minimally across regions. Women continue to breastfeed for an extended period. At 24 months of age 72% are still breastfeeding and at 36 months 31% are still breastfeeding. Although BF is universal, appropriate breastfeeding practices are not always followed. Exclusive breastfeeding and timely initiation of breastfeeding tops the table of life-saving interventions for newborns. But about one third of babies do not receive breastfeeding within the first hour of birth and only half are exclusively breastfed for 6 months (6, 7).

## 1.2. Statement of the problem

Worldwide, about 4 million babies die annually in the first four weeks of life, i.e. the neonatal period. The vast majority of these neonatal deaths occur in the developing world, mainly from preventable causes, and about half take place at home. The highest numbers of neonatal deaths are observed in the south-central Asian countries, and the highest rates are generally in sub-Saharan Africa (1).

Malnutrition has been responsible, directly or indirectly, for 60% of the 10.9 million deaths annually among under five children. Over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occur during the first year of life. No more than 35% of infants worldwide are exclusively breastfed during the first four months of life; complementary feeding frequently begins too early or too late, and foods are often nutritionally inadequate and unsafe. In many developing countries certain cultural beliefs and outdated hospital practices continue to interfere with optimal breastfeeding (2,5).

In Sub-Saharan Africa, where almost half of all deaths of children aged less than five occur, the decrease in mortality rates has slowed down, and in some countries the mortality rate has even increased. The causes for this change in child survival are many and include rising poverty, fragile health systems, HIV/AIDS and malnutrition (8).

In 2006 it is estimated that 9.5 million children died before their fifth birthday, and two thirds of these deaths occurred in the first year of life. Under nutrition is associated with at least 35 % of child deaths. It is also a major disabler preventing children who survive from reaching their full developmental potential. Around 32% of children less than 5 years of age in developing countries are stunted and 10% are wasted. It is estimated that sub-optimal breastfeeding, especially non-exclusive breastfeeding in the first 6 months of life, results in 1.4 million deaths and 10 % of the disease burden in children younger than 5 years (3).

Appropriate feeding practices are of fundamental importance for the survival, growth, development, health and nutrition of infants and young children. It is argued that promotion of exclusive breastfeeding (EBF) for the first six months is the most effective child health intervention currently feasible for implementation at population level in low-income countries and it could lower infant mortality by 13%. Infants who had not been breastfed had a 10-fold higher risk of dying of any cause and a 3-fold higher risk of being hospitalized for any cause compared with those who had been predominantly breastfed (8).

Lack of breastfeeding – and especially lack of exclusive breastfeeding during the first half year of life–is important risk factor for infant and childhood morbidity and mortality, which are compounded by inappropriate complementary feeding. The long term impact includes poor school performance, reduced productivity, and impaired intellectual and social development (2).

The benefits of early breastfeeding extend beyond child health outcomes. It creates a special bond between mother and infant, increases chances of breastfeeding success, and generally lengthens the duration of breastfeeding, hastens recovery during illness, and helps to space births. Additionally, immediate and exclusive breastfeeding as an intervention can also help to avert maternal death by minimizing immediate postpartum hemorrhage, which is one of the most common causes of maternal death. Breastfeeding delays the resumption of ovulation after childbirth and reduces a mother's risk of breast cancer (9-11).

Breastfeeding is a universal practice in West and Central Africa. Breastfeeding initiation rates are above 90 percent in all countries (with the exception of Gabon) and children are breastfed for a long time as reflected by the fact that the mean duration of breastfeeding in West and Central African countries is 20 months. However, the rate of exclusive breastfeeding is lower than in any other region in the world: in West and Central Africa, only 20 % of infants younger than six months are exclusively breastfed, with rates of exclusive breastfeeding as low as 2 % in Chad, 4 % in Sierra Leone, and 5 % in Côte d'Ivoire (12).

However, some countries in the region have shown remarkable progress in the proportion of infants younger than six months who are exclusively breastfed; between 1990 and 2004, exclusive breastfeeding rates increased from 3 % to 19 % in Burkina Faso, 7 % to 24 % in Cameroon, 4 % to 53 % in Ghana, 9 % to 25 % in Mali, 3 % to 17 % in Nigeria, and 6 % to 34 % in Senegal. West and Central Africa remains the region of the world with the highest infant mortality rates and the lowest exclusive breastfeeding rates worldwide (12).

If improved breastfeeding practices- particularly early initiation of breastfeeding within one hour after birth and exclusive breastfeeding through the first six months of life – are protected, promoted and supported through results-oriented policy action and program implementation, breastfeeding has the potential to be the single most important child survival intervention in West and Central Africa. International agencies had realized that harmful practices in health care systems were a major contributing factor to falling breastfeeding rates. Health care services were failing to protect, promote and support breastfeeding, as they followed protocols and procedures that interfered with the initiation and establishment of optimal breastfeeding practices. Health staff had insufficient expertise and experience in supporting mothers to breastfeed as their training often favoured artificial feeding as a more 'modern' and 'scientific' option than breastfeeding(12).

In Ethiopia, although breastfeeding is nearly universal, its practices, however, are not optimal. Pre-lacteal feeding is common. Exclusive breastfeeding, on the other hand, is relatively short, with a median duration of 2.1 months. Contrary to WHO recommendations, only around one in three children age 4-5 months is exclusively breastfed. Early breastfeeding initiation was also documented low with significant regional variations (6, 7).

Cognizant of high prevalence of inappropriate child feeding practices and the importance of timely initiation of breastfeeding and exclusive breastfeeding, The Ethiopian government had developed infant and young child feeding guidelines in 2004 (13), which gives due emphasis to key messages on the aforementioned indicators of optimal breast feeding practices. Since then, varying levels of interventions were being given at health institution and at the community level by health extension workers. However, these efforts are not based on systematic evidence on the level of existing practice which might be due to the scarcity of studies on timely initiation and exclusiveness of breast feeding with their associated factors in the country in general. Particular to the study area, there are no studies that have examined and documented timely initiation of breastfeeding and its exclusiveness including associated factors.

Therefore, this study is intended to contribute in narrowing the information gap through documenting the practice of timely initiation of BF, frequency and duration of EBF and related associated factors.

# Chapter 2: Literature review

## 2.1. Literature review

There is a universal consensus about the fundamental importance of breastfeeding for children's adequate growth and development and for their physical and mental health. Breastfeeding, particularly exclusive breastfeeding, preceded by timely initiation and appropriate complementary feeding practices are universally accepted as essential elements for the satisfactory growth and development of infants as well as for prevention of childhood illness. This has culminated in a publication by the World Health Organization (WHO) recommending that infants up to 6 months of age should be exclusively breastfed (2, 3, 12).

**Breastfeeding initiation**

The impact of early initiation and exclusive breastfeeding in the first month of life on mortality has recently been documented. A large cohort study under-taken in rural Ghana concluded that 22% of neonatal deaths could be prevented, if all infants were put to the breast within the first hour of birth (14).

Study done in Perth, Western Australia, on Aboriginal mothers, reported an initial breast-feeding rate of 82%, declining to 50% at 3 months and groups of mothers in remote areas tended to continue the traditional pattern of breast-feeding for as long as possible (16).In Zhejiang Province, China, more than 95% of mothers in each location (City, Suburb and Rural) initiated breastfeeding, but the exclusive breast-feeding rate was much lower in the city (15).

Meanwhile a cohort study in Chittagong, Bangladesh, showed that breastfeeding was initiated within three days of birth in all cases and commonly within three hours of birth. However, in 70% of cases colostrum was not the first food given to the child and other pre-lacteal foods were given, the most common being mustard oil or honey. The most common reason for feeding of pre-lacteal foods was that it was a custom or tradition to do so (16).

A randomized controlled trial conducted in Royal Women's Hospital (RWH) Melbourne, Australia, revealed high levels of breastfeeding initiation but only 47% of women are breastfeeding (exclusively or partially) six months later, with marked differences between social groups (17).

Descriptive Cross-sectional study conducted in Kengeri. rural Bangalore, Karnataka, revealed that 97% of the mothers initiated breastfeeding and the other 3% could not initiate due to separation from mother (2%) or due to advice from the mother-in-law (1%). This study also showed that 44% of the mothers initiated breastfeeding within 30 minutes with home delivery and 38% with Caesarean section. On the other hand a total of 19% of the mothers didn't breastfeed even 24 hours after delivery (18).

Similarly a cross-sectional study done in north of Jordan demonstrated an initiation rate of breastfeeding of 88.6%. Over 58% were full and over 30% were mixed types of breast-feeders (19).

A hospital based cross sectional study in New Delhi, had indicated that 32% of mothers initiated early breast feeding (within first hour of delivery), 88% of mothers initiate breast feeding within the first 12 hours. Only one third of mothers initiated breast feeding within one hour of birth but more than 95% of mothers start breastfeeding within 24 hours of delivery (20).

A descriptive cross-sectional study done to assess the breastfeeding practices among Jordanian women showed that about half of the mothers (49.5%) started breastfeeding at birth (21).Similarly a cross-sectional survey done in Lebanon revealed that more than a third (37.6%) of the mothers surveyed stated that breast milk was the first food introduced after birth of which 55.9% started breast-feeding their newborns within a few hours of birth and 18.3% within half an hour, 21.2% replied that they initiated BF a few days after birth. This study had also indicated that over half of the population was not explicitly encouraged by hospital staff to initiate early breastfeeding (22).

A cross-sectional survey done in Pokhara city, Nepal, on breast-feeding initiation and associated of exclusive breast-feeding had indicated that 82.3% of mothers interviewed were exclusively breast-feeding. Two hundred eighty (72.7%) initiated breast-feeding within the first hour and 84.4% mothers had initiated within 24 hour. Colostrum or breast milk was given as the first meal to 86.2% babies, while the remaining 14% babies were given a fluid other than breast milk as their first feed (23).

About twenty six percent (26.3%) mothers could not initiate breast-feeding until up to 24 hours and the remaining 27 mothers (47.4%) could not initiate breast-feeding even after 24 hours. Most of the mothers 353 (91.6%) fed their babies according to need with an average of 7.4 feeds per day. None of the mothers were exclusively bottle-feeding their babies and 49(12.7%) mothers had introduced complementary feeds before 2 months. The complementary foods included formula foods (10.4%), cow's milk (71.8%) and sugar water 2(0.5%). Thirteen (3.4%) mothers had introduced more than one complementary feed (23).

A clinic-based descriptive cross-sectional study in Beruwala, western Kalutara showed the breastfeeding initiation rate of 100 %( 6).

A Cross-sectional Study in Bangladesh showed that majority 88.8% infants were given breast milk within three days of birth, and 66.6% of infants were given a prelacteal feed of honey/sugar water or mustard oil after birth (24).On the other hand a household survey conducted in Wad Medani town, Sudan showed that majority 54.2% of mothers initiated breastfeeding after one hour from delivery, and 39.7% of mothers initiated breastfeeding during the period from two hours to 24 hours. Only 6.0% of the mothers initiated breastfeeding after one day. Those who breastfeed for six months were 29.5%, while only 6.0% breastfeed for two months (25).

In nutshell timely initiation breastfeeding was documented in developing courtiers including in Ethiopia. The prevalence of timely initiation of breastfeeding in some developing countries other than Ethiopia was documented as in Ghana, 2003 (41%). Sudan (54.2%), Jordan (49.5%), north Jordan (86.6%), Nepal (72.2%), Zambia; 2004(70%), Bolivia; 2003(74%).In Ethiopia, national prevalence of breastfeeding initiation is

69%).But timely initiation of breastfeeding varies with in regions and it was found that in Amhara region, 2006(60%), SNNP region, 2006(50%) and Oromiya region, 2006 (77%) (2, 6, 19, 21, 24-27).

**Factors affecting breastfeeding initiation**

A cross-sectional survey in Lebanon indicated that several factors influenced BF initiation. This study revealed that with respect to type of delivery, 49.2% of those who delivered by Caesarean section initiated BF a few days after birth as opposed to 14.4% of those with spontaneous vaginal delivery. Hospital-related factors were also significant proportion (92.6%) of mothers whose newborns were brought to them for night feedings initiated breastfeeding few hours after birth compared to 75.0%, if the baby was not brought for night feedings. Based on this study, 91.0% of mothers who delivered at hospitals which allow rooming-in started BF within a few hours after birth compared with 73.2% of those who delivered at hospitals that did not allow rooming-in. In hospitals that did not allow rooming in, the frequency of seeing the infant was significantly related to BF initiation. Ninety three percent of mothers who could see their infants every 3 hours or less initiated BF few hours after birth versus 74.8% of those who saw their infants less often (22).

In this cross sectional study a third of mothers who were encouraged by hospital staff to initiate BF within half an hour after birth were also more likely to actually initiate within half an hour as opposed to only 10.3% of those who were not encouraged to do so. Mothers who breast-fed within few hours of birth were less likely to state that timing of initiation was the hospital's choice (75.8%) than those who initiated after few days 87.3%(22).

A hospital based cross sectional study in New Delhi, had indicated that delivery by caesarean section was found to be significantly associated with not initiating breastfeeding within one hour of birth. Likewise admission in general ward was also found to be significantly associated with not initiating breastfeeding within one hour of birth. All others variables i.e. mother's age, maternal education, maternal occupation and socioeconomic status was insignificantly associated with early initiation of breast feeding.

Only two thirds (66.7%) of mothers received breastfeeding counselling from doctors during ANC period (20).

**Frequency of breastfeeding**

According to a study done to assess the breastfeeding practices among Jordanian women indicated that majority of mothers (59.5%) breastfeed their babies for less than half an hour and most of them (38.5%) feed their babies six to eight times per day (21).

A study done in Zahedan Southeast Iran, revealed that the mean and SD of breastfeeding frequency per 24 hours were 7.3 and 3.4, respectively(28).

**Prevalence of exclusive breastfeeding**

Worldwide, it is estimated that only 34.8% of infants are exclusively breastfed for the first 6 months of life, the majority receiving some other food or fluid in the early months (3).

In UK a survey conducted in 1995 showed that the prevalence of breastfeeding at birth was 66%, at 4 months this had dropped to 21% and at 9 months, breastfeeding rates dropped further to 14%. However, preliminary findings of the 2000 UK Infant Feeding Survey suggest that rates may have increased but the most recent survey indicates a rate of 70% (29).

In a study conducted in Zhejiang Province, China, a lower proportion of mothers in the city (38.0%) were exclusively breastfeeding compared to the suburban (63.4%) and rural (61.0%) areas. In this study, by the sixth month, very few mothers in both city and suburban area were exclusively breastfeeding (0.2% and 0.5% respectively), but in the rural area the rate was higher where 7.2% of mothers were still exclusively breastfeeding (15).

According to a survey study done in Beijing City showed that breastfeeding rates were 24.7% in the first week of life and declined to 13.6% at four months. A study from rural areas near to Shihezi showed that exclusive breastfeeding in the first week of life was only 41% (7).In Brazil, 58% of infants aged 0–6 months were breastfed. Compared with other countries, breastfeeding prevalence is high in Brazil (30).

A descriptive cross-sectional study conducted in Kengeri, rural Bangalore, Karnataka, indicated that only 40% of the mothers did the exclusive breastfeeding until 6 months and started weaning after 6 months. Majority of the mothers started weaning at the age of 3 to 4 months. The most common reason given for the start of supplementary feeding was insufficient milk (92%) (18).

In a study conducted in Zahedan, Iran, it was found that 62.7% of mothers breastfed their children. Complementary feeding started earlier than four months postnatally for 7.8% children. This research also showed that 98% of the children were exclusively breastfed at birth and 92% were still being breastfed at the age of one month. The proportion of breastfeeding at the ages of three, six, 12 and 24 months were 85%, 69%, 56% and 8%, respectively (28).

A retrospective study in Iran on children less than 24 months of age, to assess the prevalence, duration and recommendations of Breastfeeding indicated that the exclusive breastfeeding rates were 57% at 4 months and 28% at 6 months. The exclusive breastfeeding rates in rural areas were 58% and 29% at 4 and 6 months of age respectively, and corresponding figures in urban areas were 56% and 27%(31).

A clinic-based descriptive cross-sectional study in Beruwala, western Kalutara showed that, 61.6% were exclusively breastfed for four months. Only 155 infants were aged six months or more and only 15.5% of them were exclusively breastfed for six months (6).

A cross-sectional survey in Lebanon, revealed that only 4.6% of the mothers replied that they never breastfed their infant. At 1 month of age, the proportion of exclusively breast-fed infants was 52.4%, gradually declining to 23.4% at 4 months and 10.1% at 6 months. In this study it has also indicated that a large number of mothers stopped BF because they believed that breast milk was insufficient 26.2% and 20.9% believed that the child was old enough (22).

A survey conducted in Benin City, Edo state, Nigeria, indicated that majority (82%) of the women breastfed, with only 18% not breastfeeding. The main reason given for not breastfeeding was ill health. Of the 82 % subjects that practiced breastfeeding, only 20% exclusively breastfed their infants up till six months. Sixty one per cent had added corn gruel and glucose water, while, 14 % added herbal brew as soon as the baby was born (32).

According to the cross-sectional study in Bangladesh, more than 99% of the children were breastfeeding at the time of interview, but only 34.5% were exclusively breastfed (pre-lacteal feeding included).This Study also showed that only 11.7% children were exclusively breastfed if the WHO definition of exclusive breastfeeding is used. In nutshell 50.3% infants were never exclusively breastfed and the prevalence of exclusive breastfeeding in infants aged three months was less than 20%(24).

According to the cross-sectional study done in Jordan, 77% of women reported that they were breastfeeding their baby exclusively, 60.5% of the mothers made the decision to breastfeed their babies before pregnancy and 43% of mothers gave supplementation other than milk(21).

A cross sectional study in nine regions and two city administrations, Ethiopia, showed that the proportion of women who practiced EBF(for six months) and predominant breastfeeding (PBF) were 49.0% and 19% respectively making the overall rate of full breastfeeding (both EBF and PBF) 68.2%. On the other hand, 56.9 % infants had exclusively breastfed for the first four months. The proportion of women who gave pre-lacteal feeding within the first three days of life and used bottle-feeding were 13% and 28.5% respectively. Encouragingly, the percentage of women who had never breast-fed was only 0.6 %( 33).

**Duration and determinants of exclusive breastfeeding**

The length of breastfeeding in some regions of Iran has been reported to be 18.1 months in Zahedan city, 19.7 months in the rural and urban areas of Zabol, and 17.6 months in Shiraz This also study revealed a significant relationship between the period and frequency of breastfeeding per 24 hours. No relationship was observed between the period of breastfeeding and other variables, i.e. mothers' occupation and motherhood status, number of children, mode of delivery and the infant's age at the start of complementary feeding. The mother's age, the infant's age, frequency of breastfeeding per 24 hours, breastfeeding at night and breastfeeding during the mother's illness are variables that affected the period of breastfeeding (28).

According to the EDHS, the regional distribution of median duration of exclusive breastfeeding documented is Tigray-1.6, Affar-0.4, Amhara-4.3, Oromiya-1.6, Somali-0.5, Benishangul-Gumuz 1.6, SNNP-1.8, Gambela-1.6, Harari-0.8, Addis Ababa-0.6, Dire Dawa-0.5 months (6).

A number of direct and indirect variables are associated with breastfeeding. For instance, an important factor to consider is the age of the mother: Social factors such as the level of the mother's education and income are also related to breastfeeding rates: mothers with a lower level of education and income breastfeed their children more than mothers with a higher level of education and income. However, the trend is currently changing: the number of better-educated women with higher incomes and easier access to information who breastfeed their children are on the increase (34, 35).

Based on a study done in China, infants' gender, birth order, number of children, family income, parents' education and employment, mode of delivery, initiation of BF within one hour after birth, and on demand BF during the day and night, did not show any statistical difference with EBF. Traditional beliefs about breastfeeding also influence the duration of exclusive breastfeeding. The majority of mothers believe that exclusive breastfeeding can't satisfy their baby's need for food until six months. Because of this, the majority of babies were fed infant formula or solid food before four months (36).

There are also many other factors that influence BF duration. Some investigators suggested that BF difficulties rather than maternal choice led to early discontinuation of BF. Others suggested that mothers' knowledge, attitudes and support were stronger associateds of BF duration than demographical, socioeconomic and biological factors (4, 37).

A cross-sectional study on Québec infants showed a significant association between the level of family income adequacy and the duration of aggregate maternal breastfeeding. Low-income mothers were more likely never to have breast-fed, and the proportion of low-income mothers who did breast-feed their infants for four months or more was significantly lower than that of mothers with adequate incomes (39).

In a study done in Zanjan University of Medical Sciences, Iran, BF was maintained at a high level, more than 92% for the first 12 months of life. Rate of EBF declined with age. The EBF rate at 0 months was 82%, but it sharply declined to 44% at one month. Through 1–5 months, 42%–44% of the infants were exclusively breastfed (5).

A study conducted in UK on black and minority ethnic groups and young mothers showed that social support has been found to have direct and positive effects on mothers' relationships with their infants and on breastfeeding rates. Studies have shown that a supportive environment is related to successful lactation for economically disadvantaged women (39).

A study done in Perth, Western Australia on Aboriginal mothers, reported that the prevalence of breast-feeding at all ages decreased with increasing urbanization (37).

A cross-sectional study done in north of Jordan revealed that employed women were more likely not to practice full breastfeeding compared with unemployed women and women who had caesarean delivery were more likely not to practice full breastfeeding compared to these with vaginal birth. This study also demonstrated that less-educated women were more likely to breastfeed than women with higher education levels. The current study showed that factors associated with not practicing full breastfeeding were mothers' working status and delivery by caesarean section, where mothers rarely care for their babies in the first 2 days post-operatively (19).

A cross-sectional study conducted in Wad Medani town, Sudan, indicated that 15.5% mothers stopped breastfeeding their children because their health was not helpful to continue breastfeeding and 9% of mothers argued that they stopped breastfeeding for cultural beliefs while only 5.5% stopped breastfeeding for work and little milk (25).

As to the factors associated with exclusive breastfeeding, a cross sectional study done on determinants and associated factors in Ethiopia, showed that EBF was significantly associated with maternal educational level, current marital status, child age, and economical status but no association was observed regarding maternal age, place of residence, current employment of women, and access to mass media, attending antenatal care, and sex of the child. Infants less than two months of age were five times more likely to be on EBF than infant aged four to six months (33).

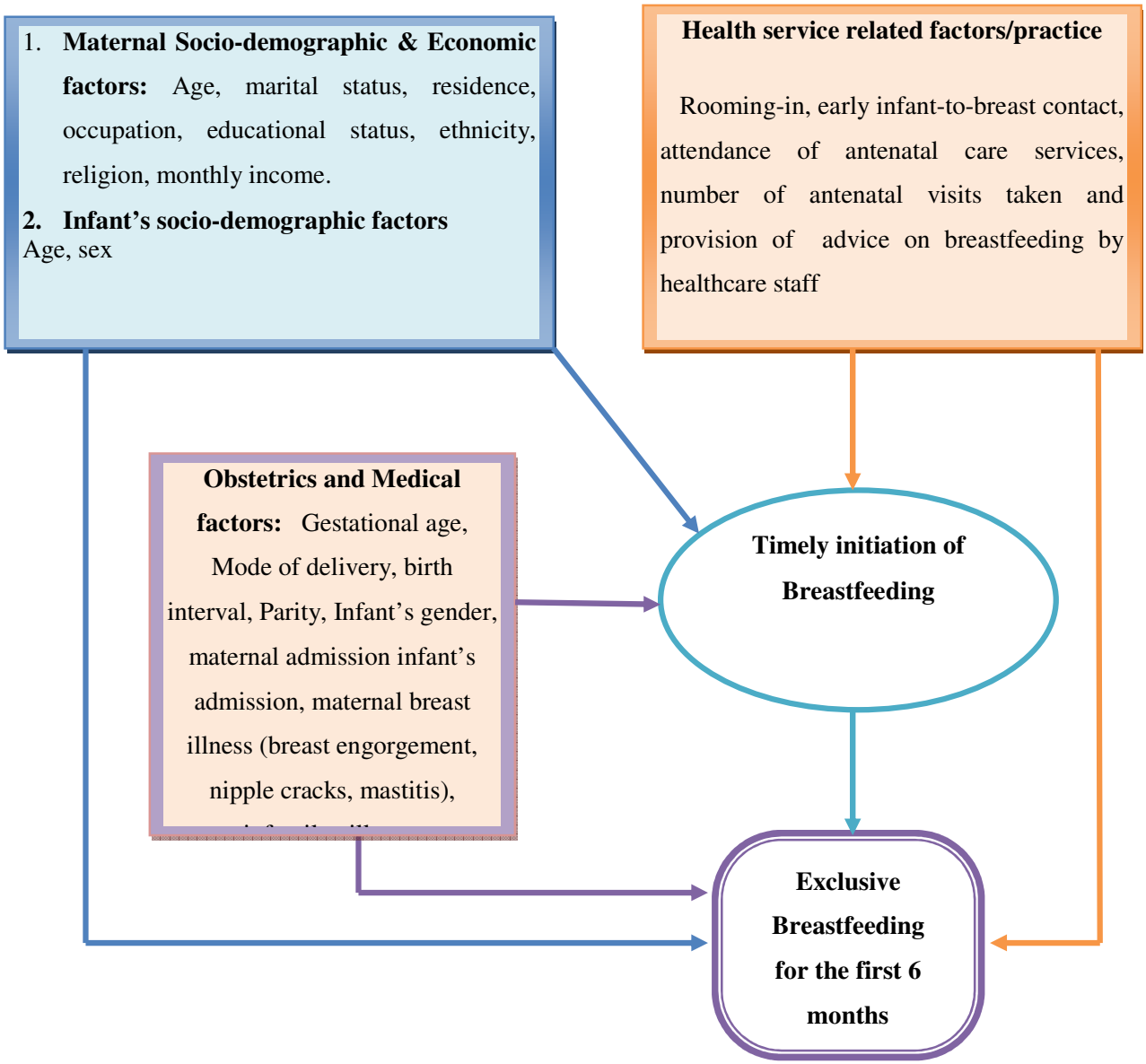


**Figure 1: Conceptual framework of the study on breastfeeding initiation, exclusive feeding and associated factors among mothers in Goba Woreda, Bale Zone, 2010.**

## 2.2 Significance of the study

In developing countries many babies have born malnourished due to poor maternal nutrition before and during pregnancy. It may be further aggravated by poor breastfeeding practice which in turn many factors influence how and for how long babies are breastfed.

Despite many studies conducted on optimal breastfeeding, mixing-up of timely initiation of breastfeeding and breastfeeding initiation (i.e. ever breastfeeding) was observed. Most studies done on the indicators of optimal breastfeeding have assessed timely initiation of breastfeeding and exclusive breastfeeding separately even without assessing the associated factors such as health service related practices/factors. Most studies have focused on an extremely narrow range of factors, particularly the socio-demographic characteristics of mothers, and self-reported personal factors.Besides, there was no research suggesting the contribution of TIBF for the success of EBF in particular.

Therefore, the current study would reveal the practice of breastfeeding initiation, exclusive breastfeeding and associated factors and was assessed the association of TIBF and EBF which are crucial for decision makers at different levels for designing empirical and evidence based intervention.

The finding of this study can provide policy makers and NGOs with relevant information for future planning and interventions of appropriate strategies to promote and maintain breastfeeding practices of Ethiopian mothers. The finding may also be used by program implementers as an input towards supporting and promoting timely initiation and healthy breastfeeding practices among the study population with their ultimate goal of reducing infant morbidity and mortality.

Above all, since there is no research conducted in similar area of interest, in the study area, the finding of this study would serve as baseline information for those who are interested in carrying out further research.

## Chapter 3: Objectives of the study

### 3.1 General objective

The overall objective of this study was to assess the situation of breastfeeding practice (timely initiation of breastfeeding and exclusive breastfeeding) associated factors among mothers in Bale Zone, Goba Woreda, South East Ethiopia, 2009/10 GC.

### 3.2 Specific objectives

1. To assess the prevalence of timely initiation of breastfeeding and exclusive breastfeeding
2. To determine frequency and duration of exclusive breastfeeding practice
3. To assess factor associated with timely initiation of breastfeeding and exclusive breastfeeding

# Chapter 4: Methods and materials

## 4.1 Study area and period

The study was conducted in Bale zone, Goba Woreda from February–March, 2010. Bale Zone is one the zones in Oromia Regional State located, in South East of Ethiopia. It is the second largest zone in the region with an area of 67,329.6 $km^2$ that extends from $5^0$ 22'- $8^0$ 08'N latitudes and $38^0$ 41'- $40^0$ 44'E longitudes. Robe is the zonal capital. Goba is one of the 18 woredas in Bale Zone, Oromia Region of Ethiopia and located 444 km from Addis Ababa. Currently, the woreda has 24 rural and 4 urban kebeles. According to Central Statistical Agency (CSA) 2005, the woreda has an estimated total population of 92,791(including the currently Goba administrative town) of whom 47,774(51.5%) were males and 45,017(48.5%) were females; 50,650(54.59%) of the population are urban dwellers.According to Goba Woreda Health office report in 2002 E.C, the estimated total number of infants(children less than 1 year) in the woreda(both Rural and Urban) is 1923 (40).

## 4.2 Study design

A community-based cross-sectional study design was employed

## 4.3 Population

### 4.3.1 Source population

- ***For quantitative study:***

All mother-infant pairs living in Goba Woreda

- ***For qualitative study :***

Health care providers of EPI, ANC, and delivery service points, Health Extension Workers and breastfeeding mothers.

*4.3.2 Study population*

❖ **For the Quantitative method**

Sampled mother-infant pairs were included in the study

➢ ***Inclusion criteria***

Since the study subjects were mother-infant paired groups, mothers with an infant/s were included as study population.

➢ ***Exclusion criteria***

Mothers who were seriously ill and unable to communicate and those mothers with sick infant were excluded from the study.

❖ **For the qualitative method**

Selected health care providers in EPI, ANC, and delivery service points during the data collection period and mothers who have a child less than one year were included.

## 4.4 Sample size and sampling procedure

### 4.4.1 Sample size

The quantitative sample size for this particular study was calculated using formula for a single population proportion considering the following assumptions: A 95% confidence level, margin of error (0.05), regional prevalence of exclusive breastfeeding for Oromia (p = 0.62) (26) was substituted in the following single population proportion formula.

$$n = \frac{(Z_{\alpha/2})^2 p(1-p)}{d^2}$$

***Where:*** **n** = required sample size

$\mathbf{Z_{\alpha/2}}$ = critical value for normal distribution at 95% confidence level which equals to 1.96 (z value at $\alpha$ =0.05)

**P** = Regional prevalence of exclusive breastfeeding for Oromia

**d** = an absolute precision (margin of error 5%).

The formula yielded **362** mothers with infants. Since the estimated total population of infants (**N**) in the woreda was larger as compared to the calculated sample size (n) which gives a population fraction of > 5% (i.e. **n/N**=18.8%), the finite population correction formula was used which gave a final total sample size of 304 and adding 10% for non-response and multiplying by design effect of 2, the required total sample sizes for the study was 668 mother- infant pairs.

For the qualitative part, six health care providers at ANC, EPI and delivery services (two from each), eight health extension workers and nine breastfeeding mothers were interviewed.

### 4.4.2 Sampling procedure

- ***For quantitative study***

Stratified cluster sampling was employed. For this, there are 28 Kebeles(urban and rural) in Goba Woreda. The sampling procedure was started from the stratification (assuming that the rural kebeles are relatively homogenous) of the 28 kebeles as rural and urban the kebeles.

Each kebels in the strata was considered as a cluster. To determine the number of clusters, assumption of getting 50 mother-infant pairs in each cluster was considered and the total sample size (668) was divided by 50 which gives thirteen clusters. Eleven rural and two urban clusters were selected by lottery method. The total number of mother-infants pairs for each selected cluster was obtained from the respective health posts and total sample size 668 was allocated proportional to size to each of the selected thirteen clusters. Simple random sampling was employed for those selected clusters with greater than 50 mother

and total enumeration of mothers was carried out in selected cluster with less than or equal to 50 mothers (Figure 2).

Whenever study participants were unable to be interviewed for some reason (e.g. absence, refusal) attempt was made three times to interview the respondent rather than simply considering them as non-response

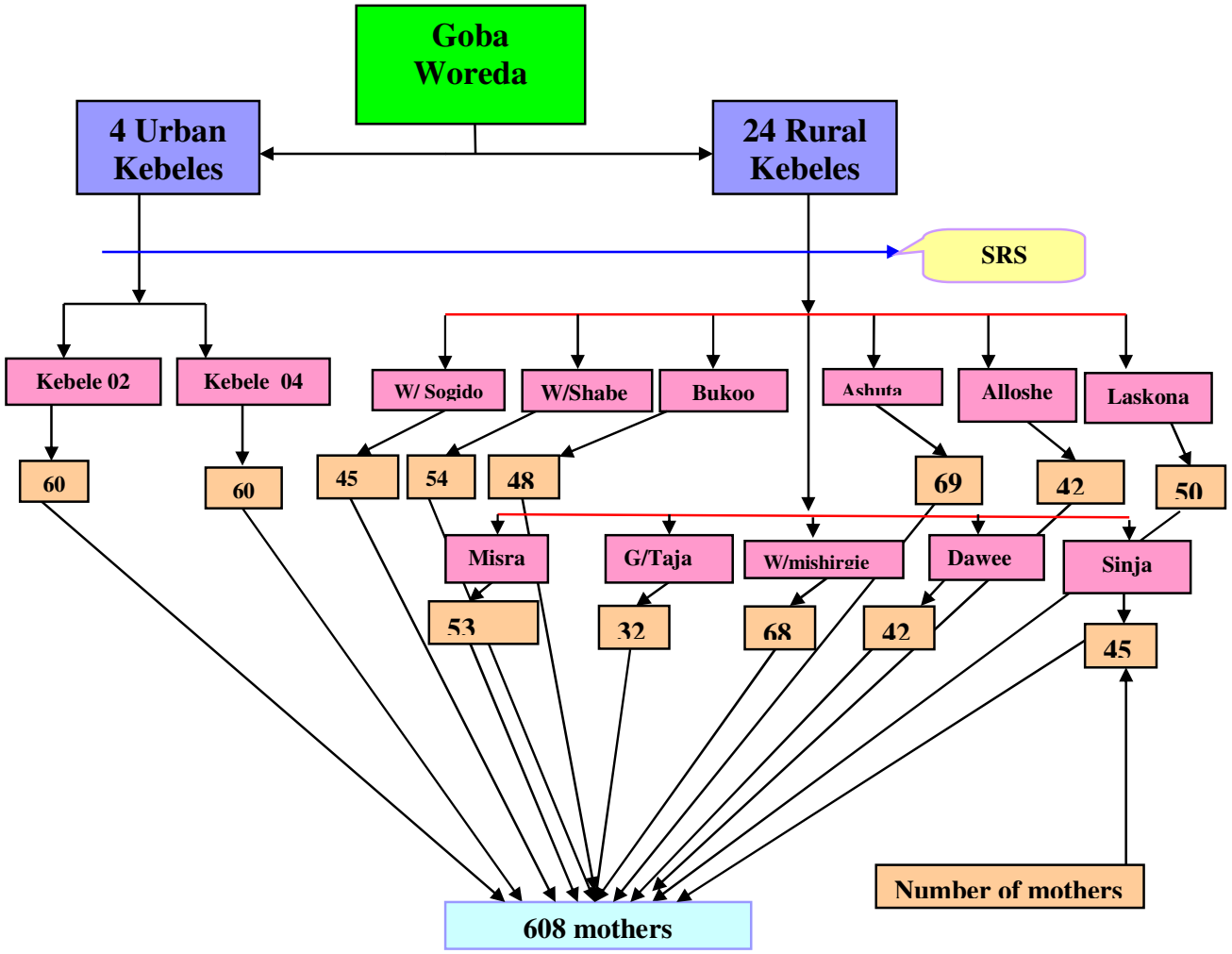


Figure 2.Schematic representation of the sampling procedure for the study on breastfeeding initiation, exclusive breastfeeding and associated factors among mothers in Bale Goba Woreda, South East Ethiopia, 2010

❖ ***For qualitative study***

A total of 23 individuals (six health care providers at ANC, EPI and delivery services (two from each service points), Nine breastfeeding mothers (three urban and six rural) and eight health extension workers were selected conveniently and interviewed on the practices and associated factors with breastfeeding initiation and exclusive breastfeeding

## 4.5 Data collection and measurements

### 4.5.1 Data collection instrument

Data was collected using a validated questionnaire adopted from EDHS WHO and LINKAGE project used to monitor infant and young child feeding in developing countries (Ethiopia, Ghana, Zambia, and Madagascar)(6,41,44). The adopted questionnaire was contextualized to the local situation and to the research objectives. The questionnaire was prepared first in English then translated in to Afan Oromo, and back to English to check for consistency. A semi-structured open-ended interview guide was developed and used for qualitative data collection.

### 4.5.2 Study variables

- ***Dependent variables***
    - Timely initiation of breastfeeding
    - Exclusive breastfeeding
- ***Independent variables***

*Socio-demographic and economic characteristics:* age, sex (infant), marital status, residence, occupation, educational status, ethnicity, religion, and average monthly income.

*Obstetrics and Medical factors:* gestational age, mode of delivery, Birth interval, parity, infant's gender, maternal admission, infant's admission, maternal breast illness (breast engorgement, nipple cracks, and mastitis), infantile illness.

*Health service related factors/practice:* rooming-in, early infant-to-breast contact, attendance of antenatal care services, number of antenatal visits taken and provision of advice on breastfeeding by healthcare staff.

### 4.5.3 Measurements

For the assessment of timely initiation of breastfeeding and exclusive breastfeeding, currently used definitions and recommendations of WHO, the national strategy for IYCF and other documents were used (2,7). In this study, mothers were requested to provide information regarding the time at which the baby has put to the breast and the 24-hour period feeding practice of the infant prior to the survey. To estimate the timely initiation of breastfeeding, the ratio of infants put to the breast within 1 hour of delivery to the total number of infants was used.

To estimate the prevalence of exclusive breastfeeding, the proportion of mothers of infants aged between 0 and 6 months, who stated to have fed their infant only breast milk in the last 24-hours preceding the survey, was expressed as an exclusive breastfeeding percentage out of the total number of children in the same age group.

## 4.6 Data collectors training and pre-testing

Twelve grade completed students (who are able to speak and write Afan Oromo and Amharic at the same time) were recruited as data collectors. They were trained for three days (including practical work) by the principal investigator on the study instrument, consent form, how to interview and data collection procedure. Although the questionnaire was a validated one it was pre-tested on a nearby none study kebele so that to ensure clarity, wordings, logical sequence and skip patterns of the questions and the pre-test kebele was not included in the study. Amendments on the questionnaire were made accordingly after the pre-test. Supervisors were assigned (one supervisor for two clusters) and they checked the day today activity of data collectors regarding the completion of questionnaires, clarity of responses and proper coding of the respondents. After that the principal investigators checked the supervisors' work each day, incomplete and unclearly filled questionnaires were given back to the interviewer and got completed.

## 4.7 Data collection process

Interviewer administered face to face data collection technique was used in a study subjects' usual place of residence. In order to complement and supplement and ultimately to maximize the data quality obtained from the questionnaires, in-depth interview was conducted with six health care providers in EPI, ANC, delivery services, nine breastfeeding mothers and eight health extension workers. Semi-structured, and open ended questionnaires, was used to guide the discussion/interview and the discussion was held in Amharic.

## 4.8 Data entry and analysis

Quantitative data were checked for completeness, inconsistencies, cleaned then coded and entered in to SPSS for windows version 16.0. Descriptive statistics was computed to determine the prevalence of timely initiation of breastfeeding and exclusive breastfeeding. Bivariate analysis (chi square test) was carried out between the dependant and independent variables to determine the differential of timely initiation of breastfeeding and exclusive breastfeeding by independent variables separately. Binary logistic regression analysis was also made to obtain odds ratio and the confidence interval of statistical associations.

Then, to control the confounding effect of other variables and to determine independent predictors of timely initiation of breastfeeding and exclusive breastfeeding, multivariable logistic regression analysis was carried out by taking significant variables in the bivariate analysis. The strength of statistical association was measured by adjusted odds ratios and 95% confidence intervals. Statistical significance was declared at $P<0.05$.

Qualitative data were transcribed in to an English text by the principal investigator by replaying the recorded interview. Different ideas in the text were merged in their thematic areas and a thematic framework analysis was employed manually. The results are presented in narratives in triangulation with quantitative data.

## 4.9 Data quality control

The quality of the data was assured by using validated questionnaire, translation, retranslation and pre-test of the questionnaire. The questionnaire was translated from English to Afan Oromo by a translator and back to English by second other translator to compare the consistency.

Prior to the actual data collection, pre-testing was done on a nearby Kebele. The participants in this sample pre-test kebele were not included in the study.

Data collectors and supervisors were trained for three days (including practical sessions) on the study instrument and data collection procedure. The principal investigator and the supervisors were checking the collected data for completeness and corrective measures were taken accordingly.

## 4.10 Ethical consideration

The proposal was approved by Ethical Review Committee of College of Public Health and Medical Sciences, Jimma University. Letter of permission was obtained from Bale Zone health department, Goba Woreda health office and Goba town administrative health offices. In addition all of the study participants were informed about the purpose of the study and oral consent was obtained before interview and it was also ensured during each step of data collection. Respondents were notified that they had the right to refuse or terminate at any point of the interview and the information provided by each respondent would be kept confidential.

## 4.11 Nominal definitions

***The following concept definitions were applied which are consistent with WHO definitions*** (2, 3, 13)

***Timely initiated breastfeeding:*** It is starting of breast feeding within one hour of delivery

***Complementary feeding:*** the child receives both breast milk or a breast-milk substitute and solid (or semi-solid) food.

***Complementary food:*** any food, whether manufactured or locally prepared, used as a complement to breast milk or to a breast-milk substitute.

***Exclusive breastfeeding:*** an infant receives only breast milk for at least six months and no other liquids or solids, not even water, with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines (But for this study 24 hour feeding history was considered).

***Infant:*** A person from birth to 12 months of age.

***Mixed feeding:*** feeding both breast milk and other foods or liquids.

***Replacement feeding:*** feeding infants who are receiving no breast milk with a diet that provides the nutrients infants need until the age at which they can be fully fed on family foods.

***Predominant breastfeeding (PBF):*** meaning those who had breast milk as their predominant source of nourishment, but with the possible addition of water and water-based drinks including plain water, tea, soft drink, fruit juice and locally made oral re-hydration salts solution (ORS) within the preceding 24 hours.

**Pre-lacteal feeding**: Feeding of an infant with something other than breast milk during the first three days of life.

***Full breastfeeding:*** breastfeeding exclusively or predominantly.

## 4.12 Plan for dissemination

The results of this study will be presented to Jimma University, population and family health department. It will also be communicated to Bale zone health department, Goba town administrative health office and other concerned bodies through report. Further efforts will be made to publish the findings on national or international peer reviewed journal.

# Chapter 5: Result

## 5.1 Socio-demographic Characteristics

Out of 668 mother infant pairs were planned to participate in this study, 608 were included in the analysis making the response rate of 91.01%. The mean (±SD) age of mothers was 26.5 (±5.5) years. A little more than a third (36%) of mothers were in the age range of 25-29 years. Only 7.1% were in the age group of 15- 19 years. Four hundred twenty two (69.4%) were muslims by religion. The largest ethnic group was Oromo (89.1%) followed by Amhara (9.9%). Concerning the educational status of mothers, 64.9% had attended formal school out of which a 45.2% had accomplished primary school (1-8). The majorities of mothers were married (95.7%) and house wife by occupation (82.3%), while only (2.1%) were on some form (private or governmental) employment. Out of the total study subjects, nearly three fourth (74.8%) of mothers earn an average monthly income of less than 500 ETB (**Table 1**).

**Table 1: Socio-demographic characteristics of breastfeeding mothers in Goba woreda,Bale Zone, South East Ethiopia, June 2010**

| Socio-demographic Variables | Category | Number | Percent |
|---|---|---|---|
| Age of mothers (years) | 15-19 | 43 | 7.1 |
| | 20-24 | 173 | 28.5 |
| | 25-29 | 219 | 36.0 |
| | 30+ | 173 | 28.5 |
| | Mean(SD) | 26.5(±5.5) | |
| Religion | Muslim | 422 | 69.4 |
| | Orthodox | 173 | 28.5 |
| | Protestant | 13 | 2.1 |
| Ethnicity | Oromo | 542 | 89.1 |
| | Amhara | 60 | 9.9 |
| | Other* | 6 | 1.0 |
| Educational status of mothers | Illiterate | 139 | 22.9 |
| | Able to read/Write | 98 | 16.1 |
| | Primary(1-8) | 275 | 45.2 |
| | Secondary and above(9+) | 96 | 15.8 |
| Marital status | Married | 579 | 95.7 |
| | Never married | 10 | 1.7 |
| | Other† | 11 | 1.8 |
| Occupation of mothers | House wife | 498 | 81.9 |
| | Farmer | 42 | 6.9 |
| | Business Woman** | 25 | 4.1 |
| | Student | 15 | 2.5 |
| | Employed | 13 | 2.1 |
| | Other♠ | 15 | 2.5 |
| Average monthly income(ETB) | <500 | 440 | 72.4 |
| | 501-1000 | 104 | 17.1 |
| | >1001 | 64 | 10.5 |
| Place of residence | Urban | 120 | 19.7 |
| | Rural | 488 | 80.3 |
| Sex of infant | Male | 318 | 52.3 |
| | Female | 290 | 47.7 |
| Age of infants | <6 months | 283 | 46.9 |
| | >6 months | 321 | 53.1 |

*Tigre, Garage †Widowed, divorced, separated ♠ Daily labourer, house servants **A woman who is involved in some form of merchant or trade

## 5.2 Breastfeeding initiation practice

All the study subjects were asked whether they have ever breastfed or not and for those who had ever breastfed they were also asked when they had initiated breastfeeding during the delivery of their youngest infant. The result showed that 98.7% of mothers practiced ever breastfeeding. For mothers who have not ever breastfeed, the perceived reasons were: milk insufficiency (23.5%)), breast problems (23.5%) and mothers started contraception (23.5%) (Fig 1)

Regarding the reasons for not to practice breastfeeding, a nurse from Goba hospital, ANC unit stated:

*"...mothers do like breastfeeding but they do not practice it. They gave us the reason 'my breasts do not have milk (insufficient breast milk)'".*

On the other hand a mother from Sinja kebele remarked towards this,

*"...mothers will not practice breastfeeding when they have problem.* (What type of problem?) *that means like me(Being HIV positive)".*

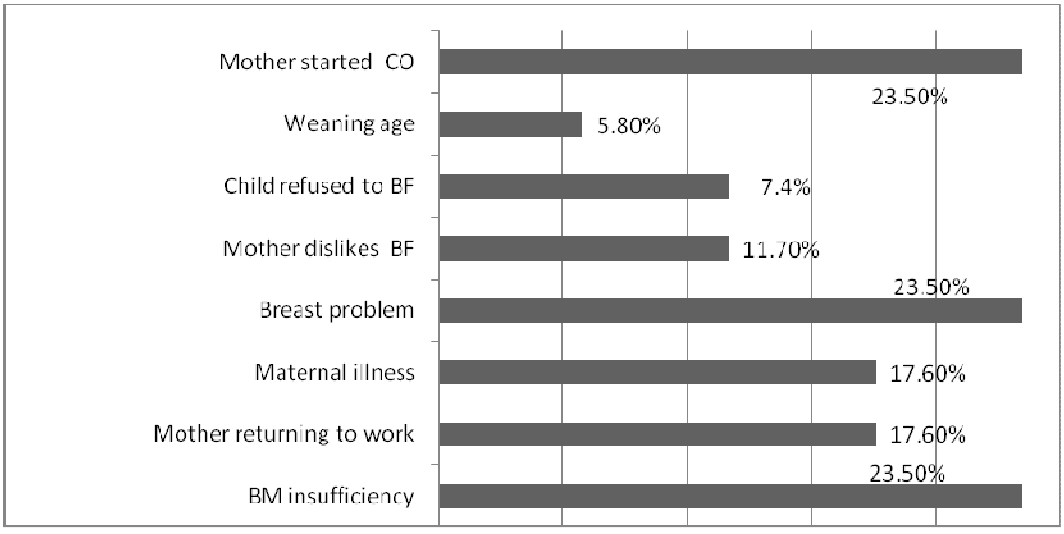


**Figure 3: Reasons for not to breastfeed infants among mothers in Goba Woreda, South East Ethiopia June 2009/10**

Among mothers who practiced ever breastfeeding, 35.0% of them squeezed and threw the colostrum and 17.2% of mothers gave pre-lacteal food to their infants. The common pre-lacteal food was sugar-glucose water reported by (52.7%) of breastfeeding mothers. Lactation problem was the most frequently (32.9%) mentioned reason for the introduction of food for infants during the first three days after delivery followed by breast engorgement (22.8%) (Fig 2).

As to the squeezing and throwing of colustrum, a health extension worker from Aloshe kebele indicated:

> *"...mothers refuse to give the first breast milk and they throw out it due to the reason that it may cause abdominal cramp for the infant".*

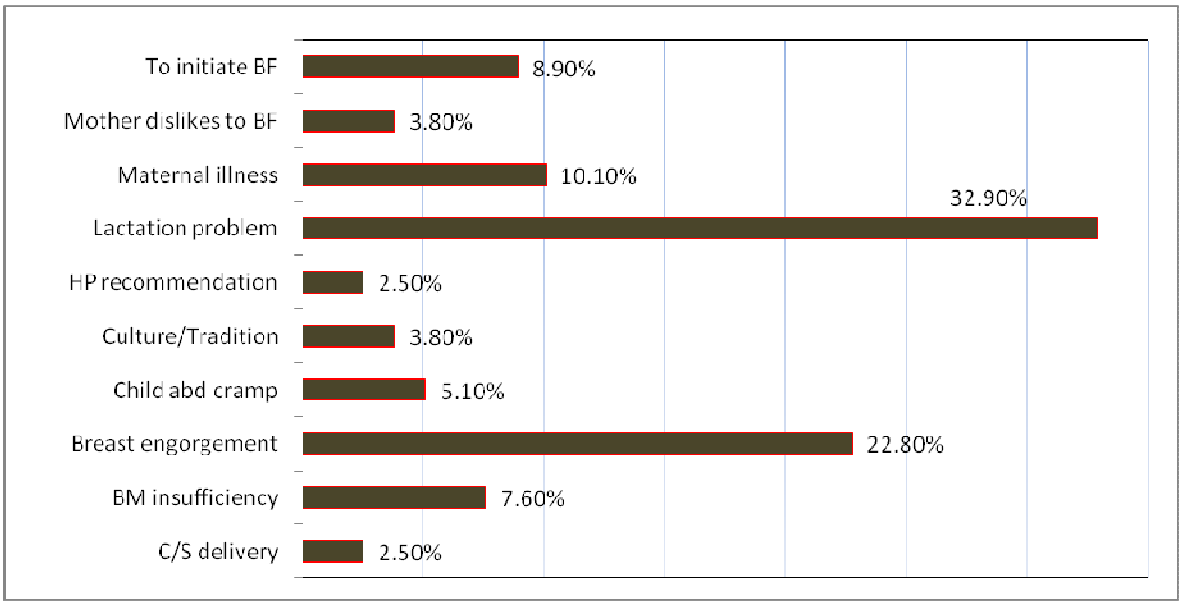


**Figure 4: Reasons for the introduction of pre-lacteal food in the first three days after delivery among mothers in Goba Woreda,South East Ethiopia, June 2009/10**

Among mothers who have ever breastfed, half (52.4%) initiated breastfeeding within one hour after delivery and 31.7 % of them initiated breastfeeding within the period of 1 hour to 1 day. Eleven percent of the mothers initiated breastfeeding after three days (Fig 5).

Regarding to timely initiation of breastfeeding, a mother with 20 days infant from Aloshe kebele remarked:

> *"...as 'usual' most mothers initiate breastfeeding after 1 and half hour. I initiated breastfeeding after 1 hour because I had been suffered from abdominal cramp".*

Similarly a health extension worker from the same kebele indicated;

> *"...even if mothers initiate breastfeeding after one hour of delivery, most mothers who gave birth in the hospital do not breastfeed till they come to our health post which may take about three hour".*

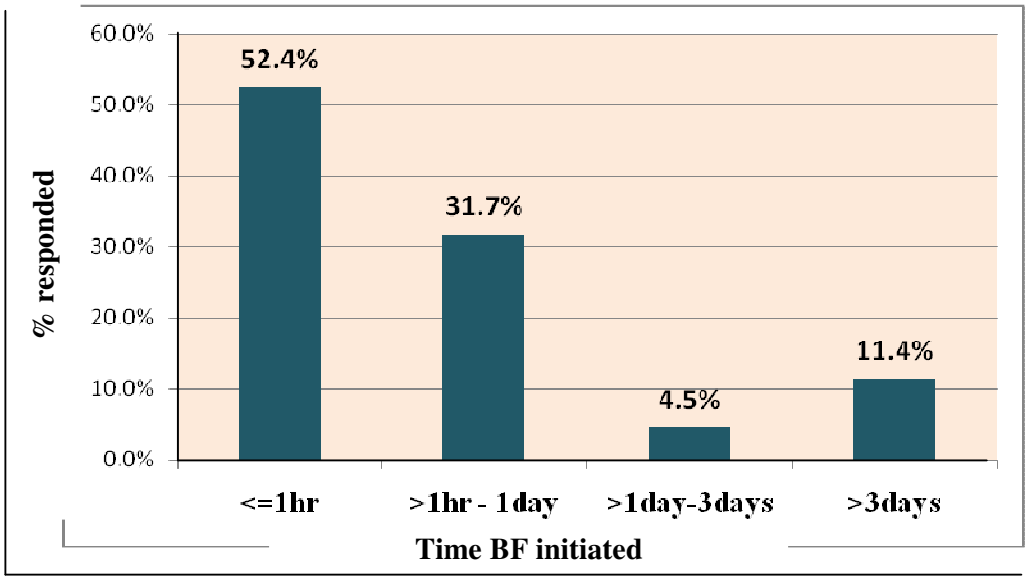


**Figure 5: Distribution of mothers by the time at which they initiated breastfeeding in Goba Woreda, 2009/10**

Timely initiation of breastfeeding was assessed for its association with socio-demographic and economic variables. One hundred twenty three (57.2%) of mothers in the age group 25-29 practiced timely initiation of breastfeeding in contrast to those of young mothers(15-19) which was (53.5%). Educational status of mothers was associated with timely initiation of breastfeeding (P= 0.025). Fifty three percent of married breastfeeding mothers practiced timely initiation of breastfeeding. Marital status and timely initiation of breastfeeding were not associated. Timely initiation of breastfeeding was statistically associated with residential area (P<0.0001).

**Table 2: Breastfeeding initiation by socio-demographic characteristics of mothers in Goba Woreda, 2009/10**

| Socio-demographic Variable | Time interval at which BF was initiated | | | P-value |
|---|---|---|---|---|
| | Category | Within 1 hour N (%) | After 1 hour N (%) | |
| Age of mothers(year) | 15-19 | 23(53.5) | 20(46.5) | 0.356 |
| | 20-24 | 84(48.8) | 88(51.2) | |
| | 25-29 | 123(57.2) | 92(42.8) | |
| | 30-35 | 46(46.5) | 53(53.5) | |
| | 35+ | 38(54.3) | 32(45.7) | |
| Educational Status | illiterate | 61(44.2) | 77(55.8) | **0.025** |
| | Read/Write only | 50(52.6) | 45(47.4) | |
| | Primary(1-8) | 148(54.6) | 123(45.4) | |
| | Secondary and above (9+) | 61(64.2) | 34(35.8) | |
| Marital status | Married | 300(52.6) | 270(47.4) | 0.730 |
| | Never married | 4(40.0) | 6(60.0) | |
| | Other | 10(52.6) | 9(47.4) | |
| Occupation | Employed | 7(53.8) | 6(46.2) | 0.163 |
| | Business Woman | 16(66.7) | 8(33.3) | |
| | Farmer | 16(40.0) | 24(60.0) | |
| | Student | 10(66.7) | 5(33.3) | |
| | House wife | 260(52.8) | 232(47.2) | |
| | Other | 5(33.3) | 10(66.7) | |
| Average monthly income of mothers | <500 | 228(52.3) | 208(47.7) | 0.397 |
| | 501-1000 | 58(56.9) | 44(43.1) | |
| | >=1001 | 28(45.9) | 33(54.1) | |
| Place of residence | Urban | 86(73.5) | 31(26.5) | **<0.0001** |
| | Rural | 228(47.3) | 254(52.7) | |
| Sex of infant | Male | 164(51.9) | 152(48.1) | 0.851 |
| | Female | 150(53.0) | 133(47.0) | |

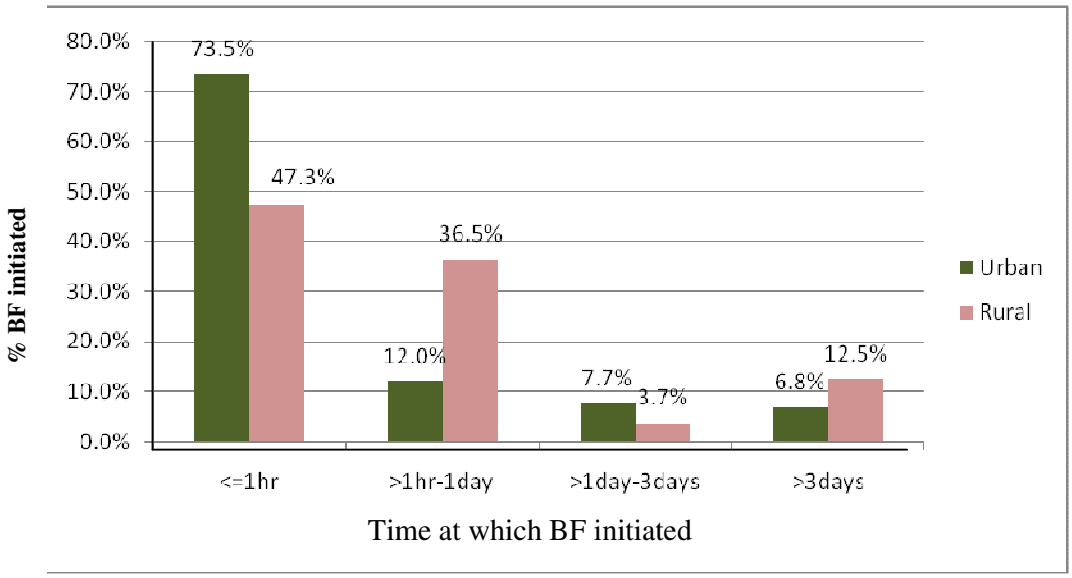


**Figure 6: Distribution of breastfeeding initiation time by residence of mothers in Goba Woreda,South East Ethiopia June , 2009/10**

## 5.3 Breastfeeding initiation, obstetric and health service related factors

Regarding the number of alive children, 50.8% of mothers had 2-4 children, while 24.2 % of had five or more children. The mean (±SD) number of children per a woman was 3.2 (±2). Birth interval between the youngest and his/her immediate elder was 2-3 years for 57.6 % of the cases, 4-6 years for 23.3% of them and 7 or more years for 12.0%. The shortest birth interval (1 year) was reported in 7.2%. The mean (±SD) duration of pregnancy for the youngest infant was 9.3 months (± 0.5). The majority (71.7%) gave birth after completing the ninth months of pregnancy duration.

As to the history ANC visit during the pregnancy of the youngest infant, 86.1% of the study subjects visited ANC facility at least once. Among mothers who have ever breastfed their infant and have had history of ANC visit, 53.8 % had practiced timely initiation of breastfeeding. Ten percent of mothers who had visited ANC initiated BF later than 3 days after birth (Fig 7).

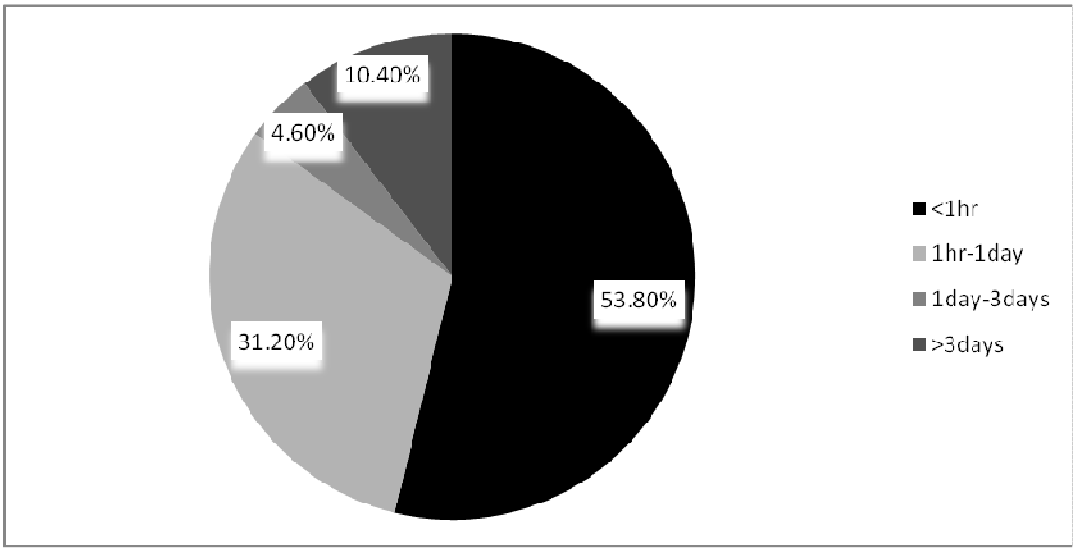


**Figure 7: Distribution of mothers who have ever breastfed and visited ANC by the time at which they initiated BF in Goba Woreda, South East Ethiopia, June 2009/10**

Again from those who had visited ANC facility, 86.7% were informed to initiate BF immediately and to practice EBF for the first six months (73.0%) (Fig 8).

In support of this finding, a midwife from Goba hospital said,

> *"...the promotion of TIBF should be started at ANC. Antenatal care providers should prepare future mothers to initiate BF timely..."*

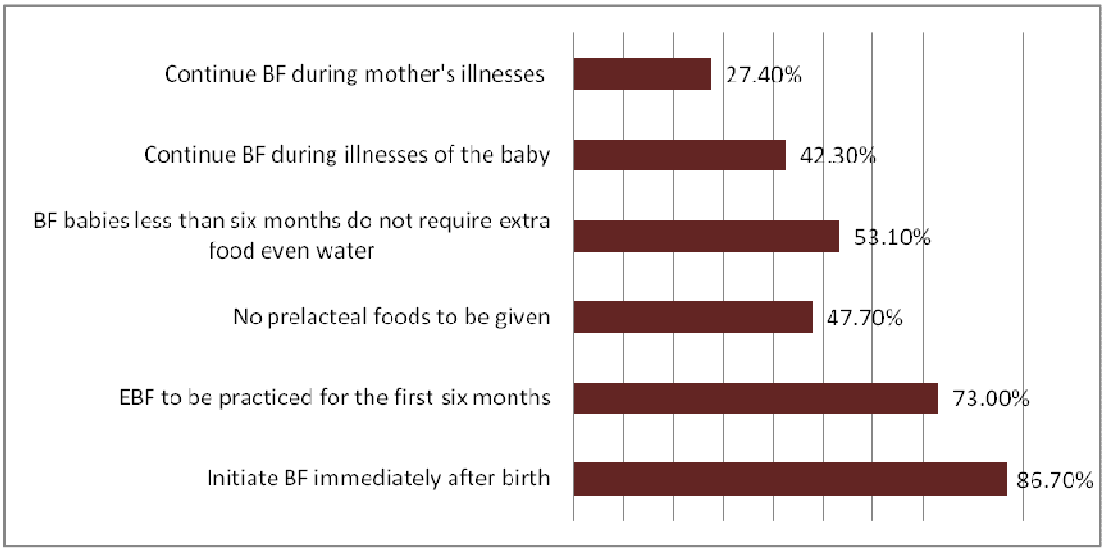


**Figure 8: Distribution of respondents by the type of information/advice on BF at ANC visit Goba Woreda, 2009/10**

Majority (96.9%) of the respondents in this study had spontaneous vaginal delivery and the rest 3.1% gave birth through caesarean section. Majority (71.7%) of mothers gave birth to their current infant at home and about a third (29.6%) of theses mothers delivered at home were assisted by untrained traditional birth attendants. Of the total mothers who initiated BF within the first hour after delivery, more than half (54.5%) of them reported more than four ANC visits during their last pregnancy. Mothers who had spontaneous vaginal delivery were more likely to initiate BF within 1 hour (52.8%) as compared to those who delivered by caesarean section (33.2%). There is a difference in the level of timely initiation of breastfeeding between those who gave birth at home (48.1%) and in health institution (63.3%). Timely initiation of breastfeeding and place of delivery were statistically associated (P=0.001).Similarly, timely initiation of breastfeeding was found to be associated with receiving information/advice on BF at PNC (P<0.0001) where (60.2%) of mothers who got information/advice on BF during their PNC initiated BF with in the first hour of delivery (Table 3).

**Table 3: Comparison of breastfeeding initiation by obstetric and health service related factors/practice in Goba Woreda, 2009/10**

| Variable | Category | Breastfeeding Initiation time | | P-Value |
|---|---|---|---|---|
| | | ≤1 hour N(%) | >1 hour N (%) | |
| Parity | 1 | 83(56.8) | 63(43.2) | 0.392 |
| | 2-4 | 152(50.3) | 150(49.7) | |
| | 5 and more | 74(50.3) | 73(49.7) | |
| Birth interval(year) | 1 | 15(46.9) | 17(53.1) | 0.748 |
| | 2-3 | 139(53.5) | 121(46.5) | |
| | 4 and more | 160(52.1) | 147(47.9) | |
| ANC visit | Yes | 270(53.1) | 238(46.9) | 0.218 |
| | No | 37(45.1) | 45(54.9) | |
| No of ANC visit | 1 | 11(44.0) | 14(56.0) | 0.574 |
| | 2-3 | 102(52.3) | 93(47.7) | |
| | >=4 | 157(54.5) | 131(45.5) | |
| Mother given Information/ advise on BF at ANC visit | Yes | 134(56.8) | 102(43.2) | 0.150 |
| | No | 136(50.0) | 136(50.0) | |
| Place of delivery | Home | 202(48.1) | 218(51.9) | **0.001** |
| | Health institution | 106(63.9) | 60(36.1) | |
| Type of delivery | Normal/Vaginal | 298(53.5) | 259(46.5) | 0.148 |
| | C/S | 6(33.3) | 12(66.7) | |
| Mother received information/ advise on BF at PNC | Yes | 183(60.4) | 120(39.6) | **<0.0001** |
| | No | 131(44.3) | 165(55.7) | |

On binary logistic regression, attendance of formal education, residential area, place of delivery and advise/counselling of mothers on breastfeeding at the post natal period were associated with timely initiation of breastfeeding. Mothers who had attended formal education were 1.4 times more likely to initiate breastfeeding with in the first hour after delivery when compared to those mothers who did not attend formal education(OR=1.4[95%C.I:1.03-2.03]). Similarly, urban dwellers were 3 times more likely to practice timely initiation of breastfeeding when compared to their rural counterparts (OR=3.1[95%C.I:1.98-4.84]). Institutional delivery was statistically associated with timely initiation of breastfeeding (OR=1.9[95%C.I:1.30-2.71]). Mothers who were counselled/advised on breastfeeding postnatally were about 52 % more likely to initiate breastfeeding within the first hour of delivery (OR=0.52[95%C.I:0.38-0.72) (Table 4).

**Table 4: Factors associated with timely initiation of breastfeeding among mothers in Goba Woreda,Southeast Ethiopia 2009/10.**

| Variables | Timely initiation of breastfeeding | | | |
|---|---|---|---|---|
| | Yes | No | COR[95%C.I] | P- value |
| Attendance of formal education | | | | |
| Yes | 215(57.0) | 162(43.0) | 1.4[1.02-2.02] | 0.038 |
| No | 98(48.0) | 106(52.0) | 1.0 | |
| Residence | | | | |
| Urban | 86(73.5) | 31(26.5) | 3.1[1.98-4.84] | <0.0001 |
| Rural | 228(47.3) | 254(52.7) | 1.0 | |
| Place of delivery | | | | |
| Home | 202(48.1) | 218(51.9) | 1.0 | |
| Health institution | 106(63.9) | 60(36.1) | 1.9[1.30-2.71] | 0.001 |
| Information/advise on BF at PNC | | | | |
| Yes | 183(60.2) | 121(39.8) | 0.52[0.38-0.72] | <0.0001 |
| No | 132(43.4) | 172(56.6) | 1.0 | |

COR=Crude Odds Ratio; CI=Confidence Interval

After binary logistic regression analysis, variables which were found statistically significant were added to multiple logistic regression model. Residential area and information/advice on BF at PNC were the final predictors of timely initiation of breastfeeding retained in the model (Table 5).

**Table 5: Multivariable logistic regression model showing predictors of timely initiation of breastfeeding among mothers in Goba Woreda, South East Ethiopia, June 2009/10**

| Variable | Timely initiation of breastfeeding | | | |
|---|---|---|---|---|
| | Yes | No | AOR(95%C.I) | P value |
| Residence | | | | |
| Urban | 86(73.5) | 31(26.5) | 4.1[2.31-7.30] | <0.0001 |
| Rural | 228(47.3) | 254(52.7) | 1.0 | |
| Information/advise on BF at PNC | | | | |
| Yes | 183(60.2) | 121(39.8) | 2.7[1.86-3.94] | <0.0001 |
| No | 132(43.4) | 172(56.6) | 1.0 | |

AOR=Adjusted Odds Ratio

## 5.4 Current breastfeeding practice of mothers

From the total mothers who had ever breastfed their infant (98.7%), about (96.3%) of them were breastfeeding till the time of the survey. Despite the fact that on-demand breastfeeding is recommended (75.6%) of mothers breastfed their infant only when the infant cries and followed by on the demand of the infant (63.3%) (Fig 9).

Concerning then occasions of breastfeeding a health extension worker from Lashkona kebele stated as;

*"... despite our effort most mothers do not practice exclusive breastfeeding. They add some food other than breast milk. They sometimes consider breast milk as if it is not food and sufficient...they use it for appeasement when the child cries"*

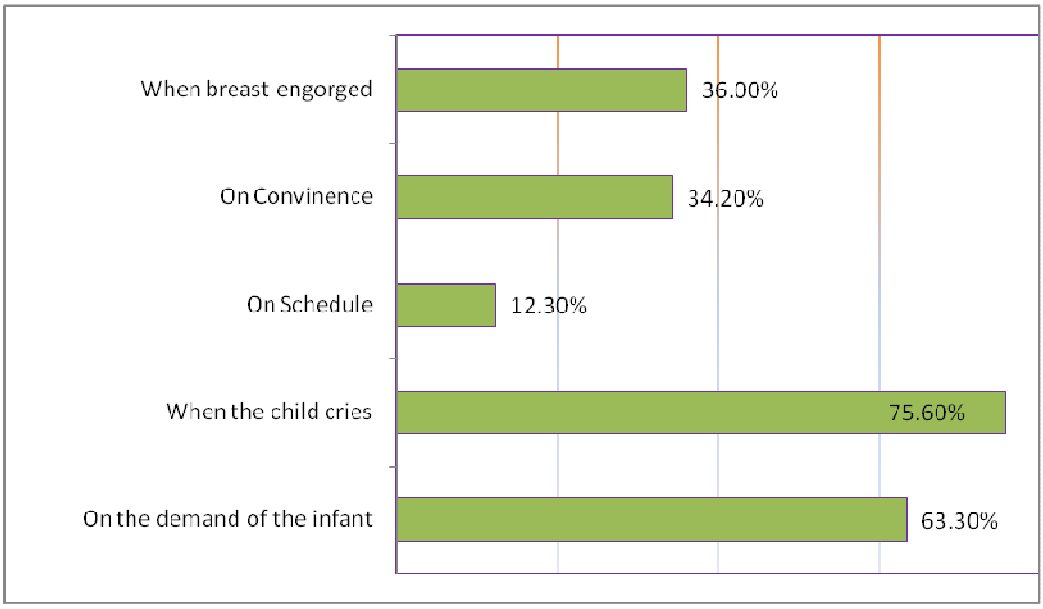


**Figure 9: Distribution of respondents by occasions when to breastfed their infant, Goba Woreda, South East Ethiopia, 2009/10**

**NB:** Since the percent is calculated from cases the total is >100%

Regarding exclusive breastfeeding, (71.3%) of infants in the age group 0 - 6 months were exclusively breastfed in the last 24 hours. Among mothers who breastfed their infants exclusively, 55.8% initiated breastfeeding timely. Timely initiation of breastfeeding and exclusive breastfeeding were statistically associated (P=0.028).

Month specific life time exclusive breastfeeding was assessed and this was calculated for those mothers with infants (>6 months) who are currently breastfeeding and fed their infant nothing other than breast milk till 6 months of the infant. Majority (88.8%) of infants within the age group of less than 2 months were fed exclusively to their age and a relatively similar proportion (84.4%) of infants (2-3 months) breastfed exclusively to their age (Fig 10). From these mothers about (68.2%) of them gave breast milk with some addition of foods like cow's milk (57.0%), cereal based fluids (45.2%), and tea (23.9%).This revealed that infants were fed predominantly(68%) type of breastfeeding up to their sixth months of age.

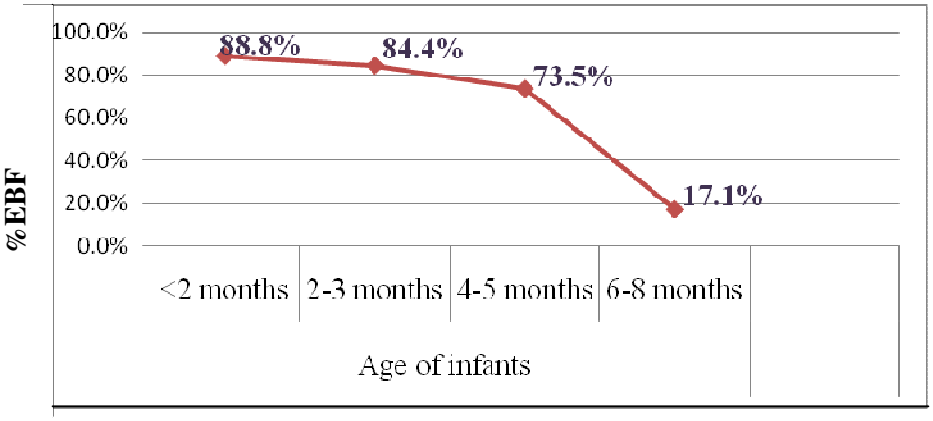


**Figure 10 Month-specific life time exclusive breastfeeding among mothers in Goba Woreda, South East Ethiopia June 2009/10**

## 5.5 Duration and frequency of exclusive breastfeeding

Regardless of other factors (socio-demographic and economic, obstetric and health service related practices/factors) the median duration of exclusive breastfeeding, in this population was 3 months. The median frequency of breastfeeding per day, for those infants who breastfed exclusively was 6(six).

Regarding the duration and frequency of exclusive breastfeeding a mother with one month infant from Goba town noted,

*"...I planned to feed my baby only breast milk till his six months. But I do not know how many times to feed him within a day".*

A similar idea was obtained from a health extension worker from Dawee Kebele;

*"...most mothers breastfeeding exclusively for six months. But I doubt about the frequency* (how many times per day do they breastfeed?) *I can say about 5-10 times"*

## 5.6 EBF, Socio-demographic and economic characteristics of mothers

Among socio-demographic and economic factors, age of mothers was not statistically associated with exclusive breastfeeding (p=0.093).But there was a variation in proportion of exclusive breastfeeding among age group of mothers. Eighty one percent (81.4%) of mothers who were in the age group 30-35 practiced exclusively breastfed followed by mothers in the age group 20-24 (74.7%). Exclusive breastfeeding was relatively similar among mothers who attend formal education and who did not attend formal education (70.3% versus 74.4%). There was a significant difference in the proportion of exclusive breastfeeding among employed and unemployed mothers (33.3% versus 72.6%) (P=0.029). More than three fourth of mothers who earn less than 500 ETB per month practiced exclusive breastfeeding for 6 months.

Exclusive breastfeeding was found associated with monthly average income of mothers (P=0.042). Concerning residential area and exclusive breastfeeding, there was no such a significant difference in proportion among urban and rural infants (73.8% versus 63.3%).Similarly there was no difference in rate of exclusive breastfeeding among male (71.3%) and female (71.3%) infants. (Table 6).

**Table 6: Comparison of exclusive breastfeeding among mothers by socio-demographic and economic variable in Goba Woreda, South East Ethiopia 2009/10**

| Variables | Category | Exclusive breastfeeding (24 hour recall of mothers) | | p-value |
|---|---|---|---|---|
| | | Yes | No | |
| Age of mothers in year | 15-19 | 17(73.9) | 6(26.1) | 0.093 |
| | 20-24 | 62(74.7) | 21(25.3) | |
| | 25-29 | 70(70.0) | 30(30.0) | |
| | 30-35 | 35(81.4) | 8(18.6) | |
| | 35+ | 15(50.0) | 15(50.0) | |
| Educational Status | Illiterate | 46(76.7) | 14 (23.3) | 0.580 |
| | Read/Write only | 122(68.9) | 55(31.1) | |
| | Primary(1-8) | 97 (71.3) | 39(28.7) | |
| | Secondary and above (9+) | 30 (65.2) | 16(34.8) | |
| Employment status | Employed | 3(33.3) | 6(66.7) | **0.018*** |
| | Unemployed | 196(72.6) | 74(27.4) | |
| Average Monthly income | <500 | 143(76.1) | 45(23.9) | **0.042** |
| | 501-1000 | 36(61.0) | 23(39.0) | |
| | >=1001 | 20(62.5) | 12(37.5) | |
| Residence | Urban | 37(63.8) | 21(36.2) | 0.154 |
| | Rural | 162(73.3) | 59(26.7) | |
| Sex of infant | Male | 107(71.3) | 43(28.7) | 0.998 |
| | Female | 92(71.3) | 37(28.7 | |

*Fisher's exact test

## 5.7 EBF, Obstetrics and health service related factors/practices

There was no significant difference in practicing exclusive breastfeeding among premi-para and multi-para mothers Alternatively the statistical association of timely initiation of breastfeeding and exclusive breastfeeding was assessed and the two variables were statistically associated (P=0.039) (Table 7).

**Table 7: Comparison of exclusive breastfeeding among mothers by timely initiation of breastfeeding and obstetric and health service related factors/practices in Goba Woreda, South East Ethiopia, 2009/10**

| Variable | EBF(From 24 hour recall of mothers) | | P-value |
|---|---|---|---|
| | Yes | No | |
| Parity of mothers | | | |
| 1 | 49(64.5) | 27(35.5) | |
| 2-4 | 97(77.6) | 28(22.4) | 0.124 |
| 5 and more | 50(70.4) | 21(29.6) | |
| Birth interval(year) | | | |
| 1 | 8(61.5) | 5(38.5) | 0.534 |
| 2-3 | 84(74.3) | 29(25.7) | |
| 4 and above | 107(69.9) | 46(30.1) | |
| ANC visit | | | |
| Yes | 166(71.9) | 65(28.1) | 0.889 |
| No | 27(73.0) | 10(27.0) | |
| No. ANC visit | | | |
| 1 | 10(58.8) | 7(41.2) | 0.349 |
| 2-3 | 96(75.0) | 32(25.0) | |
| >=4 | 88(71.0) | 36(29.0) | |
| Mother given information/ advise on BF at ANC visit | | | |
| Yes | 76(73.8) | 27(26.2) | 0.487 |
| No | 123(69.9) | 53(30.1) | |
| Place of delivery | | | |
| Home | 139(74.7) | 47(25.3) | 0.305 |
| Health institution | 57(67.9) | 27(32.1) | |
| Type of delivery | | | |
| Normal/Vaginal | 186(72.7) | 70(27.3) | 0.605 |
| Caesarean section | 6(60.0) | 4(40.0)?? | |
| Mother received information/ advise on BF at PNC | | | |
| Yes | 91(70.5) | 38(29.5) | 0.892 |
| No | 108(72.0) | 42(28.0) | |
| Timely initiation of BF | | | |
| Yes | 111(77.1) | 33(22.9) | 0.039 |
| No | 88(65.2) | 47(34.8) | |

### 5.8 Predictors of exclusive breastfeeding

Binary logistic regression analysis showed that, unemployed mothers were about 5 times more likely to breastfed exclusively as compared to employed counterparts (OR= 5.3[95%C.I: 1.3-21.8]).

On the other hand EBF was associated with the average monthly income of mothers. Those mothers with an average income of 501-1000 ETB were 50% less likely to breastfed their infant exclusively as compare to those mothers who have average monthly income of less than 500 ET B (OR=0.5[95%C.I:0.27-0.92]).The other variable associated with exclusive breastfeeding was age of infants. Infants in the age group less than 2 months were 2.7 times more likely to breastfed exclusively as compared to those infants in the age group 4-5 months(OR=2.7 [95%C.I:1.40,5.13]). Meanwhile introduction of pre-lacteal food was associated with exclusive breastfeeding. Mothers who did not give pre-lacteal foods to their infants were 2.3 times more likely to practice exclusive breastfeeding when compared to those mothers who gave pre-lacteal foods to their infant (OR=2.3[95%C.I:1.18-4.64]). Similarly, timely initiation of breastfeeding was associated with exclusive breastfeeding. Those mothers who initiated breastfeeding $\leq$ 1 hour after delivery were about 2 times more likely to practice exclusive breastfeeding when compared to their counterparts (OR:1.8[ 95%C.I:1.06-3.04]) (Table 8).

**Table 8: Factors associated with exclusive breastfeeding among mothers in Goba Woreda, South East Ethiopia June 2009/10**

| Variable | Exclusive Breastfed for the first 6 months | | COR[95%C.I] |
|---|---|---|---|
| | Yes | NO | |
| **Age of mothers(year)** | | | |
| 15-19 | 17(73.9) | 6(26.1) | 1.0 |
| 20-24 | 62(74.7) | 21(25.3) | 1.042[0.40-3.00] |
| 25-29 | 70(70.0) | 30(30.0) | 0.824[0.30-2.30] |
| 30-35 | 35(81.4) | 8(18.6) | 1.544[0.50-5.20] |
| 35+ | 15(50.0) | 15(50.0) | 0.353[0.11-1.14] |
| **Employment status** | | | |
| Employed | 3(33.3) | 6(66.7) | 1.0 |
| Unemployed | 196(72.6) | 74(27.4) | 5.3[1.3-21.8]* |
| **Average monthly income(ETB)** | | | |
| <500 | 143(76.1) | 45(23.9) | 1.0 |
| 501-1000 | 36(61.0) | 23(39.0) | 0 .5[0.27- 0.92]* |
| >1001 | 20(62.5) | 12(37.5) | 0.5(0.24-1.16) |
| **Residence** | | | |
| Urban | 37(63.8) | 21(36.2) | 1.0 |
| Rural | 162(73.3) | 59(26.7) | 1.6[0.8-2.88] |
| **Age of infant(month)** | | | |
| <2 | 94(83.2) | 19(16.8) | 2.7 [1.40-5.13]* |
| 2-3 | 28(77.8) | 8(22.2) | 1.9[0.78-4.62] |
| 4-5 | 61(64.9) | 33(35.1) | 1.0 |
| **Pre-lacteal feeding** | | | |
| Yes | 25(58.1) | 18(41.9) | 1.0 |
| No | 159(76.4) | 49(23.6) | 2.3[1.18-4.64]* |
| **Mode of delivery** | | | |
| Vaginal/Normal | 186(72.7) | 70(27.3) | 1.7[0.5-6.5] |
| C/S | 6(60.0) | 4(40.0) | 1.0 |
| **Parity of respondent** | | | |
| 1 | 49(64.5) | 27(35.5) | 1.0 |
| 2-4 | 97(77.6) | 28(22.4) | 1.9[1.02-3.58]* |
| 5 and above | 50(70.4) | 21(29.6) | 1.3(0.65-2.62) |
| **Birth interval(year)** | | | |
| 1 | 8(61.5) | 5(38.5) | 1.0 |
| 2-3 | 84(74.3) | 29(25.7) | 1.8[0.55-5.97] |
| 4 and above | 107(69.9) | 46(30.1) | 1.4[0.45-4.7] |
| **No. ANC visit** | | | |
| 1 | 10(58.8) | 7(41.2) | 1.0 |
| 2-3 | 96(75.0) | 32(25.0) | 2.1[0.74-5.97] |
| >=4 | 88(71.0) | 36(29.0) | 1.7[0.60-4.85] |
| **Advise/information at ANC** | | | |
| Yes | 76(73.8) | 27(26.2) | 1.21[0.70-2.10] |
| No | 123(69.9) | 53(30.1) | 1.0 |
| **Advise/information at PNC** | | | |
| Yes | 91(70.5) | 38(29.5) | 1.1[0.64-1.81] |
| No | 108(72.0) | 42(28.0) | 1.0 |
| **Timely initiation of BF** | | | |
| Yes | 111(77.1) | 33(22.9) | 1.8[1.062-3.039]* |
| No | 88(65.2) | 47(34.8) | 1.0 |

COR=Crude Odds Ratio * statistically significant variables at P<0.05

Finally, after obtaining statistically significant variable in the binary logistic regression analysis, multivariable logistic regression was done see the relative effect of the predictors on the outcome variable. As shown in table below, employment status of breastfeeding mothers, average monthly income of mothers and age of infants were found significant predictor of exclusive breastfeeding. Unemployed mother were 10.4 times more likely to practice exclusive breastfeeding when compared to employed mothers (AOR=10.4[1.51-71.50]).Similarly, those infants who were < 2 months were 5.6 times more likely to breastfed exclusively when compared to those infants in the age range of 4-5 months(AOR=5.6[2.28-13.60]) (Table 9).

**Table 9: Multivariable logistic regression analysis showing predictors of exclusive breastfeeding among mothers in Goba Woreda, South East Ethiopia, June 2009/10**

| Variable | Exclusive breastfeeding for 6 months | | | |
|---|---|---|---|---|
| | Yes | No | AOR[95%C.I] | P value |
| Employment status | | | | |
| Employed | 3(33.3) | 6(66.7) | 1.0 | |
| Unemployed | 196(72.6) | 74(27.4) | 10.4[1.51-71.50] | 0.018 |
| Average income/month | | | | |
| <500 | 143(76.1) | 45(23.9) | 1.0 | |
| 501-1000 | 36(61.0) | 23(39.0) | 0.4[0.14- 0.90] | 0.030 |
| >1001 | 20(62.5) | 12(37.5) | | |
| Age of infant | | | | |
| <2 | 94(83.2) | 19(16.8) | 5.6[2.28-13.60] | < 0.001 |
| 2-3 | 28(77.8) | 8(22.2) | 2.3[0.77-7.10] | |
| 4-5 | 61(64.9) | 33(35.1) | 1.0 | |

AOR=Adjusted Odds Ratio C.I=Confidence Interval

Concerning the problem of employed mothers regarding breastfeeding, a mother from Goba town remarked that,*"...employed mothers spend at least 5 hours /day on work ,they do not have enough time to breastfed, the maternity leave itself is not sufficient, only two months. In addition mothers who are working in Robe* (14 KM from Goba*) they suffer from transportation problem even they may spend the whole day there".*

## Chapter 6: Discussion

The current study attempted to determine the prevalence of timely initiation and exclusive breast feeding including the frequency, duration and factors associated with timely initiation and exclusive breastfeeding.

In this study, it was found that majority (98.7%) of mothers practiced ever breastfeeding. This result is more or less similar with the national ever breastfeeding rate 96% and with ever breastfeeding rate of Oromia region 94.1% and other regional states in Ethiopia ranging from a low of 93 % in Addis Ababa to a high of 99 % in Harari (6, 33).And from this mother who ever breastfed their infant about 96.3% of them were breastfeeding till the time of this survey.

Concerning the timely initiation of breastfeeding, although WHO, global and national infant and young child feeding guidelines have recommended that all newborn should start breastfeeding immediately (with in the first hour after delivery), the prevalence of timely initiation of breastfeeding was found in this study was 52.4%. This finding is better when compared to the study conducted in Bangladesh where majority (88.8%) of infants initiate breastfeeding within three days after delivery and the prevalence of timely initiation of breastfeeding in Ghana, 2003 (41%). The prevalence of timely initiation of breastfeeding in this study was relatively similar with studies done in Sudan (54.2%), Jordan (49.5%) of mothers initiate breastfeeding at birth, Amhara region, 2006(60%), SNNP region, 2006(50%). But, this result is much lower than the studies done in north Jordan (86.6%), Nepal (72.2%), Zambia; 2004(70%), Bolivia; 2003(74%), Ethiopia (national) (69%), Oromia region, 2006 (77%) (2, 6, 19, 21, 23, 24, 27, 41).

The lower prevalence rate of timely initiation of breastfeeding in this study would possibly be explained that larger proportion of respondents was from rural kebeles where timely initiation was less likely. In the same way this may be explained interms of lesser proportion of mothers who receive information/advice on breastfeeding at ANC (39.4%) which would have been the important service delivery point to establish timely initiation of breastfeeding. This can be evidence from the qualitative finding in Goba hospital,

*"...as I told you ANC providers are very responsible in promoting breastfeeding. But I think health professional are not doing well specially on promotion part".*

Although the national strategy for infant and young child feeding recommended that feeding colostrums should be promoted (6), in the current study, 35.0% of mothers squeezed and thrown the colestrum. The prevalence of pre-lacteal feeding in this study was 17.2% which is better than the national pre-lacteal feeding rate where 29% of children were given a pre-lacteal feed other than breast milk during the first three days of life (6). In this study sugar solution was reported to be the commonest pre-lacteal food reported by 32% of the mothers.

This study showed that there is no difference in the timing of initial breastfeeding by gender of the infant. However, urban mothers were more likely to initiate breastfeeding within one hour as compared to rural counterparts. This result is consistent with the finding from Tanzania where timely initiation of breastfeeding was more common in urban area (82%) than in the rural area (52%) (42). But the finding contradicted with a national EDHS finding where rural infants were more likely to breastfed timely after birth than urban infants (6). Other characteristics of the infant and mother, such as attendance of formal education ($p=0.038$), place of delivery ($p=0.001$), and advise/counselling on breastfeeding post-natally ($p<0.0001$), were factors associated with timely initiation of breastfeeding practices. But, the reported relation between timely initiation of breastfeeding and place of delivery was opposite to the result obtained from EDHS which indicated that home delivery has direct relationship with timely initiation of breastfeeding (6).

In this study those mother who gave birth in health institutions were better in practicing timely initiation of breastfeeding (48.1%Vs 63.9%).

In the current study, it is evidenced that timely initiation of breastfeeding among urban and rural mothers was (73.5% versus 47.3%) this indicated that timely initiation of breastfeeding in rural areas was lower than urban mothers and even it is under the total timely initiation of breastfeeding in this particular study (52.4%). This result contradicts with the finding from Dominica Republic where initiation of breastfeeding was found to be slightly greater in rural areas than in urban areas (95% versus 92%) (43). similarly, the multivariable logistic regression analysis of this study showed a significant difference in timely initiation of

breastfeeding among urban and rural mothers. Urban dwellers were 4 times more likely to practice timely initiation of breastfeeding when compared to their counterparts living in rural area. This difference could be explained by the lower educational status of mothers in the rural areas as compared to those mothers in urban area and other socio-economic factors. The other associated factor of timely initiation of breastfeeding in this study was getting information/advice on BF issues at post natal care period. Those mothers who got information/advice on BF issues postnatally were about 3 times more likely to practice TIBF when compared to mothers who did not receive information/advice on breastfeeding after they gave birth.

This study showed that the prevalence of exclusive breastfeeding was 71.3 %. This figure was relatively similar with findings on exclusive breastfeeding in Jordan (77%), Madagascar, 2005(70%), Zambia,2004(74%), Ghana,2003, (79%)and Bolivia (65%). This is also similar with findings in Amhara region, 2006(81%),Oromia region, 2006(62%) and SNNP region,2006 (64%).But this result is higher than findings from Lebanon(10.1%),Bangladesh(35.5%)and the national exclusive breastfeeding prevalence (49%)(21,22,33,41,43). This might be the result of the implementation breastfeeding promotion through the use of health extension workers in rural areas, noted from the qualitative finding from a mother in Lashkona kebel,

*"...the health professional usually round house to house and advise us* (on breastfeeding*). She* (showing 2 and half year female child*) breastfed only for three months. But this one* (showing 4 month male infant) *still he is feeding only breast milk".*

Similarly, a health extension worker from Alloshe kebele indicated that

*"...we started to focus on exclusive breastfeeding after we took training on exclusive breastfeeding".*

The result showed that the mean (±SD) and median duration of exclusive breastfeeding, in this population were 2.9(±2.1) and 3.0 months, respectively. The median duration of exclusive breastfeeding in Ethiopia was documented with wide range of variety from lowest (0.4 month for Afar region) through the highest (4.3 months for Amhara region). Therefore, the figure in this study was better as compared to those regions except Amhara (6).

Month specific life time exclusive breastfeeding was calculated for those infants who are currently breastfeeding and nothing fed other than breast milk in the past 24 hours. Majority (88.8%) of infants within the age group of <2 months were fed exclusively to their age and it will fall down to 17.4% at 4-5 months of infants. This result is considerably better when compared to the national month specific exclusive breastfeeding which is 67.3% for infants <2 months and fall down to 31.6 % at the age of 4-5 months of infants (6).Meanwhile about (68.2%) of mothers gave breast milk with some addition of foods like cow's milk (57.0%), cereal based fluids (45.2%), and tea (23.9%).This revealed that infants were fed predominant type of breastfeeding up to their sixth age.

Proportion exclusive breastfeeding was relatively similar among mothers who attend formal school and who did not (70.3% vs 74.4%). There is a significant difference in the proportion of practice of exclusive breastfeeding among employed and unemployed mothers (33.3% Vs 72.6%) (6).Similarly average monthly income of mothers was statistically significant with exclusive breastfeeding (P=0.042).

As to the associated factors with exclusive breastfeeding, the binary logistic regression model showed that employment status of mothers, average monthly income of mothers, age of infant, pre-lacteal feeding, parity of mothers and timely initiation of breastfeeding were closely associated with exclusive breastfeeding. But a study conducted in Ethiopia to assess associated factors of exclusive breastfeeding identifies maternal education, marital status; wealth index and age of the child were closely associated with exclusive breastfeeding practices.

But in the final regression model only age of infant, employment status of mothers and average monthly income of mothers were retained as important predictors of exclusive breastfeeding. This finding similar in identifying economic factors (average monthly income of mothers) and infant age as associated factors of exclusive breastfeeding with the study done on determinants of exclusive breastfeeding in the country (33).

But differently this study revealed that employment status of mothers was found to a predictor of exclusive breastfeeding on the contrary this study does not show difference in

exclusive breastfeeding among married and non married respondents however being not married was inversely associated in a study in Ethiopia (33).

The result of this study showed that age of infant was statistically associated with exclusive breastfeeding. Infants in the age group < 2 months were about 6 times more likely to breastfed exclusively when compared to infants in the age group 4-5 months. Infants in the age group 2-3 months were 2 times more likely to breastfed exclusively when compared to those infants in the age group 4-5 months. As the age of the child increased the rate of exclusive breastfeeding decreased significantly which is in conformity with some studies done in Iran, Uganda, and a study in Ethiopia (4, 33, 45). It might be attributed to the fact that post partum care traditionally is given in the first few months after birth where mothers remain at home, creating a chance to exclusively breastfeed their infant.

This study revealed employment status of mothers and exclusive breastfeeding are inversely associated and unemployed mothers were 10 times more likely to practice exclusive breastfeeding when compared to mothers who were not employed. This might be explained by the fact that employed mothers have less opportunity to stay at home and practice exclusive breastfeeding is compromised.

Concerning the association between exclusive breastfeeding and average monthly income of mothers, mother who earn on average 501-1000 ETB per month were 60% less likely to practice exclusive breastfeeding when compared to those mothers whose average month income was in the range <500 ETB per months(AOR=0.4[95%C.I:0.14-0.90]).

## What is the implication?

Ethiopia had developed national infant and young child feeding (IYCF) guideline with clear objectives concerning timely initiation and exclusive breastfeeding. For the implementation of these objective tremendous health extension worker were trained and giving varying level of health related community services like promotion of timely initiation and exclusive breastfeeding. The ultimate goal of this intervention was to gear breastfeeding practices mainly timely initiation and exclusive breastfeeding to the optimal level. But still the two (timely initiation and exclusive breastfeeding) indicators of optimal breastfeeding remain at unsatisfactory level. Moreover, timely initiation and exclusive breastfeeding have been affected by socio-demographic and economic, obstetric and health service related factors/practices. Therefore, this may provoke policy makers and decision makers, to revitalize the intervention that is being given.

**Strengths of the study**

The study was focused on both rural and urban settings. The use of validated questionnaire and both quantitative and qualitative methods of data collection were other strengths of this study.

## Limitations of the study

A mother may have difficulty of remembering when she initiated breastfeeding for her youngest infant; as a result, timely initiation of breastfeeding is subjected to potential recall bias. On the other hand during the determination of exclusive breastfeeding using a 24-hour recall period measures current status and may cause the proportion of exclusively breastfed infants to be slightly overestimated, since some infants who were given other liquids regularly may not have received them in the 24 hours before the survey.

Since this study used a cross sectional study design, it is difficult to infer causal association

This study did not assess individual factors like knowledge and attitude of mothers as well as group level factors such as family or peer related factors.

# Chapter 7: Conclusion and recommendations

## 7.1 Conclusion

The study showed that the prevalence of timely initiation of breastfeeding was minimal. Mothers tend to introduce pre-lacteal foods due to some perceived and traditional practices such as lactation problems, breast milk insufficiency, breast engorgement, to avoid infantile abdominal cramp and to make the infant able to catch the breast. In one or the other way these reasons for the introduction of pre-lacteal foods were showed lack of awareness. Predictors of timely initiation of breastfeeding were: maternal attendance of formal education, being urban resident, institutional delivery, postnatal information/advice on breastfeeding were closely and positively associated with timely initiation of breastfeeding. Of these variables postnatal information/advice on breastfeeding and being urban resident were the independent predictors of timely initiation of breastfeeding. This clearly indicated that most activities for the promotion of timely initiation of breastfeeding were focused on health facilities (which may be traditional type, none targeted, and none integrated) with very few community activities.

The practice of exclusive breastfeeding was in better condition as compared to that of timely initiation of breastfeeding, but still it is unsatisfactory.

The duration and frequency of exclusive breastfeeding were still below the WHO and national IYCF recommendations. The antenatal care health service delivery point is known to be the ultimate point to establish timely initiation of breastfeeding and exclusive breastfeeding. But it was evidenced that health service provider were not using this opportunity to do so.

Employment status of mothers(being employed), average monthly income(501-1000 ET B per month), age of infant(less than 2 months), not introducing pre-lacteal feeding with in the first three days and parity of respondent(having 2-4 children) were closely and directly associated with exclusive breastfeeding. Similarly, timely initiation of breastfeeding was directly associated with exclusive breastfeeding. But employment status, average monthly

income of mothers and age of the infant were independent predictors of exclusive breastfeeding.

## 7.2 Recommendations

Based on the study findings the following recommendations are suggested:

**To the program planners**

- They should focus on developing targeted strategies to raise awareness about timely initiation of breastfeeding
- They should consider and practice intersectoral partnership with professional associations, Ministry of Labour and Social Affairs (MOLSA), women's association, and other concerned bodies to designing strategies for paid maternity leave and addressing obstacles for timely initiation of breastfeeding and exclusive breastfeeding.

**To Regional health bureau/Zonal Health Department**

- Activities focused on promotion of TIBF and EBF at health facilities level should be extended to community level
- Main contact point of mothers (ANC,PNC ,EPI ) and establishment and promotion of TIBF and EBF should be integrated
- Targeted and specific in-service training

**To The Health Care Providers and Counsellors**

- ANC providers should use the opportunity to promote TIBF.

- They should anticipate and focuses on possible barriers for TIBF and EBF hence, councilors should clarify and recommend possible solutions during counseling session
- Interventions should focus on addressing barriers to early initiation and should include a community component.

**To health extension workers**

- Health extension workers should focus and work on behaviour change towards timely initiation of breastfeeding and exclusive breastfeeding

**To Researchers**

- Further analytic study that mainly addresses all areas of associated factors (individual level, group level and societal level factors) that significantly affect TIBF and EBF are needed.
- The relationship between timely initiation of breastfeeding and EBF should be studied by using strong designs with adequate power.

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**ANNEXES: I QUETIONNAIRE (ENGLISH VERSION)**

**Jimma University**

**College of Public Health and Medical Sciences (CPHMS)**

**School of Graduate Studies**

**Department of Population and Family Health**

Good morning/afternoon! dear respondent my name is _____. I am working as data collector in a study conducted by the College of Public Health and Medical Sciences of Jimma University. We are interviewing mothers here about practice of breastfeeding initiation and its exclusiveness including associated factors among mothers in order to generate information necessary for the planning of appropriate strategies (interventions) to promote appropriate infant feeding practice in this woreda and the country. To attain this purpose, your honest and genuine participation by responding to the question prepared is very important and highly appreciated.

**Confidentiality and consent**

I would like you to ask some questions that you may find it difficult to answer. Your answers are completely confidential. Your name will not be written on this form. Anybody will not be told what you said in connection to your name. You do not have to answer any question if you don't want to and you can stop the interview at any time. However your honest answer to these questions will help us to better understand the practice of mothers related to infant feeding practices (timely initiation, exclusive feeding and associated factors). We would greatly appreciate your help in responding to this study. The interview will take about **20 - 30** minutes. Would you be willing to participate?

**Yes ✓**

**No _____**

**QUESTIONNAIRE IDENTIFICATION**

**Questionnaire ID No _____**

**Region: Oromiya**

**Zone: Bale**

**Woreda: Goba**

**Kebele _____**

**House No _____**

Name of interviewer_____ Signature _____ Date____

## Section 1: Background information of the Mother and the child

**First, I want to ask you a few questions about yourself and your youngest baby.**

| Background information of the Mother | | | |
|---|---|---|---|
| S.No | **Questions and filters** | **Code categories** | **Skip** |
| **Q101** | What is your age? | Age in completed years_____ | |
| **Q102** | What is your religion (now)? | Muslim……..…….1<br>Orthodox ….. … 2<br>Protestant ……. ….3<br>Catholic……..…… 4<br>Other specify)……..…...9 | |
| **Q103** | What is your ethnicity? | Oromo...……..…..1<br>Amhara……..……2<br>Tigrie……...3<br>Guragie...……4<br>Other(specify)…..……9 | |
| **Q104** | Have you ever attended formal school? | Yes…… 1<br>No ….…… 2 | Go to Q106 |
| **Q105** | If yes, what is the highest grade you completed? | Grade _____ | |
| **Q106** | Are you able to read and write? | Yes…… 1<br>No ….…… 2 | |
| **Q107** | What is your current marital status? | Never married…..……1<br>Married……..……...2<br>Divorced……..……3<br>Widowed……..……4<br>Other(specify)……..……9 | |
| **Q108** | What is your current occupational status? | Employed……..….1<br>Ψ Business women.....2<br>Daily labourer…..…..……..3<br>Farmer……..……4<br>Student……...……...5<br>House wife……...……6<br>House servant……..……7<br>Other (specify) ……...…...9 | Ψ merchant or trade |

| | | | |
|---|---|---|---|
| **Q109** | What is your average monthly income?<br>➢ **Probe for approximate amount** | _____Birr/month<br>_____Birr/year | |
| **Background information of the infant** | | | |
| **Q110** | Sex of Child | Boy……1<br>Girl…….2 | |
| **Q111** | How old is your child? (***Record age in completed months***). | _____<br>months | |

**Section 2:** ***Now I would like to ask you some questions which may need little memorization related to the time at which you had initiated breastfeeding, food given at birth and the number of times of breastfed and what you are feeding your youngest child.***

| S.No | Questions and filters | Code categories | Skip |
|---|---|---|---|
| **Q201** | Have you ever breast-fed your child? | Yes…… 1<br>No …..…… 2 | Go to **Q212** |
| **Q202** | How long after birth did you first put your child to the breast?<br>➢ | Immediately……..<br>After……..…...…minutes<br>After……..…...…Hours<br>After..…… Days<br>Don't Remember……..…..…7<br>Don't Know…….98<br>Never breastfed……99 | |
| **Q203** | Did you squeeze out and throw away the first milk (colostrum)? | Yes…… 1<br>No …..…… 2 | |
| **Q204** | In the first three days after delivery, had your baby given anything to drink other than breast milk? | Yes . . . . . 1<br>No . . . . . 2<br>Don't Remember……...7 | Go to **Q207** |
| **Q205** | If Yes to **Q204**, what was your child given to drink in the first three days?<br><br>**Circle all liquids mentioned** | a) Milk(other than breast milk)<br>b) Plain water<br>c) Sugar or glucose water<br>d) Sugar-salt-water Solution<br>e) Fruit juice<br>f) Infant formula<br>g) Tea<br>h) Fresh butter<br>Other (Specify)……...…..… | |
| **Q206** | If Yes to **Q204,** what was the reason? | _____ | |
| **Q207** | Are you still breast-feeding the child? | Yes……...…….1<br>No……2 | Goto **Q216** |
| **Q208** | If yes to **Q207**, how many times did you breast-feed last night between sunset and sunrise?<br>➢ **If answer is not numeric, probe for approximate number.** | Number of night times breast-feedings_____ | |

| | | | |
|---|---|---|---|
| **Q209** | If yes to **Q207,** how many times did you breast-feed yesterday during the day time?<br>➢ **If answer is not numeric, probe for approximate number.** | Number of day times breast-feedings_____ | |
| **Q210** | When do you usually breast-feed your youngest child?<br>**Multiple response is possible** | a) On the demand<br>b) When the child cries<br>c) On schedule<br>d) On convenience<br>e) When breast engorged<br>f) In Other condition (specify)_____ | |
| **Q211** | For how many months did you feed with breast-milk only?<br>➢ **If less than one month, record '00' months** | _____months | |
| **Q212** | Did your child fed anything other than breast milk between sunrise yesterday and sunrise today? | Yes . . . . . 1<br>No . . . . . 2<br>Don't Remember……...7 | |
| **Q213** | At what age did you first introduce liquids or foods (semi-solid or solid) other than breast milk to the baby? | Months _____<br>Don't remember……..…7 | |
| **Q214** | If yes to **Q 212**, which type of food that your child fed over the past 24 hours, from sunrise yesterday to sunrise today?<br>➢ **Read out the list and circle**<br>**Multiple response is possible** | a. Breast milk<br>b. Water<br>c. Formula<br>d. Animal milk(e.g. cow milk)<br>e. Fruit Juice<br>f. Other liquids (sugar water, coffee, tea, broth, soft drinks)<br>g. Any food made from grains (millet (sorghum, maize, rice, wheat, teff)<br>h. Any other food made from roots or tubers? (white potatoes, cassava, enset, or other local roots or tubers)<br>i. Any food made from pumpkins, carrots, red sweet potatoes, mango, papaya.<br>j. Green leafy vegetables<br>k. Any other fruits? (e.g., bananas, apples, avocados). | |

| | | | |
|---|---|---|---|
| **Q215** | How many times did you feed your child with solid and/or semi-solid food between sunrise yesterday and sunrise today?<br>• **If response is not numeric, probe for a numeric response** | Number of feedings of solids and/or semi-solid foods _____ | |
| **Q216** | Why did you stop breastfeeding your child? | a. Breast milk is insufficient<br>b. Mother returning to work<br>c. Maternal illness<br>d. Child illness<br>e. Breast problem<br>f. Mother dislikes or feels uncomfortable with breastfeeding<br>g. Child refused<br>h. Weaning age/age to stop<br>i. Became pregnant<br>j. Started using contraception<br>Other (Specify) ……..…….. | |
| **Q217** | Which of the following items that the child has fed starting from the date of birth up to the age of 6 months?<br>➢ **Only for a child older than 6 months**<br>➢ **Multiple response is possible** | a. Breast milk only<br>b. Water/tea<br>c. Water & sugar/salt<br>d. Cow's milk<br>e. Powdered milk<br>f. Cereal based fluid<br>g. Don't Remember | |
| **Q218** | Which of the following items that the child has fed starting from the date of birth up to now?<br>➢ **Only for a child Less than 6 months of age and who is on breast-feeding.**<br>**Multiple response is possible** | a. Breast milk only<br>b. Water/tea<br>c. Water & sugar/salt<br>d. Cow's milk<br>e. Powdered milk<br>f. Cereal based fluid<br>g. Don't Remember<br>Other (specify)---------- | |

**Section 3*: In this section I would like to ask you specific questions about the conditions, occasions or some other factors which might prevent or promote you to breastfeed your youngest child successfully*.**

| Section 3A: Questions to asses obstetrics and medical factors | | | |
|---|---|---|---|
| **S.No** | **Questions and filters** | **Code categories** | **Skip** |
| **Q301** | How many children are born alive to you? | No. Children born alive_____ | |
| **Q302** | How many children do you have now? | Number of children alive currently_____ | |
| **Q303** | ***For mothers Who have more than one child.*** What is the minimum inter birth interval between your youngest and oldest child? | Interval in month_____<br>Interval in year_____ | |
| **Q304.** | What was the duration of the pregnancy of your youngest child? | Completed months_____ | |
| **Q305** | In which way did you give birth to your youngest child? | Through vagina (Normal).…1<br>By oppression(C/S)…….2<br>Other Assisted type ……3 | |
| **Q306** | Have you been admitted hospital immediately after delivery from any illness? | Yes . . . . . 1<br>No . . . . . 2<br>Don't Remember……...7 | Go to **Q308** |
| **Q307** | Had your child been sleeping with you while you were admitted? | Yes . . . . . 1<br>No . . . . . 2<br>Don't Remember……...7 | |
| **Section 3B: Questions to asses Health service related factors/practice** | | | |
| **Q308** | When you were pregnant with your child did you go to a health facility for antenatal care? | Yes……1<br>No……..……...2 | |
| **Q309** | If yes to **Q308**, how many times did you visit? | No of visits _____ | |
| **Q310** | If yes to **Q308**, did you receive information/advice about breast-feeding while you were following antenatal care? | Yes…….……1<br>No……..2<br>Don't Remember…..…7 | Go to **Q312** |

| | | | |
|---|---|---|---|
| **Q311** | If yes, About which of the following characteristics you have been informed/advised regarding breastfeeding?<br><br>(**Multiple response is possible )** | • Initiate breastfeeding immediately after birth.<br>• Exclusive breastfeeding to be practiced for the first 6 months.<br>• No prelacteal feeds to be given.<br>• Breastfeeding babies less than 6 months do not require extra food even water<br>• Continue breastfeeding during illnesses of the baby<br>• Continue breastfeeding during mother's illness. | |
| **Q312** | Where did you give birth to? | Home……...1<br>Health institution…….2<br>Other(Specify)……9 | |
| **Q313** | If you deliver at home who assisted the delivery? | Health Professional…..…..1<br>Trained traditional birth attendant……...….2<br>Untrained traditional birth attendant…….....3<br>Relative/Friend/Neighbour…...4<br>No one……..…5<br>Other(Specify)…….9 | |
| **Q314** | Have you ever been informed/ advised about breastfeeding after delivery? | Yes……1<br>No……..2<br>Don't Remember…..…..……7 | |
| **Q315** | If yes, About which of the following characteristics you have been informed or advised regarding breastfeeding?<br>(**Multiple response is Possible)** | a. Initiate breastfeeding immediately after birth.<br>b. Exclusive breastfeeding to be practiced for the first 6 months.<br>c. No prelacteal feeds to be given.<br>d. Breastfeeding babies less than 6 months do not require extra food even water<br>e. Continue breastfeeding during illnesses of the baby<br>f. Continue breastfeeding during mother's illness.<br>g. Sleeping together with the child every time. | |

***(CHECK THE QUESTIONNAIRE TO MAKE SURE THAT ALL RESPONSES HAVE BEEN PROVIDED)***

**Thank you very much for your time**

**CHECKED BY SUPERVISOR**

Name_____Signature _____ Date _____

**II. A. Guiding questions and probes for In-depth interview with health care providers.**

**Code of interviewee_____**

**Interviewer's Name Tesfaye Setegn (PI)**

**Time of Interview_____**

**Currently working health care delivery point**

☐ EPI

☐ ANC

☐ Deliver Service

**Instruction:** Here I am going to make an interview/conversation on breastfeeding practices that is being undertaken in you working health institution. This interview is mainly aimed to gather information breastfeeding initiation, exclusive breastfeeding and associated factors among mothers. Therefore, your genuine response is needed and very helpful for this study.

I can assure that the information you gave me remain confidential.

**Questions and Points for interview:**

1. Could you tell me about the practice of breastfeeding in this health institution?

   **Hints :**( Promotion of Timely initiation of breastfeeding (when? Where? ) Promotion of Exclusive breastfeeding (When? Where?)

2. Do mothers Breastfeed exclusively for 6 months? (If not why?)

3. Do you feel that your service delivery point is responsible in promotion and protection of

   exclusive breastfeeding? (If yes, how do you explain these responsibilities?

   Implementation status)

4. What maternal and infant characteristics do affect exclusive breastfeeding?

5. What health service related practices do you think that affect exclusive breastfeeding and its duration amongst mothers.

**II B. Guidding questions and probes for in-depth interview with breastfeeding mothers.**

**Name of interviewer Tesfaye Setegn(PI)**

**Discussion Begin at_____ (Local time) End at _____duration_____(hour/s)**

**Participants: Breastfeeding mothers, Residence** **Rur** **Urb**

**Code of interviewee_____**

**Kebele_____**

**Points for Discussion**

**1. How do you see the breastfeeding practice in your locality?**

**(Hints: Timely initiation, Exclusive breastfeeding, duration of exclusive breastfeeding, Number of total feeds per 24 hours)**

**2. How do you rate the breastfeeding practices of mothers in this locality**

**3. How do you see health personnel's contribution in TIBF, promoting and protecting exclusive breastfeeding?**

**4. Would you tell me the major barriers (cultural or societal) that make a mother not to breastfeed her child in the first six months?**

**III. QUETIONNAIRE (Afan Oromo Version)**

## Yunivarsiitii Jimmaa

## Koollejjii Fayyaa Hawaasaa fi Saayinisii Madikaalaa

Akkam gaafatamaa? Ani maqaan koo _____ n jedhama. Ani qorannoo Yunivarsiitii Jimmaa, coollejjii Fayyaa Hawaasaa fi Saaynisii Madikaalaatiin gaggeeffamu keessatti odeeffannoo funaansarran hojjedha. Odeeffannoo karoora mala gaarii fi soora daa'immanii sirrii fi itti fufinsa qabu aanaa kanaa fi biyyaaf qopheessuuf nu barbaachisan maddisiisuuf jecha nuti waa'ee gocha jalqabiinsa harma hosissuu ta'ee harma qofa hoosisuu waliin wantoota wal qabatan irratti haawwaniin gaaffii gaafanna. Fayidaa kana argachuuf, amanamummaa fi garummaadhaan deebiin gaaffii gaafatamtaniif deebiftan baay'ee barbaarchisaa fi kan ajaa'ibsifamudha/dinqisiifamuudha.

**<u>Guca Waliigaltee</u>**

Gaaffii deebisuuf si rakkisu/sitti ulfaatu/ akka tasaa si gaafachuun danda'a ta'a. Icittiin deebii kee guutummaatti kan eeggamedha. Maqaan kee guca kanarratti hi katabamu/hin barreeffamu/. Maqaakeen walqabsiisee enyumtuu waan ati jette hin dubbatu. Gaaffii deebisuu hin barbaanne deebisuuf dirqama hin qabdu. Akkasumas eerga jalgabnee booda yeroo barbaadde dhaabuuf mirgi kee kan eegamedha. Ta'ullee amanamummaan deebiin ati nuuf kennitu, gochoota haawwan soora daa'immanii keessatti raawwatan (dahanii yeroon harma jalqabsiisuu, harma qofaa hoosiisuu fi wantoota kanneen waliin walqabatan) sirritti hubachuuf kan nu gargaarudha. Qorannoo keenyaaf deebiin nuuf kennitu barbaachisaa akka ta'e sirritti hubattee? Gaaffiif deebiin keenya daqiiqaa

20 – 30tti fudhata. Itti hirmaachuuf fedhii keetii?

**Eeyyee__✓___**

**Lakki _____**

**Addaa baafana gaaffilee**

**Lakk. Addaa baafana _____**

**Naannoo: Oromiyaa**

**Zoonii: Baalee**

**Aanaa: Gobbaa**

**Ganda _____**

**Lakk. manaaa _____**

**Gaafataa**

Maqaa_____ mallattoo _____ guyyaa _____

## kutaa 1: *Odeeffannoo waa'ee haawwanii fi daa'immanii*

**Dursa wa'ee keefii waa'ee mucaa kee isa xiqaan gaaffii muraasa si gaafachuun**

| Odeeffannoo waa'ee haadhaa | | | |
|---|---|---|---|
| **Lakk.** | **Gaaffiif calaltuu** | **Kooddii garee** | **Irra taruu** |
| **Q101** | Umuriin kee meeqa? | Wagaa _____ (waggaan guuti) | |
| **Q102** | Amma amantiin kee maali? | Musiliima…..…….1<br>Ortodoksi…….....… 2<br>Protestaantii/pheenxee … ….3<br>katolikii……..……..… 4<br>kan biroo (ibsi)..…….....9 | |
| **Q103** | Sabii kee maali? | Oromoo...…….…..1<br>Amaaraa …….……2<br>Tigree ……....3<br>Guraagee....…….4<br>Kan biroo(ibsi)…...……9 | |
| **Q104** | Barumsa idilee hordofteettaa? | Eeyyee……..… 1<br>Lakki ……...…2 | Gara **Q106** |
| **Q105** | Yoo eeyyee, gaffii "Q104" ta'e kutaa guddaan ati baratte meeqa? | Kutaa _____ | |
| **Q106** | Dubbisuu fi katabuu ni dandeessaa? | Eeyyee …….…… 1<br>Lakki ….…….…… 2 | |

| | | | |
|---|---|---|---|
| **Q107** | Wa'ee sirna gayilaa amma irra iranii? | Hin heerumne ……..……1<br>Heerumeera ……..……...2<br>Hiikera ……..……..…..…3<br>Dhirsi najalaa du'eera ……4<br>Kan biroo (ibsi) …...…….9 | |
| **Q108** | Dalagaan/hojiin kee amma maali? | Hojjetaa mootummaa…….1<br>Daldaaltuu..……...…..3<br>Dafqaan bulaa..……...……..4<br>Qotee bulaa ……..…….5<br>Barattaa/ttuu…...……...6<br>Haadha manaa…...……..….7<br>Hojjetuu mana keessaa.…….8<br>Kan biroo (ibsi) ……...9 | |
| **Q109** | Tilmaamaan galiin kee ji'aan meeqa ta'a?<br>➢ **Tilmaamsisuuf itti quuti** | Ji'aan qarshii _____<br>Waggaatti qarshii_____ | |
| **Odeeffannoo waa'ee mucaa isa xiqqaa** | | | |
| **Q110** | Saali mucichaa maali? | Dhiira……1<br>Dhalaa…….2 | |
| **Q111** | Umuriin isaa mucaa meeqa? (***umurii isaa/ishee ji'aan guutii barreessi***). | Baatii/ji'a _____ | |

**Kutaa 2: Amma gaaffii xiqqoo yaaddatanii deebistanan isin gaafadha. Gaaffichis yeroo mucaa kee harma jalqabsiifte, nyaata gaafa deesse kenniteef, yeroo meeqa akka hoosiftuu fi maal sooraa/nyaachisaa akka turtedha.**

| Lakk | Gaaffii fi calaltuu | Kooddii garee | Irra taruu |
|---|---|---|---|
| **Q201** | Mucaa kee haarma hoosiftee beektaa? | Eeyyee ……..…… 1<br>Lakki ……..…… 2 | Gara **Q212** |
| **Q202** | Deessee sa'aa hagamtti harma hoosisuu jalqabde? | Battalatti/akkuman daheen……<br>Daqiiqaa…… booda<br>Sa'aa ……..…...…booda<br>Guyyaa ..……..…. booda<br>Hin yaadadhu…….… 7<br>Hin beeku…….98<br>Tasumaa hin hoosifne……..99 | |
| **Q203** | Silga/aannan jalqabaa/ lafatti elmiteettee dhangalafteettaa? | Eeyyee ……..…… 1<br>Lakkii ……..…… 2 | |
| **Q204** | Deessee guyyaa sadi keessatti, mucaan kee harma keen ala waan biroo obaafteettaa? | Eeyyee . . . . . 1<br>Lakki . . . . . 2<br>Hin yaadadhu ……...7 | Gara **Q207** |
| **Q205** | Yoo 'eeyyee' gaffii "Q204" jette dhalatee guyyaa sadi keessatti maal dhuge/de ykn obaafte?<br><br>**Dhangala'oo eerame hunda/mara itti** | a) Aannaan (aannan haadhaan ala)<br>b) Bishaan qulqulluu<br>c) Sukkara bishaaniin<br>d) Bulbula sukkaaraaf ashaboo<br>e) Cuunfaa firii<br>f) Aannan daa'immanii /foormulaa<br>g) Shayii<br>h) Dhadhaa | |

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|---|---|---|---|
| | **mari.** | Kan biroo (ibsi)_____ | |
| **Q206** | Yoo eeyye gaffii "Q204" jette sabibni kee maali? | _____ | Gara **Q216** |
| **Q207** | Hanga ammaattilee ni hoosiftaa? | Eeyyee ……..……1<br>Lakki ……..……2 | |
| **Q208** | Yoo eeyyee, gaffii "Q207" eda ykn halkan darbe meeqa hoosiftee biiftuun lixxee hanga bari'utti?<br>➢ **Lakkoofsaan hin deebfne yoo ta'e, lakk. Tilmaamsisuuf carraqi** | Lakkoofsa eda hoosiftee _____<br>Hin yaadadhu……7 | |
| **Q209** | Kaleessa guyyaa yeroo meeeqa hoosifte?<br>➢ **Lakkoofsaan hin deebfne yoo ta'e, lakk. Tilmaamsisuuf carraqi** | Lakkofsa kaleessa guyyaa hoosifte _____<br>Hin yaadadhu ……7 | |
| **Q210** | Yeroo baayee mucaa kee yeroo akkamii hoosifta? | **a)** Yeroo mucaan barbaadu<br>b) yeroo mucaaan booye<br>c) akka sagantaatti<br>d) akka naaf mijatetti<br>e) yeroo aanna harma koo guutee naqabe.<br>Kan biroon (ibsi)_____ | |
| **Q211** | Mucaa kee deessee baatii/ji'a meeqaaf aannan harma kee qofaa hoosisaa turte?<br>**Yoo baatii tokkoo gadi ta'e '00' galmeessi.** | **Baatii /ji'a_____** | |
| **Q212** | Mucaan kee kaleessa baha biiftuutii kaasee hanga har'a ganamaatti aannan harmaan alaa wanti dhuge/nyaatee jiraa? | Eeyyee . . . . . .. . . 1<br>Lakki . . . . .. . . . . . 2<br>Ani hin yaadadhu ……...7 | |
| **Q213** | Harma kee malee, umurii isaa meeqatti dhangala'oo ykn nyaata lallaafaa jalqabsiifte? | Ji'a/baatii _____<br>Ani hin yaadadhu……..…7 | |
| **Q214** | Yoo eyyee jette gaffii **"Q212"**, kaleessa ganama baha biiftuutii hanga har'a ganamaatti mucaa dhaaf maal maal kenniteef?<br><br>**Deebi tokko oli ni danda'ama.** | a) Harma koo<br>b) Bishaan<br>c) Foormulaa<br>d) Aannan horii (FKN aannan sa'aa)<br>e) Cuunfaa muduraalee<br>f) Dhangala'oo biroo (sukkara bishaaniin, buna, shayii, mooqa, dhugaatii lallaafaa)<br>g) Nyaata midhaan dheedhii fi nyaataa irra hojjetame ( misingaa, boqqoolloo, ruuzii, qamadii, xaafii)<br>h) Nyaata kuduraalee gara garaa irraa hojjetame (moose/dinnicha, kasaavaa, warqee/qooccoo, kuduraalee naannoo kan biroo)<br>i) Nyaata akka dabaaqula/buqqee, kaaritii , mixaaxissaa/dammee, maangoo, paappayaa,<br>j) Muduraalee magariisa<br>k) Kuduraalee akka? (e.g., muuzii, abokaadoo) | |
| **Q215** | Kaleesa ba'aa biiftuuti fi hanga har'a ganamaa giddutti Yeroo meeqaaf mucaaa keef nyaata dhangaloo ykn jajjaboo laattef ? | Yerro meeqa akka isheen latteef lakkofsaan ibsi_____ | |

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| **Q216** | Maaliif irraa harma hoosisuu dhaabde?<br><br>**Deebin tokko olii ni danda'ma.** | a) Aannan harmaa gahaa waan hin taaneef<br>b) Haati hojiitti waan deebiteef<br>c) Haadha waan dhukkubeef<br>d) Mucaa waan dhukkubeef<br>e) Rakkina harmaa<br>f) Haati harma hoosisuu waan hin jaalanneef ykn waan itti hin tolleef<br>g) Mucaatu dide<br>h) Gu'uudhumatu /yeroodhuma irra dhaabachuu qabu waan ta'eef<br>i) Haati waan ulfooftee<br>j) Ogessi fayyaa waan na dhorkeef<br>**Kan biroo (ibsi) _____** | |
| **Q217** | Mucaan kee dhalatee hanga ji'a ja'haa guututti kan armaan gadii keessaa kam kam soorate?<br>➢ **Mucaa ji'a/baatii ja'a olii qofaaf** | a) Harma haadhaa qofa<br>b) Bishaan/shaayii<br>c) Bishaanii fi sukkara ykn soogda/ashaboo<br>d) Aannan sa'aa<br>e) Daakuu aannanii<br>f) Dhangala'oo midhaan nyaataa irraa qophaaye<br>g) Ani hin yaadadhu<br>**kan biroo (ibsi)----------** | |
| **Q218** | Mucaan keee dhalatee/ttee hangahar'aatti kan armaan gadii keessaa kam kam soorate?<br>➢ **Mucaa ji'a ja'a gadii ta'ee harmaa haadhaa hodhaa jiru qofaaf.**<br>➢ **Deebin tokko olii ni dana'ama** | ○ Harma haadhaa qofa<br>○ Bishaan/shaayii<br>○ Bishaanii fi sukkara ykn soogda/ashaboo<br>○ Aannan sa'aa<br>○ Daakuu aannanii<br>○ Dhangala'oo midhaan nyaataa irraa qophaaye<br>○ Ani hin yaadadhu<br>**kan biroo (ibsi)----------** | |

**kutaa 3:** ***kutaa kana keessatti, haala, waantoota simuudatan ykn waantoota harma akka fiixaan bahumsaan hoosiftuuf si gargaaran ykn irraa sidhorkan irratti qaaffii addaan si gaafadha.***

| **Kutaa 3A: gaafii ulfaa fi dhukkubaan wal-qabate** | | | |
|---|---|---|---|
| **Lakk.** | **Gaafilee fi calaltuu** | **Kooddii garee** | **Irra taruu** |
| **Q301** | Ijoollee meeqan deesse? | _____ | |
| **Q302** | Amma ijoollee meeqa qabda? | Ijoolleeen amma lubbuun jiran lakkoofsaan_____ | |
| **Q303.** | ***Haawwan ijoollee tokkoo ol qabaniif.*** Mucaa kee kanaafii guddaa fi isa/ishee duraa giduu ji'a ykn waggaa meeqa jiraa? | Ji'a _____ addaanfagaatu<br>Waggaa _____addaan fagaatu | |
| **Q304** | Mucaa kee isaa dhumaa kanaa ulfoofitee baatii/ji'a meeqatti deesse? | Baatii xumurte _____ | |

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|---|---|---|---|
| **Q305** | Akkamitti deesse? | Karaa sirrii ……..…1<br>Garaa baqaqfadheen…….2<br>Kan biroo gargaarsaan ……3 | |
| **Q306** | Akkuma deessen dhukkuba kamiin iyyuu haa ta'uu hospitaala ciifteettaa? | Eeyyee . . . . . 1<br>Lakki . . . . . 2<br>Ani hin yaadadhu……...7 | Gara **Q308** |
| **Q307** | Yeroo hospitaala ciifte sun mucaan kee si waliin ciise turee? | Eeyyee . . . . . 1<br>Lakki . . . . . 2<br>Ani hin beeku……...7 | |
| **kutaa 3B: gaaffii gochaa fi wantoota tajaajila fayyaa waliin wal-qabate sakatta'uuf qophaaye.** | | | |
| **Q308** | Yeroo mucaa kee garaatti baattu mana yaalaa irraa hordoffii dawumsa duraa fudhatteettaa? | Eeyee …….1<br>Lakki ……..……...2 | |
| **Q309** | Yoo eeyyee, yeroo meeqa dhaqxe ykn hordofte? | Yeroo/al _____n dhaqe | |
| **Q310** | Yoo eeyyee hordoffii dahumsa duraa yeroo fudhattu odeeffannoo mata duree harma hoosisuu irratti argatteettaa? | Eeyyee ……..……1<br>Lakki ……..…..2<br>Ani hin yaadadhu.....…7 | Gara **Q312** |
| **Q311** | Yoo eeyyee ta'e, waa'ee harmaa hoosisuu irratti odeeffannoo kam kam si gorsan?<br><br>(**deebiin tokkoo ol ni danda'ama** ) | a) Akkuman daheen dafee harma jalqabsiisuu?<br>b) Baatii ja'an jalqabaaf harma koo qofa akkan kennuuf?<br>c) Osoo mucaa kee harma hin jalqabsiisin nyatta kan biraa akka hin laatneef<br>d) Mucaa ji'a ja'a gadiif harma haadhaa malee nyaanni biroo bishaani illee akka hin barbaachifne?<br>e) Yeroo mucaan dhukkubsate harma hoosisuu akkan itti fufu?<br>f) Yeroo sii dhukkube mucaa kee hoosisu akka itti fuftu. | |
| **Q312** | Mucaa kee eessatti deesse? | Mana koo ……..……..1<br>Dhaabilee fayyaa …….2<br>Kan biroo (ibsi)…..……...…9 | |
| **Q313** | Yoo mana kee desses eenyu harkatti deesse ykn eenyutu si deessise? | Ogeessa fayyaa ……..……1<br>Deessistuu aadaa leenjite…….2<br>Deessistuu aadaa hin leenjine...3<br>Fira/hiryaa/olla ……....4<br>Homtuu nah in garagaarre……5<br>Kan biroo (ibsi) ……..….9 | |
| **Q314** | Mucaa kee yeroo deesse odeeffannoo ykn gorsa waa'ee harma hoosisuu argatteettaa? | Eeyyeee …….……1<br>Lakki ……..2<br>Ani hin yaadadhu…..……7 | |
| | Yoo eeyyee ta'e kanneen armaan gadii | a) Hanga batii j'atti harma qofa akkan kennuf. | |

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|---|---|---|---|
| **Q315** | keessaa waa'ee harma hoosisuurratti odeeffannoo ykn gorsa kam kam argatte?<br><br>(**deebiin tokkoo ol ni danda'ama)** | b) Mucaa baatii ja'a gadiif nyaanni birroo bishaan illee ta'u akka hin barbaachifne.<br>c) Yeroo mucaan dhukkubsate harma hoosisuu akkan itti fuftu.<br>d) Yeroo sii dhukkube mucaa kee hoosisu akka itti fuftu.<br>e) Yeroon rafu mara/hunda mucaa koo waliin akkan rafu. | |

***(GAAFFILEEN GAAFATAMUU QABAN HUNDI GAAFATAMUU ISAANII MIRKANEEFFADHU)***

## Yeroo kee nuuf laattee waan nu gargaarteefi odeeffannoo nuuf kennitaniif galatoomii!sss

**To'ataan too'atameera**

Maqaa_____ mallattoo_____ guyyaa_____

**DECLARATION**

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or any other university and that all sources of materials used for the thesis have been fully acknowledged.

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