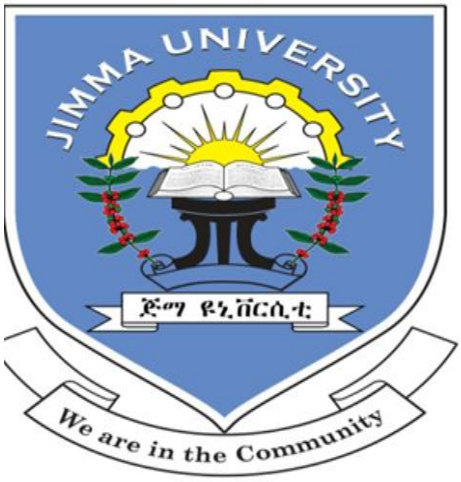

TRENDS AND FACTORS ASSOCIATED WITH BREASTFEEDING PRACTICES IN ETHIOPIA: USING 2000-2011 EDHS DATA

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A THESIS PAPER TO BE SUBMITTED TO JIMMA UNIVERSITY, INSTITUTE OF HEALTH, FACULTY OF PUBLIC HEALTH, DEPARTMENT OF POPULATION AND FAMILY HEALTH IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF PUBLIC HEALTH IN REPRODUCTIVE HEALTH (MPH/RH)

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Trends and Factors Associated With Breastfeeding Practices in Ethiopia: Using 2000-2011 EDHS Data

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Abstract

Background: Despite improvements in breastfeeding practice, there are fears of decline in certain socio-demographic segments, especially among mothers in urban areas and of higher socioeconomic status. Although many cross-sectional studies have been undertaken on breastfeeding practices in Ethiopia, long-term trends have not been yet documented and literature pertaining this is scarce.

Objective: To examine trends and factors associated with Breastfeeding practices using Ethiopia Demographic and Health Survey: (2000-2011)

Methods: A cross-sectional study design was conducted using secondary data which was collected from women 15-49 years from 2000 – 2011 Ethiopia Demographic Health Survey for trend and the 2011 Ethiopia Demographic Health Survey to identify factors associated with breastfeeding practices of mothers.STATA13 and SPSS version 23 were used for data analysis. A trend was considered statistically significant if the p-value was ≤ 0.05. Logistic regression was used to identify factors associated with breastfeeding practices. Odds ratios and 95% confidence intervals were calculated. Results were presented using graphs, tables and narratives.

Result: Overall early initiation of breastfeeding has significantly increased by 2.4% and exclusive breastfeeding by 12.9% but not significant. In 2011 early initiation of breastfeeding was 51.5%, exclusive breastfeeding 51.6% and continuation 92.8%.Sex of child, wealth quantile, marital status, mothers' age, partners' education, and caesarean delivery were found independent predictor of early initiation of breastfeeding. Child sex, child age, wealth quantile and partners education are significantly associate with exclusive breastfeeding. Continuation of breastfeeding was significantly associated with child age, wealth quantile and mothers education.

Conclusion and recommendation: Trends in early initiation and exclusive breastfeeding showed improvements whereas continuation of breastfeeding was stagnant .In 2011 Ethiopia Demographic and Health Survey, early initiation and exclusive breastfeeding was good whereas continuation of breastfeeding was very good with regard to World Health Organization recommendation. A number of child and maternal attributes were noted to affect the rate of breastfeeding practices in Ethiopia. More effort to address this public health problem through breastfeeding counselling, together with supportive supervision and strengthening home visits to have sustained recommended breastfeeding practices are of paramount importance.

Key words: Trends, factors associated, Breastfeeding practices, DHS, Ethiopia

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Acronyms

ANC…….....Antenatal Care

BF…….Breastfeeding

CDC……..Center for Disease prevention and Control

CI…….....Confidence Interval

CSS……...Child Survival Strategy

DALYs…….Disability Adjusted Life Years

DHS……...Demographic Health Survey

EBF……... Exclusive Breastfeeding

EDHS……Ethiopia Demographic Health Survey

NNP……...National Nutrition Program

OR……Odds Ratio

UNICEF……...United Nations Children's Fund

USAID……...United States Agency for International Development

WHO……..World Health Organization

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CHAPTER ONE: INTRODUCTION

1.1. Background

The World Health Organization has described breastfeeding as an unequalled way of providing ideal food for the healthy growth and development of infants; it is also an integral part of the reproductive process with important implications for the health of mothers. As a global public health recommendation, infants should initiate breastfeeding within one hour after birth and be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods while breastfeeding continues for up to two years of age or beyond(1,2).

Breastfeeding can help in achieving many of the 17 Sustainable Development Goals including goals on poverty, hunger, health, education, gender equality and sustainable consumption. The recent *Lancet* Breastfeeding Series underscored that improving breastfeeding practices worldwide will be a fundamental driver in achieving the Sustainable Development Goals by 2030. Breastfeeding is one of the top interventions for reducing under-5 mortality. It could save the lives of 820,000 children under 5 (87 percent of them infants younger than 6 months old) each year. This represents about 13 percent of all under-5 child deaths(3).

Children who are breastfed have lower rates of childhood cancers, including leukaemia and lymphoma. They are less susceptible to pneumonia, asthma, allergies, childhood diabetes, gastrointestinal illnesses and infections that can damage their hearing. Studies suggest that breastfeeding is good for neurological development. If every baby were exclusively breastfed from birth, an estimated 1.5 million lives would be saved each year. And not just saved, but enhanced, because breast milk is the perfect food for a baby's first six months of life – no manufactured product can equal it(4).

Apart from the benefits to the baby, breastfeeding protects the mother's health. After delivery, it helps the uterus return to its normal size. This helps reduce bleeding and prevents anemia, it reduces the mother's risk of ovarian and breast cancer and it also contributes to a delay in the return of fertility(5,6).

Despite these well documented benefits of breastfeeding worldwide, only 39 percent of children aged less than six months were exclusively breastfed in 2012. This global figure has improved very little for the past several decades due in part to large countries where the breastfeeding rate is low (6). Global breastfeeding rates remain far below international targets. For all low-income and middle- income countries with data ,exclusive breastfeeding rates increased from 25% in 1993 to 37 % in 2013 ,in the wealthiest countries the rates increased from 16% to 36% while continued breastfeeding at 12-15 months decreased from 76% to 73% globally(7).

Second World Breastfeeding Conference states that global trends in exclusive breastfeeding rates are not increasing and in some regions the rates are stagnating or even declining. About 32.6%(44.5 million) of babies born worldwide were exclusively breastfed for six months.in 2015, in the developing world, the number had slightly increased to 39% and only about 58% of 20-23month old children benefiting from continued breastfeeding(8).

Several programs and policies have been put in place in Ethiopia in relation to child health and breastfeeding. In 2004, the National Nutrition Strategy for Infant and Young Child Feeding was designed. Exclusive breastfeeding is promoted through specific recommendations, as well as the transition to semisolid and solid food at 6 months and the continued breastfeeding(5).In 2005, the Federal Ministry of Health adopted a National Strategy for Child Survival in Ethiopia (CSS). Under the CSS, breastfeeding is encouraged and is specifically mentioned as a key factor in relation to preventable diseases and deaths. In 2013, the National Nutrition Programme 2013-2015 (NNP) was issued, stating among its targets for 2015 the increase of the exclusive breastfeeding rate under 6 months from 52% to 70%(9).

However, it should be highlighted that despite the creation of such policies and strategies, the breastfeeding rates in the country have not shown significant improvements over the years(9,10).Initiation of breastfeeding within one hour of birth was 51.8% in 2000 and 52% in 2011 while exclusive breastfeeding was 38% in 2000 and 52% in 2011(11,12). Therefore, trends in breastfeeding indicators in the country from 2000–2011 and whether these trends were significant or not was assessed using data from Ethiopian Demographic and Health Surveys.

1.2 Statement of the problem

The global strategy for infant and young child feeding describes essential actions to protect**,** promote and support appropriate infant and young child feeding. The aim of the strategy is to improve through optimal feeding, the nutritional status, health, growth and development and thus the survival of infants and young children. It is based on accumulated evidence of the significance of optimal infant and young child feeding especially in the first two years of life for later growth and development. It identifies low cost interventions with a proven positive impact during this period(13).

Breastfeeding is one of the best values among investments in child survival, recognized for both the magnitude of its effect on mortality and the effectiveness of interventions to promote it. There is compelling scientific evidence that optimal breastfeeding of infants under one year could prevent around a million deaths of children under-five in the developing world. Yet global rates of breastfeeding rates have remained stagnant since1990 with only 36 per cent of children less than six months exclusively breastfed in 2012(14).

A large global disease burden is attributed to sub-optimal breastfeeding accounting for 77% and 85% of the under-five deaths and disability adjusted life years (DALYs). Sub-optimal breastfeeding especially non-exclusive breastfeeding in the first six months of life, results in 1.4 million deaths and 10% of disease burden in children younger than 5 years(15).

Evidence based findings have disclosed the excellence of breastfeeding for its protection against malnutrition, diarrhea and respiratory infections which are the main killers of infants and young children in developing countries. Studies carried out in Africa, Asia, and Caribbean countries and Latin America, have supported this fact showing that more than 66% of the deaths due to diarrhea and acute respiratory infections among infants 0-3 months and 32% of deaths among those aged 4-11 months could be prevented by exclusive and partial breastfeeding respectively(10).

Malnutrition has been responsible, directly or indirectly, for 60% of the 10.9 million deaths annually among children under five. Well 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(13).

Most of the infant deaths in the first year of life are largely associated with inappropriate feeding practices. It is estimated that over 7 million children under the age of five die each year in sub-Saharan Africa and South Asia and it is a major contributor to most of the infant death is poor feeding practices. In Ghana, there is evidence that 40% of all deaths that occur in the country before age five are related to malnutrition (severe and moderate malnutrition)(16).

Despite improvements in breastfeeding at the national level in developing countries, there are fears of decline in certain socio-demographic segments, especially among mothers in urban areas and of higher socioeconomic status(17). It is also evident that breastfeeding varies from country to country and within countries between rural and urban areas, and between the poor and those less in need(18).

World health organization has recommended timely initiation of breastfeeding within one hour of birth, exclusive breastfeeding for the first six months of life and continued breastfeeding for two years and above. Ethiopia has endorsed this recommendation and is working on its implementation.

Although many cross-sectional studies have been undertaken on breastfeeding practices in Ethiopia, long-term trends have not been yet documented and literature pertaining this is scarce. Therefore, since there are no published data from Ethiopia regarding trends in breastfeeding practices, the aim of this study is to assess trends in early initiation of breastfeeding at 0 to 23 months of age, exclusive breastfeeding at 0 to 5 months of age and continuation of breastfeeding at 6 to 23 months of age using measures and definitions recommended by WHO using the 2000, 2005 and 2011, Ethiopian DHS data.

CHAPTER 2: LITERATURE REVIEW

2.1 Trends in breastfeeding practices

Breastfeeding is universally acknowledged as providing health benefits for mothers and infants decreasing infant mortality and morbidity particularly in developing countries, but also in more affluent societies. Despite strong recommendations from the WHO and many national health bodies in the Western world, breastfeeding rates, and in particular exclusive breastfeeding rates at six months, remain lower than recommended and can be highly variable across cultures and communities. At the global level, "less than 40% of infants under six months of age are exclusively breastfed(19).

Data from 64 countries covering 69% of births in the developing world suggest that there have been improvements in breastfeeding situation. Between 1996 and 2006 the rate of exclusive breastfeeding for the first 6 months of life increased from 33% to 37%. Significant increases were made in sub-Saharan Africa, where rates increased from 22% to 30%; and Europe, with rates increasing from 10% to 19%. In Latin America and the Caribbean, excluding Brazil and Mexico, the percentage of infants exclusively breastfed increased from 30% in around 1996 to 45% in around 2006(20).

Studies in Canada show that, the percentage of mothers who initiate breastfeeding slowly improved between 2001 and 2008, increasing from 81.5% in 2001, to 84.9% in 2003, to 87.9% in 2007-2008. This was followed by a slight dip to 87.3% in 2009-2010. The Canadian rates for exclusive breastfeeding at six months are much lower, although they have been slowly increasing over the past decade. In 2003, 17.3% of mothers exclusively breastfed for six months or more. This increased to 20.3% in 2005, 23.1% in 2007/2008, and 25.9% in 2009/2010(19).

A progressive increase in trends of EBF prevalence was observed in city of Bauru, southeastern Brazil. EBF rate for under-1-month-old children showed an almost two fold increase from 1999 to 2006; the same was observed for all age groups, except for infants aged 1 to 2 months. Among infants aged 0 to 6 months, EBF rate increased from 8.5 to 24.2%, a 15.7-percentage-point increase, representing a total increase of 184.7% across the 7 years under study(21).

According to global survey database which is maintained by UNICEF suggests, trends in the prevalence of exclusive breastfeeding among infants younger than six months in developing countries increased from 33% in 1995 to 39% in 2010. The prevalence increased in almost all regions in the developing world, with the biggest improvement seen in West and Central Africa where the prevalence of exclusive breastfeeding more than doubled from 12 % in 1995 to 28% in 2010. Eastern and Southern Africa also realized improvements with an increase from 35% in 1995 to 47% in 2010. More modest improvements were observed in South Asia (40% in 1995; 45% in 2010)(22).

Findings from analysis of study conducted in Vietnam suggest that both rates for the early initiation of BF and EBF decreased over time. Early initiation of BF in the study sample fell sharply between 2006 and 2011 from 59.9% in 2006 to 39.7% in 2011, and exclusive BF fell from 24.7 to 16.9% during the same period(23).

According to study conducted in Nigeria using demographic health survey indicates that, there is a decreasing trend in early initiation of breastfeeding in mothers who received delivery assistance from non-health professionals, delivered their babies by caesarean section and home delivery. It also shows that a significant increasing trend in EBF was evident in mothers who made more than four ANC, health facility delivery(24).

Study in Kenya using demographic health survey to assess breastfeeding practices and trends shows that, in early initiation of breastfeeding, there was little change for either girls or boys over the course of the study. There was great variability between provinces in each survey year and between survey years within provinces. There were limited changes in prevalence stratified by maternal education, maternal literacy, and maternal media exposure, with only children born to mothers who did not listen to the radio at least once a week posting a significant improving trend ($P < .034$)(25).

The same study indicates that trends in exclusive breastfeeding mostly improved. Girls and boys posted significant improving trends ($P < .001$) and ($P < .000$), respectively. In addition, children in rural areas posted significant improvement ($P < .000$). Comparing the richest versus the poorest groups, both quintiles posted significant improving trends, but the poorest performed better than the richest with its prevalence of exclusive breastfeeding tripling from 1998 to 2008-2009 ($P < .000$) There were almost no statistically significant changes in prevalence across the study period

in complementary feeding and breastfeeding . Only children born to mothers who could read with difficulty posted a significant worsening trend ($F1,663 = 4.50$, $P < .034$)(25).

2.2 Factors associated with breastfeeding

There are many factors associated with the practice of breastfeeding including maternal socio demographic characteristics, psychosocial factors, and early exclusive breastfeeding experiences. These factors vary from country to country, reflecting different influences due to the differences in various circumstances. It is important to understand all influential factors in order to educate, promote, and protect the act of breastfeeding effectively(26).

2.2.1 Socio-demographic characteristic

Mother's educational level is one important determinants of BF practice. Study in Canada shows that, 76% of mothers who breastfed exclusively for six months (or more) had postsecondary qualifications, compared with 65% of all mothers who breastfed less than six months (partially or exclusively), and 52% of those who did not breastfeed(27). DHS of Jordan also shows that mothers with no education are more likely to breastfeed their child within an hour (24.9% of them) than women with a higher education (15.6%). They are also more likely to breastfeed their child within the first day (81.4%) than women with a higher education (62.6%)(28).

Other study in Ecuador shows, the prevalence of exclusive breastfeeding within the first 6 months of life was inversely proportional to the level of education of the mother ($p< 0.05$ OR: 4.01). Breastfeeding was significantly higher among illiterate mothers (63%), than mothers who attended college (29%), indicating that mothers with lower educational level were more likely to breastfeed their infants exclusively at least during the first 6 months of life(29).Study in Kenya using data of Kenya DHS2008/9 shows that, children born to mothers with incomplete primary education were more likely to be breastfed later than earlier, compared to those born to mothers who had completed secondary and/or higher education(25).

Residence can be an independent factor of breastfeeding practice. Study in Ecuador reveals this, BF was more prevalent in rural areas. The likelihood of maintaining exclusive breastfeeding it's higher in rural areas when compared to mothers living in cities (OR: 2.16, $p<0.001$)(29).According to Jordan 2012 DHS, there are slight differences in breastfeeding practices in rural and urban areas. In urban areas, less than 20% of the newborns are fed within an hour after the delivery (early initiation of breastfeeding) and they are 21.7% in rural areas(28). In other study rural residence

was negatively associated with exclusive breastfeeding, EBF rates were about twice as high in urban areas (OR 1.92; 95%CI 1.17 to 3.15) than in rural areas(30)

Income quintile is other determinant of BF practice .study in Ecuador shows that, the prevalence of initiation of breastfeeding within the first hour of life was negatively associated with the income of mothers (R^2 = 0.91, OR: 2.13). Sixty-two percent of mothers from the first income quintile (extreme poverty) began breastfeeding within the first hour post-partum, as compared to 47% of the mothers from the fifth income quintile (wealthiest mothers). Accordingly, later initiation of breastfeeding was associated with higher income. Ten percent of children from the first quintile initiated breastfeeding after the first day of life compared to the 18.4% of children from the wealthiest quintile(29).

According to Jordan 2012 Demographic Health Survey there is a regional disparity regarding breastfeeding practices. In the southern part of Jordan, 26% of the babies are breastfed within an hour after the delivery, while in the northern part (18.4%) and the central part (17.5%) of the country, rates are lower. These data underline that at the national level; only one child out of five is breastfed within the first hour of its life. This is problematic as early breastfeeding initiation is proven to reduce neonatal mortality rate of 22%(28).

Mother's age is significant factor of BF practice. Canadian research shows that the rates of breastfeeding increased with maternal age(27).Other study in Ecuador indicates older mothers were slightly more likely to breastfeed their infants exclusively (OR: 1.2), that is 45% of women aged 20-34 years breastfed their children exclusively, as compared to 41% of younger mothers (15-19 years old) and also Mothers from lower income quintiles had higher rates of exclusive breastfeeding during the first six months of their infant's life (51.3%), as compared to 31.9% of infants from middle income families and 45% of infants from the wealthiest families(29).

2.2.2 Child characteristic

Breastfeeding rates have shown a downward trend as the child grows older .An analysis of the data in trends and patterns of exclusive breastfeeding in city of Bauru, southeastern Brazil, Shows a fall in EBF rates proportional to the distinct increase in children's age in the three periods studied: in 1999, EBF levels remained practically constant for the first and second months of life, with a marked drop between the second and the third month. In 2004 and 2006, EBF frequency rates,

although more elevated, showed a marked fall between the fist and the second month of life followed by more uniform decreases(21).

Another study in Nigeria using demographic health survey 2003 reported that, only 16.4% of infants below the age of six months were exclusively breastfed. The proportion of exclusively breastfed children fell from 20% at birth to 19% at 2 months, to 13% at 4 months and declined to 4% at 5 months. This indicates that exclusive breastfeeding rate was 4.5 times lower than the recommended 90% level of exclusive breastfeeding rate by WHO and UNICEF for infants less than 6 months of age(31).

Other study in Ecuador shows prevalence of exclusive breastfeeding declined with the age of the infant. Fifty-two percent of infants at one month of age were breastfed exclusively, compared to 34.7 % of infants at five months of age(29). Child's age was a significant predictor of complementary feeding and breastfeeding, with an increase in child's age increasing the odds of not receiving complementary food and breastfeeding in Kenya(25).

2.2.3 Health service related factors

The place of delivery can play a part in influencing the mother's decision to either exclusively breastfeed or not, during the first six months of her baby's life. Evidence from studies showed that mothers who delivered in a health facility had a higher chance of practicing EBF as compared to those who delivered at home. Study in Zimbabwe reveals this, Place of delivery was significantly associated with exclusive breastfeeding. Delivery in health facilities was associated with higher exclusive breastfeeding rates compared to home deliveries. Mothers who delivered in public hospitals (OR 1.9; 95%CI 1.18 to 3.06) and private hospitals (OR 2.1; 95%CI 1.08 to 4.18) were about two times more likely to breastfeed exclusively compared to mothers who delivered at home(30). Other study in Sri Lanka also finds home deliveries was associated with delay in initiation compared with non-specialist hospitals (adjusted OR = 5.29)(32).

Caesarean section was a major factor for the of BF practice. Study in Vietnam using 2011 women's dataset reveals this, the odds of mothers who underwent Caesarean section in their delivery breastfeeding their babies within the first hour after delivery were 90% lower than for other mothers (OR: 0.10; p B 0.001; CI: 0.06 0.17)(23). Other study in Kenya indicates that, early initiation of breastfeeding is associated with mode of delivery, children born through cesarean delivery were almost 3 times more likely to be breastfed later than 1 hour after birth, compared to

children having vaginal deliveries and children born through cesarean delivery were more likely to be exclusively breastfed compared to those with vaginal deliveries(25).

Research studies conducted in Ethiopia looked at several variables associated with BF practice. For instance, in a study conducted in northern Ethiopia , home delivery (AOR=3.7[95%CI= 1.81, 9.33], normal (vaginal) delivery (AOR=14.4[95%CI=4.8, 43.7] and non-health professionals as a delivery attendant (AOR=3.5[95%CI=1.21, 8.53] were positively associated with timely initiation of breastfeeding(33).In other study urban residence, primary educational status of the mother, maternal employment, low parity, delivering at health facilities as an independent predictors of EBF(26), place of delivery [AOR=2.2, 95% CI (1.40,3.35)],and household average monthly income [AOR=1.83, 95% CI (1.08,3.27)](16).

Cross-sectional study in central Ethiopia indicates, the odds of EBF practice mothers from rural area was 4.54 times higher than urban resident mothers (AOR 4.54; 95 % CI: 2.64, 7.81, p = 0.001) among mothers age 25–35 years and greater or equal to 36 years was up to nine fold (AOR 8.99; 95 % CI: 4.56, 17.73, p = 0.001) and 3.6 fold (AOR 3.60; 95 % CI: 2.03, 6.38, p = 0.001) higher than their counterpart mother aged less than 25 years, Mothers who couldn't read and write and who were housewives in occupation had a higher odds of EBF practice than their counterparts(34).

Over all as the above citations indicated trends and determinants of breastfeeding practices vary from one country to another. Therefore the purpose of this study was to document trends and determinants of breastfeeding practice nationwide based on the study objective.

2.3 Conceptual Framework

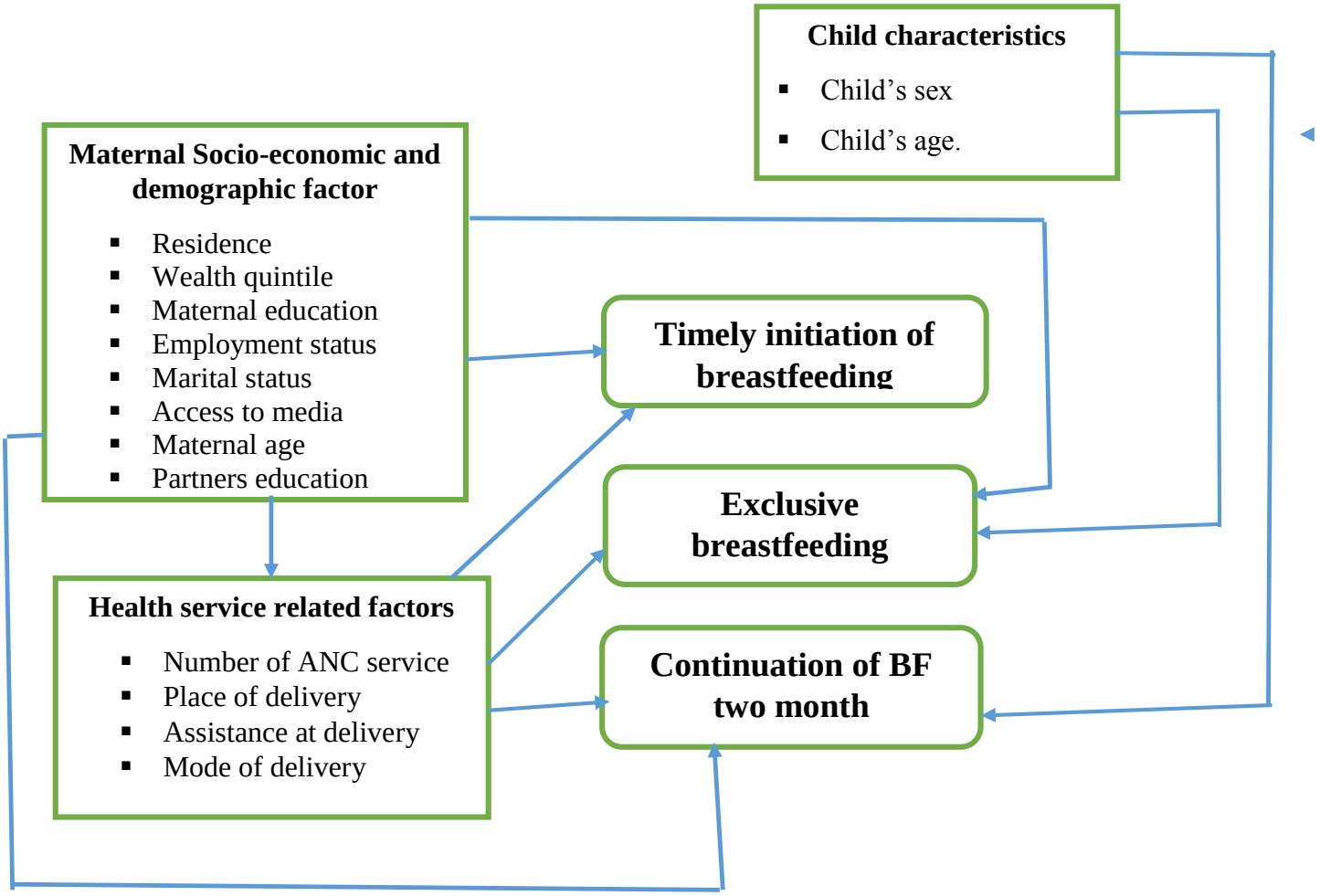


*Figure 1:*Schematic presentation of conceptual frame work for factors associated with BF practice adapted from reviewing different literatures, 2017

2.4 Significance of the study

Global estimates of breastfeeding practices are not good indicators of regional trends, and it can be misleading to use regional -level data to estimate the magnitude and trend in breastfeeding practice at the sub-regional level. Therefore, in order to study trends in breastfeeding practice at a level useful to public health planning, analysis need to be stratified by defined determinates of breastfeeding segments; overall trends may mask important departures from the general trend. For this the most recent data of EDHS was used to identify and evaluate the differentials of breastfeeding practices. This information will be used by planners, policy makers and program administrators to assess the current situation and trends, and to design more effective child health programs aimed at achieving more positive outcomes in the years to come.

Despite local studies conducted in the country, no sufficient study tried to identify trends and factors associated with breastfeeding practice in Ethiopia using DHS data. Hence, there is a need to carry out a research to come up with the trends and factors associated with breastfeeding practice. This study will provide important baseline information on trends and factors affecting Breastfeeding Practices in Ethiopia using Ethiopian Demographic Health Survey (2000-2011).

The finding of this study could also provide NGOs (nongovernmental organizations) with relevant information for future planning and interventions of appropriate strategies to promote and maintain breastfeeding practices. Health professional who work in maternal and child health areas could use the result from this research as a baseline in their counseling/health education session to minimize the sub-optimal breastfeeding practice and strengthen the good practices. The finding of this study will also help as a baseline data for those who are interested in carrying out further research with this regard.

Chapter 3: Objectives

3.1 General objectives

- To assess trends and factors associated with Breastfeeding practices using Ethiopian Demographic Health Survey Data: (2000-2011)

3.2 Specific objectives

- To examine trends in early initiation of breastfeeding using (2000-2011) EDHS data.
- To evaluate trends in EBF practice using (2000-2011) EDHS data.
- To explore trends in continuation of breastfeeding using (2000-2011) EDHS data.
- To identify factors associated with early initiation of breastfeeding among mothers in Ethiopia using 2011 EDHS data.
- To identify factors associated with EBF among mothers in Ethiopia using 2011 EDHS data.
- To identify factors associated with continuation of BF among mothers in Ethiopia using 2011 EDHS data.

CHAPTER 4: METHODS AND MATERIALS

4.1 Data source

The study was used data from the Ethiopian Demographic and Health Survey (EDHS) 2000, 2005 and 2011 from nationally representative sample of nine region and two city administration household surveys that collected data on maternal, paternal, and child demography, health, and nutrition. The survey is usually conducted at five year interval. EDHS was conducted under the aegis of the Ministry of Health and was implemented by the Central Statistical Agency. The surveys were designed to represent at the national, regional and rural-urban levels. All women aged 15-49 and men aged 15-59 in the selected households were eligible to participate in the surveys. The data were collected at two levels - the household and individual levels. At the household level, information was collected on household characteristics such as source of drinking water, toilet facilities, cooking fuel, and assets of the household. At the individual level, questionnaires were administered to women aged 15–49 and men aged 15–59 to gather information on individual characteristics and health behaviors, and information on children in the household (11,12,35).

The 2000, 2005 and 2011 EDHS data was used in this study to describe the level and trend of breastfeeding practices in Ethiopia by background characteristics. The 2011 EDHS data was employed to analyze factors associated with breastfeeding practices by background characteristics.

4.2 Study design

A cross-sectional study design was conducted using secondary data collected from women 15-49 years old from 2000-2011 EDHS. Factors associated with breastfeeding practices was identified based on EDHS 2011 data; whereas trend analysis was made using EDHS 2000, 2005 and 2011 data.

4.3 Population

4.3.1 Source population

For trend analysis

The source population were all mothers with youngest children in Ethiopia who were interviewed during the three consecutive EDHS data survey.

For factor identification

The source population were all mothers with youngest children in Ethiopia who were interviewed during the 2011 EDHS data survey.

4.3.2 Study population

All mothers having their youngest children 0 – 23 months selected from the source population.

4.4 Sampling technique and Sample size

For each survey, the EDHS used a two-stage cluster sampling design whereby enumeration areas (clusters) were first drawn from a national master sample frame. Thereafter, a sample of households was drawn from the selected clusters using systematic sampling methods. Women aged 15 to 49 years and men aged 15 to 59 years from the sampled households were interviewed using specific questionnaires for women and men, following an enumeration of all household inhabitants. The numbers of households sampled were 14,642 in 2000, 14,645 in 2005and 17,817 in 2011, with a response rate to the women's questionnaire (from which all data used in this study were obtained) of greater than 96% except 95% for 2011(11,12,35).

To compare the prevalence of breastfeeding practices, the study was used similar questions asked across the three surveys. From each household with a child aged 0 to 23 months, the data from the mothers and their youngest child was used. The total sample sizes were 3744 (4313 weighted) mother-child pairs in 2000, 1810 (2004 weighted) mother-child pairs in 2005 and 4125 (4281 weighted) mother-child pairs in 2011(figure 1).

4.5 Study variables

4.5.1 Dependent variables

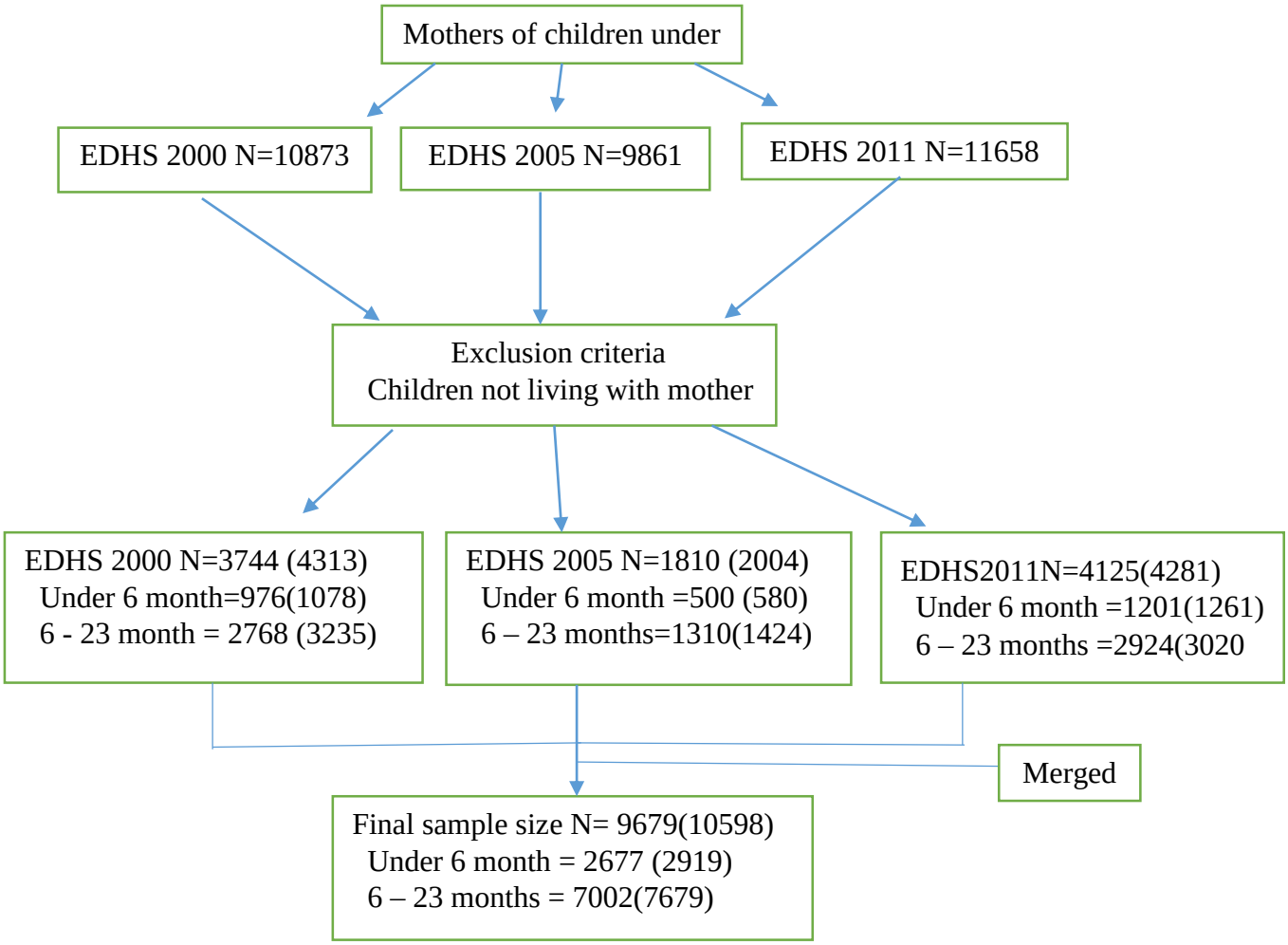
The dependent variables were breastfeeding practice (early initiation of breastfeeding, exclusive breastfeeding and continuation of breastfeeding).

4.5.2 Independent variables

Maternal socio-economic and demographic variables: Residence, Maternal education, Wealth quintile, marital status, Employment status, Access to media, Region

Infant characteristics: Child's sex, Child's age

Health service related variables: number of antenatal care (ANC) visits**,** place of delivery**,** assistance at delivery**,** mode of delivery



Note: number in parenthis are weighted

Figure 2: Derivation of sample size

4.6 Operational definitions and definition of terms

- ***Early initiation of breastfeeding:*** Children 0-23 months of age who were put to the breast within an hour of birth based on mothers recall and was categorized as yes for those who initiate early and not for those who don't.
- ***Exclusive breastfeeding***: Infants 0-5 months of age who were reported by mothers to have been fed breast milk only. This was calculated as a residue children whose mothers were reported No to all questions related to dietary intake in the last 24 hours preceding the interview and expressed as a dichotomous outcome. Respondents who EBF was categorized as" yes" and those who did not will be categorized as "no"(36).
- ***Continued breastfeeding at 1 year:*** Proportion of children 12–15 months of age who are fed breast milk.
- ***Continued breastfeeding at 2 year:*** Proportion of children 20–23 months of age who are fed breast milk(37).
- ***Continued breastfeeding until 2 years***: According to mothers' report Children 6–23 months of age who were currently breastfed breast milk and was coded as yes for those who continue otherwise no.
- ***Region:*** Regional stratification was based on classification in the country.
- ***Wealth quintiles:*** Level of wealth constructed using household asset data and classified as richest, richer, middle, poorer, and poorest
- ***Residence:*** Grouped as urban and rural
- ***Maternal education:*** Higher level of education attended by mothers and classified as no education, primary, secondary and above.
- ***Access to media:*** How often respondents listen to radio, watch television or reads newspaper and categorized as at least once a week and no media at least once a week
- ***Employment status:*** Employment status of women whether they are worked in the last 12 months before the survey. This was grouped as currently working or not.
- ***ANC visits:*** Number of ANC visits categorized as no ANC visits, 1-3 visits and 4 or above visits.
- ***Place of delivery:*** grouped as health facility and home.
- ***Assistance during delivery:*** Classified as Health professional, trained traditional birth attendant, untrained traditional birth attendant relative/ other and No one.

- ***Mode of delivery:*** cesarean or vaginal.
- ***Marital status:*** current marital status of the women and categorized as currently married, living with a man and not in union.
- ***Maternal age:*** categorized into years): <20, 20-34, and 35-49

4.7 Statistical analysis

Variables were identified using unique codes and extracted from kid's database to get data on mothers aged between 15-49years, who had their youngest children 0 – 23 months and were analyzed based on the study objectives. Both STATA version 13 and SPSS version 23 statistical package were used for data analysis. The trend on BF practice (early initiation of breastfeeding, exclusive breastfeeding, and continued breastfeeding) was assessed using descriptive statistics over the study period (2000-2011) stratified by each level of a given study variable to assess the extent to which prevalence within groups was increasing or decreasing. A trend was considered statistically significant if the p-value is < 0.05 based on chi-square statistic.

Bivariate analysis was done to identify each independent variable associated with breastfeeding practices (early initiation, EBF and continuation of BF at 23 months) and to select candidate variables for multivariable logistic regression in the most recent data available (2011 EDHS).Multivariable logistic regression was then used, including all independent variables having significant bivariate association ($P<0.25$) with the feeding variables to identify factors associated with BF practice. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated. Model fit was checked by Hosmer-Lemeshow goodness-of-fit test. In multivariable analysis, p-values of less than 0.05 was considered as statistically significant. Multi-collinearity between different predictor variables was checked using Variance Inflation Factor (VIF). Because of the multistage sampling design used in the collection of data, all analyses were weighted with DHS sample weights, and the sampling design (clusters and strata) was accounted for. The process was done using SVY command in STATA and complex samples procedures in SPSS. Analyzed data was presented in the form of graphs, tables and narratives.

4.8 Ethical clearance

Letter of cooperation was sought from Jimma University to Central Statistical Agency (CSA).After CSA permission to get and use the data ethical clearance was obtained from Jimma University Institutional Review Board for approval of secondary data analysis. During the data collection of DHS, the interviewer read a statement to get consent from the respondents. The respondents provided verbal consent.Since the data included in all EDHS report are the national resource, the data was used in strictest sense only for objective of this study.

4.9 Dissemination plan

The results and report of the study will be presented to Jimma University, school of graduate studies. The result of the study will also be disseminated to the Ministry of Health, other stakeholders, and WHO country office. The research finding will be presented in national and international conferences and workshops. Articles from this research finding will be published in peer-reviewed international journals.

CHAPTER FIVE: RESULTS

5.1 Socio-demographic characteristic

About 10% of respondents resided in urban area in 2000 which increased to 13% in 2011.More than one third of respondents were from Oromia region across the 3 survey: 41.2% in 2000, 38.0% in 2005 and 42.3% in 2011.More than three quarter (81.1%) of respondents were not educated in 2000; this figure has decreased down to about two third (66.7%) in 2011.Slightly more than half of the children were male by sex across the three surveys: 51.8%, 51.3% and 51.3%. About nine in ten respondents were married in all survey. More than two third of respondents were in the age group of 20 – 34 across the three surveys (Table 1).

Table 1Socio demographic characteristic of mother with under 2 years old by survey year (2000 – 2011)

VARIABLES	EDHS 2000		EDHS 2005		EDHS 2011	
	N	(%)	N	(%)	N	(%)
Residence						
Urban	416	(9.6)	150	(7.8)	563	(13.2)
Rural	3897	(90.4)	1854	(92.5)	3717	(86.8)
Region						
Tigray	255	(5.9)	125	(6.2)	263	(6.2)
Affar	37	(0.9)	23	(1.2)	37	(0.9)
Amhara	1101	(25.5)	456	(18.3)	933	(21.8)
Oromiya	1775	(41.2)	761	(38.0)	1858	(42.3)
Somali	48	(1.1)	84	(4.4)	125	(2.9)
Benishangul-Gumuz	43	(1.0)	19	(1.0)	49	(1.2)
SNNP	953	(22.1)	490	(24.4)	885	(20.7)
Gambela	10	(0.2)	5	(0.3)	14	(0.3)
Harari	9	(0.2)	5	(0.2)	10	(0.2)
Addis Ababa	67	(1.6)	30	(1.5)	91	(2.1)
Dire Dawa	14	(0.3)	6	(0.3)	14	(0.3)
Mother's Education						
No Education	3496	(81.1)	1548	(77.2)	2854	(66.7)
Primary	591	(13.7)	363	(18.1)	1232	(28.8)
Secondary	214	(5.0)	83	(4.1)	134	(3.1)
Higher	11	(0.3)	10	(0.5)	61	(1.4)
Sex Of Child						
Male	2232	(51.8)	1028	(51.3)	2195	(51.3)
Female	2080	(48.2)	975	(48.7)	2086	(48.7)
Marital Status						
Not Married	30	(0.7)	8	(0.4)	36	(0.8)
Married	4025	(93.0)	1880	(93.8)	3796	(88.7)
Living Together	29	(0.7)	29	(1.2)	218	(5.1)
Widowed	31	(0.7)	24	(1.2)	50	(5.1)
Divorced	127	(2.9)	37	(1.8)	132	(3.1)
Separated	70	(1.6)	25	(1.2)	49	(1.1)
Mother Age						
<20	339	(7.9)	163	(8.1)	301	(7.0)
20 – 34	3068	(71.1)	1401	(69.9)	3134	(73.2)
35 - 49	906	(21.0)	439	(21.9)	846	(19.8)

5.2 Trends in Breastfeeding practice

Percentage of Early initiation of breastfeeding was 49.1% in 2000 which slightly increased to 51.5% in 2011($p<0.001$). Exclusive breastfeeding under 6 month was 38.7% in 2000 which increased to 51.6% in 2011 but not significant ($p< 0.141$).Continuation of breastfeeding shows stagnant trends which was 93.3% in 2000 to 92.0% in 2011 ($p< 0.374$) (Figure 2).

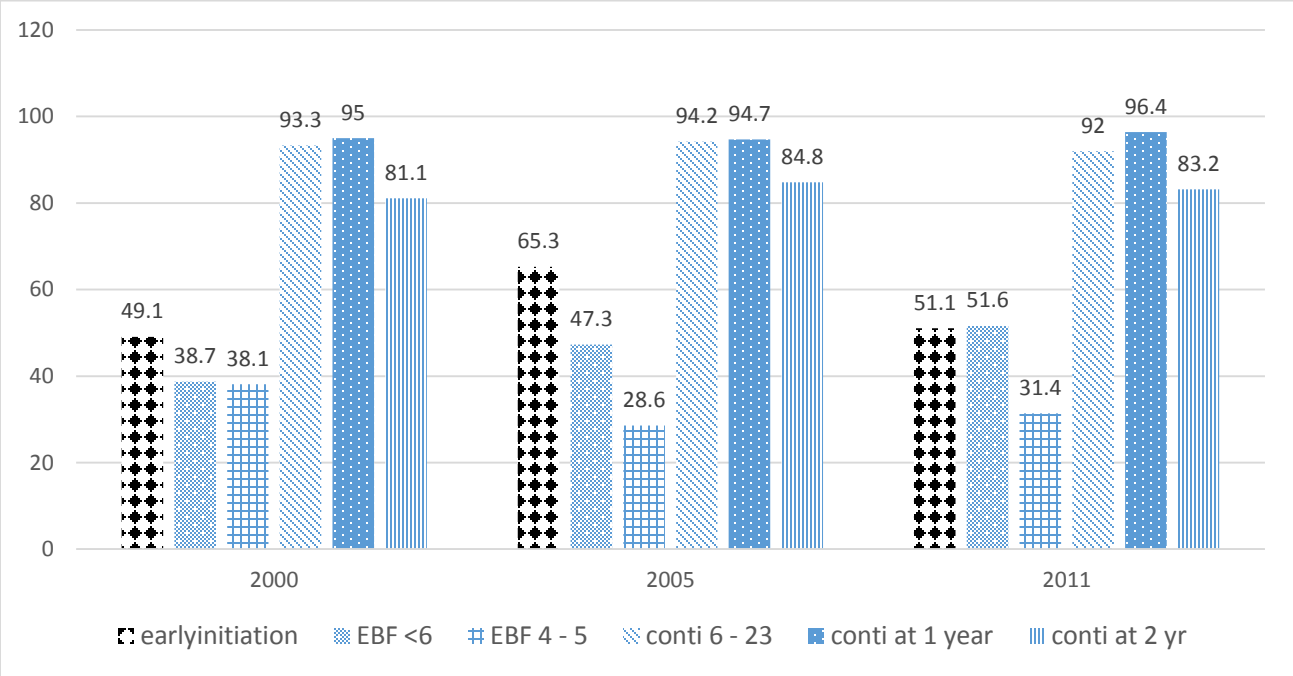


Figure 3 Trends in breastfeeding indicator by survey year

5.2.1 Trends in early initiation of breastfeeding

The proportion of mothers who practiced early initiation of breastfeeding has significantly increased over the study period for both urban from 45.5% in 2000 to 57.7% in 2011 and rural 49.4% in 2000 to 50.6% in 2011 ($p < 0.025$ and $p < 0.001$ for both).There was a significant increasing trend in early initiation BF for mothers from Tigray

28.4% in 2000 to 45.6% in 2011 ($p < 0.001$), Affar 32.4% in 2000 to 57.8% in 2011 ($p < 0.001$), Amhara 29.7% in 2000 to 37.8% in 2011 ($p < 0.001$) and SNNP 55.8% in 2000 to 66.9% in 2011 ($p < 0.001$) but downward trend for mothers from Oromiya 60.6% in 2000 to 52.0% in 2011 ($p<0.000$), Somali 52.5% in 2000 to 38.8% in 2011($p<0.001$), Benishangul 48.1% in 2000 to 42.3% in 2011($p< 0.001$) and Harari 65.7% in 2000 to 64.8% in 2011 ($p< 0.043$). There is no significant trend from Addis Ababa and Dire Dawa regions.

Regarding mothers educational level, there is an increased trend in early initiation of BF for no educated mother 49.4% in 2000 to 50.7% in 2011 ($p< 0.000$), primary 50.2%in 2000 to 51.6% in 2011 ($p <0.001$) and secondary 41.6% in 2000 to 62.7% in 2011 ($p <0.004$) across the study period. Trends in early initiation BF were shows significant improvements for mothers in the age group of under 20 from 39.5% in 2000 to 40.2% in 2011 ($p <0.001$),mothers in the age of 20 – 34 from 51.2% in 2000 to 51.8% in 2011 ($p < 0.001$)and 35 – 49 from 45.4% in 2000 to 54.1% in 2011 ($p <0.001$).

There was little improvements in early initiation of BF for both male from 49.1% in 2000 to 49.7% in 2011 and female from 48.9% in 2000 to 53.4% in 2011 but significant ($p < 0.001$ for both).There was an increased trend in early initiation of BF stratified by ANC visits and place of delivery, for mothers who had no ANC from 49.6% in 2000 to 50.9% in 2011($p <0.001$),1-3visits from 47.6% in 2000 to 52.5% in 2011($p <0.001$)and 4 and above visits from 44.5% in 2000 to 58.0% in 2011($p <0.003$),mothers who delivered home 49.7% in 2000 to 51.3% in 2011 and health facility 37.7% in 2000 to 53.0% in 2011.

A downward trend in early initiation was observed among mothers assisted delivery by TTBA from 54.8% in 2000 to 50.6% in 2011($p < 0.046$),but upward trend for delivery assisted by health professional from 38.3% in 2000 to 53.1% in 2011($p < 0.01$),UTBA from 44.4% in 2000 to 48.5% in 2011($P < 0.001$) and relative/other from 49.9% in 2000 to 52.1% in 2011($p < 0.001$).Trends in prevalence of early initiation of BF was increased for mothers who deliver through vaginally from 49.2% in 2000 to 51.8% in 2011($p < 0.001$) and for mothers who had no or less than once a week access to media 49.2% in 2000 to 50.4% in 2011 ($p < 0.001$).

Table 2 Trends in early initiation of breastfeeding by maternal socioeconomic and demographic, child characteristic and health service related variables (2000-2011 EDHS)

	EDHS 2000	EDHS 2005	EDHS 2011	% point D/C **2000 - 2011**	P-value	trend
	% 95% CI	**% 95% CI**	**% 95% CI**			
Residence						
Urban	45.5(41.5, 49.6)	58.6(52.4, 64.8)	57.7(54.0, 61.3)	12.2	0.025	++
Rural	49.4(47.7, 51.2	65.9(63.5, 68.2	50.6(48.9, 52.2)	1.2	0.000	++
Region						
Tigray	28.4 (23.7, 33.0)	46.6 (39.1, 54.1)	45.6 (40.7, 50.3)	17.2	0.000	++
Affar	32.4 (25.5, 39.2)	81.3 (74.5, 88.2)	57.8 (52.7, 63.0)	25.4	0.000	++
Amhara	29.7 (25.8, 33.5)	57.0 (50.7, 63.1)	37.8 (33.4, 42.4)	8.1	0.000	++
Oromiya	60.6 (57.1, 64.0)	65.6 (60.5, 70.7)	52.0 (48.2, 55.9)	8.6	0.0001	__
Somali	52.5 (45.6, 59.4)	88.4 (82.4, 94.4)	38.8 (33.7, 43.9)	13.7	0.000	__
Benish-Gumuz	48.1 (42.3, 54.1)	66.3 (58.3, 74.4)	42.3 (37.2, 47.4)	5.8	0.000	__
SNNP	55.8 (51.8, 59.9)	72.3 (67.5, 77.1)	66.9 (63.1, 70.8)	11.1	0.000	++
Gambela	50.2 (43.4, 57.1)	75.1 (66.1, 84.1)	61.5 (55.9, 67.1)	11.3	0.0019	++
Harari	65.7 (58.9, 72.4)	77.9 (69.9, 85.9)	64.8 (58.7, 70.9)	0.9	0.043	__
Addis Ababa	50.9 (43.6, 58.1)	63.9 (52.2, 75.6)	62.4 (54.8, 70.0)		0.082	
Dire Dawa	47.3 (40.3, 54.2)	84.7 (76.1, 93.4)	65.2 (59.3, 71.1)		0.062	
Mother's education						
No education	49.4 (47.6, 51.2)	65.9 (63.3, 68.4)	50.7 (48.8, 52.5)	1.3	0.000	++
Primary	50.2 (45.8, 54.6)	64.1 (58.7, 69.5)	51.6 (48.7, 54.6)	1.4	0.000	++
Secondary	41.6 (35.5, 47.6)	65.2 (56.7, 73.6)	62.7 (55.3, 70.0)	21.1	0.004	++
Higher	34.48 (8.2, 60.6)	27.4 (3.7, 51.1)	64.0 (53.0, 75.1)		0.072	
Mothers age						
< 20	39.5(33.9, 45.1)	64.0 (56.2, 71.9)	40.2 (34.7, 45.8)	0.7	0.001	++
20 – 34	51.2(49.3, 53.1)	65.0 (62.4, 67.6)	51.8 (50.1, 53.7)	0.6	0.000	++
35 – 49	45.4(41.8, 48.9)	66.6 (61.8, 71.4)	54.1 (50.6, 57.6)	8.7	0.000	++
Sex of child						
Male	49.1 (46.9, 51.4)	65.2 (62.1, 68.3)	49.7(47.5, 51.8)	0.6	0.000	++
Female	48.9 (46.6, 51.3)	65.4 (62.3, 68.6)	53.4(51.2, 55.6)	4.5	0.000	++
ANC visits						
No visits	49.6 (47.7, 51.6)	68.9 (66.3, 71.5)	50.9 (48.9, 53.0)	1.3	0.000	++
1-3 visits	47.6 (43.7, 51.5)	64.4 (58.6, 70.2)	52.5 (49.4, 55.6)	4.9	0.001	++
4 and above	44.5 (40.2, 48.9)	58.8 (53.1, 64.5)	58.0 (54.6, 61.5)	13.5	0.003	++
Place of delivery						
Home	49.7(47.9, 51.3)	66.3(63.9, 68.6)	51.3(49.6, 53.0)	1.6	0.000	++
Health facility	37.7(32.8, 42.6)	51.2(44.5, 57.8)	53.0(49.2, 56.8)	15.3	0.023	++
Assis. at delivery						
Health profession	38.3(33.6, 43.0)	55.7(48.8, 62.6)	53.1(49.3, 57.0)	14.8	0.010	++
TTBA	54.8(47.8, 61.8)	68.4(60.7, 76.1)	50.6(46.0, 55.2)	4.2	0.046	__
UTBA	44.4(41.5, 47.3)	64.9(60.5, 69.3)	48.5(45.4, 51.6)	4.1	0.000	++
Relative/other	49.9(47.8, 52.0)	63.5(60.7, 66.3)	52.1(50.1, 54.2)	2.2	0.000	++
No one	52.7(45.9, 59.5)	88.8(82.7, 94.9)	52.9(45.6, 60.1)	0.2	0.000	++
Mode of delivery						
vaginal	49.2(47.6, 50.8)	65.6(63.4, 67.8)	51.8(50.3, 53.4)	2.6	0.000	++
Cesarean	31.1(17.8, 44.4)	40.8(24.7, 56.9)	33.8(25.3, 42.2)		0.825	
Access to media						
No or < once a week	49.2(47.5, 50.9)	67.1(64.7, 69.4)	50.4(48.7, 52.1)	1.2	0.000	++
At least once a week	46.9(42.2, 51.6)	53.3(47.2, 59.3)	55.7(52.4, 58.9)		0.138	

++ Increasing trend __ decreasing trend

5.2.2Trends in exclusive breastfeeding practice

Trends in exclusive breastfeeding has decreased for mothers from Tigray region from 63.8% in 2000 to 58.1% in 2011 ($p < 0.001$), but improvements for mothers from Somali region1.3% in 2000 to 19% in 2011($p < 0.002$), Harari region from 41.4% in 2000 to 51.2% in 2011($p < 0.011$), Dire Dawa region 10.6% in 2000 to 40.0% in 2011($p < 0.0011$.Prevalence of exclusive breastfeeding has increased among never married mother from 37.2% in 2000 to 66.9% in 2011 ($p < 0.024$).Worsening trends in exclusive breastfeeding has been observed among female children 57.8% in 2000 to 55.9% in 2011 ($p < 0.025$), (Table 3).

Table 3 Trends in exclusive breastfeeding by maternal socioeconomic and demographic, child characteristic and health service related (2000 - 2011EDHS)

Variables	EDHS 2000	EDHS 2005	EDHS 2011	% point D/C **2000 - 2011**	**P-value**	**trend**
	% 95% CI	**% 95% CI**	**% 95% CI**			
Region						
Tigray	63.8 (53.8, 73.1)	24.2 (11.3, 38.6)	58.1(48.9, 68.3)	5.7	0.000	__
Affar	23 (11.7, 36.2)	2.7 (-3.1, 8.6)	19.7(12.6, 26.8)		0.081	
Amhara	70.5 (62.6, 78.2)	73.0 (63.4, 83.3)	72.4(64.2,80.5)		0.897	
Oromiya	54.7 (47.4, 62.1)	46.4 (36.02,56.5)	46.1(39.2, 53.1)		0.213	
Somali	1.3 (-1.8, 4.6)	14.3 (1.1, 27.8)	19.0(11.9,26.0)	17.7	0.002	++
Benish-Gumuz	50.0 (37.1, 57.7)	48.1 (30.7, 65.5)	46.2(36.5, 56.0)		0.980	
SNNP	41.4 (33.3, 49.4)	36.7 (26.8, 46.5)	51.2(43.5, 58.9)		0.059	
Gambela	17.0 (6.4, 27.6)	38.1 (17.6, 58.5)	29.3(20.0, 38.6)		0.161	
Harari	15.8 (5.4, 26.2)	28.2 (11.7, 44.6)	50.0(29.5,56.8)	34.2	0.014	++
Addis Ababa	17.1 (6.7, 27.5)	28.6 (2.6, 54.4)	36.4(19.9, 51.4)		0.235	
Dire Dawa	10.6 (2.2, 19.3)	0.0 (1.6, 44.8)	40.0(28.4, 51.6)	29.4	0.001	++
Marital status						
Never married	37.2 (5.1, 69.3)	2.9 (-1.6, 22.2)	66.9 (20.0, 100.1)	29.7	0.006	++
Married	54.6 (51.4, 57.8)	47.2 (42.6, 51.7)	51.1 (48.1, 54.1)		0.122	
Living together	33.6 (0.3, 66.8)	60.1 (29.3, 90.9)	43.0 (30.0, 55.8)		0.545	
Widowed	41.2 (-2.7, 85.2)	86.8 (-300.4, 500.1)	80.7 (53.0, 100.0)		0.340	
Divorced	70.9(40.8, 100.1)	30.4 (-33.4, 94.2)	68.1 (46.3, 89.8)		0.412	
Separated	46.2 (13.1, 79.3)	99.1 (86.5, 100.1)	63.9 (40.8, 86.9)		0.127	
Sex of child						
Male	51.2 (46.7, 55,6)	49.7 (43.8, 55.7)	47.9 (43.9, 51.8)		0.732	
Female	57.8 (53.4, 62.3)	44.1 (37.5, 50.7)	55.9 (51.8, 59.9)	1.9	0.025	__

++ Increasing trend __ Decreasing trend

5.2.3 Trends in continuation of breastfeeding

The trends in continuation of breastfeeding showed variation according to their characteristics. Major increases in continuation of breastfeeding were observed among from Somali ($p< 0.0015$), among mothers who deliver in health facility from 77.8% in 2000 to 92.3% in 2011 ($p < 0.001$) and delivery assisted by health professional from 79.3% in 2000 to 92.0% in 2011 ($p < 0.002$).Trends has decreased for mothers from SNNP region from 95.2% in 2000 to 91.5% in 20113in 2011 ($p <0.024$) and delivery with no assistance from 96.0% in 2000 to 85.5% in 2011 ($p < 0.001$)(Table 4).

Table 4.Trends in continuation of breastfeeding by maternal socioeconomic and demographic, and health service characteristics (2000 - 2011EDHS)

Variables	EDHS 2000		EDHS 2005		EDHS 2011		% point D/C 2000 - 2011	P-value	trend
	%	95% CI	%	95% CI	%	95% CI			
Region									
Tigray	94.9	(92.2, 97.6)	96.9	(94.0, 99.9)	92.3	(89.3, 95.2)		0.146	
Affar	85.2	(79.2, 91.4)	89.0	(82.5, 95.4)	80.1	(75.0, 85.3)		0.195	
Amhara	98.4	(97.2, 99.6)	98.2	(96.2, 100.0)	97.0	(95.2, 98.9)		0.412	
Oromiya	90.7	(88.4, 93.0)	92.6	(89.3, 95.9)	93.7	(91.4, 95.9)		0.253	
Somali	65.0	(57.5, 72.5)	84.8	(76.9, 92.7)	70.5	(64.7. 76.4)	5.5	0.020	++
Benish-Gumuz	91.4	(87.3, 95.4)	91.9	(86.5, 97.3)	94.2	(91.3, 97.1)		0.626	
SNNP	95.2	(93.2, 97.2)	96.1	(93.7, 98.6)	91.5	(88.8, 94.2)	3.7	0.033	__
Gambela	98.3	(96.3, 100.0)	95.1	(89.9, 100.0)	95.4	(92.5, 98.3)		0.418	
Harari	83.3	(77.1, 89.5)	79.1	(69.6, 88.6)	89.2	(84.7, 93.8)		0.102	
Addis Ababa	73.7	(66.1, 81.3)	74.1	(62.0, 86.3)	79.3	(72.0, 86.7)		0.573	
Dire Dawa	72.7	(65.4, 80.0)	81.5	(70.6, 92.4)	80.9	(75.1, 86.7)		0.205	
Marital status									
Never married	95.4	(87.2, 100.0)	1.0	(100.0, 100.0)	95.2	(85.4, 100.0)		0.950	
Married	93.2	(92.2, 94.2)	94.2	(92.9, 95.5)	92.5	(91.5, 93.5)		0.333	
Living together	94.7	(84.2, 100.0)	90.6	(76.6, 100.0)	93.8	(89.9, 97.7)		0.885	
Widowed	94.7	(86.7, 100.0)	91.1	(77.4, 100.0)	92.2	(83.8, 100.0)		0.874	
Divorced	96.6	(92.5, 100.0)	98.3	(93.3, 100.0)	98.7	(96.3, 100.1)		0.531	
Separated	91.2	(83.4, 99.0)	99.5	(96.1, 100.0)	90.0	(80.3, 99.7)	1.2	0.024	__
Place of delivery									
Home	94.1	(93.2, 95.1)	94.8	(93.5, 96.1)	92.8	(91.8, 93.9)		0.164	
Health facility	77.8	(72.7, 82.8)	86.6	(81.3, 91.9)	92.3	(89.9, 94.7)	14.5	0.0009	++
Assistance during delivery									
Health profession	79.3	(74.6, 83.9)	86.7	(81.1, 92.3)	92.0	(89.5, 94.5)	12.7	0.002	++
TTBA	94.4	(90.7, 98.2)	92.8	(87.7, 98.0)	91.6	(88.6, 94.6)		0.757	
UTBA	92.7	(91.0, 94.5)	91.2	(88.2, 94.3)	92.5	(90.5, 94.4)		0.809	
Relative/other	94.3	(93.2, 95.5)	95.4	(93.9, 96.8)	93.6	(92.4, 94.9)		0.356	
No one	96.0	(92.9, 99.1)	99.8	(99.0, 100.0)	88.5	(83.3, 93.8)	7.5	0.0002	__

++ Increasing trend __ decreasing trend

5.3 Analysis of 2011 EDHS data

5.3.1 Socio demographic characteristic of respondents

After weighting the sample, a total of 4281(4125 unweighted) women with children less two years (< 24 months) of age were included in the analysis. Majority of the respondents were from rural area (86.8%).About.1858 (43.4%) of respondents were from Oromiya region followed by Amhara (21.8%), SNNP (20.7%).Nearly quarter of the mothers 995(23.2%) were in the poorest wealth quantile. Almost half of the children were male by sex 2195(51.3%),). More two third (70.5%) of children were in the age group of 6-23.Regarding educational level, about two third of the respondents were (66.7%) were no education. About three quarter of women (73.6%) were in the age group of 20-34. A significant proportion of women is not working (68.8%).The majority (88.7%) of mothers were married (Table 5).

Table 5 Socio demographic characteristics of respondents 2011EDHS

variables		N (%)
Residence	Urban	563 (13.2)
	Rural	3717 (86.8)
Region	Tigray	263 (6.2)
	Affar	38 (0.9)
	Amhara	933 (21.8)
	Oromiya	1858 (43.4)
	Somali	126 (2.9)
	Benishangul-Gumuz	49 (1.2)
	SNNP	885 (20.7)
	Gambela	14 (0.3)
	Harari	10 (0.2)
	Addis Ababa	91 (2.1)
	Dire Dawa	14 (0.3)
Wealth quantile	poorest	995 (23.2)
	Poorer	951 (22.2)
	Middle	898 (21.0)
	Richer	761 (17.8)
	Richest	675 (15.8)
Sex of child	Male	2195 (51.3)
	Female	2086 (48.7)
Child age in months	<6	1261 (29.5)
	6 - 23	3020 (70.5)
Mother's education	No education	2853 (66.7)
	Primary	1233 (28.8)
	Secondary	134 (3.1)
	Higher	61 (1.4)
Mother sage	Under20	301 (7.0)
	20 – 34	3134 (73.2)
	35 – 49	846 (19.8)
Employment status	Not currently working	2940 (68.8)
	Currently working	1336 (31.2)
Marital status	Not married	36(0.8)
	Married	3796(88.7)
	Living with partner	218(5.1)
	Widowed	50(1.2)
	Divorced	132(3.1)
	Separated	49(1.1)

5.3.2Health service characteristic

More than half (56.5) of mothers were antenatal care follow-up. About two third of delivery were assisted by relative, friend and others. Almost nine out of ten (88.2%) delivery takes place at home. More than 9 in 10 deliveries were normal (98.1%) (Table 6).

Table 6 Health service characteristics of respondents, EDHS 2011

Variables	N (%)
ANC visits	
No ANC visits	2370 (56.5)
1 – 3 visits	1085 (25.9)
4 and above visits	739 (17.6)
Assistance at delivery	
Health professional	524 (12.2)
Trained TBA	329 (7.7)
Untrained TBA	891 (20.8)
Others(relative, friend and others)	2722 (63.6)
No one	150 (3.5)
Place of delivery	
Home	3776 (88.2)
Health facility	505 (11.8)
Mode of delivery	
Normal	4199 (98.1)
Cesarean section	82 (1.9)

5.3.3 Breastfeeding practices

5.3.3.1 Early initiation of breastfeeding

The proportion of women who practices early initiation of breastfeeding were 51.5%.Early initiation of breastfeeding were more common in urban area (57.7%) ,in SNNP regions (66.9%) , among female children(53.4%), mothers in richest wealth quantile (59.1%) and mothers who did not deliver through cesarean section(51.9%) (Table 7).

5.3.3.2Exclusive breastfeeding

Exclusive breastfeeding under 6 months were 51.6% and EBF at 4-5 months were (31.4%).Exclusive breastfeeding were more common in rural area(52.7%), Amhara region(72.4%).among female children(55.9%)and children below 2 month(69.3%), mothers in middle wealth quantile(58.8%),Divorced mothers(67.0%) and mothers with no education(53.3%) (Table 7)

5.3.3.3Continuation of breastfeeding

The proportion of women who continue BF at 1 year were 96.4%,at 2 years 83.2% and the overall continuation (6- 23 months) were 92.8%.Mothers from rural area(93.4%),Amhara region(97.0%), divorced mothers (98.7%) and mothers with no education (94.4%) were higher rate of overall continuation of breastfeeding (Table 7).

Table 7 Breastfeeding practices by demographic and socio economic, child characteristics and health service status 2011 EDHS.

variables	Early initiation		Exclusive BF		Continuation of BF	
	Yes N (%)	No N (%)	Yes N (%)	No N (%)	Yes N (%)	No N (%)
Frequency	2205(51.5)	2076(48.5)	651(51.6)	610(48.4)	2803(92.8)	218(7.2)
residence						
Urban	325(57.7)	238 (42.3)	67(43.8)	86(56.2)	365(89.1)	45(10.9)
Rural	1880(50.6)	1837 (49.4)	584(52.7)	523(47.3)	2437(93.4)	173(6.6)
Region						
Tigray	120(45.6)	143(54.4)	36(58.6)	26(41.4)	185(92.3)	15(7.7)
Affar	22(57.8)	16(42.2)	2(19.7)	11(80.3)	19(80.1)	5(19.9)
Amhara	353(37.9)	579(62.1)	185(72.4)	71(27.6)	657(97.0)	20(3.0)
Oromiya	967(52.1)	891(47.9)	269(46.2)	314(53.4)	1194(93.7)	80(6.3)
Somali	49(38.8)	77(61.2)	9(19.0)	36(81.0)	57(70.6)	24(29.4)
Benishangul-Gum	21(42.3)	28(57.7)	6(46.3)	7(57.3)	33(94.2)	2(5.8)
SNNP	592(66.9)	293(33.1)	130(51.2)	124(48.8)	577(91.5)	53(8.5)
Gambela	8(61.5)	5(38.5)	1(29.4)	3(70.6)	9(95.4)	1(4.6)
Harari	7(64.8)	4(35.2)	1(43.2)	1(56.8)	7(89.2)	1(10.8)
Addis Ababa	56(62.4)	34(37.6)	8(35.7)	14(64.3)	54(79.4)	14(20.6)
Dire Dawa	9(65.2)	5(34.8)	1(40.0)	2(60.0)	8(80.9)	2(19.1)
Sex of child						
Male	1091(49.7)	1104(50.3)	322(47.9)	351(52.1)	1401(92.1)	120(7.9)
Female	1114(53.4)	971(46.6)	328(55.9)	259(44.1)	1401(93.5)	97(6.5)
Child age						
Under 2month			262(69.3)	116(30.7)		
2-3 month			262(54.8)	215(45.2)		
4-5 month			127(31.4)	278(68.6)		
6-12month					1087(97.3)	31(2.7)
12-15month					668(96.4)	25(3.6)
16-19month					585(89.5)	69(10.5)
20-23month					461(83.2)	93(16.8)
Wealth quantile						
poorest	477(48.0)	517(52.0)	153(53.7)	132(46.3)	675(95.3)	33(4.7)
Poorer	486(51.1)	465(48.9)	140(50.1)	139(49.9)	625(93.2)	46(6.8)
Middle	453(50.5)	445(49.5)	169(58.8)	118(41.2)	563(92.2)	47(7.8)
Richer	390(51.2)	371(48.8)	113(51.3)	107(48.7)	502(93.0)	38(7.0)
Richest	399(59.1)	276(40.9)	75(40.1)	112(59.9)	435(89.2)	53(10.8)
Marital status						
Not married	11(30.9)	25(69.1)	7(67.0)	3(33.0)	24(95.2)	1(4.8)
Married	1966(51.8)	1830(48.2)	570(51.1)	544(48.9)	2482(92.5)	200(7.5)
Living with partner	130(59.7)	88(40.3)	33(42.9)	45(57.1)	131(93.8)	9(6.2)
Widowed	21(42.0)	29(58.0)	11(80.8)	3(19.2)	33(92.3)	2(7.7)
Divorced	54(40.7)	78(59.3)	21(68.1)	9(31.9)	100(98.7)	1(1.3)
separated	23 (47.9)	25(52.1)	8(63.9)	4(36.1)	32(90.0)	3(10.0)

Mother's education						
No education	1446(50.7)	1408(49.3)	434(53.3)	380(46.7)	1925(94.4)	114(5.6)
Primary	637(51.6)	596(48.4)	186(48.9)	194(51.1)	764(89.7)	87(10.3)
Secondary	84(62.7)	50(37.3)	24(45.3)	29(54.7)	69(87.0)	10(13.0)
Higher	39(64.0)	22(36.0)	5(49.0)	6(51)	44(88.9)	5(11.1)
Mothers age						
Under 20	121 (40.3)	180(59.7)	62(55.7)	49(44.3)	181(95.4)	9(4.6)
20 – 34	1626(51.9)	1507(48.1)	456(51.0)	438(49.0)	2071(92.5)	168(7.5)
35 – 49	457(54.1)	388(45.9)	132(51.9)	123(48.1)	551(93.2)	40(6.8)
Employment status						
Not working	1521(51.7)	1419(48.3)	487(52.2)	446(47.8)	1861(92.8)	145(7.2)
Currently working	682 (51.0)	654(49.0)	163(49.9)	164(50.1)	936(92.8)	73(7.2)
partner's education						
No education	994(49.1)	1032(50.9)	313(54.5)	261(45.5)	1363(93.9)	88(6.1)
Primary	979(54.3)	824(45.7)	276(51.9)	256(48.1)	1171(92.2)	99(7.8)
Secondary	116(49.2)	120(50.8)	31(35.3)	57(64.7)	130(88.0)	18(12.0)
Higher	90(58.6)	63(41.1)	12(29.3)	30(70.7)	102(92.1)	9(7.9)
Don't know	12(54.5)	10(45.5)	9(83.3)	2(16.7)	11(89.7)	1(10.3)
Access to media						
No or < once a week	1661(50.4)	1635(49.6)	516(52.6)	466(47.4)	2151(93.0)	163(7.0)
At least once a week	543(55.7)	432(44.3)	132(48.0)	142(52.0)	647(92.2)	54(7.8)
ANC visits						
No ANC visits	1207(50.9)	1162(49.1)	362(53.4)	316(46.6)	1584(93.7)	106(6.3)
1 – 3 visits	569(52.5)	516(47.5)	197(53.9)	168(46.1)	665(92.4)	55(7.6)
4 and above visits	429(58.0)	310(42)	91(43.9)	117(56.1)	480(90.5)	51(9.5)
Assist. at deliver						
Health professional						
No	1926(51.3)	1830(48.7)	577(52.1)	529(47.9)	2461(92.9)	188(7.1)
yes	279(53.2)	246(46.8)	73(47.9)	80(52.1)	341(92.0)	29(8.0)
Trained TBA No	2039(51.6)	1913(48.4)	606(52.4)	550(47.6)	2596(92.9)	198(7.1)
Yes	166(50.6)	162(49.4)	44(42.8)	59(57.2)	206(91.6)	19(8.4)
Untrained TBA No	1773(52.3)	1617(47.7)	517(53.2)	455(46.8)	2245(92.9)	172(7.1)
yes	432(48.5)	459(51.5)	133(46.3)	155(53.7)	558(92.5)	45(7.5)
Others No	2174(51.8)	2025(48.2)	634(51).5	597(48.5)	2750(92.7)	217(7.3)
yes	31(38.3)	51(61.7)	17(57.8)	12(42.2)	53(99.1)	1(0.9)
No one No	2126(51.5)	2005(48.5)	643(51.6)	604(48.4)	2682(93.0)	202(7.0)
Yes	79(52.9)	71(47.1)	8(58.0)	6(42.0)	120(88.6)	16(11.4)
Place of delivery						
Home	1937(51.3)	1838(48.7)	582(52.0)	536(48.0)	2467(92.9)	190(7.1)
Health facility	268(53.0)	237(47.0)	69(48.4)	73(51.6)	335(92.3)	28(7.7)
Delivery by c/s						
No	2177(51.9)	2021(48.1)	644(52.0)	594(48.0)	2751(92.9)	209(7.1)
Yes	28(33.8)	54(66.2)	6(29.5)	16(70.5)	52(86.6)	8(13.4)

5.3.4 Factors associated with BF practices

5.3.4.1 Early initiation of BF

In bivariate analysis early initiation of breastfeeding was associated with residence, sex of child, wealth quantile, marital status, mother's educational level, partner's educational level, and mother's age, access to media, ANC visits and delivery by cesarean section. Variables with P-value less than 0.25 in the bivariate analysis were taken in the multivariate analysis. In multivariate model, Sex of child, wealth quantile, marital status, mother's age, partner's education, delivery by cesarean section are independent predictor of early initiation of BF.

Female children's were 1.2 times more likely to be initiated early than their counterparts [AOR= 1.2, 95%CI (1.1, 1.3)]. Mothers in the richest wealth quantile were more likely initiate BF early compared to the poorest [AOR=1.6, 95%CI (1.2, 1.9)]. The odds of early initiation of BF among married women were more likely [AOR= 1.3; 95% CI (1.0, 1.8)] and less likely among divorced [AOR = 0.7, 95 % CI (0.5, 0.9)] than the reference group.

Mothers in the age group of 20-34 [AOR = 1.6, 95%CI (1.2,1.9)] and 35-49 [AOR = 1.7, 95%CI (1.3, 2.3) were more likely to initiate BF early than in the age group of under 20.The odds of early initiation of breastfeeding were higher among mothers whose partners had primary education [AOR = 1.2, 95%CI (1.1, 1.4)] than their counterparts. Children's of Mothers who delivered through cesarean section were less likely to initiate BF earlier than who deliver vaginally [AOR = 0.4, 95% CI (0.2, 0.6)] (Table 8).

Table 8 Factors associated with early initiation of BF, bivariate and multivariate analysis 2011 EDHS.

Variables	Early initiation		Crude OR (95% CI)	Adjusted OR (95%CI)
	Yes N (%)	No N (%)		
Sex of child				
Male(ref.)	322 (47.9)	351 (52.1)	1	1
Female	328 (55.9)	259 (44.1)	1.162(1.030,1.310)*	1.178(1.041,1.333)**
Wealth quantile				
poorest	477 (48.0)	517 (52.0)	1	1
Poorer	486 (51.1)	465 (48.9)	1.132(0.948,1.353)	1.066(0.888,1.278)
Middle	453 (50.5)	445 (49.5)	1.105(0.923,1.324)	1.059(0.879,1.276)
Richer	390 (51.2)	371 (48.8)	1.137(0.941,1.373)	1.125(0.923,1.373)
Richest	399 (59.1)	276 (40.9)	1.566(1.285,1.908)***	1.582(1.258,1.991)***
Marital status				
Not-married	11 (30.9)	25 (69.1)	1	1
Married	1966 (51.8)	1830 (48.2)	2.403(1.183,4.883)*	1.334(1.001,1.777)*
Living with partner	130 (59.7)	88 (40.3)	3.313(1.556,7.055)**	0.656(0.368,1.170)
Widowed	21 (42.0)	29 (58.0)	1.620(0.657,3.995)	
Divorced	54 (40.7)	78 (59.3)	1.538(0.700,3.378)	0.654(0.457,0.936)*
separated	23 (47.9)	25 (52.1)	2.054(0.833,5.065)	1.123(0.607,2.080)
Mothers age				
Under 20	121 (40.3)	180 (59.7)	1	1
20 – 34	1626 (51.9)	1507 (48.1)	1.600(1.258,2.036)***	1.552(1.210,1.990)***
35 – 49	457 (54.1)	388 (45.9)	1.748(1.338,2.283)***	1.732(1.315,2.282)***
Partner's education				
No education	994 (49.1)	1032 (50.9)	1	1
Primary	979 (54.3)	824 (45.7)	1.233(1.086,1.400)***	1.184(1.035,1.355)*
Secondary	116 (49.2)	120 (50.8)	1.004(0.767,1.315)	0.832(0.617,1.121)
Higher	90 (58.6)	63 (41.1)	1.466(1.051,2.045)*	1.334(0.913,1.947)
Don't know	12 (54.5)	10 (45.5)	1.242(0.547,2.822)	1.179(0.506,2.745)
Delivery by c/s				
No	2177 (51.9)	2021 (48.1)	1	1
Yes	28 (33.8)	54 (66.2)	0.474(0.298,0.752)**	0.359(0.219,0.588)***

*** p < 0.05 **p < 0.01 *** p < 0.001**

5.3.4.2Exclusive breastfeeding

Predictor variable in bivariate analysis for exclusive BF were place of residence, sex and child age, wealth quantile, marital status, partner's education and ANC visits. There is no association regarding mothers' education and age, employment status, access to media, assistance at delivery, and place of delivery. All variables with P-value less than 0.25 in the bivariate analysis were taken in the multivariate analysis. In multivariate model, sex of child, child age, wealth quantile and partners education were significant association with EBF.

Female children were more likely to be EBF [AOR = 1.4, 95%CI (1.1, 1.8)] than their counter parts. The odds of EBF for children in the age of 2 to 3 months and 4 to 5 months was less by 47% [AOR = 0.5, 95%CI (0.4, 0.7)] and 80% [AOR = 0.2, 95%CI (0.1, 0.3)] respectively than their counterparts. Mothers in the middle wealth index were more likely to EBF their children [AOR = 1.6, 95%CI (1.1, 2.3), than the reference group. The odds of children to EBF were lesser [AOR = 0.5, 95%CI (0.3, 0.8)] among mothers whose partners were secondary school level (Table 9).

Table 9 Factors associated with EBF, bivariate and multivariate analysis (2011EDHS).

Variables	EBF practice		COR (95% CI)	AOR(95% CI)
	Yes N (%)	No N (%)		
Sex of child				
Male	322 (47.9)	351(52.1)	1	1
Female	328 (55.9)	259(44.1)	1.381(1.106,1.725)**	1.410(1.105,1.798)**
Child age in month.	262 (69.3)	116(30.7)	1	1
Under 2	262 (54.8)	215(45.2)	0.538(0.406,0.715)***	0.529(0.392,0.713)***
2 to 3	127 (31.4)	278(68.6)	0.203(0.150,0.275)***	0.198(0.144,0.271)***
4 to 5				
Wealth quantile				
poorest	153 (53.7)	132(46.3)	1	1
Poorer	140 (50.1)	139(49.9)	0.868(0.624,1.208)	0.994(0.694,1.425)
Middle	169 (58.8)	118(41.2)	1.231(0.885,1.714)	1.579(1.099,2.269)*
Richer	113 (51.3)	107(48.7)	0.908(0.639,1.290)	1.257(0.840,1.882)
Richest	75 (40.1)	112(59.9)	0.579(0.399,0.840)**	1.011(0.644,1.586)
Marital status				
Not-married	7 (67.0)	3 (33.0)	1	
Married	570 (51.1)	544(48.9)	0.515(0.142,1.864)	1
Living with partner	33 (42.9)	45 (57.1)	0.371(0.095,1.438)	0.797(0.483,1.317)
Widowed	11 (80.8)	3 (19.2)	2.069(0.328,13.045)	3.910(0.968,15.800)
Divorced	21 (68.1)	9 (31.9)	1.053(0.237,4.670)	1.935(0.866,4.322)
separated	8(63.9)	4(36.1)	0.872(0.157,4.857	2.130(0.533,8.511)
Partner's education				
No education	313 (54.5)	261(45.5)	1	1
Primary	276 (51.9)	256(48.1)	0.903(0.713,1.144)	0.940(0.720,1.226)
Secondary	31 (35.3)	57 (64.7)	0.456(0.286,0.727)***	0.449(0.258,0.782)**
Higher	12 (29.3)	30 (70.7)	0.347(0.175,0.687)**	0.516(0.238,1.116)
Don't know	9 (83.3)	2 (16.7)	4.167(0.844,20.572)	5.242(0.996,27.581)

*** P < 0.05 **p < 0.01 *** p < 0.001**

5.3.4.3 Continuation of BF

In bivariate models of continuation of breastfeeding, residence, child age, wealth quantile, mothers education, partners education and ANC visits, were significantly associated with continuation of BF. Variables with P-value less than 0.25 in the bivariate analysis were taken in the multivariate analysis. In multivariate model, child age, wealth quantile and mothers educational status were predictor of continuation of BF.

Children in the age of 16 to 19 months, followed by 20 to 23 months were less likely to continue BF [AOR = 0.2, 95% CI (0.1, 0.3)] and [AOR = 0.1, 95% CI (0.1, 0.2)] respectively than children of 6 to 11. The odds of continuation of BF for women in the richest quantile were lower [AOR=0.5, 95% CI (0.3, 0.8)] than the reference group. Mothers in primary educational level were less likely [AOR = 0.5, 95% CI (0.4, 0.7)] to continue breastfeeding than mothers with no education (Table 10).

Table 10 Factors associated with continuation of BF (2011 EDHS).

Variables	Continuation of BF		COR (95% CI)	AOR(95% CI)
	N (%)	**N (%)**		
Child age in month.				
Under 12	1087 (97.3)	31 (2.7)	1	1
12 to 15	668 (96.4)	25 (3.6)	0.756(0.442,1.293)	0.682(0.391,1.188)
16 to 19	585 (89.5)	69(10.5)	0.240(0.155,0.371)***	0.207(0.131,0.326)***
20 to 23	461 (83.2)	93(16.8)	0.140(0.092,0.214)***	0.124(0.080,0.193)***
Wealth quantile				
poorest	675 (95.3)	33(4.7)	1	1
Poorer	625 (93.2)	46(6.8)	0.679(0.429,1.073)	0.660(0.404,1.078)
Middle	563 (92.2)	47(7.8)	0.590(0.374,0.930)*	0.650(0.398,1.062)
Richer	502 (93.0)	38(7.0)	0.658(0.408,1.062)	0.776(0.464,1.297)
Richest	435 (89.2)	53(10.8)	0.410(0.262,0.642)***	0.460(0.272,0.777)**
Mother's education	1925 (94.4)	114(5.6)	1	1
No education	764 (89.7)	87(10.3)	0.518(0.387,0.692)***	0.525(0.383,0.720)***
Primary	69 (87.0)	10(13.0)	0.396(0.201,0.781)**	0.638(0.296,1.377)
Secondary	44 (88.9)	5 (11.1)	0.474(0.191,1.179)	0.870(0.305,2.486)
Higher				

*** P < 0.05 **p < 0.01 *** p < 0.001**

CHAPTER SIX: DISCUSSION

6.1Trends in Breastfeeding practices

In this study overall trends in early initiation of breastfeeding has increased by 2.4%. The finding was in line with study done in Canada (19) and contradicts study done in Vietnam(23).The trends shows improvements across various socio demographic and health service characteristic. Most improvements from 2000 to 2011 was observed mother who resided in both urban and rural area, mothers from Tigray region increased by 17.2%, Affar 25.4 %, from Amhara region by8.1%, from Gambela region by 11.3%, mothers of secondary school level by 21.1% , delivery assisted by health professional 14.8% and among mothers who delivered in health facility by 15.3% . Worsening trends were observed among mothers from Oromiya region by 8.6%, Somali region by 13.7% and mothers from Benishangul region by 5.8%.

Overall Prevalence of exclusive breastfeeding under 6 month in this study has increased by 12.9%.This finding was consistent with study done by UNICEF global survey database(22), Brazil (21),in Kenya (25) and contradict with study done in Vietnam(23).Trends in Exclusive breastfeeding has significantly improved among mothers from Somali region by 17.7%,from Harari region 34.2%, Dire Dawa region by 29.4% and among never married mothers by 29.7%.Downward trends were observed among mothers from Tigray region by 5.7% and among female children by 1.9%.

The increase in breastfeeding practice (early initiation and exclusive breastfeeding) in Ethiopia might be attributed to breastfeeding health education efforts and campaigns may have had a real impact at all socio demographic levels. Governmental and nongovernmental health organizations that foster child health, implementation of different policies and programs to reduce infant and child mortality and morbidity in the country that promote and support breastfeeding as one programs.

6.2 Early initiation of breastfeeding

In this study the prevalence of early initiation of breastfeeding was 51.5%.The finding of this study is much higher than study conducted in Nepal 42.5% (38), Laos 39.6% (39) but lower than Sri-Lanka 83.3% (40).

Early initiation of breastfeeding was significantly associated with caesarean delivery. Children's who were delivered through caesarian delivery were 65% less likely to initiate breastfeeding early. The finding was consistent with study done in Kenya, Sri Lanka and Tanzania(25,40,41).The effect of anesthesia ,cesarean procedure, maternal tiredness, in adequate maternal skill may be some of reason to delayed initiation of breastfeeding.

Mothers in the richest wealth quantile were 1.6 times more likely to initiate breastfeeding early than the poorest. This finding is in agreement with study in Sri Lanka(32) and in contradict with study done in Nepal, mothers from the lowest wealth quantile were most likely to initiate breastfeeding early(38).This might be explained by mothers in richest wealth quantile had better exposure to various sources of information and better knowledge about appropriate infant and young child feeding.

Mothers whose partners had primary education were 1.2 times more likely to initiate BF early than the reference group This finding was in opposite with study conducted in North Carolina(42).

In this study the odds of early initiation of BF was higher as the age of the mothers increases Mothers in the age group of 20-34 were 1.6 and 35-49 were 1.8 times more likely to initiate BF early than in the age group of under 20.. This finding was in agreement with study conducted in Tanzania(41).Most of the young mothers in Ethiopia were first-time mothers, suggesting that they lacked knowledge or experience about appropriate breastfeeding practices.

The sex of the child is other predictor of early initiation of breastfeeding. Female children's were 1.2 times more likely to be initiated early than their counterparts. This study is in line with study done in Sri Lanka which reported that ,the delay in initiation of breastfeeding was less likely if the child was a female (AOR = 0.75)(32).

6.3Exclusive breastfeeding

In this study the prevalence of exclusive breastfeeding in infants' age less than six month was 51.6%. This finding was comparable with study done in Tanzania 49.9% (41).But higher than study done in Laos, which was 40.8%(39)and Zimbabwe 30.9% (30) and lower than study done in Sri Lanka 75.8%(32).

Child age is strong predictor of exclusive breastfeeding showing that as the child age increases, the rate of exclusive breastfeeding drops. The odds EBF for children in the age of 2 to 3 months were about 50% followed by for children in the age of 4 to 5 80% lower, than their counterparts. This finding is in consistent with previous study in Ethiopia, study done in Sri Lanka, Zimbabwe and Tanzania (30,32,41,43).This might be explained by as the child grew older, mixed feeding became more common due to the perception of mothers that breast milk production is insufficient for the child's growth and the beliefs in some cultures that water helps to quench the thirst of the child.

Mothers in the middle wealth index were 1.6 times more likely to EBF their children than the reference category .This finding was in line with study done in Ethiopia and Nigeria(24,43).Women in the wealth index ranking middle and above were two times more likely to EBF than the reference category ($P< 0.001$).This differences could be due to mothers in middle and above wealth quintiles had more access to health facilities which provides more information for mothers to learn more about exclusive breastfeeding and its benefit. The other explanation for this is women in these categories may have more access to media, which can be source of information for health massage increasing mothers' awareness about exclusive breastfeeding.

Partners educational level was another factors associated with EBF. The odds of EBF for mothers whose partners were attended secondary school were about 55% lower than no education partners. This might be explained by the fact that when partners are better educated, the opportunity for employment is high and thus the opportunity to stay at home and encouraging (supporting) mothers to practice EBF is become less. At the same time, partners may be influenced by media advertising milk substitutes.

6.4 Continuation of BF

The overall continuation of breastfeeding (6-23 months) found in this study was (92.8%) whereas continuation at 1 year was (96.4%) and continuation at 2 years was (83.2%).

In multivariate analysis continuation of breastfeeding was significantly associated with child age, wealth quantile and mothers education and not associated with residence, employment status, access to media, ANC visits, assistance during delivery and place of delivery.

.As the child age increases the odds of continuation of breastfeeding was lower. Children in the age of 16 to 19 months and 20-23 months were 80% times and 88% times less likely to continue breastfeeding than children in the age of 6-12 months respectively. This finding is in line with study done Kenya and Sri Lanka(25,32)**.**This may be attributed to short birth interval that leads mother to cease breastfeeding

Mothers in the richest wealth quantile were 56% lower to continue breastfeeding than the poorest. This might explained by mother in richest wealth quantile might have access to infant formula or high capacity to buy breast milk substitutes that could leave breastfeeding as the choice.

6.5 Strength of the study

The main strengths of this study include the use of a large nationally representative survey sample, with very high response rate to the survey inter views, comprehensive data on standard infant-feeding indicators to identify factors associated with breastfeeding practices and adjustments for sampling design made in the analysis

6.6 Limitation

Because all the information about BF experience relied on maternal recall of the events, there may be possible recall bias. EBF was based on a 24 h recall rather than a longer recall period, and this short recall may have missed some infants who were fed other liquids or foods prior to 24 h before the survey. The other one is the use of secondary data did not allow us to analyze the effects of the various factors that might have influenced BF behavior, Such as mother's knowledge about breastfeeding, cultural believes and utilizing BF counseling during prenatal care.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATION

7.1 Conclusion

Trends in early initiation and exclusive breastfeeding showed improvements while continuation of breastfeeding was stagnant. Breastfeeding practices trends varied depending on residence, region, mothers' educational status and wealth quintile, child and health service related characteristic.

In 2011 EDHS, breastfeeding practice, early initiation and exclusive breastfeeding was good whereas continuation of breastfeeding was very good with regard to WHO recommendation. A number of child and maternal attributes were noted to affect the rate of breastfeeding practices in Ethiopia.

Sex of child, wealth quantile, marital status, mothers' age, partners' education, and caesarean delivery were found independent predictor of early initiation of breastfeeding. Child sex, child age, wealth quantile and partners education were significantly associated with exclusive breastfeeding. Continuation of breastfeeding was significantly associated with child age, wealth quantile and mothers education.

7.4 Recommendation

In order to improve breastfeeding practices in Ethiopia the following recommendations are put forward The government of Ethiopia (ministry of health) should make more effort to address this public health problem through breastfeeding counselling, together with supportive supervision and strengthening home visits to have sustained recommended breastfeeding practices and monitoring of international code of marketing of breast milk substitutes.

Health care providers' should strongly advocate on the importance of early initiation of breastfeeding, exclusive breastfeeding especially for the first 6 months, continuation of breastfeeding and dangers of mixed feeds to community. There is a the need for health professionals, traditional birth attendant and other family member to provide adequate support to encourage young mothers to establish early initiation of breastfeeding within 1 h after giving birth.

For researcher, there is a need for more research on breastfeeding practices and Trends to explore the reason for variation across different demographic, socio economic child and health service characteristic more specifically regional variation.

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