

**MIGRATION AND SOCIO-DEMOGRAPHIC DETERMINANTS OF  
WOMEN'S REPRODUCTIVE HEALTH SERVICES UTILIZATION IN  
NORTH GONDAR, ETHIOPIA.**

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## **Abstract**

*The reproductive health problems of migrant women are a growing concern, especially in developing countries. The empirical literature indicates that migration characteristics (e.g., selection, adaptation and disruption) and migrant's socio-demographic backgrounds are the potential pathway through which migration can affect reproductive health care services utilization. This study aimed to examine the effect of migration on women's reproductive health care service utilization and to identify the major barriers that affect migrant women's access to quality reproductive health care services. The study aim and objectives were achieved using two studies. Study one comprises a secondary analysis of the 2005 Ethiopian Demographic and Health Survey (EDHS). The EDHS was administered to women aged 15-49 years and a total of 14,070 women were interviewed and study two was a primary survey conducted in Dabat rural areas and Gondar town. A total of 1800 women were interviewed: 500 women from Dabat rural areas and 1300 women from Gondar town. Both surveys were employed a cross-sectional survey design. The two studies found that rural to urban migrants were relatively lower in knowledge and use of reproductive health care services compared to urban natives, but more likely to know and use of services than rural natives. The primary study also found that among migrant women, those who registered as kebele residents were more likely to know of, or utilize contraceptives and maternal health care services compared with non-registered migrants. To ensure the reproductive health care access of migrants, the urban kebele administrative offices should revise the policies that demand migrants to be registered as a kebele residents and having a kebele identification card to be eligible for social, economic and health care benefits. Therefore, the policy makers should target the disadvantaged groups of migrants to provide equal opportunities to access health care services.*

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## **Acronyms and Glossary**

AIDS= Acquired Immunodeficiency Syndrome

ANC= Antenatal Care

AOR= Adjusted Odds Ratio

CSA= Central Statistical Agency

EDHS= Ethiopia Demographic and Health Survey

FHI= Family Health International

FP= Family Planning

HIV= Human Immunodeficiency Virus

IPPF= International Planned Parenthood Federation

MSI= Marie Stops International

TT= Tetanus Toxoid

UNFPA= The United Nations Population Fund

UOR= Unadjusted Odds Ratio

WHO= World Health Organization

Kebele = The smallest Administrative Unit in Ethiopia

Idir- informal institution which is established to support a funeral ceremony and provide financial support to a sick person

Iqub-informal financial institutions which is established to give support in terms of money for members

# **Chapter One: Background of the Study**

## **1.1. Introduction**

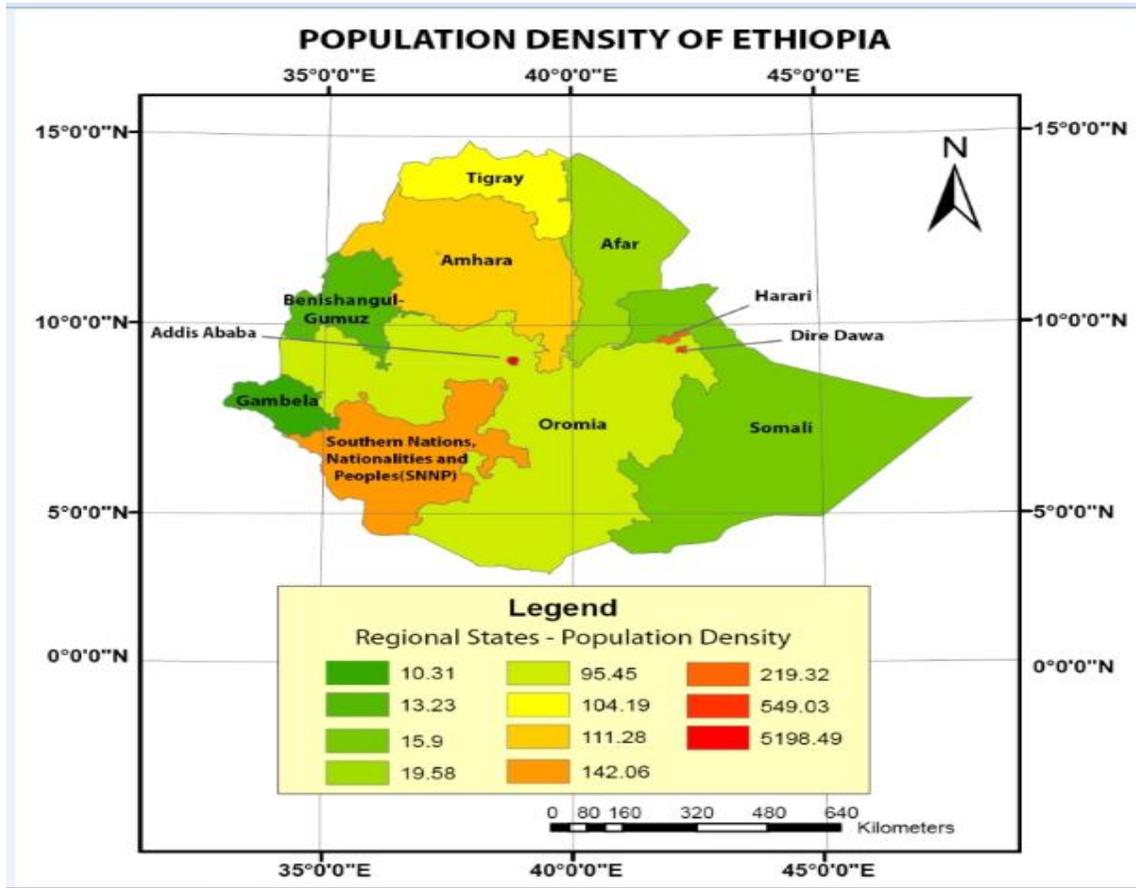
Women's reproductive health is a major area of concern especially in developing countries. As such it was selected as an agenda priority at the 1994 International Conference on Population and Development (ICPD) and is one of the 2000 Millennium Development Goals (Stuckler, Basu and McKee, 2010; Abrejo, Shaikh, and Saleem, 2008). However, there is little evidence of progress towards reaching the Millennium Development Goals in some countries, in particular maternal health care service utilization. Compared to other countries of the world, some of the African countries are unlikely to meet the 2015 target of a reduction in maternal mortality by two-thirds (Prata et al, 2010; Stuckler, et al, 2010; Babalola, and Fatusi, 2009). According to the Global Monitoring report, out of 124 countries, 94 are likely to miss the target of reducing the maternal mortality by three quarters (World Bank, 2011). The majority of these countries are found in the Sub-Saharan region. The progress of the sub-Saharan African countries in reducing maternal mortality appears to have stagnated since the last two decades. The health systems in sub-Saharan Africa countries fail to deliver quality maternal health care services to women (Prata et al, 2010). Though considerable efforts have been made by the international community to improve maternal health care services, there are still disparities among countries. The Millennium Development Goals report estimated that 287,000 maternal deaths occurred in 2010 worldwide. Of these, over half (56%) of maternal deaths were recorded in Sub-Saharan Africa and 29% of them occurred in Southern Asia. These two regions together accounted for 85% of the world maternal deaths in 2010 (United Nations, 2012).

Many factors contribute to the high maternal mortality rates in Africa, particularly in Sub-Saharan Africa. More than half of the maternal mortality in the Sub-Saharan Africa is due to eclampsia, haemorrhage, sepsis, unsafe induced abortion, hypertensive disorder of pregnancy, and obstructed labor (Prata et al, 2010). These problems have been exacerbated by lack of education, poverty, social and cultural factors, poor health care systems, low awareness and

knowledge about maternal care services, limited supply of health care services and low empowerment of women (Alvarez *et al*, 2009; Singh *et al*, 2012; Carballo *et al*, 1996; Leclere, Jensen, and Biddlecom, 1994; Lindstrom, and Hernandez, 2006; Navaneetham, and Dharmalingam, 2001; Yakong *et al*, 2010). There is also evidence to show that a lack of maternal health care services is linked to a range of problems, including malnutrition, low contraceptive prevalence, high unmet need for family planning, and high HIV/AIDS prevalence (Gyimah, Tokyo and Addai, 2006; Parrado *et al*, 2004).

Ethiopia is one of the sub-Saharan African countries which performs poorly in terms of their socio-economic and health care delivery systems. Although, the country has shown rapid economic growth in the last two decades, it is still one of the poorest countries in Africa with almost 34% of the population living below the poverty line. Ethiopia is also the second most populous country in sub Saharan Africa, next to Nigeria, with an estimated population of 94 million and a growth rate of 2.6%. Over 83% of the population lives in rural areas and more than 43% of population is under the age of 15 years (CSA, 2011). Administratively, the country is organized with a federal system comprising nine administrative regions and two city administrations. The geographic distribution of the population is uneven with considerable regional variation in both size and density (CSA, 2008). The distribution and density of the population is related to altitude, climate, and soil. The population is concentrated in the central highlands of the country because the central highlands are endowed with moderate temperatures, rich soil, and adequate rainfall. The population density of the country as a whole is estimated at 61 persons per square kilometer. Among regions, the Sothern Nation, Nationalities, and Peoples' (SNNP) Region is the most densely populated region with an estimated 486 persons per square kilometre and Gambella, the least densely populated, with approximately 3.4 persons per square kilometer (see Figure 1.1). Agriculture is the mainstay of the country's economy which accounts 84% of employment, 43.2% of the gross domestic product (GDP) and 83 % of exports (MOFED, 2010). The uneven distribution of the population over the different regions and the poor economic performance of the country have an effect on the health care delivery system of the country. As a result, the country's health care system suffers from weak infrastructure, lack of human resources, poor financing system, poor management systems and low quality services.

Figure 1-1. Map of Ethiopia showing the Population Density across the 9 Regions of the country



Recognizing the problems of the health service of the country, the Ethiopian government formulated different policies that influence the health care delivery system of the country. Among the policies include: The Health and Population Policies (1993), and National Policies on Women’s Right (1993), National Adolescent and Youth Reproductive Health Strategy(2007), the National Guideline for Family Planning Services (2011)(MOH, 2011).The country has also reorganized the health service into a three-tier system to make it more accessible to the rural population: (i)The Primary Health Care Unit (PHCU), which consists of five satellite health post, one health centre, (ii) a primary hospital to serve about 5, 000, 25, 000 and 100, 000 population respectively; and (iii) a general and a specialized hospital also serve around 1 million and 5 million population, respectively(MOH, 2006). The primary objectives of the health and reproductive health policies, and the reorganization of the health delivery systems are to provide health care services in an accessible and equitable manner to all segments of the population. The

policies promote quality, preventive, and basic curative health care services to the community with special attention to mothers and underserved population (MOH, 2006).

Following the formulation of the health and population policies of the country, a comprehensive health sector development program (HSDP) was initiated in 1998 (MOH, 2005), and followed by Health Extension program in 2003. These programs were used to initiate a new government reproductive health strategy from 2006 – 2015 with the following objectives: (1) to improve maternal and child health, promoting gender equality and combating the spread of HIV/AIDS; (2) to address the reproductive health of the population by considering the existing socio-economic and demographic realities of the country and (3) to design a reproductive health intervention that reflects the existing health care delivery and infrastructure system of the country (MOH, 2006). The reproductive health strategic document also gave emphasis on issues such as the social and cultural determinants of women's reproductive health; fertility and family planning; maternal and new born health; HIV/AIDS; reproductive health of young people and reproductive health cancers in relation to the broader social and cultural context of the country.

In addition to the ratification of the reproductive health strategy document, the Ethiopian government also initiated a community based comprehensive and integrated health Extension program (HEP) in 2003(MOH, 2006). Its objective was to provide equitable access to preventive, promotional and curative services to the rural community through health extension workers (HEWs) (MOH, 2005). The local communities are responsible to recruit the health extension workers in their respective kebele. The recruitment criteria include, age, gender, educational level and knowledge of the local language and culture (MOH, 2006). Females aged 18 and above, who have completed at least 10 grades and who speak and understand the local language and culture are recruited for extension health workers (MOH, 2005). Each health extension worker undertakes a one year training course encompassing 16 health packages including disease prevention and control, including HIV/TB/, malaria education, prevention, and counseling; family health, including maternal and child health, family planning, immunization, and nutrition; and hygiene and environmental health, including personal hygiene and proper latrine construction (MOH, 2005).

According to the Ministry of Health (2005), health extension workers spend 75 percent of their time visiting families in their homes and performing outreach activities in the community and the remaining 25 percent of their time spend at the health posts in providing immunizations, contraceptives services and other reproductive health services. The communities easily accept the work of health extension workers since the workers are recruited by the community where they are working (MOH, 2005). They are also cost effective because they do not require a huge medical set up. The program also tries to reduce the gap between rural and urban areas in reproductive health service utilization. In the past reproductive health utilization was limited to urban areas alone. Now, the services are reaching a larger proportion of people in the rural areas. Currently more than 30,000 health extension workers are recruited and deployed to rural communities across Ethiopia (MOH, 2006).

Despite, the commitments of the Ethiopian government to expand the health extension program by training young women and deploying them to the communities to provide basic health care services, the program faces various challenges that slow its progress. Some of the challenges include gaps in the theoretical and practical skills of health extension workers (MOH, 2011) in particular a lack of advanced health education and midwifery/obstetric nursing skills. Other problems include insufficient support, poor management, supervision, low quality, evaluation, and monitoring the programs due to lack of personnel and resources. The efficacy of the services given by the health extension workers is limited by their excessive workload and responsibilities. The existing health facilities and manpower are not able to satisfy the growing demand of the rural population for health care services (MOH, 2006). Figure 1.2 shows women at rural health facility attending the health awareness education on child immunization, maternal health care services, use of family planning services, prevention of HIV/AIDS and personal and environmental hygiene.

Figure 1-2: Showing at a Rural Health Facility, Women Attending Health Education, Ethiopia.



The available services are very expensive and of poor quality. Use of health facilities in Ethiopia is sensitive not just to the distance to the health facility, but also to the quality of health care and its costs. Most of health care service costs are covered by out-of-pocket expenditure (MOH, 2005). But out-of pocket expenditure causes psychological stress on patients and their family due to their personal lack of resources. Even though the government subsidizes the costs for some health care services such as maternal health, but most of the government health facilities lack an adequate supply of medicines so patients are forced to buy medicine from private vendors, which they are unable to afford. For example, if a woman wishes to deliver in a private health facility, she is expected to pay between 6, 000 and 8, 000 Ethiopian Birr. In an effort to protect citizens

from the catastrophic effects of the high share of out of pocket expenditure, the government recently introduce health insurance reform (MOFED, 2013). The reforms include: revenue retention by health facilities; systematizing the fee waiver system; standardizing exemption services; outsourcing of nonclinical services; user fee setting and revision; initiation of compulsory health insurance (community based health insurance and social health insurance); establishment of a private wing in public hospitals; and health facility autonomy.

The health care systems of the country are not equally distributed across regions and rural and urban areas. Most the health care facilities are in the urban areas. Almost 90% of doctors and 80% of nurses are working in urban areas and 85% of the health facilities are found in urban areas (Yesuf et al, 2014; MOH, 2011; Worku, Yalew, and Afework, 2013). Towns or cities in Ethiopia have hospitals and clinics with full-time staff, doctors, midwives, and nurses. However, in rural areas, where over 83% of Ethiopians reside, there are limited health facilities and personnel that limiting people's access to reproductive health care services. Most of the health facilities in rural areas are either under- staffed, lacking skilled service providers and the necessary supplies and equipment (MOH, 2011). The rural-urban dichotomy in terms of health care delivery is a product of socio-economic and cultural factors. For instance, in comparison with urban communities the majority of the rural communities depend on agriculture and natural resources for their livelihood, with little access to social and economic organizations, and few opportunities for earning cash, accessing education and the media or various infrastructures and health care facilities (Figure 1.4 shows differences in social and economic life between rural and urban population in Ethiopia). The Table provides a broader picture how life is miserable in rural areas compared to urban areas. These differences have an implication on people's access to health care services. Most of the rural communities have access only the rural health posts or rural clinics which do not provide an adequate service. Rural communities access to health care services is also limited by a range of user specific factors such as knowledge, education, medical insurance and personal risk factors as well as related factors such as availability and accessibility of health facilities (Abebe *et al*, 2012).

Figure 1-3: Shows a Town’s Health Center at Dabate Town, Dabate District, Ethiopia.



Figure 1-4: Shows the Rural-Urban Dichotomy in Many Aspects of Life, Ethiopia.

Dimensions	Rural areas	Urban areas
Opportunity for earning cash	none	Relatively high
Sources of livelihood	Agriculture or natural resources	non-agricultural sectors or making/selling goods or services
Access to education	low	Relatively high
Women’s empowerment	low	Relatively high
Access to media(radio, television)	low	high
Access to infrastructure (road, electric city, telecommunication)	none	high
Means of transportation	Animals and human	All means of transportation

health facilities	Health posts or clinics	All forms of health facilities
Health personnel	Health extension workers	Nurses, midwifery, Doctors, Health Officers
Demography(mortality, fertility)	high	Relatively low
Cultural diversity	low	high
Access to health care services	low	Relatively high
Poverty	high	Relatively low
Preferences for health care services	traditional	Modern health facilities

Generally, the various factors that affect people's health seeking behavior in Ethiopia can be divided into the following categories (1) geographic barriers including distance and transportation to health facilities (Abebe *et al*, 2012); (2) financial barriers in terms of economic constraints; (3) socio-cultural barriers related to behaviors, attitudes, customs, and culture (CSA, 2006); (4) barriers related to service provision: availability of variety health care services and quality of the services; (5) barriers related to users: sex, education, awareness of diseases; (6) unfriendly environment in the health facilities, including waiting time and lack of close-monitoring rooms, especially for rural mothers; (7) lack of communication whenever medical consultation, advice and service are required; (8) absence of emergency and ambulance services (MOH, 2005); (9) limited and low quality of human resources (especially midwives, doctors and, anesthetists), (10) poor commitment and unwelcoming attitude of some health workers toward provision of health care services; and (11) absence/shortage of appropriate equipment, medicines and supplies (MOH, 2006). Because of these and other factors, the utilization of health services in Ethiopia is limited, particularly in rural areas. As a result, there is high morbidity and mortality in the country.

Like the national health care system, the study areas have also very poor health care systems. There are disparities in access to health care services between women in Dabat and Gondar city. Women in Dabat have limited access to reproductive health care services compared to women in Gondar city. Although, there are both public and private health facilities that provide services to women in Dabat and Gondar city, access to the private or public health facilities depend on socio-demographic factors such as level of education, economic status and distance to a health

facility. In both private and public health facilities, there are some accredited health facilities such as hospitals, clinics, health stations, pharmacy, and drug vendors that provide health care services. Due to lack of human resources, in Dabat areas, the health extension workers (HEWs) are responsible in providing preventive health services; they are also providing services such as family planning, personal and environmental hygiene. Although, there have been successful to a large extent in raising the level of awareness of women towards contraceptive services, maternal health care services are not brought about expected improvements in the study areas, especially in Dabat. For instance, more than 90% deliveries in Dabat are performed by untrained or semi-trained or Traditional Birth Attendants (TBAs) (MOH, 2006). This is due to lack of health facilities that provide maternal health care services. Moreover, the available health facilities have shorter opening hours, lack of staff and drugs that provide adequate maternal health care services. Health facilities are also not equally distributed across the two study areas. For example, more than 90% of private and public health facilities are located in Gondar city and they are also accessed by the people who can afford it. Dabat has only one district health station, 3 clinics and 6 health posts and fewer private clinics compared to 1 private hospital, one referral hospitals, 15 health stations, 30 clinics and 20 health posts in Gondar city that provide health care services (MOH, 2011). Due to lack of health facilities and health care services, there is high morbidity and mortality in the study areas.

According to the Ethiopian Demographic and Health Survey (CSA, 2006) estimates the maternal mortality rate as 673 per 100, 000 live births, which is the highest in the world. Data from the World Health Organization (WHO) estimates about 88% maternal deaths in Ethiopia are attributed to unsafe abortion, lack of obstetric emergency services, limited health care services and skilled delivery services (WHO, 2012). Data from EDHS indicated that maternal health care service provision is poor with only 28 % of women receiving antenatal checkups during pregnancy from a skilled provider, 6% delivering with the help of skilled birth attendants, and 5 % delivering in a health facility. In addition, only 6% of mothers had a postnatal check-up within 2 days of delivery. Progress in the provision of maternal health care services has been very poor over time. Antenatal care increased from 27% in 2000 to 28% in 2005; delivery in a health facility increased from 5 in 2000 to 5.3% in 2005 (CSA, 2001 and 2006). Recently a report revealed that Ethiopia ranks the lowest in overall contraceptive use among the Sub-

Saharan African countries (United Nations, 2012). According to the 2005 EDHS reports, access to and utilization of reproductive health care services (contraceptive and maternal health care) were higher in urban areas than in rural areas.

Due to differential access to and use of reproductive health care service between rural and urban areas, people from rural areas want to move to urban areas to access adequate health care services. This results in high rural to urban migration in the Ethiopia. However, very little is known about the effect of migration on women's access to and utilization of reproductive health care services in developing countries, particularly in Ethiopia. A number of studies have tried to compare urban non-migrants with rural to urban migrant women to examine the effect of migration on women's access to reproductive health care services (Zhao et al, 2009; Lindstrom, 2003; Liew, 2010; Stephenson and Matthews, 2004). Some of the studies have found that migration has a negative effect on women's reproductive health outcomes (Lee, 1992; Dias, Severo and Barros, 2008). For instance, a study by Almeida and his colleagues (2013) found that rural to urban migrants have less access to reproductive health care services compared to urban migrants. In particular, new migrants are vulnerable to reproductive health problems because migration weakens or disrupt migrants' social ties with families and friends from their place of origin (Haas and Fokkema, 2011). As a result, they may lose social, psychological, moral and material support from their friends and relatives (Lu, 2005; Kohler, 2001) leading to migration related stress. Stressed migrants may take time to adapt to the new environment (Hanna, 1998). Those who are unable adapt to the new environment are less likely to use maternal health care services (Lindstrom and Munoz-Franco, 2006). Adaptation to urban reproductive health care services is affected by the duration of residence in the current place of residence. Migrants who have not integrated themselves with the host society are less likely to access reproductive health care services (Dias, Severo, and Barros, 2008; Antai et al, 2010).

Migration not only affects women's access to and use of reproductive health care services but also exposes women to sexually transmitted diseases, including HIV/AIDS. Studies in different urban areas show that rural to urban migration exposes women to risky sexual behaviors that increase their infection rate (Li, Morrow, and Kermode, 2007; Webber, 2007; Brockerhoff and Biddlecom, 1999; Shedlin, 2006; Broring and Duifhuizen, 1993; Carno and Walque, 2012;

Hernandez *et al*, 2004; Hong *et al*, 2006; Islam *et al*, 2010). Especially, young and unmarried women from conservative rural environments migrating to more sexually permissive urban environments lead to the increased transmission of HIV/AIDS (Brockerhoff and Biddlecom, 1999). In particular, migrants who come from remote rural areas with no knowledge about the prevention of HIV/AIDS infection are more vulnerable than urban women who have awareness about HIV/AIDS (Yang and Xia, 2006; Chaudhry *et al*, 2005; Cleland and Puri, 2006; Fitzgerald *et al*, 2003).

Contrary to the above aforementioned findings, many research findings have documented that rural to urban migration is associated with changes in reproductive health behaviors that may positively affect to access reproductive health care services (Lee, 1992) and increase awareness to sexually transmitted infections, including HIV/AIDS (Goldenberg *et al*, 2012; Scorgie *et al*, 2011) as well as increasing contraceptive knowledge and use (Lindstrom and Munoz-Franco, 2005). According to Afable-Munsuz and Bridis (2006), rural to urban migrant women may be more likely to have the motivation, resources, and aspiration to migrate and successfully adapt to urban reproductive norms and behaviors. As a result, rural to urban migrant women have better access to maternal health care services compared to rural non-migrants (Hesketh *et al*, 2008 and Tunstall, Pickett, Johnsen, 2010). Furthermore, a study conducted in China found that women who frequently migrated in the past five years were twice as likely to access maternal health care services as non-migrants (Zhao *et al*, 2009). Moreover, rural to urban migration exposes women to a new social environment characterized by new ideas, social norms, social support, and access to resources that enable women to access reproductive health care services (Wei *et al*, 2010). In this case, migration could empower women to access maternal and reproductive health care services.

Despite the inconsistent findings on the effect of migration on women's access to and use of reproductive health care services, few reproductive health and family planning programs and services are in place to deal with the reproductive health needs of migrants. Nowadays, female rural to urban migration increases from time to time, particularly in African countries (Stephenson and Matthews, 2004; Hervitz, 1985; Chattopadhyay, White and Debpuur, 2006). In Ethiopia, in the past 20 years, the number of migrants who live in urban areas has risen from 20 % in the 1994 census to 45% in 2007 (CSA, 2008). However, only a few research studies have

been conducted to examine the effect of migration on women's reproductive health care service utilization. The majority of the previous studies were conducted in the countries of Asia, Latin America, China, the developed countries (Subaiya, 2007; Feng et al, 2005, Liew, 2010; Lindstrom and Munoz-Franco, 2006; Lindstrom and Munoz-Franco, 2005; Wilson, 2008; Feng et al, 2005). The lack of research on the effect of migration on women's reproductive health care service utilization in Africa, particularly in Ethiopia may be attributed to a number of reasons (Adanu and Johnson, 2009). One of the reasons is that migration has been perceived as a predominantly male phenomenon. In the past, women's migration was considered as subordinate following male migration. People perceived that female migration was motivated by marriage and family-related reasons rather than socio-economic or health related factors. This kind of gender bias in migration history is often common in the context of developing countries particularly in Ethiopia. As a result of limited research in relation to migration and reproductive health, there is limited knowledge in the areas of migration and reproductive health in Ethiopia.

Nowadays, however, the reproductive health status of migrants has become a concern not only for the government of Ethiopia but also for researchers because women from rural areas migrate to urban areas to receive reproductive health care services. However, women face a number of challenges to access and use of reproductive health care services after they reach urban areas. Some of the challenges include the formal and informal institutional barriers (Hesketh et al, 2008). Formal barriers comprise of factors associated with the legality of the migrant to access public healthcare services. Migrants are sometimes restricted to access health, social, and economic services, because they are expected to register as a kebele residence and present evidence that explain where they came from, for how many years they stayed in their current place of residence, with whom they lived and a testimony of their legality in their previous place of residence. A migrant who is not legally registered as a member of the community is not entitled to get free medical and health care services. Migrants must be registered as a *kebele* member and have a *kebele* identification card to access social, economic and health care services from their new kebele(the smallest unit of residential administration). Those migrants who do not register as *kebele* members might not have the same rights and privileges as registered migrants and non-migrants.

The informal barriers include lack of trust and social interaction with the host community. As a result, migrants may not be involved in various informal institutions like ‘Iqub’- a traditional informal financial institution used to raise money for economic and social investments and ‘Idir’- an informal institution established by neighbors to raise funds that will be used when someone becomes sick and dies within the group and their families. Informal barriers also include cultural and religious issues, lack of knowledge of how to access the reproductive health care services (Feng et al, 2005). Despite these problems, no study so far has examined the effect of migrant’s kebele registration status on access and use of reproductive health care services in Ethiopia. Therefore, this study fills this gap by having appropriate comparison groups of rural to urban migrants and non-migrant women both at the place of origin and destination. The study compares rural to urban migrant women to non-migrant women at the place of origin (rural natives) and at the place of destination (urban natives). Moreover, the study provides information about the socio-demographic determinants of women’s access to reproductive health care services and factors associated with harmful traditional practices such as female genital circumcision and early marriage in Ethiopia.

## **1.2. Organization of the Study**

To examine the effect of migration status on women’s reproductive health care service utilization, the study is organized in the following orders. In chapter 1, the study introduces the background of the study and the research context. Chapter 2 critically appraised the theoretical and empirical literatures on the effect of migration on women’s reproductive health care utilization in International, Africa and Ethiopian context.

The study aim and objectives were achieved using two studies. Study 1 comprises a secondary analysis of the 2005 Ethiopian Demographic and Health Survey (EDHS) and study 2 is a primary survey conducted in Dabat rural areas and Gondar town. Therefore, chapter three deals with EDHS as the data source for study 1 and its characteristics. It provided a perspective on the EDHS survey methods, study participants, and the survey sample size, the methods of analysis and the descriptions of the variables. Chapter four presents the descriptive and multivariate analyses of study 1 on the impacts of migration status on women’s reproductive health care

services utilization, namely HIV/AIDS and contraceptive knowledge, and use of contraceptives and maternal health care services utilization, and the two harmful traditional practices (early marriage and female circumcision) by women's migration status and finally, the study provides EDHS data limitations and justifications for why study 2 was conducted on the local population of Dabat rural areas and Gondar town.

Study 2 is organized into the following chapters. Chapter five provides a detailed description of the methods of the study, including a description of the study design, sample size, procedures for selection of sample households and study participants, survey management and data quality handling techniques and variable definitions. Chapter six describes the descriptive and multivariate analyses of women's reproductive health care utilization by women's migration status and background characteristics. Chapter seven discusses the major findings, strengths, limitations of the study and chapter eight presents conclusion and recommendations of the study.

## **Chapter Two: A Critical Review of the Literature**

### **2.1. Introduction**

This chapter provides the theoretical background concerning the interrelationships between migration and reproductive health care service utilization and introduces migration and contraceptive method knowledge and use. A brief overview of the impact of migration status on women's knowledge and use of contraceptive and maternal health care services is then followed by a critical appraisal of the methodology of migration and reproductive health studies.

### **2.2. Methods for Searching the Articles**

A strategy was developed to search the literature for original articles published between September 1980 and September 2014 and written in English. The following electronic databases were used: PubMed, Medline, Health Star, Embase, Google scholar, PsychInfo, AIDSLINE, POPLINE, and Sociological Abstracts. In addition to this, the websites of organizations related to reproductive health were thoroughly explored. These included, Center for AIDS prevention studies, Family Health International (FHI), the United Nations Population Fund (UNFPA), World Health Organization (WHO), Population Council, International Planned Parenthood Federation (IPPF), Marie Stops International (MSI), and Pathfinder International.

A total of 754 articles were accessed. Of these only 319 articles fulfilled the inclusion criteria, which were: (1) papers referring to migrant women's reproductive health care and use of services such as contraceptive knowledge and use, and use of maternal health care services such as antenatal care, delivery care and postnatal care, (2) articles referring to access, use and/or quality of reproductive health care services, (3) publication in a peer reviewed journal, (4) articles referring to reproductive health outcomes and/or indicators. All abstracts were reviewed and where they fulfilled the criteria the full paper was critically appraised by the researcher to synthesize the results of the review. The following exclusion criteria were also applied: (1) articles referring to male migrants; (2) articles referring to health issues other than reproductive

health; (3) articles written in foreign languages; (4) articles referring to both women and males migrants; (5) articles only referring to return migrants or rural to rural migrants or urban to urban migrants (6) Articles published before 1980.

### **2.3. Background to Migration Theories**

The majority of studies investigating the impact of migration on women's access to reproductive health care services have been undertaken in America and European countries (Afoble-Munsuz and Brindis, 2006; Leclere, *et al*, 1994). However, these studies may not provide a consistent theory of migration on the way in which migration affects women's access to various reproductive health care services (Chattopadhyay, White, and Debpuur, 2006).

Much of the existing literature on the interrelationship between migration and women's reproductive health care service utilization focuses on small scale surveys (Genereux, 2007) which may not be able to provide the full picture of the interrelationship between migration and women's reproductive health care utilization because they are not representative of migrant population. Census and large scale surveys such as the demographic and health survey contain limited information in relation to migration. In addition to this, many of the studies on the interrelationship of migration and women's reproductive health care services utilization focus on the specific background characteristics of migrants at their place of destination (Chu, 2005; Elliott and Gillie, 1998). There is no coherent theory of migration that properly explains the effect of migration on women's access to reproductive health care utilization (Massey *et al*, 1993). Discipline specific theories have been developed to explain the reproductive behavior of migrant women in isolation from one another. However, the effect of migration on women's access to reproductive health care services cannot be fully explored in this way. Rather, multidisciplinary approaches are needed to incorporate the variety of perspectives, levels, and assumptions of migration (Massey *et al*, 1993). As such, neither the theoretical nor the empirical understanding of the impact of migration on women's reproductive health care service utilization is well understood.

Despite the multidisciplinary approach proposed by researchers to explain the reproductive health differences between migrants and non-migrants, little empirical evidence is available to explain the potential reasons for the observed health gap between migrants and non-migrants. A brief review of migration and reproductive health theories indicate that there are three main theories of migration which aim to explain the relationship between migration and women's reproductive health care services (Lindstrom and Saucedo, 2007; Hull, 1979; Johnson and Marrchi, 2009; King and Locke, 1987; Lindstrom and Munoz-Franco, 2006). Firstly, the migration selection hypothesis proposes that migrants are not randomly selected from among the population at their place of origin; rather, they are selected based on their socio-economic and demographic backgrounds (Kornosky *et al*, 2008). Migration disruption on the other hand, refers to migrant women's separation from their spouses or sexual partners, parents, and relatives immediately after their migration (Sargent and Cordell, 2003). The third migration hypothesis refers to changes in the migrant's reproductive behavior and attitudes in line with the new socioeconomic, cultural, and reproductive behavior of the host community at the place of destination (Leclere, Jensen and Biddlecom, 1994).

These three theories of migration play different roles in their explanation of the migrant and non-migrant differences in access to reproductive health services, and have different policy implications (Yang, 2000). Research to date has produced inconsistent findings on the relative effects of the three migration theories on women's access to reproductive health care services. Policy interventions to improve migrant women's reproductive health care access are also varied according to the context of the study results. As such, we have limited empirical knowledge on the relationship between migration and women's reproductive health care service utilization. In this part of the thesis the three theoretical models that serve to treat the interrelationship between migration and women's reproductive health: selectivity, adaptation and disruption will be presented.

### **2.3.1. Migrant Selection**

A number of empirical studies have been carried out to study the impact of migration selection on women's reproductive health care services utilization at their place of destination (Landale,

Oropesa and Gorman, 2001; Landale, Gorman and Oropesa, 2006). However, no clear pattern has emerged to explain how migration selection affects women's reproductive health utilization. Following migration, migrants may face either negative or positive experiences in relation to access to reproductive health care services depending on the nature of the receiving communities. Migrants are selected for migration by their background characteristics such as age, education, marital status and employment status or behavioral intentions that are different from the population left at their place of origin (White *et al.*, 2007; Kulu and Milewski, 2007; Lindstrom and Saucedo, 2007; Landale and Gorman, 2006; Hervitz, 1985 ).Some studies have suggested that migration selection provides an opportunity for women to access reproductive health care services and promote women's maternal health care utilization (Lindstrom and Hernandez, 2006; Landale, Oropesa and Gorman, 2006). However, most of the studies mentioned so far have no distinct measure of migration selection.

Many studies have documented the effect of migration selection on women's reproductive health care utilization (Brockerhoff, 1994; Chattopadhyay et al, 2006; Clark, 2007; Kulu, 2007). Migration selectivity shows an inequality in the chance of migration among different populations. In particular, a certain age or socio-economic groups are prone to migration. Weeks (2000), shows that young adults aged 20 to 29 are more mobile than any other age groups in America. Migrants are also self-selecting in health seeking behavior and personality (Silventoinen *et al*, 2007; Liebig and Sousa-Poza; 2004). Furthermore, migration is not a random event that occurs from all segments of the population. In relation to this, Weeks (2000) explains that human life cycles may either encourage or discourage human migration. For instance, those who are not currently married (single, divorced, separated, and widowed) have the highest propensity for migration compared to their married counterparts (Feijten and Van, 2007; Muszynska and Kulu, 2007). Family size and ages of children also affect the probability of migration. Women with smaller families and younger children have a greater probability of migration than women who have large families and school aged children (Brockerhoff, 1994; Clark, W., 2007; Hull, 1979; Kornosky et al., 2008). Migrants are also selected in relation to positive birth outcomes, health related traits, resourcefulness, motivation to change oneself and openness to innovation (Landale, Oropesa and Gorman, 2001). In a study conducted by Kulu and Milewski (2007) showed that married and older women are less likely to migrate than younger

women. The study also found that the propensity for migration decreases significantly as family size increases.

A number of researchers have studied the complexity of the migration selection (Silventoinen *et al*, 2007; White, 2008; Gabrielli, Paterno and White, 2007; Kulu and Milewski, 2007; Lu, 2005). Most studies have raised the question of whether migrants are selected positively or negatively at their place of origin. The answer for this question is not yet settled because it is difficult to get a single answer about who is selected and how they are selected, and when it affects women's access to reproductive health care services. Indeed, this is the main challenge of researchers where there are inconsistent findings, even within the same context. This is because the socio-economic and demographic backgrounds of migrants were not clearly known at the time of their first migration (Lindstrom, 2002; Hervitz, 1985).

Generally, migration can show either positive or negative selection based on place of origin depending on the cause and motivation of migration. Positively selecting migrants are more educated and economically well off and have better access to reproductive health services prior to migration (Jensen and Ahlburg, 2004). The positive selectivity hypothesis proposes that migrants' personality predisposes them to use modern health facilities, leading to better reproductive health outcomes than rural non migrants. This coupled with the increased availability of health services and a potential for greater socio-economic status, places them in a better position compared to non-migrants (Omariba and Boyle, 2005). On the other hand, the negative selectivity of migration may be related to socio-economic and demographic problems. It focuses on migrants who have been pushed out from rural areas due to poverty, drought or famine and placed them in slums and shantytowns (Finn and Converse, 1970; Barrios, 2006; Findley, 1994). This situation has forced them to live in destitution and in poor health condition. As a result, they have limited access to reproductive health care services. A recent study conducted in the slum areas of Addis Ababa showed that nearly one quarter of female migrants moved from rural to urban areas to escape from rural poverty and early marriage live in slums and shantytowns (Erulkar *et al*, 2009

### **2.3.2. Migration Adaptation Theory**

One of the most popular concepts in population migration is the theory of migration adaptation. Adaptation can be defined as the process by which migrants adopt the culture, values, customs, beliefs, and behavior of a new environment (Santelli, Abraido-Lanza and Melnikas, 2009; Gabrielli, Paterno and White, 2007; Leclere, Jensen and Biddlecom, 1994; Berardo, 1966). The concept of adaptation is rooted in the disciplines of sociology and anthropology which are used to explain the effect of migration on women's reproductive health. From a sociological perspective, adaptation may be determined by the social and cultural norms that prevail in the new residential environment which can shape and change the reproductive behavior of migrants (Chattopadhyay and White, 2000; Gabrielli, Paferno and White, 2007).

A number of studies have documented the effect of migration adaptation on women's access to reproductive health care services (Liu *et al*, 2011; Negdeve, Bharati, 2003; Zhao *et al*, 2009). However, how migration adaptation affects women's access to reproductive health care services is still not well understood. Moreover, previous studies on the effect of migration adaptation on women's access to reproductive health care services focused predominantly on international migrants (Berggren *et al*, 2006; Bollini, 2007). The reproductive health impact of internal migration has been mostly ignored until very recently in developing countries. The available evidence has also been criticized due to a lack of consistency and adequate measures of the effect of migration adaptation on women's reproductive behavior. For instance, we have little empirical evidence to explain measurements of the level of adaptation and how it affects women's access to reproductive health care services? As such, it is not clear to what extent the levels of adaptation measurements have content validity (Hunt, Schneider and Comer, 2004).

Some studies have indicated that the differential in access to reproductive health care services between rural to urban migrants and non-migrants is not only due to changes in the geographical or physical environments, but also the exposure of migrants to the new urban socio-cultural and economic environment and migrant women's adaptation to this environment (Stromberg, Peyman, and Dowd, 1974; Malmusi, Borrell and Benach, 2010). However, sometimes, migrants who move to a new geographical area are more likely to encounter a number of challenges in adjusting themselves to the demands and expectations of the new socio-cultural environments at

their new place of destination (Lindstrom, 2003). Adaptation is not a one-way process. Sometimes the host culture is also influenced by an influx of migrants' way of life and cultural values (Stromberg, Peyman, and Dowd, 1974). Urban migrants have different ethnic, economic and occupational and social class composition which makes the adaptation process complex. Thus, adaptation to the new urban social environment depends on migrants' socio-cultural and economic backgrounds (Malmusi, Borrell, and Benach, 2010). The diversification of migrants in terms of background characteristics also makes adaptation a challenging process for migrants to the new place of destination. Maintaining social relations with friends, relatives or people who came from the same place of origin facilitate migrants' adaptation to urban life (Korinek, and Smith, 2011). Migrants who have friends and relatives at their destination areas are more likely to have social networks and interactions and they are also more likely to adapt to urban life compared to women who do not have any social networks. On the other hand, maintaining contact with family and friends in the migrants' place of origin could also be a particular problem for adaptation to urban life (Stromberg, Peyman, and Dowd, 1974).

According to adaptation theory, individual's readiness, willingness and ability to assimilate with the social and economic contexts, that prevail in the destination area determine their reproductive behaviour (Kulu and Milewski, 2007; Ford and Chamrathirong, 2012). Migrants' readiness to adapt to urban reproductive norms is important to enhance their reproductive health outcomes. In relation to this, many studies suggest that maternal reproductive health outcomes (such as, contraceptive use, prenatal and postnatal service use) are directly affected by migration adaptation (Lindstrom and Munoz-Franco, 2006; Lidstrom and Hernandez, 2006; Lindstrom and Munoz-Franco, 2005). As such, migration can influence reproductive health either by adopting destination reproductive norms or by responding to the opportunity costs of the destination areas (Jensen and Ahlburg, 2004; Kahn, 1994).

The pattern of learning and adaptation of modern reproductive health practices also varies with time. Immediately following migration, migrants' adaptation to urban norms, values and reproductive behavior may be less complete due to their limited exposure and interaction with the population in their new location (Lindstrom and Saucedo, 2007). Gradually they try to adapt to the reproductive behaviors that prevail in the destination area (Jensen and Ahlburg, 2004). One of the factors that contribute to women's adaptation to urban reproductive behavior is the

number of years in their current place of residence. Even though there is no definite effect upon the reproductive health care utilization, it appears to help migrant women to adopt the reproductive health situation of the host population. The empirical evidence on the relation between migration adaptation and women's reproductive behavior is mixed. Various studies have reported a positive relationship between migration adaptation and women's access to reproductive health care services (Leclere, Jensen and Biddlecom, 1994; Farber and Lee, 2003; Urquia, *et al*, 2011).

A number of studies have documented that migration adaptation is not only influenced by individual migrant's background characteristics, but also by the socio-cultural characteristics of the host community (Moreno, 1994; Hervitz, 1985; Lindstrom, 2003). Most studies support the idea that there is no uniformly agreed set of individual level variables that can explain migrants' reproductive health behavior adaptation inequalities across different study contexts (Chattopadhyay, White, and Debpuur, 2006). Rather, individual migrant's reproductive behavior adaptation is influenced by the social and economic context of the host community. Therefore, women's reproductive health behavior adaptation is influenced by the socio-economic opportunities and constraints prevalent in the new areas of destination (Minnis, 2010). For instance, in moving to urban areas, migrants may encounter many problems such as increased cost of education and health care services, problems in access to social services, and income constraints, especially for new migrant women. Migrants also experience a new culture, norms and values in relation to contraceptive method use and maternal health care services. Migrants' economic adaptation in urban areas is expected to occur relatively soon after migration, but adaption of urban reproductive norms, values and behaviors may take some time (Lindsrtom, 2003).

Many studies have been conducted to examine the effect of migration adaptation on women's access to reproductive health care services (Hervitz, 1985; Rumbaut, and Weeks, 1986; Chattopadhyay, White, and Debpuur, 2006; Farber and Lee, 2003). However the findings of these studies are contradictory. This may arise due to differences in the study context, the sample size the study employed, and the different characteristics of migrant population. Many previous studies did not collect data on the year of migration and duration of residence. In addition, the majority of migration and reproductive health related studies failed to utilize migration history

data (Manner, 2011). As such those previous studies were unable to find any adaptation effects because they used insufficient data on migration history to allow them to trace the adaptation behavior of migrants through time. The most obvious limitation of the theories of migration adaptation is that they fail to consider differences among migration categories, in terms of origin, socioeconomic status, gender, age, culture, religion, and reasons for migration. All these diverse background characteristics affect migrants' adaptation at their place of destination.

Migration as a social force helps to redistribute the population by pooling individuals from different communities to integrate into a new social setting which may take some time (Vaiou, 2008). The delaying of integration into the new social setting may have the effect of reducing women's access to reproductive health care services in the new environment (Thu, 2006). Over time, their adaptation may be facilitated by neighbors, friends, or relatives through the exchange of information regarding how to access the reproductive health care services in the new place of destination (White and Gebre-Egzbiabher, 2004). As their length of exposure to the host society increases reproductive behaviours gradually move towards those of the host community so that eventually the migrant's reproductive health outcomes will resemble that of women in the destination areas. According to Brockerhoff (1990) migrants' adaptation is often facilitated or constrained by (a) previous exposure to the urban environment. (b) The receptivity of the present urban population and urban institutions, (c) duration of residence in the city; and (d) positive migrant selection in the place of origin.

### **2.3.3. Migration Disruption Theory**

Migration disruption can be defined as "separation from one's place and family of origin and difficulties to assimilate into a new destination area" (Lindstrom and Saucedo, 2007). Migration disruption often weakens or strains the social bonds of integration at family and community level (Mberu, and White, 2011). As a result, it has a significant effect on women's reproductive behaviour as well as their access to reproductive health care services. For example, migration disruption may lead to a reduction in the use of contraceptive methods and access to maternal health care services. This may be due to the many changes that occur following migration, including unemployment and the resulting loss of income; separation from spouses or family;

temporary unavailability of reproductive health services, and a breakdown in social and cultural ties (Hull, 1979; Sargent and Cordell, 2003). Like migration selectivity and adaptation, migration disruption also affects the reproductive health of women in a number of ways. Migration disruption may lead to a delay in or elongation of the birth interval because of spousal or partner separation (Hervitz, 1985)

In relation to migration disruption, a number of issues may be raised such as what, when and how it affects women's access to reproductive health care services. This helps to clearly understand the nature of migration disruption. Many researchers argue that migration disruption may not have the same effect on all migrants since migrants have different socio-cultural and economic backgrounds (Chattopadhyay, White and Debpuur, 2006; Genereux, 2007; Lindstrom, and Saucedo, 2007; Feng *et al*, 2002). The effect of migration disruption also changes over time; therefore, there may not be a consistent finding on the effect of migration disruption in women's access to reproductive health care services. As seen in migration selection and migration adaptation studies contradictory findings are reported on the effect of migration disruption on women's reproductive health services utilization. This could be because many of the studies are conducted in different social contexts using different migration streams, some use cross-sectional data which limits the ability of the study to clarify how migration disruption affects women's access to reproductive health care (Kulu, and Milewski, 2007)

Migration may also disrupt contraceptive use or increase the risk of extramarital sexual activity which may lead to increased fertility (Jensen and Ahlburg, 2004; Gabrielli, Paterno and White, 2007). It may, nevertheless, be hard to detect clearly the effects of migration disruption on fertility/ reproductive behavior if there is a high contraceptive prevalence rate and good transportation and communications systems are established. For example, good transport and communication services minimize the effect of separation (Lindstrom and Hernandez, 2006). Most rural to urban migrants leave behind the support of traditional values, families, friends, and familiar ways of life and they face a new and uncertain environment after migration (Kloos and Adugna, 1989). Migrants may also be unfamiliar with family planning programs, and may be unable to obtain information easily. In particular, recent migrants may have limited access to contraceptive use and family planning services (Garder Blackburn, 1996).

A number of studies have documented that migration is associated with physical and emotional separation from parents, spouses, friends or relatives. Physical and emotional separation may cause lower fertility of migrants following recent migration (Lindstrom, and Saucedo, 2007; Chattopadhyay, White, and Debpuur, 2006; Hervitz, 1985). On the other hand, migration disruption could increase fertility as migrants no longer have access to their supply of contraceptive services or migration could limit a woman's ability to control her reproductive behavior especially immediately after the migration. However, since improvements in communication and transport networks migrants can remain in frequent contact with spouses or relatives using telephone or mobile. The effects of migration disruption on women's access to reproductive health care services may be minimized (Jensen and Ahlburg, 2004). The disruptive effect of migration is observed only in the initial stage of the migration. In the long-run, migration brings significant improvement in reproductive health care utilization.

#### **2.3.4. Summary**

In this section the various theories of migration that affect women's access to reproductive health care services have been reviewed. The most common theories are: migration selection, disruption and adaptation. These three theories have different effects on migrant women's access to various reproductive health care services. A number of studies have documented the requirement of a comparison group to test the potential effect of migration selection, disruption and adaption on women's access to reproductive health care services. Many past studies compare rural to urban migrants with people who remained in rural origins to test the effect of migration selection. Some studies also compare rural to urban migration with that of urban non-migrants to test the effect of migration adaptation. In addition to migration factors, studies have explored the socioeconomic, demographic, and cultural factors that affect women's access to reproductive health care services. Results show that rural-urban migration increases access to contraceptive and maternal health care services. Rural to urban migration has also exposed women to employment and economic opportunities. This in turn increases women's access to various reproductive health care services.

## **2.4. Critical Review of the Empirical Literature on the Effects of Migration on Women's Reproductive Health Care Utilization**

### **2.4.1. Introduction**

This section of the thesis presents a critical appraisal of the empirical literature on the effect of migration on women's reproductive health care services utilization in International, Africa and Ethiopia contexts. The literature review took into account the four reproductive health components of the thesis, namely: reproductive health knowledge (contraceptive and HIV/AIDS), and reproductive health care service utilization (contraceptive and maternal health care services). Socio-economic and demographic characteristic effects were considered. The findings are summarised in a table at the end of the chapter.

### **2.4.2. The Effect of Migration on Women's Reproductive Health Care Utilization: an International Context**

Fertility differences of rural and urban residences were exhaustively studied in the past since the World Fertility Survey (Lindstrom and Saucedo, 2007; Rindfuss, 1976; Harrison and Montgomery, 2001; Narzary, 2009; Wong, 2012; Moreno, 1994; Lee, 1992). Similarly, the relationship between migration and fertility has been also studied both at national and international level (Allman, and May, 1979; Batch, 1981; Goldstein, 1973; Harrison and Montgomery, 2001; Hiday, 1978; Lindstrom, 2002; Lindstrom and Saucedo, 2007; Jensen, Ahlburg and Dennis; Stark and Taylor, 1991). However, after the Cairo International Conference on Population and Reproductive Health, the research agenda has focused on the effect of migration on women's reproductive health (Allman and May, 1979; Batch, 1981; Najafi *et al*, 2012; Kumar, Fuloria and Taunk, 2012; Jain and Muralidhar, 2011; White and Speizer, 2007; Lindstrom and Hernandez, 2006; Lidstrom, 2002; Lidstrom, 2003; Chen, Liu and Xie, 2010; Subaiya, 2007; Manner, 2011; Seiber and Bertrand, 2002; Leighton, and Sheetal, 2001).

Although, a number of studies have been conducted on the effect of migration on women's reproductive health, they are not able to provide detailed information to understand the gap in reproductive health between migrants and non-migrants (Mberu, 2006; Lindstrom, 2002;

Lindstrom and Hernandex, 2006). According to some studies, the effect of international migration depends on the types of migration, the circumstances leading to migration, levels and degree of social support migrants receive from their place of origin or destination and the context in which migrants often live, such as language, culture, health care system and policy, discrimination and the legal status of migrants do have an effect on women's access and use reproductive health care services (Lu, 201; Malmusi, Borell and Benach, 2010). Moreover, the positive or negative effect of migration on women's reproductive health knowledge and use also may be mediated by personality or background characteristics of migrants such as level of education, socio-economic status, and previous experience of migration (Lindstrom and Munoz-Franco, 2005; Wilson, 2009; Subaiya, 2007; Leite and Gupta, 2007; Thwin, Kamsrichan, and Chompikul, 2008; Nalwadda et al, 2011; Thwin, Kamsrichan, and Chompikul, 2008; Dehlendorf et al, 2010; Zhao et al, 2008; Wilson and McQuiston, 2006; Rahman et al, 2011; Prata et al, 2011; Chattopadhyay and White, 2000; Rahman *et al.*, 2007).

Migrants were less likely to receive maternity care, during pregnancy, at labor and births and during the postpartum hospital stay compared to non-migrants due to communication problems with care givers, insufficient access to interpreters, lack of knowledge how care is provided or not receiving adequate information about what options for care exists, experience of discrimination, and /or cultural stereotyping, lack of attention to traditional values of migrants by care givers, and migrants fear of deportation (Lassetter and Callister, 2008), (Viruell-Fuentes, 2007; Adanu and Johnson, 2009; Landale and Oropesa, 2001). A similar study on legal migrants in Netherlands also shows that migrants from sub-Saharan Africa were three times less likely to attend antenatal care compared to the native born women (Dias, Severo and Barros, 2008). However, little is known from this study about the reproductive health problems of undocumented or illegal migrants. Moreover, in the multi-variate analysis, the study did not control for the confounding effects of migrants' background characteristics. Similarly, in France, postpartum risk for maternal death was twice as high for foreign-born women after taking individual background characteristics into account (Sargent and Cordell, 2003).

International migrants are also subjected to different discrimination in access to health care services (Elliott and Gillie, 1998; Bollini, 2007). In relation to this, some studies reported that migrants from Africa, the Caribbean regions, and Asian countries have limited access to reproductive health care services compared to the host population in Western countries (Titaley, Dibley and Roberts, 2010; Bakhru, 2008; Gagnon, Zimbeck and Zeitlin, 2009; Frank, 2005; Bollini and Siem, 1995; Merten, 2007; Gagnon et al, 2009; Hull, 1979). Contrary to these results, studies from the United States, Canada, and Australia reported that recent migrants are relatively better in reproductive health outcome than native-born residents because of healthy migrant selection (Higginbottom et al, 2012; Kelaher and Manderson, 2000; Wingate and Alexandre, 2006; Boyle, 2003; Weeks *et al*, 1998; Johnson and Marrchi, 2009; Afoble-Munsuze and Brindis, 2006). However, these studies were not successful in controlling for various background factors of migrants. Unless one has a good control for background factors, the selection effect of migration cannot be identified. Previous studies attempted to control for selectivity by using various socio-economic and demographic characteristics of migrants (Smith and Bailey, 2003; Zimbeck and Zeitlin, 2009). This approach has two serious drawbacks. First, the control variables (e.g., education, and age) should be measured at or before the time of migration. This is not possible with most cross-sectional survey. Second, it is difficult to know whether the various socio-economic factors are attained before or after migration.

Migrants are also faced a number of regulatory restrictions on eligibility for health care services and have limited access to health care services in some countries e.g. in Canada, migrants face a three-month waiting period (Gagnon, Zimbeck and Zeitlin, 2009). Similarly in China, rural to urban migrants are more vulnerable for various reproductive health care service than non-migrants because of migrants' urban resident registration restriction (Feng, Ren, Shaokang, and Anan, 2005; Gao *et al*, 2002; Hesketh *et al*, 2008; Fan, 2003; Hansen, 2001; Liu, 2011; Shanokang, Zhenwel, and Blas (2002) ). Migrants' health problems are fundamentally the result of existing formal institutional arrangements which is, related to urban registration (*hukou*) system. The existing institutional arrangements not only render migrants vulnerability, but also impede them being included in the formal medical care system. Migrants are not allowed to get formal medical care in the cities. As a result, migrants are limited access to reproductive health

care services. A similar study also conducted by Wei and his colleagues (2010) in Kunming city, China to compare the health services knowledge and use of rural to urban migrant women and non-migrants. The data were collected on 2765 respondents using survey questionnaires and found that knowledge of health care service utilization was highest among urban natives compared to rural to urban migrants. However, the sample procedure was incomplete since it considered only women who had permanent residence. Those migrants who have not permanent residence were not included in the study. A number of studies indicated that migrant women who are not permanent residents more vulnerable to maternal health problems and inequalities (Berggren, Bergstrom and Edberg, 2006).

Similarly, different studies in Asian countries also found that migrants have limited access to family planning and maternal health care services (Thu, 2006; King and Locke, 1987; Kornosky et al, 2008; Zhan, Zhenwei, and Blas, 2002; Zhao *et al*, 2009; Say and Raine, 2007; Lu, 2010; Collin, Anwar, and Ronsmans, 2007). For example a study conducted in India by Stephenson and Matthews (2004) reported that migrants have a serious reproductive health problem than non-migrant women. Unfortunately, this study did not have data to indicate whether reproductive health problems of migrants were happening in place of destination or had occurred prior to migration. A similar study in Pakistan found that migrants were found to be less likely to attend maternal health care services than the host population (Agha and Carton, 2011). Another study in Peru also reported that migrants have low rates of maternal health care service utilization because of cultural and economic reasons (Subaiya, 2007). However, most of the previous studies of migration and reproductive health are not directly comparable but broadly compatible.

Although many studies used a county-level data to estimate the effect of migration on women's access to reproductive health care, most of the studies are constrained by limited coverage of migrant population because some are based on data collected from officially registered migrants, which exclude the unregistered migrants (Ford and Chamrathirong, 2012). Other studies are limited to asylum seekers, excluding resident migrants (Hanna, 1998). Yet others focus on recent migrants (Liew, 2009; Titaley, Dibley and Roberts, 2010; Bakhru, 2008) and still others collected data only from the destination area (Moreno, 1994; Ama and Oucho, 2007). In addition

to this, researchers also face many problems in collecting empirical evidences to measure the effect of international migration on women's reproductive health care utilization. These include lack of relevant data, and data that are not based on properly designed statistical samples (i.e., unrepresentative study participants) of the targeted population. Therefore, the quality of the various studies on relationship between migration and reproductive health so far reviewed are highly variable. This affects our knowledge to explain the impact of migration on women's access to and utilization of reproductive health care services. Unless a special attention is given, the gap in knowledge about the effect of migrants on women's reproductive health will persist in the future (Negdeve and Bharati, 2003; Tran et al, 2012; Simkhada et al, 2007; Titaley, Dibley and Roberts, 2010; Wei *et al*, 2010; Fosu, 1989; Silal et al, 2012; Tran *et al*, 2011; Sivakami, and Kulkarni, 1998; Parkhurs, and Ssenooba, 2009; Otis and Brett, 2008; Gage, 2007; Tran *et al*, 2011).

Apart from migration, a number of studies have been conducted to determine the relationship between socio-demographic variables and maternal health care service utilization (Stephenson and Matthews 2004; Liew, 2009; Adanu, and Johnson, 2009; Simkhada et al, 2006; Dyck and Dossa, 2007; Dias *et al*, 2008; Cristancho *et al*, 2008; Chu, 2005; Gany and Bocanegra, 1996; Chavez, Cornelius and Jones, 1985; Iglesias et al, 2003; Navaneetham and Dharmalingam, 2002). These various studies have explored a host of variables such as age, labor force participation, education, length of residence in the current place, cultural and other personality's factors which might affect migrant women's access to maternal health care service utilization. Similar studies in Latin America countries indicate that socio-economic status of women, women's labor force participation, women's autonomy and empowerment are the major factors that affect women's access to maternal health care services (Oladapo, and Osiberu; 2008; Lindstrom, 2003; Lindstrom, 2002; Lindstrom and Hernandez, 2006). A comprehensive literature review of 34 studies was conducted to assess the determinants of maternal health care service utilization in developing countries (Simkhada *et al*, 2008). The review found that education, financial cost, supply, and distance to health institutions are the major factors that affect women's access to maternal health care services. Similarly, Simkhada, and his colleagues (2006) conducted a literature review on major determinants and key issues in maternal health in Nepal which identified the following factors as the major determinants of maternal health care

service utilization: political instability, limited health infrastructure, lack of resources and shortage of trained health professionals, low position of women in the society, communication and transportation problems (Dhaher *et al*, 2008; Navaneetham and Dharmalingam, 2002; Gabrysch, and Campbell, 2009).

#### **2.4.3. The Effect of Migration on Women's Reproductive Health Care Utilization: African Context**

Over the last two decades after the Cairo International Conference on Population and Development, most African countries have designed a reproductive health care policies to reduce maternal mortality (Adjasi, & Abor, 2011; Alvarez *et al*, 2009; Babalol, & Fatusi, 2009; Brazier *et al*, 2009). Although, some remarkable progress have been achieved by some of the African countries; still women in Africa, especially in rural areas have limited access to reproductive health care services. As a result, around 2 million women in Africa have unmet need for family planning. Of these, nine of ten women who have unmet need for family planning live in Sub-Saharan Africa countries and around 2.2 million women experienced unwanted pregnancies are also found in Africa (WHO, 2005; Cham *et al*, 2005; Bocquier *et al.*, 2004; Brockhoff, 1990; Brockhoff and Eu, 1993; Prata, 2007; Exavery *et al*, 2013; Scorgie *et al*, 2011).

Many studies in Africa have indicated that women who live in urban areas have a relatively higher level of contraceptive and HIV/AIDS knowledge and use of contraceptives than women who live in rural areas (Anglewicz, 2012; Brockhoff, & Biddlecom, 1999; Carno & De Walque, 2012; Goldenberg, *et al*, 2012; Guiella, & Madise, 2007; Owoaje *et al*, 2011; Peltzer *et al*, 2009; Arinze-Onyia, 2010; Upton, 2003; Ama and Oucho, 2007; Freedman, 1997; Prata *et al*, 2011; Wibber, 2007; Fosu, 1989). Because women in urban areas have more access to reproductive health information than women in rural areas, urban life also exposes women to a positive attitude towards modern health care services compared to women in the rural areas (Dodoo, & Tempenis, 2002; Dodoo *et al*, 2007; White & Speizer, 2007) and modern health facilities such as clinics, pharmacies, and hospitals are also more available in urban areas (Magadi & Brockhoff, 2003; Molyneux *et al*, 2002; White *et al*, 2008 Harrison & Montgomery, 2001; Curtis and Choe, 1999; Caldwell *et al*, 2002; Nalwadda *et al*, 2011). However, many of the studies failed to indicate how many contraceptive methods a woman is

expected to know to say she is knowledgeable. In addition to this, knowledge about contraceptive methods is also depends on women's self reported information. However, self-reported information may be susceptible to recall biases.

In addition to rural to urban differences, there are also differences in access to and use reproductive health care services by migration status (Ama & Oucho, 2007; Lee, 1992; Mberu, & White, 2011; Omondi & Ayiemba, 2003). To assess the impact of migration on women's use of reproductive health care services, a number of studies have compared rural to urban migrants with that of urban non-migrants (Omondi and Ayiemba, 2003; Silal et al, 2012; Chiang et al, 2012). However, many of the data sets are not came from a random sample as well as from a well defined migrant population. These types of data may provide some information, but using these to assess the impact of migration may lead to an erroneous conclusion. Recently, a number of studies have been conducted in many African countries to identify and explain the factors that responsible for reproductive health gap between migrants and non-migrants (Antai, 2010; Mberu White, 2011; Brockerhoff and Biddlecom, 1999). However, many of the studies found inconsistent conclusions (Nketiah, 2012; Sengonzi, Dejong, & Shannon, 2002; Behrman et al, 2002; Potts, 2000; Twumasi-Ankrah, 1995) because of the conflicting empirical evidence among different studies in different contexts.

The inconsistent findings among studies may be due to differences in the methodological qualities such as the sample size, the type of study participants, the types of data sources and the study design employed by different studies. The inconsistent findings are also caused by the lack of valid and reliable measures of migration and the lack of common definitions in relation to migration across studies. Beyond methodological differences, the heterogeneity of migrants in different contexts also produces inconsistent results across studies (Kohler, Behrman & Watkins, 2001). In addition to these, individual studies also vary in data analysis strategy to examine the effect of migration on women's reproductive health.

Apart from migration characteristics, a few studies in Africa identify various socio-economic and social networks or cultural factors that affect migrant women's access to reproductive health care services (Bazant and Koenig, 2009; Eijk et al, 2008; Fotso, Ezeh and Oronje, 2008; Upton, 2003; Antai, 2010; Soldan, 2004). Among the various factors that identified by the studies include

individual predisposing variables such as demographic factors and enabling variables include socioeconomic status, social position, access to resources, and women's empowerment (Crissman, Adanu, & Harlow, 2012; Adjasi, and Abor, 2011; Magadil, Zulu, and Brockerhoff, 2003; Do & Kurimoto, 2012). Similarly, other studies identify the following factors that affect women's reproductive health care utilizations such as lack of physical accessibility, cultural beliefs and perceptions and low literacy level of women (Magadi *et al*, 2003; Molyneux *et al*, 2002; Tawiah, 1997). The evidences from these studies have shown that the socio-cultural, health systems, basic infrastructure and other challenges contribute to poor reproductive health services in general and low maternal health care service coverage in particular.

Many researchers have documented that education is one of the most important predictors of women's access to reproductive health care services (Nketiah, 2012; Osemwenkba, 2004; Tawiah, 1997). For instance, the more educated a woman, the more likely she is to access reproductive health care services. In relation to this, a study conducted in Kenya by Omondi and Ayiemba (2003), using DHS data showed that education has a positive effect on the use of contraceptive methods. According to the same study, migrant women with secondary and tertiary education use over 80 percent of contraceptive methods. On the other hand, women with only primary education level use less than 40 percent of contraceptive methods. A similar study in Nigeria by Osayisoemwenkha (2004) showed that education enables migrant women to change their reproductive behavior ranging from delayed marriage, access to information about family planning, and discussion about family planning with spouses or partners. Education also enables women to make independent decisions about reproductive regulation and methods. Education provides a range of reproductive health information, better understanding of reproductive purposes and access to modern and effective birth control methods (Ama and Oucho, 2007; Nketiah-Amponsah, Arthur and Aaron, 2012; Arinze-Onyia *et al*, 2010).

Many studies have documented a positive relationship between female labor force participation and level of maternal health care utilization (Chiang *et al*, 2012; Babalol and Fatus, 2009). Access to formal labor force participation contributes to the frequent and efficient use of maternal health care services. Women who are engaged in the labor force have a high probability of using maternal health care services compared to women who are not working (Babalol and Fatus, 2009). Migrants' formal employment and income have an impact on women's maternal

health services utilization (Dias, Severo and Barros, 2008). Migration often exposes women to labor force participation and greater financial independence (Kloos, 1982; Mberu, 2006; Brockerhoff and Eu, 1993). Financial independence in turn has a positive effect on women's access to maternal health service utilization. Some scholars, however, have argued that unemployment has a marginalizing effect and that women are concentrated in low-skilled, poorly paid, and unsuitable occupations (Twumasi-Ankrah, 1995). As a result, they are affected by poverty and poor reproductive health outcomes (Gyimah, Takyi & Addai, 2006).

Demographic variables also affect women's use of reproductive health care services. A significant number of studies have investigated the relationship between migrant's demographic characteristics and maternal health care service utilization (Babalol et al, 2009). The importance of age as an influence on women's use of reproductive health care service has been frequently documented in the literature. In Botswana, for instance, women under age 20 were less likely autonomous to use contraceptive services until they marry, whereas married women have no such restriction/imposition of contraceptive service (Ama and Oucho, 2007). Some studies have indicated that rural-urban migrants tend to be younger than non-migrants (Adanu and Jonson, 2009; Fan, 2003). In a study conducted by Lee (2004) in Cameroon found that contraceptive use was higher among migrant women whose age 20-29 and low at younger and older ages. The study also showed that contraceptive use increased for women up to age 20 years and then declined for women whose age is 40 and above (Nketiah et al, 2012).

The evidence with regard to age appears to be inconsistent. Using the Kenyan Demographic and Health Survey data, Ochako and his colleagues (2011) has documented that a large percentage of young pregnant women do not seek ANC during their first trimester. On the other hand, Bazant and Koenig (2009) have documented that women's age has no any significant impact on the use of maternal health care service utilization. Thus the research evidence indicates that there appears to be no clear-cut relationship between age and maternal health care service utilization. Other studies in Africa also found an inverted U-shaped relationship between age and health facility delivery, at a lower age leads to increased health facility delivery, but as age increases, and then delivery at a health facility began to decline (Cham, Sundby, and Vangen (2005).

In addition to women's age, number of children a woman has and her experience of pregnancies have an effect on women's contraceptive use. For instance, Contraceptive use was lower for women with no children and much higher for women with large number of living children (Omondia and Ayiemba, 2003). A similar study also showed that women with several children (3+ children) are more likely to use contraception than women, who have fewer children (Osemwenkba, 2004). Similarly, women's experiences of multiple pregnancies are also one of the demographic variables that affect women's access to maternal health service utilization. For example, women with higher birth order had greater odds of delivery at home as compared to first birth order (Babalol, & Fatusi, 2009). The study conducted in Ghana revealed that the use of both antenatal and delivery care services for subsequent pregnancies is less apparent among those women of high parity and those who are residing in the rural part of the country (Adjasi & Abor, 2011). A Similar study by Babalol and his colleagues (2009) indicated that women with higher birth order and those who are living in rural areas had greater odds of delivery at home.

#### **2.4.4. The Effect of Migration on Women's Reproductive Health Care Utilization: Ethiopian Context.**

Many studies in developing countries, particularly in Ethiopia indicate that migration is mainly caused by poverty, drought, famine, war or conflict, environmental disaster, and unemployment (Regassa and Yusufe, 2009; Kloos, 1982; Ezra, 2001; Bocquier *et al.*, 2004; Brockerhoff, 1990; Brockerhoff and Eu, 1993; Kocken, et al, 2006; Barrios, Bertinelli & Strobl, 2006; Byerlee, 1974; Findley, 1994; Twumasi-Ankrah, 1995). However, to date studies have focused on the causes of migration but not on the potential influence of migration on women's reproductive health seeking behavior. As a result, our knowledge about the effect of migration on women's reproductive health is still limited.

A number of studies highlighted that the majority of the rural to urban migrants are seasonal or temporary that stay only for short periods of time in slums and shanty areas of the towns which are inaccessible to health care services (Kloos, 1982; Ezra, 2001; regassa, 2009). However, none of the previous studies provide comprehensive and accurate data needed to answer many important questions pertaining to when and how migration affects women's reproductive health care service utilization. Moreover, local reproductive health and family planning workers are

also usually not interested to regulate the reproductive behavior of migrants because the health and family workers are assumed that migrants are not part of the urban population (Tamiru et al, 2011). As a result, migrants have a serious problem to access reproductive health care services in urban areas.

Although a number of studies have reported an increase in the prevalence of rural to urban migration in recent years (Mberu, 1998; Ezra, 2001; Erulkar et al, 2006), many of the past studies in Ethiopia mainly focused on rural-urban resident differences in reproductive health service utilization rather than differences in across the migration status (Berhane, 2001, CSA, 2008). Moreover, previous studies on migration and reproductive health are potentially error-ridden because researchers made unreliable assumptions about the effect of migration on women's reproductive health utilization without having valid data on the prevalence of migration. Despite such problems, a few studies have been conducted on the effect of migration on women's access to and use of reproductive health (Kiros and White, 2004; Ezra, 2001; Regassa, 2009; White and Gebre-Egzbihaire, 2004). Although some of them reported that migration has a positive effect on women's access to reproductive health care services (Regassa, 2009; White and Gebre-Egzbihaire, 2004), the majority of studies have found that migration has a negative effect on women's reproductive health care, especially in relation to HIV/AIDS and sexually transmitted diseases (Brockhoff and Biddlecom, 1999; Camo and Walque, 2012; Goldenber et al, 2012; Erulkar *et al*, 2006). However, most of the studies mentioned so far are cross-sectional studies in nature and as such do not attempt to deal with the difficulty of explaining the causal relationship between migration and reproductive health care service utilization. Therefore, definitive information is not available about migration and its associated effect on migrant's reproductive health care utilization from which conclusions could be drawn.

Apart from migration, pervasive evidence has been found from many studies about the link between women's socio-economic and demographic characteristics and reproductive health care utilization (CSA, 2006; CSA, 2008; Abdella, 2010; Chaya, 2007). For example, the analysis of data from the Ethiopian Demographic and Health Survey (EDHS) on trends in reproductive health care utilization during the period 2000 to 2011 by some selected socio-demographic characteristics show that although the increase was not equally shared, most regions, rural- urban

areas of the country as well as women with different socio-demographics have shown an increase in contraceptive use over the last decade from 8.2% in 2000 to 14.7% in 2005 and 28.6% in 2011 (Worku et al, 2015; Yesufi et al , 2014; Tarekegn, et al, 2014; Tebekaw et al, 2014; Yesuf et al, 2013 ). The trend demonstrated a three-fold increase in the use of contraceptives from 2000 to 2011. Though, the analysis found that a significant association in the bivariate analysis between some selected socio-demographic and overall reproductive health care utilization rates but the relationship is much smaller and less precise after taking into account of other factors. The association between selected socio-demographic variables and overall reproductive health care utilization also appears to be disappearing when multivariate statistical models are used.

In addition to this, a number of cross-sectional studies have been conducted to investigate socio-cultural factors that affect women's use of reproductive health care services (Mirkuzie, 2014; Sori, 2012; Abajobir & Semez, 2014). However, many of the studies were of relatively poor quality as they were too small to have sufficient power to detect any statistically significant differences among predictors (Kwast and Liff, 1998; Lemessa, Yemane and Alemayehu, 2013). One further analysis was carried out using the 2011 Demographic and Health Survey to identify the major factors that affect women's reproductive health utilization. The analysis found that education, access to health services, distance to a health facility, women's status and autonomy were the significant predictors of women's reproductive health care utilization. But the study analysis largely focused on the individual factors by ignoring the household and community factors. However, the household and community factors have been recognized as important contextual factors that affect women's reproductive health care utilization. Another limitation of the analysis is that it did not adjust any potential confounders that affect the multivariate results.

Similarly, a secondary data analysis was carried out to examine the trends of modern contraceptive use among young married women based on the 2000, 2005 and 2011 Ethiopian Demographic and Health Survey (Worku et al, 2015; Yesufi et al, 2014). In the multivariate analysis, residence has a marginal effect among young married women's contraceptive use. However, the investigators did not provide the cultural factors, which intricate women's access and use of family planning services. Moreover, the study did not explain as how the instruments were developed (i.e., neither the validity nor the reliability of the instruments were mentioned).

Similarly, Hogan and Biratu (2012) studied the social identity and community effects on contraceptive use and intentions in more detail in Southern Ethiopia and found no evidence for compositional factors by themselves to explain variations and intentions in contraceptive use. The major limitation of this study is that the data were analyzed without making further triangulation. In addition to this, the study employed non-randomly selected respondents, it is often difficult to make a generalization to the population from which the respondents were drawn and the instruments were inadequate for detailed analysis of the predictors.

A study has documented that employment in the formal sectors has a positive significant effect on women's use of maternal health care services. This finding, was however, based on qualitative study without comparative data for the mothers of non-working women and has not been replicated in other studies (Mirkuzie, 2014). A similar study by Gizaw and Regassa (2011), found that the use of contraceptive methods for women working in the formal labor was found to be three-fold with borderline statistical significance. However, as this finding was based on 230 women and the authors stressed the need for caution when interpreting the results and recommend further research. Further, evidence of a link between employment and use of reproductive health care service was produced from a community- based study (Feleke et al, 2013; Feleke et al, 2013; Worku et al, 2013). Once again, however, these evidences were not conclusive because at the analytical level, the studies did not control for the confounding effects of important covariates.

Women's maternal health care utilization is also determined by a number of factors in Ethiopia (Mekonen and Mekonen, 2003; Birmeta et al, 2013; Nigatu et al, 2014; Abebe et al, 2012; Shiferaw et al, 2013) . For instance a study by Aliy and Haile Mariam (2012) was conducted in Butajira, Southern Ethiopia on determinants of equity in utilization of maternal health services. Out of 190 interviewed mothers, 180 were used in the analysis. Of the 10 mothers not used in the analysis, 6 mothers were refused to be interviewed and 4 mothers were excluded due to health problems. Initial analysis from this study concentrated on access and supply factors, pregnancy and socio-economic factors including maternal educational level, family income, details of mother's childhood residence, distance to a health facility. Although univariate

analysis showed a significant association between many of the factors and maternal health care utilization, the conclusion of the study following binary logistic regression analysis was that “socially disadvantaged women such as illiterate and economically poor were more likely to prefer to deliver at home. However, the conclusion of the study has flawed with only small number of mothers were interviewed and the collection of data from maternal interviews after three or six months of births, the data quality may also be suffered from recalling problems.

A population- based analysis was also carried in Ethiopia to identify major factors that affect women’s maternal health care utilization (Yesufi et al, 2014; Worku et al, 2015). The multivariate analysis was conducted using binary logistic regression with adjusting for the various socio-demographic and cultural factors. The results indicated that most of the significant associations in this study were for education, residence, employment and wealth status. A further analysis to test an association between maternal health care utilization and economic status, in particular household’s wealth status has significant positive effect on women’s delivery at a health facility. Data about wealth status was collected using a self-report ownership of physical assets such as car, television, radio and others. However, there are three basic problems with the existing wealth analysis. First, there is the problem of the accuracy of self-reported measures of assets in a given household, the standard against which the wealth is being compared and the effects of non-response and erroneous response affect the quality or accuracy of wealth measurement.

A further cross-sectional study was conducted in Northwest Ethiopia (Worku et al, 2013) to examine the demographic factors on women’s maternal health care utilization. The study was conducted on 2012 and 1668 women were interviewed. The conclusions from this study were that there was a statistically significant three-fold increased in the use of antenatal care in early pregnancy (OR 3.2; 95%CI 1.4 to 7.1). First trimester use of antenatal care was associated with a 50% increased use of health facility delivery (OR 1.5; 95%CI, 1.1 to 2.2) whereas use of antenatal care after 4 visits were not statistically significant in health facility delivery. A similar study was also conducted in Ethiopia by Shiferaw and his colleagues (2013) from 15 to 49 year old mother’s preference on home births. Mother aged 35 to 49 were ten times more likely to

deliver at home compared to mothers aged 15 to 19 years because of cost, distance or lack of transportation, poor quality and previous negative experiences. This pattern was also found by Feleke and his colleagues (2013) in Ethiopian Demographic and Health Survey data. The results indicated that compared to mothers of age 30 years or more, mothers aged less than 20 years were more likely to use antenatal care services. Further, the analysis also confirmed that with young maternal age and first parity mothers were more likely to use maternal health care services. Following adjustment for age, all factors except the distance to the health facility, were not significant.

#### **2.4.5. Summary of the Literature Review**

The literature review has provided an overall picture about the effect of migration on women's reproductive health services utilization in International, Africa and Ethiopia contexts. The reviews show that migration may increase or decrease or has no effect on the likelihood of women's access to and use of reproductive health care services depending on the place where migrants come from and where they settle, the reason of migration, the type of migration, the motivation of migration, and the legal status of migrants, the hospitality of the host community as well as the personal background of migrants including language, social and economic status, age, education, cultural beliefs and values, aspirations, and migration history. These are critical issues in explaining when and, how migration affects women's reproductive health. Without taking into account of these points, it becomes very difficult to understand the effect of migration on women's reproductive health.

The literature reviews also show that the effects of migration differ from context to context. For instance, international migration may have a negative effect on women's access to reproductive health care because of cultural and linguistic miscommunication between migrants and their caregivers, lack of knowledge of migrants how care is provided or not receiving adequate information about what options for care exists, experience of discrimination, and /or cultural stereotyping, lack of attention to cultural or traditional values of migrants by care givers, and migrants fear of deportation. This is particularly evident in the literature on maternal health care services during antenatal visits, during delivery and after delivery. Consequently, culturally-sensitive and language-specific programs that bridge the gap between care givers and migrants

should be design in receiving countries. Moreover, International migrants are also subjected to different discrimination and regularity restrictions on eligibility for health care services, for example, in Canada; migrants face a three-month waiting period to access the formal health care system. Similarly, In China, migrants also exclude from the formal health care system due to the existing institutional arrangements which is, related to urban registration (Hukou) system. The review also highlighted that international migrants do not always suffer from worse reproductive health than their non-migrant counterparts; their outcomes may be better or just similar. In relation to African and Ethiopian contexts, the review highlights that migrants face a number of socio-economic, cultural as well as institutional barriers to access and use of reproductive health care. For instance, in Ethiopia migrants should be registered as a legal residence to get the health care and other social services. In addition to this, the socio-economic and demographic background of women such as women's labor force participation, level of education, age, number of children a woman has, parity, resident, religion, and physical distance to health care services, transportation problem are some of the factors which affect women's reproductive health. Migrant women are also more likely at risk for various reproductive health problems because of rape, sexual violence, gender-based discrimination, involvement in sexual work and these behaviors accelerate the prevalence of HIV/AIDS among migrant population.

Despite the review the literature covered a broad aspects of migration and reproductive health, several topics remain not clear and a number of questions remain unanswered. To begin with there is a lack of data on the reproductive health of different migrant groups both within and between countries, whilst existing data are often incomparable due to an absence of consensus on what constitutes health, including reproductive health, and on who is a migrant and non-migrant. Yet the biggest gap identified relates to the relationship between migration, culture and reproductive health. The majority of studies reviewed fail to provide in-depth understanding how cultural factors shape 'the particular ways in which reproductive events are associated with health outcomes. A number of studies address the problems of migration, many if not most studies have low quality data because of a number of reasons. For example, we do not know exactly how and when migration affects women's access to reproductive health services. Moreover, it may not be easy to collect accurate information on migration for several reasons: some people may be illegal migrants so that they may not be interested to give information about

their migration. Therefore, none of the existing data sources, by itself or in combination with others, provides comprehensive, timely, and accurate data needed to answer many important questions pertaining to the effect of migration on women's reproductive health care services.

**Table 2.1: Summary Table for Major Publication of Migration and Reproductive Health Care Utilization**

Location	Author	Method (coverage, database, yr)	population	Major findings: Predictors
<b>Ethiopia</b>	(Shiferaw et al, 2013)	Local cross-sectional survey, 2013	Not specifies	Only 16% mothers delivered at a health facility: cost, distance or lack of transportation, poor quality of care, previous negative experience and low awareness
	(Yesufi et al , 2014)	Nation-wide repeated scurvey 2000,2002 and 2011	7978, 7978, and 7908 women in each survey	The institutional delivery at the study periods were 5.4% in 2000 and 11.8 in 2011: factor were secondary/higher education, wealth quintile, and place of region
	(Worku et al, 2015)	National: EDHS 2000, 2005 and 2011	2, 157, 904 and 2,146 women in 2000, 2005 and 2011 respectively	Contraceptive prevalence increased from 6% in 2000 to 16% in 2005 and to 36% in 2011
	(Worku et al, 2013)	Local Population-based survey, 2012	1668 who had at least one birth	About 32.3, 13.8% and 6.3% of women received ANC, delivery and postnatal care, respectively: awareness, previous experience, birth order, and education
	(Feleke et al, 2013)	Local cross-sectional survey, 2012	1290 adolescent aged 15-19	About 68.1% and 88.4% of adolescent utilized contraceptive and VCT services: education, discussion with family/partners, peer groups and teachers
	(Abajobir & Semez,2014)	Community-based cross-sectional survey, 2012	415 female adolescent	Only 67% of adolescents had RH knowledge: information, education and communication
	(Sori, 2012)	Local cross-sectional survey, 2011	300 households	Migrants more vulnerable to HIV: age, economic status, and education

Location	Author	Method (coverage, database, yr)	population	Major findings: Predictors
	(Mirkuzie, 2014)	A qualitative community-based study	45 purposefully selected internal migrant women.	There were inequalities in maternal health care utilization among migrants: social inferences, physical access to health facility, risk perception and experience of disrespectful.
	(Abebe et al, 2012)	A case control study, 2010	A total of 324 mothers(case, n=108 and control, n=216)	Home delivery was higher among mother with inadequate knowledge (AOR= 62, 95%CI: 3.12-8.41), and mother with no formal education(AOR= 4.2, 95%CI: 1.63-11.27) and rural residents(AOR= 3.6, 95%CI: 1.4-9.0
	(Tamiru et al, 2011)	A cross-sectional comparative study	1310(655, rural to urban migrants and 655 non-migrants)	The proportion of rural to urban migrants vs non-migrants who had multiple sexual partners (31.4% vs 7.4%), sex with commercial sex workers (22.3% vs 13.3% and only 12.7% migrants and 9.8% non-migrants use condom.
	(Kiros and White, 2004)	The national community and family survey, 1997	Not specified	Children of Rural to urban migrants have significantly less chance of receiving full immunization than non-migrants' children: age, education, distance to nearest health center and ethnicity.
	(Nigatu et al, 2014)	A community-based cross-sectional study, 2011	706 women	About 41.4% of women had autonomy to decide about their own and children's health care utilization: household income, husband's employment, nuclear family structure, and monogamous marriage
	(Birmeta et al, 2013)	Cross-sectional survey, 2012	422 women	About 87% and 33.7% of women had at least one and four antenatal visit during their last pregnancy, respectively: age at last birth, literacy, income, media exposure, attitude towards pregnancy and husbands approval
				Maternity –care services was very low in

Location	Author	Method (coverage, database, yr)	population	Major findings: Predictors
Africa	(Mekonen and Mekonen, 2003)	National EDHS, 2000	7978 women	Ethiopia, only 27% and 6% of women, respectively received ANC and delivery care services: education of women, marital status, place of residence, parity and religion.
	Tarekegn, et al, 2014)	National EDHS, 2011	7908 women	About 34% of women had ANC visits, 11.7% used skilled delivery attendants and 9.7% of women had postnatal care: education, place of residence, parity, women's autonomy and household wealth.
	(Tebekaw et al, 2014)	National EDHS, 2011	7908 women	About 32% of births were unintended and two-thirds of these were mistimed: young age, single, wealth, parity, ethnicity, education and household size.
	(Yitayal et al, 2014)	Cross-sectional community-based survey	1, 320 women	Mother who benefited from the health extension program were (AOR=3.97; 95%CI: 3.01-5.23) times more likely to use contraceptive compared with non-beneficiaries.
	(Yesuf et al, 2013)	National EDHS, 2000, 2005 and 2011	7978, 7307, and 7908 women were participated in 2000, 2005 and 2011 surveys, respectively	The rate of ANC care increased from 26.8% in 2000 to 42.7% in 2011: residence, education, households' wealth status, and place of region.
	(Brockerhoff and Biddlecom, 1999)	Kenya DHS, 1993	Not specified	Migrants much more likely than nonimmigrant counterparts to engage in sexual practices conducive to HIV infection: direction of movement, social milieu, awareness of AIDS, and gender
	(Tawiah, 1997)	Ghana DHS, 1988	3156 married women	Contraceptive affected by family planning approval, education, and discussion of FP with partners.
	(Antai, 2010)	Nigeria DHS	2735 women aged 15 to 49	The likelihood of full immunization was high for rural non-migrant mothers than rural to urban migrant mothers: migration disruption, selectivity of migration, adaptation, and region of residence,

Location	Author	Method (coverage, database, yr)	population	Major findings: Predictors
<b>World</b>	(Fatso, et al, 2008)	Local Cross-sectional survey	Not specified	The proportion of women who made the recommended number of ANC visits or who initiated the visit in the first trimester of pregnancy remains low: household wealth, education, parity, and place of residence.
	(Mberu White, 2011)	Nigeria DHS, 2008	Not specified	Migrants were engaged in premarital sex than non-migrants: age, religion, ethnicity, education, formal employment and exposure to mass media.
	(Chen et al, 2010)	Local Cross-sectional survey, 2000	1532 women aged 16-40	Migrant women's adopted positive family planning and reproductive health attitudes and behavior than rural non-migrant women.
	(Lindstrom and Munoz-Franco, 2005)	Guatemala National survey of Family Health, 1999	Not specified	Results indicate that urban migration experiences, having migrant kin urban and living in a community where urban migration is associated with greater contraceptive knowledge and use
	(Liu et al, 2011)	Cross-sectional survey	A total of 3,450(male:1,680, female, 1732) migrants	Migrants had low contraceptive and RH knowledge and use of reproductive health care services.

## **2.5. Methodological Appraisal of Migration and Reproductive Health Studies**

### **2.5.1. Introduction**

In this section of the thesis, the study critically appraises the various methods employed by different researchers to investigate the impact of migration on women's access to and use of reproductive health care services.

The term methodological appraisal refers to scrutinizing the appropriateness and scientific soundness of the methods, assumptions, arguments, designs and approaches used by a study to investigate the impact of migration status on women's access to and use of reproductive health care services (Massey, 1993). Migration study by its very nature is interdisciplinary (Gagnon *et al*, 2009; Pedraza, 1991). In the past, many fields of studies such as anthropology, sociology, demography, geography, and economics tried to investigate migration, but they failed to establish a coherent method for analyzing the subject of migration (Byerlee, 1974). Because a fragmented set of methods have been developed largely in isolation from one another by different disciplines (Massey *et al*, 1993; Hamilton, 1961). As a result, we are not able to understand in detail how and to what extent migration affects women's use of health care services (Kimuma and Djamba, 2012). Nowadays, however, researchers have noted that contemporary migration studies are not achieved by focusing only on a single method of study, rather, multidisciplinary approaches that incorporate a variety of perspectives, assumption, and instruments requires to study the impact of migration on women's access to health care services (Massey *et al*, 1993; Schatz and Williams, 2012).

Until recently, the reproductive health status and reproductive health needs of migrants were poorly understood (Fawcett and Arnold, 1987). Despite its importance, migration data remains relatively scarce due to few surveys that collect detailed migration and reproductive health histories (Lindstrom and Hernandez, 2006; Singh *et al*, 2012). The national surveys of many of the developing countries have failed to provide accurate and comparable information on the utilization of maternal health services by migration status over time (Antai *et al*, 2010; Singh *et al*, 2012). Though data on migration have been collected from a reproductive health survey of many countries, the content and scope of the data are very limited compared to other

demographic data (CSA, 2010; Lindstrom and Hernandez, 2006). A number of surveys have been conducted to study the impact of migration on women's use of reproductive health care services in many contexts. However, some of the surveys used small sample sizes that represented only a small segment of migrant population (Coast, 2006; Ama and Oucho, 2007; Hamilton, 1961). Moreover, some of the migration studies failed to use a random sample design to ensure representative results -due to unavailability or incomplete sampling frame of migrant population (Fawcett and Arnold, 1987). The lack of migration data and difficulties in locating the migrant population for an interview, forced some researchers to use a snowball method to access undocumented migrant populations (Fawcett and Arnold, 1987). In addition, samples were too small to permit detailed analysis and to make the results generalizable to the migrant population.

Migration studies are criticized due to their basis on secondary data analysis (Wilson, 2008; Brockerhoff and Biddlecom, 1999; Antai et al, 2010; Leclere, Jensen and Biddlecom, 1994; Wilson, 2008; Landale and Oropesa, 2001; Lindstrom and Hernandez, 2006; Chen, Liu and Xie, 2010; Lindstrom and Munuz-Franco, 2006). These secondary data sets were not initially designed to achieve the objectives of the secondary data analysis and key variables are often missing from the data set (Elizaga, 1971). Therefore, the data set often dictates the specification of the problem and the formulation of working hypotheses. Moreover, many of the migration and reproductive health studies focus on cross-sectional survey to study the relationship of migration and women's access to reproductive health care services (Wei et al, 2010; Lindstrom and Munoz-Franco, 2006; Chen, Liu and Xie, 2010). However, cross-sectional surveys are unable to capture the causal relationship of migration and women's access to reproductive health care services. In addition, a cross-sectional retrospective survey also suffers from recall bias, particularly with a lifetime effect of migration on women's use of reproductive health care services. The accuracy of recall may be directly related to the amount of time that has elapsed between the event occurred and the study interview (Brockerhoff and Biddlecom, 1999). As a result of this, many of the studies have inconsistent conclusions. The inconsistent conclusions of studies also arise because of different factors such as methodological differences among studies, differences in the context where the study was conducted, the type of study design, the sample size involved in the study, and the heterogeneity of the migrant population (Dias, Severo and Barros, 2008; Kandula, Kersey and Lurie, 2004)

Nevertheless, the accumulation of the experiences of the various surveys over the years has increased our knowledge to develop appropriate methods and survey designs that help us to examine the effect of migration status on women's access to and use of reproductive health care services. Many researchers highlighted that the best strategy to overcome the shortcomings of cross-sectional survey is to adopt the longitudinal or a prospective cohort study design (Manner, 2011; Lu, 2010; Coast, 2006; Behrman *et al*, 2002) because longitudinal studies allow researchers to measure changes over time, among different groups of migrants (Fawcett and Arnold, 1987). Therefore, longitudinal studies have played a significant role in advancing migration and reproductive health related research (Fawcett and Arnold, 1987). Migration is usually associated with changes in many of the life events; the life history approach provides a particularly useful research tool for migration studies (Fawcett and Arnold, 1987). There are a number of life event history studies that could be a benchmark for future studies in the field of migration and reproductive health care services utilization (Harrison and Montgomery, 2001; White et al, 2008; Fawcett and Arnold, 1987). They employed a robust methodology, including prospective, longitudinal case studies and well selected groups of study participants (White et al, 2008). This overcame many, though not all, of the problems associated with cross-sectional studies. However, longitudinal studies have their own problems because sometimes it is difficult to locate or follow-up the study participants for interview over time.

Some critics suggest that some of the studies on migration and reproductive health are not representative of the general population because of selection biases in collecting adequate, accurate, reliable data from appropriate study participants (Hamilton, 1961; Pedraza, 1991). Selection biases can occur in a number of ways, such as method or study participant selection. In relation to method selection, some researchers focus more on quantitative methods rather than qualitative methods and vice versa that could affect the quality of the study outcomes. A study participant selection biases could also occur in a situation where the appropriate study participants were omitted or opted out of participation in a study or, conversely participants who are not appropriate to the study being included in excess (Fawcett and Arnold, 1987; Pedraza, 1991). Such selection biases can lead to unrepresentative samples being used for studies. Self-selection biases may also arise when highly motivated and knowledgeable participants, who

consider themselves to be appropriate for the study, being over-represented in studies. This may lead to underestimation of the true population at risk.

To make generalization of the study outcomes for the general population, studies need to ensure to have adequate study participants. However, obtaining a representative sample of migrant population is a challenge by using conventional survey design (Pedraza, 1991; Fawcett and Arnold, 1987). Migrants represent only a small share of the total population in most settings. In migration survey, coverage is often limited as there is a certain difficulty in finding migrant population to prepare the sampling frames and decide the sample size of the study population. As a result, researchers are often forced to rely on sampling strategies that are less than ideal.

Many migration studies are not representative of the migrant population because some of the studies do not include undocumented migrants, as they are difficult to access them (Fawcett and Arnold, 1987). In addition to this, due to differences in migration definitions and measurements, comparisons of migration patterns are difficult and confusing in many studies (Beer *et al*, 2010). Different studies also have their own definition, coverage; inclusion and exclusion criteria of migrant population that make migration studies more complex than any other demographic studies. As a result, it is difficult to objectively measure the effect of migration characteristics of women's access to and use of reproductive health care services (Hamilton, 1961). The other challenge is the inconsistencies in the categorization of migration data. Despite marked differences of migrants in terms of culture, socioeconomic and health status, and patterns of migration, some migration studies, grouped those migrants who came from the same place of origin or country as one category (Kandula, Kersey and Lurie, 2004). However, in large and diverse countries as those in Africa, categorizing migrants in one category is likely to be difficult and could introduce bias.

A range of qualitative and quantitative instruments are employed by different researchers to study the impact of migration on women's access to and use of reproductive health care services (Lindstrom and Munoz-Franco, 2006; Chen, Liu and Xie, 2010). In the past, researchers mainly focused on quantitative methods to study migration and its impact on women's access to reproductive health care services. However, the choice of qualitative or quantitative approaches

ultimately depends on the nature of the problem or the types of the research objective or research questions that the researcher wants to achieve or address. The sole application of a quantitative research design in the study of migration and reproductive health care services may not adequately explain the impact of migration on women's access to reproductive health care services. Although quantitative studies help to identify the major determinant factors that affect women's use of reproductive health care services, a number of researchers have highlighted the inadequacies of quantitative research to explore the factors that affect women's access to reproductive health care services (Schatz and Williams, 2012) because quantitative studies are unable to explain the socio-cultural fabric of the society and its impact on women's use of reproductive health care services. Therefore, researchers strongly advocate the inclusion of additional qualitative instruments such as in-depth interview, focus group discussion and observation to allow richer and more accurate information on the impact of women's access to reproductive health care services (Schatz and Williams, 2012; Bollini, 2007).

A literature review of migration research by Pedraza (1991) has concluded that many studies of migration were strongly rooted in a specific field of studies or context which may not be applicable to any other field of studies or contexts. Many researchers also argued that a high degree of contextualization in terms of methodology and study design creates a problem of comparisons and cross-generalizations across studies in a different field or contexts. In other words, internal validity may be achieved at the expense of external validity. Moreover, some quantitative fields of study such as demography and economics employ more sophisticated statistical techniques for analyzing migration and reproductive health data, such as multivariate statistics (Ama & Oucho, 2007), this allows the researcher to explore the complex impact of migration status on women's access to reproductive health care services while other fields of studies such as history use descriptive statistics to explain migration data. Such discrepancies in using different levels of statistical techniques create a problem in comparison of the impacts of migration status on women's reproductive health care services utilization across different fields of studies.

Like many other national surveys, Demographic and Health Survey also collect various background and reproductive health outcome variables from self-reported questions (CSA, 2006). However, the validity and accuracy of self-reported data in relation to women's

reproductive health outcomes are subject to reporting and recall biases (Boerma and Sommerfelt, 1993). Information such as birth date of children, date and status of circumcision and date of marriage and age at marriage are events that refer to the past (CSA, 2006). Reporting the accurate date and status of such events that occurred in the remote past are the most serious problems of cross-sectional surveys like DHS (Boerma and Sommerfelt, 1993). Many studies have looked at the reliability and validity of self-reported reproductive health data (Chen, Liu and Xie, 2010; Lindstrom and Hernandez, 2006). Although EDHS survey has reported that self reported data on reproductive health such as contraceptives and maternal health are reliable, still there are some problems. The problems may occur due to memory lapse or recall problems of the respondents. A woman may forget to report the services she obtained during and after her pregnancy (CSA, 2001). Sometimes women may deliberately misreport the event due to the sensitivity of some of the reproductive health related questions for example, a woman may not accurately report her contraceptive use if her husband forbids her to use any contraceptive methods. In addition to reproductive health data, data in relation to female circumcision status and the age at marriage and time of marriage also suffer from the respondents' memory lapse or recall ability (Elmusharaf, Elhadi, Almroth, 2006). Women may be ignorant of the event or deliberately misreport events if the events occur in the remote past. Research on female circumcision is particularly affected by recall surrounding the specific event of the circumcision. (Bjalkander *et al*, 2013). In asking women about her circumcision, that was done before 20 years is not easy to recall it (Yoder, Nouredine and Arlinda 2004). Some women may have never known what was done to them and others may not know their age at circumcision (Yoder, Nouredine and Arlinda 2004).

Most DHS surveys ask respondents about their own and their daughters' circumcision status, including age at the time of circumcision, the type of circumcision and person who made the circumcision (Yoder, Nouredine and Arlinda 2004). The survey believed that self-reporting is the basis for determining the prevalence of circumcision in a given country. It is also believed that women could respond truthfully about their circumcision status and the person who made the circumcision. But in most cases, respondents were not able to recall when, how and who made the circumcision (Elmusharaf, Elhadi, Almroth, 2006). The illegal practices of female circumcision also affect the reliability of whether mothers are replying truthfully about their and

their daughter's circumcision status. Respondents may under report their and their daughter's circumcision status in a situation where legislation and information campaigns are against the practice of female circumcision (Bjälkander et al, 2013; Askew, 2005). The accuracy of self-reporting is compromised in two ways: First, women may not know whether they or their daughters have been circumcised because of memory lapse. Second, respondents or parental informants may deliberately mislead survey interviewers about the status of their own and their daughters' circumcision (Jackson et al, 2003).

One of the problems of EDHS is the lack of the mechanism of checking the accuracy of self-reporting information of respondents. A number of surveys were conducted to validate the accuracy of self-reported female circumcision status (Snow *et al*, 2002). However, it is difficult to validate the person's response given without actually observing their genitals, which obviously poses huge ethical and human rights violation (Askew, 2005). Survey data on the type of circumcision undergone by the daughter are considered more reliable than the same information for the respondent, because the events in question occurred more recently and the mother is assumed to have played a major role in her daughter's circumcision. Asking about the daughter most recently circumcised provides data on a more recent female circumcision than that of the respondent (Yoder, Nouredine and Arlinda 2004).

There are relatively few studies which compare self-reported results to that of clinical information on female circumcision status. A number of studies found inconsistent results between self reported and clinical observed forms of female circumcision (Elmusharaf, Elhadi, & Almroth, 2006). Validation of the accuracy of self-reports of female circumcision status may be carried out by conducting a medical examination among women who reported their circumcision status. It is likely that the level of disagreement between self-reports and examination reflects the respondents' inaccurate knowledge or women's wrongful declaration of their circumcision status rather than incorrect examination assessments (Bjälkander et al 2013). Although medical examination represents the gold standard for assessing whether or not a girl or woman has been circumcised, this method has its own limitations such as cost and representativeness of the sample that undergo medical examination. Because, the medical examination is performed on self-selected subgroups of a population, such as clinic clients,

therefore, validation of study results using random population-based samples are rare and difficult to implement (Jackson et al, 2003).

Like female circumcision data, early marriage data also have problems in relation to validity and accuracy. Even though early marriage is a common practice in the country, especially in the Amhara Region, availability of reliable and accurate data is a challenge because of a number of factors (CSA, 2006). One of the factors is the absence of vital registration system in the country. There is no organized system that registers a birth, marriage and death events in the country. As a result, reported data on birth, marriage and death are not reliable and accurate. In Ethiopia, most marriages, especially in rural areas are not registered in the municipalities, or even in the religious institutions (CSA, 2001). In some urban areas, marriage registration is started in some municipalities, but their registration and records are found to be incomplete. It is unusual for Ethiopians to record the age at marriage or date of marriage. Most of the time, date of marriage and age at marriage data are approximations or guesses (Singh and Samara, 1996)

Due to the reasons discussed, respondents may not know their exact age of marriage and date of marriage (Jackson *et al*, 2003; Singh and Samara, 1996). The country recently passed a law that forbids marriage below the minimum age. The minimum age of marriage is 18 years for females. The law punishes those parents who marry off their daughter below the minimum age. To avoid punishment, parents misreport their daughters age at marriage if possible, leading to a systematic over reporting of their daughters' ages. There is also under or over reporting of the informal and undocumented marriages (Blank, Charles and Sallee, 2007). Informal unions tend to be temporary and difficult to recall because they are not usually marked by any social or religious ceremony. The over or under reporting of the age at marriage is responsible for the discrepancy between the actual age and the age at marriage (Jackson et al, 2003). These problems are also more likely influence any analysis of change of age at marriage over time.

## **2.6: The Study Objectives and Hypothesis**

### **2.6.1. Aim of the study**

The overall aim of the study is to investigate the effect of migration status on women's access and use of reproductive health care services

### **2.6.2. Objectives of the Study**

1. To identify which migration status is more disadvantaged in terms of reproductive health care services utilization among the three defined migration status: rural natives, rural to urban migrants and urban natives.
2. To assess the effect of kebele registration status on migrant women's access to reproductive health care services.
- 3 To examine whether the effects of migration status on women's access to reproductive health care services operate through women's socio-economic and demographic background variables.
4. To identify the socio-cultural and demographic determinants that perpetuates harmful traditional practices (female genital circumcision and early marriage) in Ethiopia

### **2.6.3. The Study Hypotheses**

The study was designed to test the following research hypotheses

1. Rural to urban migrants are more likely to use reproductive health care services than rural natives, but they are less likely than urban natives.
2. Long term migrants are more likely to use reproductive health care services than the short term migrants.
3. Kebele registered migrants are more likely to use reproductive health care services than the non-registered migrants.
4. The higher the individual migrants and households' socio-economic status, the more likely the women to use reproductive health care services.

## **Chapter Three: Data Sources and Methods for Study One (EDHS Data Analysis)**

### **3.1. Introduction**

The data sources and methods used to address the objectives of the study were discussed in this chapter.

### **3.2. The Data Source**

The data for the secondary analysis came from the 2005 Ethiopian Demographic and Health Survey (EDHS). There are a number of reasons why the 2005 EDHS became the data sources for this study. One of the major reasons was that the 2005 EDHS survey was the major source of reproductive health data in the country. The second reason was that the 2005 EDHS was the latest data set in relation to reproductive health care services when this project started. The third reason was the 2005 Ethiopian Demographic and Health Survey was a comprehensive population based data set that includes a variety of reproductive health indicators such as knowledge of HIV/AIDS and contraceptives and use of contraceptive methods and maternal health care services. EDHS also used to estimate the trends in demographic and reproductive health outcomes of the country for every 5 years.

The Demographic and Health surveys are large scale surveys which are conducted on a regular basis in many countries and are probably the most important source of demographic and health data in the developing countries. The DHS program was the extension of the World Fertility Survey (WFS) and Contraceptive Prevalence Surveys (CPS) programs that existed respectively from 1972 to 1984 and from 1976 to 1984 (Boerma, and Sommerfelt, 1993). The main objective of the DHS is to provide current, accurate and reliable data on various demographic and health related outcomes across countries.

The 2005 EDHS was conducted by the Central Statistical Agency (CSA) under the auspices of the Ministry of Health. This is the second Demographic and Health Survey conducted in Ethiopia, under the worldwide MEASURE DHS project, a USAID – funded project. Technical support for the survey was provided by Macro International Inc (CSA, 2006). The DHS is a population-based, nationally representative survey that links individual reproductive health care services utilization with the full set of socio-economic and demographic factors. The survey is designed to produce representative estimates for the country as a whole, for the urban and the rural areas separately, and for each of the eleven regions. The 2005 EDHS was conducted from April 27 to August 30, 2005 and covered most parts of the country.

### **3.3. Sampling Frame and Sample Selection Procedures**

The sampling frame for 2005 EDHS was obtained from the 1994 Ethiopia Population and Housing Census's Enumeration areas (EA). An EA is a geographic area consisting of a convenient number of dwelling units which served as counting unit for the census (CSA, 2006). The sampling frame contains information about the location, the type of residence, and the numbers of residential households for each EA. Ethiopia is divided into 11 geographical administrative regions. Each region in turn sub-divided into zones, each zone into Woredas, each Woreda into towns, and each town into Kebeles (CSA, 2006). Therefore, the country is divided into 540 Enumeration areas (EAs). Among the 540 EAs, 145 (21 percent) are in urban areas and 395 (79 percent) are in rural areas (CSA, 2006). The average size of EA in number of households was 169 in an urban EA and 180 in a rural EA, with an overall average of 178 households per EA. The distribution of households in the sampling frame, by region and residence indicates that 81% of the Ethiopia's households are concentrated in three regions: Amhara, Oromiya and SNNP, while 4 percent of all households are in the five smallest regions: Afar, Benishangul-Gumuz, Gambela, Harari and Dire Dawa (CSA, 2006).

EDHS were conducted using two-stage stratified sample design. In the first stage, selection of clusters based on the 1994 Population and Housing Census Enumeration Areas (EAs) sampling frames (CSA, 2006). Sampling of households in each enumeration area was the second stage of the sample design. A complete listing of households was carried out in each of the selected

enumeration areas (EAs). However, out of 540 clusters, only 535 clusters were approached due to security problems in some areas of the country. The EDHS sample was covered each of the 11 geographic/administrative regions (CSA, 2006). The stratification was achieved by separating each region into urban and rural areas. Household in each 540 selected EAs were listed by a team who assigned to do the list. The team drew a detailed sketch map of each of the EAs and recorded in the household listing forms all households in the EA, their address, and the name of the head of the household. The list of the Households that resulted from listing served as the sampling frame for the selection of households in the second stage. A fixed number of 30 households were selected in each EA. A total of 14,645 households were selected, 3,989 are in urban areas and 10,656 are in rural areas to obtain 14,070 women aged 15 to 49 for final survey interview (CSA, 2006). To be comparable of results between rural and urban areas, urban areas were slightly over sampled. The cluster and household allocation by region and residence are a function of the average number of women age 15-49 per household.

### **3.4. Sample Weights**

To ensure representativeness of the survey results at the national and regional level and across the different regions and to their urban and rural areas, sampling weights were done in all the data sets. Since the EDHS sample is a two-stage stratified cluster sample, sampling weights were calculated based on sampling probabilities separately for each sampling stage and for each cluster (CSA, 2006).

### **3.5. Data Quality Problems and Its Handling Procedures**

The quality of the Demographic and Health Survey data in developing countries is largely determined by the truthfulness and completeness of reported information (Phillips, 1999). The validity and reliability of the survey data is also affected by the sampling and non-sampling errors. Non-sampling errors are the results of mistakes made in implementing data collection and data processing, such as failure to locate and interview the correct household, misunderstanding of the questions on the part of either the interviewer or the respondent, and data entry errors. The error may be created because of misreporting of respondent's birth date, age and Date of marriage (Ezra, 2001). The retrospective nature of the DHS survey and it also cover a large variety of topics and involves large and varied number of respondents and enumerators create

conditions for errors and deficiencies to be introduced in the data set (CSA, 2006). Some of the errors may also arise from misreporting of events by respondents or respondents may not know the answer or they may forget the events occurred or they deliberately give incorrect responses. Data quality problems may also arise due to poor interaction between respondent and interviewer, misconception of the purpose of the survey, errors in identifying and interviewing eligible women, memory lapse and faulty in the design of questionnaire and lack appropriate training for interviewer and supervisors (Ezra, 2001).

To minimize the of occurrences such errors, the central statistical agency (CSA, 2006) took a number of measures such as recruiting experienced data collectors based on their language skills, academic qualifications, and previous survey work experience. The selection of field coordinators, editors, and supervisors was also made based on their performance before and during the training and field exercise. To improve the quality of the data, the data collectors were also closely supervised through field visits, observation of interviews, and checking of completed questionnaires. Data quality was also ensured by providing feedback to individual data collectors on the results of the field check tables. These tables were computer generated at regular intervals from data obtained in the completed questionnaires. These results were discussed with the data collectors to improve their performance. In addition to this, before the field work carried out, a four-week training were provided to data collectors, field supervisors and other survey personnel in the nine regions and two city administrations, taking into account the languages of the specific areas. The training consisted of instruction on how to conduct interview, field management, how to elicit information, practice in weighing and measuring of children, mock interviews between participants in the classroom, and practice interviews in the field.

### **3.6. EDHS Questionnaire**

The EDHS has three types of questionnaires: the household questionnaire, the woman's questionnaire, and the man's questionnaire (CSA, 2006). The household information includes: household composition, basic demographic characteristics of the household members, and socio-economic characteristics of the households. The individual woman's questions focus on demographic and reproductive health characteristics such as family planning, contraceptive use, and unmet need for family planning, maternal health care service, birth histories, births within

the last five years preceding the survey, antenatal care, place of delivery, delivery assistance and postnatal care. As part of the International survey, EDHS's questions have been adapted from model survey questionnaires developed by the MEASURE DHS project and have been tested over different developing countries for more than 100 surveys and this increases the validity and quality of the data (Phillips, 1999).

To adapt the MEASURE DHS international questionnaires to the Ethiopian context a series of meetings with the various stakeholders were conducted. The data collection instruments developed along a format fairly similar to the two well known international population survey programs, the World Fertility Survey (WFS) and Contraceptive Prevalence Survey (CPS) (CSA, 2006; Ezra, 2001). The 2005 EDHS provides detailed instructions on how to contact survey participants and collect correct information on various components of women's reproductive health as well as data on sexual health including HIV/AIDS. All questionnaires and other relevant survey documents, including the survey manuals were prepared in Amharigna, Oromiffa, and Tigrigna (CSA, 2006). Before the start of fieldwork, the questionnaires were pretested in all three local languages to make sure that the questions were clear and could be understood by the respondents. The questionnaires were modified based on lessons drawn from the pretest exercise.

The study tried to investigate the interrelationship between migration and reproductive health care utilization in the country. The Ethiopian Demographic and Health Surveys also asked a few migration related questions. Migrants were identified on the basis of questions on previous place of residence and the number of years that the respondents spent in their current place of residence. Women who had ever lived in a place where other than the current place of residence for a period of six months or more are considered as migrants. Three migration related questions included: i) the type of residence for most of the childhood up to age twelve, (city, town, and village or countryside), ii) the previous place of residence(as for (i), and iii) the number of years the respondents spent in their current place of residence (number of years, always or visitor).Migrants whose duration of migration in their current place of residence was less than 6 months were considered as visitors and excluded from the analysis as they did not satisfy the criterion of migration.

### **3.7. Response Rates**

A total of 13,928 households were interviewed and yielded a response rate of 99%. Similarly, out of 14,070 interviewed women, 96% of them completed the interview and out of 6,033 interviewed men, 89% of them responded the survey. The household response rate was higher than the response rate of women and men (CSA, 2006).

### **3.8. Method of Data Analyses**

The data analyses were started with the univariate presentation of the socio-demographic characteristics of women in the three migration status. Following such presentations, descriptive statistics were carried out for exploring the association of the different independent variables with dependent variables. Based on the result of the descriptive statistics, using binary logistic regression, multivariate analyses were carried out to examine the relative effect of the three migration status and other socio-demographic variables on women's reproductive health care service utilization and contraception.

#### **3.8.1. Descriptive Analysis of the Study**

The different outcome variables such as contraceptive knowledge, contraceptive use, and maternal health care service utilization variables (antenatal care visits, place of delivery, and delivery assistance) and HIV/AIDS knowledge and awareness were cross-tabulated against the different socio-demographic variables by migration status.

#### **3.8.2. The Binary Logistic Regression Analyses**

Those variables identified as having a significant effect on women's reproductive health service utilization in the descriptive statistics were selected for further multivariate analyses. The multivariate analyses were carried out using binary logistic regression. Binary logistic regression was chosen because all of the outcome variables were dichotomous. Under binary logistic regression, the analyses were conducted using the standard logistic regression method. For all binary logistic regression analyses, statistical inferences were made on the basis of estimates of

the odds ratio and their 95% confidence interval. All the binary logistic regression was carried out using SPSS and STATA software.

Following the descriptive statistics, univariate analyses were conducted using binary logistic regression analysis for all potential predictors from the descriptive analysis. The univariate model estimated each individual variable separately as a baseline model to see the gross effect of migration status as well as other socio-demographic variables on women's reproductive health care service utilization. The odds ratio (OR) and its 95%CI were calculated to measure the strength of the association between migration status and socio-demographic factors against women's reproductive health care outcome variables. After the univariate analyses, the second analyses were carried out using all significant variables from the univariate analyses. A number of models were fitted until the significant variables were determined for the final model. Those variables which were not statistically significant at 0.05 levels were removed from the final model while those factors that did significantly affect the fit of the model were returned to the model.

The final model of the logistic regression was assessed for its robustness using two methods: checking of outliers and multicollinearity. To check outliers, the regression model residuals were used to identify potential outliers (observations not well fit by the model). If a predictor has a residual of  $\pm 2.0$  or larger indicates an outlier. Using this criterion, the residuals of the variables were assessed and the results showed that there were no variables which had a residual of  $\pm 2$  or larger.

The second way of checking robustness of the model was assessing the multicollinearity. Multicollinearity refers to the association between the explanatory variables. The study assessed multicollinearity using two methods: using correlation matrices and variance of inflation factors (VIF). The correlation matrix is simply a table produced as one of the logistic regression results that indicates the correlation between two explanatory variables. If the value of the correlation close to 1 or -1 indicates there is collinearity. The results of the analysis indicated that there was no correlation between two variables whose correlation value more than 0.8.

The second method used to detect multicollinearity was variance inflation factor (VIF). The variance inflation factors were checked the same way as we do for the linear regression. Since

logistic regression model has not the facility to examine the multi-collinearity, a linear regression analysis was carried out using the same predictors and dependent variables. The value of variance inflation factors of each variable was assessed to detect whether there is multicollinearity or not. If the value of VIF is more than 10 there is multicollinearity among predictors, but the results of this study indicated that there was no multicollinearity because the value of VIF for all variables were less than 10.

### **3.9. Data Cleaning and Recoding of Variables**

Before starting to analyze the data, it is important to check the data set for errors. Even though the data are a secondary data which was screened and cleaned by the Central statistical Agency (CSA), still there are issues that need to be assessed to identify outliers and missing cases. The examination of outliers and missing cases is important to determine which variable will be part of the analysis. If there are more missing cases, the variable may not be included in the analysis. After assessing the missing values in various outcome and predictor variables, the distributions of cases in categorical variables were also assessed by running frequencies. Based on the frequency results, variables which have few cases were merged into categories to facilitate the multivariate analysis.

### **3.10. Variables**

In this section both the outcome and predictor variables are presented

#### **3.10.1. Outcome Variables**

The study has the following outcome variables: knowledge of contraceptive methods and HIV/AIDS; contraceptive use; maternal health care utilization variables (antenatal care and delivery at a health facility), and reproductive health related traditional harmful practices (female circumcision and early marriage).

**Knowledge of a contraceptive method:** is defined simply as having heard of a method to avoid or delay pregnancy. Therefore, if a woman had heard of any contraceptive methods, she was considered knowledgeable (coded = 1; otherwise = 0).

## **HIV/AIDS knowledge measures**

The EDHS survey has various items of HIV/AIDS related questions: general knowledge of HIV/AIDS prevention methods (13 questions); knowledge of the transmission of HIV/AIDS from mother to child (4 questions); attitude of people towards people living with HIV/AIDS (6 questions); knowledge of misconception about HIV/AIDS (6 questions). Each HIV/AIDS question has three options: **yes, no and do not know**. Those respondents who provided incorrect or do not know (DK) answers are coded 0, while those respondents who gave correct or positive answers to the questions are coded 1. By adding all these different categories of HIV/AIDS knowledge provided the total knowledge scores. The validity of the questions was tested using Crombach Alph statistics. Crombach alpha values of  $>0.7$  showed that the internal consistency and the reliability of the questions. Based on total scores, mean scores were calculated and the respondents were categorized as having low or high levels of knowledge. Respondents whose scores were below the mean were allocated to the low knowledge group while respondents whose knowledge scores were above the mean, high levels of knowledge.

**Contraceptive use:** was defined as whether a woman was using any contraceptive method or not at the time of the survey (coded: use =1; not use =0).

### **Antenatal Care Visits:**

At the time of the survey, a woman was asked whether she received antenatal care for her recent pregnancy. If she received any antenatal care (coded =1; otherwise = 0).

### **Place of delivery**

This was defined as whether a woman delivered her last live birth in a health facility (both at public and private facilities) or at home (coded: health facility=1; home=0). The study grouped public and private as one category because the numbers of cases in the private facilities are very few.

### **Female Genital circumcision**

The practice of female genital circumcision was obtained from the individual women's questionnaire. During the survey a woman was asked whether she had had circumcised (coded= 1 if she circumcised; otherwise = 0).

### **Early marriage**

During the survey all women were asked a series of questions regarding their marital status and whether they had ever lived with a man. Those women, who reported that they were ever married or ever-lived with a man, were asked to indicate how old they were at the time when they started living with a man as a wife, irrespective of the legality. Based on the report of their age at marriage, the study defined early marriage as those occurring prior to age 18 and coded as 1 otherwise 0.

### **3.10.2. Predictor Variables**

The selection of appropriate socio-demographic background variables as predictors in the analysis was aided by previous studies on migration and women's reproductive health care utilization, and theoretical considerations. The following variables were chosen for the study

#### **Migration related variables**

Migration is one of the key variables of the study. The 2005 EDHS collected basic information about migration relating to the number of years spent at the respondents' current place of residence (coded as single years, and always) and type of both the previous and current place of residence (rural and urban). These were used to establish migration status. A woman who reported previous residence as rural and current residence as urban was classified as a rural–urban migrant. The non-migrant groups were classified as rural non-migrants or urban non-migrants depending upon their reported previous and current place of residence. In this study, migration was defined as a woman who changed her place of residence across an administrative boundary. A number of migration streams were established based on the information, such as rural non-migrants, rural to rural migrant, rural to urban migrants, urban to urban migrants and

urban non-migrants. However, the preliminary analysis of the study showed that some of the migration streams have similar characteristics in terms of reproductive health care services utilization and other background characteristics. For instance, rural non-migrants have similar characteristics with rural to rural migrants and urban to urban migrants have also similar characteristics to urban non-migrants. Therefore, the study merged rural to rural migrants and rural non-migrants as rural natives and urban to urban migrants and urban non-migrants as urban natives. The study created a variable that categorized the migration status into rural-to-urban migrants, rural natives and urban natives and coded as (1=rural natives, 2=rural to urban migrants, and 3= urban natives)

### **Socio-demographic variables**

The age of women (1= 15 -24, 2=25-34, 3=35 -49)

Marital status of women (1= currently married, 2= single/divorced/widowed/separated)

Religion (1= orthodox, 2= Muslim, 3= others)

Number of living children of women (1= none, 2=1-2, 3=3 to 4, 4= 5 and more)

Desire for more children (1= wants more, 2= wants no more, 3= unsure/missing)

Birth order (1=1, 2=2-3, 3=4-5, 4=6+)

Women's education (0= no education, 1= primary education, and 2= secondary education and higher)

Women's occupation (1= not working, 2= non-agriculture, 3= agriculture)

### **Household and community related variables**

Region (1= Oromia, 2= Amhara, 3= SNNP, 4=Tigray, 5= urban administrative, 6= others)

Husband's education (0=no education, 1=primary education, 2 =secondary education and higher)

Heard of FP on community events in the last 12 months before the survey (0= no, 1= yes)

Heard of FP on Radio in the last 12 months before the survey (0= no, 1= yes)

Visited health facility in the last 12 months before the survey (0= no, 1= yes)

Transportation to health facility (1= big problem, 2= small problem)

Distance to a health facility (1= big problem, 2= small problem)

A number of major household decisions that a woman participated (0= none, 1=1-2 decisions, 2=3 or more decisions)

**Wealth quintile:** This is a composite measure of a household's living standard. Household wealth index was constructed from data on asset ownership and housing characteristics of households collected by the Demographic and health survey questionnaires (CSA, 2006). The assets collected by household questionnaires include, type of flooring, refrigerator, water supply, type of vehicle, sanitation facilities, persons per sleeping room, electricity, ownership of agricultural land, radio, television and telephone. A number of steps have been taken to construct a household wealth index in EDHS data: determination of indicator variables, dichotomization, calculation of indicator weights and the index value, and calculation of distribution cut points. In order to use these variables to rank household living conditions, they were aggregated into a living standards index using principal component analysis. Each household asset for which information is collected is assigned a weight or factor score generated through principal components analysis. The resulting asset scores are standardized in relation to a standard normal distribution with a mean of zero and a standard deviation of one. These standardized scores are then used to create the break points that define wealth quintiles as: poorest, poor, rich, richer, and richest. The cut points in the wealth index at which to form the quintiles are calculated by obtaining a weighted frequency distribution of households, the weight being the product of the number of de jure members of the household and the sampling weight of the household.

## **Chapter Four: Results of Study One**

### **4.1. Introduction**

In this chapter, the results of study one (secondary data analysis of EDHS), are presented and examined in detail. The chapter begins with a description of the 2005 EDHS sample population by migration status, and socio-demographic characteristics, followed by the presentation of women's knowledge and use of contraceptive methods, knowledge of HIV/AIDS, maternal health care services utilization and reproductive health related harmful traditional practices in Ethiopia.

### **4.2. Background Characteristics of Respondents- EDHS 2005**

Table 4.1 summarizes the background characteristics of the study population. Of the 9066 currently married women who were interviewed in the 2005 EDHS, the majority of them were aged 15 to 24. The survey results also indicate that 42.7% of rural natives, 59.8% of rural to urban migrants, and 65.0% of urban native women were orthodox Christians. The distribution of the study population across regions shows that, 37.2% of rural natives, 27% of rural to urban migrants and 33.5% urban natives were from Oromia Region. According to the survey results, the educational levels of the study population were very low. Only 1.4% of rural natives, 16.3% of rural to urban migrant women, and 45.6% of urban native women had secondary education or higher. In relation to the number of living children, the majority of urban natives (41.0%) and rural to urban migrants (33.4%) had 1 to 2 children while rural natives (34.6%) had 5 or more children. The distribution of respondents by their husbands levels of education show that close to 65% of rural natives, 41.7% of rural to urban migrants and 21.3% of urban native women whose husbands with no education. The distribution of women by their occupation also indicates that 7.9% of rural native women, 31.3% of rural to urban migrants and 36.7% of urban native women were working on non-agricultural sectors. The study population has limited media exposure. Only, 19.9% of rural natives, 43.8% of rural to urban migrants, and 64.2% of urban natives listened to the radio.

Table 4.1: Percentage Distribution of Married Women Aged 15 to 49 by Migration Status and Selected Socio-demographic Characteristics, EDHS 2005 (N=9066)

Variables	EDHS2005 (N=9066)		
	Rural natives (n=7795) n(%)	R-U migrants (n=393) n(%)	Urban Natives (n=879) n(%)
<b>Age of respondent</b>			
15-24	3233(41.5)	163(41.5)	363(41.3)
25-34	2383(30.6)	122(31.0)	267(30.4)
25-49	2179(28.0)	108(27.5)	249(28.3)
<b>Religion</b>			
Orthodox	3326(42.7)	235(59.8)	571(65.0)
Moslem	2630(33.7)	90(24.2)	178(20.3)
Others	1838(23.6)	63(16.0)	130(14.8)
<b>Region</b>			
Oromia	2898(37.2)	108(27.6)	294(33.5)
Amhara	2116(27.1)	67(17.1)	146(16.6)
SNNP	1805(23.2)	67(17.1)	116(13.2)
Tigray	480(6.2)	32(8.2)	58(6.6)
Urban regions	28(0.4)	78(19.9)	176(20.0)
Others	467(6.0)	40(10.2)	88(10.0)
<b>Number of living children</b>			
None	658(8.4)	36(9.2)	106(12.1)
1 to 2 children	2134(27.4)	131(33.4)	362(41.2)
3 to 4 children	2309(29.6)	115(29.3)	207(23.6)
5 and more children	2693(34.6)	110(28.1)	203(23.1)
<b>Respondent's Education</b>			
Not educated	6574(84.3)	246(62.6)	273(31.1)
Primary education	1114(14.3)	83(21.1)	205(23.3)
Secondary education & higher	106(1.4)	64(16.3)	401(45.6)
<b>Respondent's Occupation</b>			
Not working	5443(70.5)	262(66.7)	525(59.9)
Working in agriculture	1725(22.2)	8(2.0)	30(3.4)
Working on non-agriculture	612(7.9)	123(31.3)	322(36.7)
<b>Husband's Education</b>			
Not educated	5029(64.9)	163(41.7)	187(21.3)
Primary education	2226(28.7)	118(30.2)	178(20.3)
Secondary education+	498(6.4)	110(28.1)	511(58.3)
<b>Heard of FP from community events</b>			
No	4197(53.8)	212(53.8)	408(46.4)
Yes	3597(46.2)	182(46.2)	471(53.6)
<b>Heard of FP on radio last month</b>			
No	6242(80.1)	221(56.2)	315(35.8)
Yes	15495(19.9)	172(43.8)	564(64.2)
<b>Visited by FP worker</b>			
No	5734(73.6)	243(61.8)	458(52.2)
Yes	2060(26.4)	150(38.2)	564(64.2)
<b>Household wealth status</b>			
Poorest	1705(21.9)	24(6.1)	30(3.4)
Poorer	1823(23.4)	23(5.9)	46(5.2)
Middle	1819(23.3)	34(8.7)	50(5.7)
Richer	1731(22.2)	37(9.4)	54(6.2)
Richest	716(9.2)	275(70.0)	698(79.5)

About 26.4% of rural natives, 38.2% of rural to urban migrants and 47.8% of urban natives were visited by family planning workers in the last 12 months before the survey. In relation to the wealth status of the households, only, 9.2% of rural women were from the richest households, whereas the vast majority of rural to urban migrants (70.0%) and urban natives (79.5%) were from the richest households.

### **4.3. Women's Contraceptive Knowledge and Use by Migration Status**

Generally it is believed that contraceptive knowledge is a prerequisite for contraceptive use to prevent unwanted pregnancy and fertility. Having this background in mind, the study analyzes and presents women's contraceptive knowledge and use in the following consecutive sections.

#### **4.3.1. Descriptive Analysis of Women's Knowledge of Contraceptive Methods**

Table 4.2 presents women's contraceptive knowledge by migration status. The results indicate that contraceptive knowledge was higher among rural to urban migrants and urban natives than rural natives. Over, 85% of rural natives, 92% of rural to urban migrants, and 94.0% of urban natives had contraceptive knowledge. However, contraceptive knowledge was low for women with no children and higher for women with having a number of living children. The desire for more children also has an effect on women's contraceptive knowledge. Among women in the three migration status, 98.4% of rural to urban migrants, 94.4% of urban native and 91.8% of rural natives who wanted no more children had knowledge about contraceptive methods compared to 87.6% rural to urban migrants, 93.3% of urban natives, and 84.0% of rural native women who wanted more children. Contraceptive knowledge within regions also indicated that women in other regions category (Afar, Somali and Gambella) had the lowest contraceptive knowledge compared to women in other regions of the country. Education is one of the determinants of women's contraceptive knowledge. From Table 4.2 results show that contraceptive knowledge of women increases with increasing women's and their husbands' educational levels. In relation to respondent's working status, women who were working at the time of the survey had higher contraceptive knowledge compared with non-working women.

Table 4.2. Percentage Distribution of Married Women Aged 15-49 by Contraceptive knowledge, and by Migration Status and Selected Socio-demographic Variables, EDHS, 2005 (N=9066)

Variables	Migration status		
	Rural natives (n=7795) n (%)	Rural to urban migrants (n=393) n (%)	Urban Natives (n=879) n (%)
Total=7932(87.5)	6744(86.5)	362(92.1)	826(94.0)
<b>Age</b>			
15-19	1711(85.8)	66(93.0)	212(96.4)
24-34	2701(86.7)	141(88.7)	318(92.7)
35-49	2333(86.9)	155(94.5)	295(93.4)
<b># Living children</b>			
None	549(83.3)	35(89.1)	99(93.4)
1 to 2	1821(85.3)	124(91.3)	346(95.6)
3 to 4	2015(87.2)	105(93.9)	185(96.8)
5 and more	2360(87.6)	98(94.6)	194(97.6)
<b>Desire for more children</b>			
Wants more	3401(84.0)	155(87.6)	427(93.3)
Wants no more	2973(91.8)	183(98.4)	353(94.4)
Undecided/missing	369(72.8)	23(79.3)	44(78.6)
<b>Religion</b>			
Orthodox	3005(90.3)	226(96.2)	556(97.7)
Moslem	2196(83.5)	73(76.8)	143(80.3)
Others	1544(84.0)	63(100.0)	127(95.4)
<b>Region</b>			
Oromia	2744(94.7)	108(100)	284(96.3)
Amhara	1888(89.2)	63(95.5)	137(93.2)
SNNP	1469(81.3)	62(92.5)	112(97.4)
Tigray	459(95.6)	32(100)	58(100)
Other regions	159(34.0)	18(43.9)	59(67.0)
Urban areas	26(89.7)	78(100)	175(99.4)
<b>Education</b>			
None	5585(85.0)	216(87.8)	229(83.9)
Primary education	1054(94.5)	83(98.8)	199(97.5)
Secondary and more	106(100)	64(100)	397(99.0)
<b>Respondent's working status</b>			
Not working	5104(85.4)	245(88.8)	526(92.4)
Working	1639(90.2)	117(99.2)	299(96.8)
<b>Husband's educational status</b>			
None	4186(83.2)	139(85.3)	147(78.6)
Primary education	2044(91.8)	111(94.1)	173(97.2)
Secondary and more	478(96.0)	110(100)	503(98.4)
<b>visited health facility last month</b>			
No	4792(83.6)	215(88.1)	414(90.4)
Yes	1952(94.7)	147(98.0)	411(97.9)
<b>Heard of FP on radio last month</b>			
No	5223(83.7)	193(87.3)	262(83.2)
Yes	1517(97.9)	169(98.3)	563(100)
<b>Wealth quintile</b>			
Poorest	1304(76.5)	11(45.8)	17(54.8)
Poorer	1595(87.5)	22(91.7)	34(75.6)
Richer	1567(90.5)	32(86.5)	46(83.6)
Richest	664(92.7)	268(97.5)	687(98.4)

About 90.2% of rural native women, 99.2% of rural to urban migrants and 98.8% of urban natives who were working at the time of the survey had contraceptive knowledge. Moreover, contraceptive knowledge was higher among women who listened to the radio, visited health facilities in the last 12 months, heard of family planning information from the community events and women who belong to in the richest households' wealth quintile.

#### **4.4. Logistic Regression Analysis of the Determinants of Women's Contraceptives Knowledge-Unadjusted and Adjusted Odds Ratios**

Both the unadjusted odds ratio (UOR) and adjusted odds ratio (AOR) of women's contraceptive knowledge are presented in Table 4.3. The results show that rural to urban migrants were more likely to know contraceptives both in unadjusted and adjusted models (UOR, 2.39, 95%CI, 1.83 to 3.12; AOR 2.14, 95%CI, 1.47 to 3.13, respectively) compared with rural natives. The urban native women were also over four times more likely to know contraceptive methods compared with rural natives (UOR 4.31, 95%CI, 3.47 to 5.36). However, after adjustment, there were no statistically significant differences in contraceptive knowledge between urban and rural native women.

In relation to age, women aged 25 to 34 years were more likely to know contraceptive methods compared to women aged 15 to 24 but changed the magnitude with unadjusted odds ratios of 6.89 (95%CI, 1.22 to 2.12) to adjusted odds ratios of 1.68 (95% CI, 1.22 to 2.12). Numbers of living children were also a strong predictor of women's contraceptive knowledge both in unadjusted and adjusted models. For instance, women with 1 to 2 children had 2.39 odds of contraceptive knowledge (AOR, 2.39, 95% CI, 1.76 to 3.25), women with 3 to 4 children had 2.85 odds of contraceptive knowledge (AOR, 2.85, 95%CI, 2.02 to 4.00) and women having 5 or more children had 4.11 odds of contraceptive knowledge (AOR, 4.11, 95%CI, 2.84 to 5.95) compared with women with no children. It's also evident that women who wanted no more children were 1.31 times more likely to know a contraceptive method (AOR, 1.31, 95%CI, 1.17 to 1.46) compared to women who wanted more children.

Table 4.3. The Socio-demographic Determinants of Married Women's Contraceptive Knowledge. Unadjusted and Adjusted Odds Ratios and 95% CI, EDHS 2005 (N=9066)

	Contraceptive knowledge	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Migration status		
Rural natives(ref)	1.00	1.00
Rural to urban migrants	2.39(1.83_3.12)***	2.14(1.47_3.13)***
Urban Natives	4.31(3.47_5.36)***	1.40(0.99_1.97)
Age of respondents		
15 to 24 (ref)	1.00	1.00
25 to 34	6.89(5.34_8.92)***	1.68(1.22_2.32)***
35 to 49	3.84(2.97_4.98)***	0.90(0.64_1.26)
No_ of living children		
None(ref)	1.00	1.00
1 to 2 children	6.18(5.05_7.56)***	2.39(1.76_3.25)***
3 to 4 children	5.48(4.42_6.67)***	2.85(2.02_4.01)***
5 and more	5.43(4.48_6.72)***	4.11(2.84_5.95)***
Desire for more children		
Wants more(ref)	1.00	1.00
Wants no more	2.61(2.03_3.38)***	1.31(1.17_1.46)***
Unsure/missing	0.24(0.19_0.30)***	1.18(0.72_1.94)
Religion		
Orthodox(ref)	1.00	1.00
Moslem	0.49(0.43_0.57)***	0.68(0.57_0.81)***
Others	0.60(0.52_0.69)***	0.78(0.63_0.96)**
Region		
Oromia(ref)	1.00	1.00
Amhara	1.20(1.05_1.38)***	1.33(1.12_1.60)***
SNNP	0.82(0.70_0.96)**	1.04(0.85_1.27)
Tigray	1.16(0.93_1.46)	0.96(0.72_1.28)
Urban administrative	2.39(1.98_2.89)***	1.70(1.24_2.33)***
Others	0.46(0.32_0.64)***	0.70(0.47_1.05)
Respondents' education level		
None(ref)	1.00	1.00
Primary education	1.47(1.28_1.68)***	1.96(1.66_2.32)***
Secondary and above	3.07(2.67_3.52)***	3.00(2.31_3.89)***
Respondent's occupation		
Not working(ref)	1.00	1.00
Agriculture	1.11(0.95_1.29)	1.32(1.11_1.57)
non-agriculture	2.17(1.90_2.47)***	1.66(1.38_1.99)***
Husband's education		
None(ref)	1.00	1.00
Primary education	2.24(1.95_2.57)***	1.73(1.47_2.03)***
Secondary and above	5.86(5.07_6.77)***	2.17(1.74_2.70)***
Heard of FP from community events		
No(ref)	1.00	1.00
Yes	2.03(1.82_2.27)***	1.33(1.16_1.54)***
Heard of FP on radio last month		
No(ref)	1.00	1.00
Yes	2.71(2.43_3.02)***	1.80(1.55_2.10)***
Visited health facility last month		
No(ref)	1.00	1.00
Yes	3.99(5.57_4.46)***	2.14(1.47_3.13)***

Ref=reference category; \*\*p<0.05; \*\*\*p<0.001

Disparities in contraceptive knowledge by women's region of residence also indicated that women who lived in urban administrative areas and Amhara region were more likely to know a contraceptive method (AOR, 1.70, 95%CI, 1.24 to 2.33 and AOR, 1.33, 95%CI, 1.12 to 1.60, respectively) than women who live in Orimya region.

The difference in contraceptive knowledge also remained apparent by women's level of education, although there was a little change in the odds of contraceptive knowledge from 3.07 unadjusted odds ratio (95%CI, 2.67 to 3.52) to 3.00 adjusted odds ratio (95%CI, 2.31 to 3.89) among women with secondary education or higher compared to women with no education. Similarly, women whose husbands with secondary or higher education were more than twice as likely to know contraceptive methods (AOR, 2.17, 95%CI, 1.74-2.70) compared with women whose husbands had no education. Contraceptive knowledge was also higher among women working in non-agricultural sectors (AOR, 1.66, 95%CI, 1.38 to 1.99) compared to non-working women. Finally, women who heard of FP information from community events, and women who visited a health facility in the last 12 months before the survey were more likely to know contraceptive methods

#### **4.5. Descriptive Analysis of Women's Use of Contraceptives by Migration Status and Selected Socio-demographic Variables, EDHS 2005**

In the previous section, the study investigated the contraceptive knowledge of married women. Out of the 9066 married women, only 7932 women knew at least one contraceptive method. In this section, therefore, the study tried to examine the use of contraceptive methods among married women who knew at least one contraceptive method. Table 4.4 shows the contraceptive use of women who knew at least one contraceptive method by their migration and socio-demographic characteristics. Overall, the contraceptive prevalence rate was 14.7% among married women. In relation to migration status, 12.4% of rural natives, 41.4% of rural to urban migrants, and 42.4% of urban natives used contraceptive methods. Use of contraceptives was relatively high among women aged 25 to 34 in the three migration status. Contraceptive use also increased with increasing the number of living children. Use of contraceptive methods varied by the number of contraceptive methods a woman knew. For instance, 15.9% of rural natives,

Table 4.4 .The Percentage Distribution of Married Women Aged 15 to 49 who Used any Contraceptive Method by Migration Status and Selected Socio-demographic Characteristics, EDHS 2005 (N=7932)

Variable	Migration Status		
	Rural natives (n=6744) n(%)	Rural to urban migrants (n=362) n(%)	Urban Natives (n=826) n(%)
<b>Total</b> Contraceptive =1334 (14.7)	834(12.4)	150(41.4)	350(42.4)
<b>Age</b>			
15-24	199(11.6)	27(41.5)	99(46.7)
25-34	344(12.7)	79(56.0)	148(47.5)
35-49	291(11.5)	44(28.2)	103(34.9)
<b># Living children</b>			
None	34(6.2)	5(14.3)	31(31.3)
1 to 2	213(11.7)	58(46.8)	167(48.3)
3 to 4	245(12.2)	57(54.3)	90(48.6)
5 and more	342(14.5)	30(30.6)	61(21.4)
<b># of Contraceptive methods knows</b>			
1-2 methods	293(8.8)	16(18.8)	27(22.1)
3 or more methods	541(15.9)	135(48.6)	323(45.9)
<b>Religion</b>			
Orthodox	451(15.0)	96(43.8)	266(47.9)
Moslem	198(9.0)	32(42.5)	37(26.1)
Others	185(12.0)	22(34.9)	47(37.0)
<b>Region</b>			
Oromia	290(10.6)	43(39.8)	116(40.8)
Amhara	295(15.6)	23(35.9)	56(40.9)
SNNP	173(11.8)	276(43.5)	36(32.1)
Tigray	59(12.9)	9(28.1)	26(44.8)
Urban regions	4(15.4)	44(55.7)	99(56.6)
Others	13(8.1)	5(27.8)	16(27.1)
<b>Women's Education</b>			
None	585(10.5)	64(29.6)	57(24.9)
Primary education	208(19.8)	41(49.4)	79(39.5)
Secondary and above	40(37.7)	46(71.9)	215(54.2)
<b>Respondent's working status</b>			
Not working	547(10.7)	96(39.2)	217(41.2)
Working	286(17.4)	54(46.6)	134(64.7)
<b>Husband's education</b>			
No education	404(9.7)	37(26.6)	35(24.0)
Primary education	311(15.2)	51(45.9)	59(34.1)
Secondary +	114(23.8)	62(56.4)	255(50.7)
<b>Wealth quintile</b>			
Poor	290(12.8)	34(36.6)	109(36.9)
Middle	100(9.8)	14(58.3)	63(45.3)
Rich	444(13.1)	103(42.0)	178(45.5)
<b>Heard of FP on community events</b>			
No	309(9.6)	63(35.0)	146(41.1)
Yes	524(14.9)	87(48.1)	205(43.5)

Heard of FP from Radio			
No	531(10.2)	59(30.6)	86(32.7)
Yes	302(19.9)	91(53.8)	264(46.9)
Visited Health facility			
No	421(8.8)	57(26.5)	148(35.7)
Yes	413(21.2)	93(63.3)	203(49.3)

48.6% of rural to urban migrants and 45% of urban natives who knew 3 or more contraceptive methods used a variety of contraceptive methods. In relation to religion, Orthodox women were more likely to use contraceptive methods compared to Muslim and other religious believers in all three levels of migration status. Contraceptive method use also varied by women's educational levels.

Among women with secondary education or higher, 37.7% of rural natives, 71.9% of rural to urban migrants, and 54.2% of urban natives were used contraceptive methods. More than 17.0% of rural native women, 46.0% of rural to urban migrant women, and 44.0% of urban native women who were working at the time of the survey used contraceptive methods compared to non- working women. Use of contraceptives differences by the households' wealth status are also presented in Table 4.4. About 11.3% of rural natives, 37.9% of rural to urban migrant women, and 42.9% of urban native women in the richest household used contraceptive methods compared to women with other household wealth status. Women who heard of family planning information from community and radio, women visited health facilities in the last 12 months before the survey, and who were visited by family planning workers were more likely to use contraceptive methods than their counterpart women who did not listen to family planning information from community events and radio in the last 12 months before the survey.

#### **4.6. Logistic Regression Analysis of the Determinants of Women's Use of Contraceptives - Unadjusted and Adjusted Odds Ratios**

In the following sections, the unadjusted and adjusted analyses of the determinants of women's use of contraceptive methods are presented. According to the unadjusted results, urban natives and rural to urban migrants were over five times more likely to use contraceptives compared with rural native women. After adjustment, however, the odds of the use of contraceptives for

Table 4.5: The Socio-demographic Determinants of Married Women's Contraceptive Use. Unadjusted and Adjusted Odds Ratios and 95% Confidence Interval, EDHS 2055 (N=7932)

	Contraceptive use	
	Unadjusted OR (95%CI)	Adjusted OR (95%CI)
<b>Migration</b>		
Rural natives (ref)	1.00	1.00
Rural to urban migrants	5.03(4.03-6.28)***	3.25(2.52_4.20)***
Urban Natives	5.23(4.47-6.11)***	3.30(2.70_5.75)***
<b>Age</b>		
15-24 (ref)	1.00	1.00
24-34	2.04(1.65_2.94)***	1.21(1.32_2.42)**
35-49	1.31(0.97_1.76)	0.90(0.64_1.26)
<b>Number of Living children</b>		
None (ref)	1.00	1.00
1 to 2	2.07(1.58_2.71)***	2.69(2.00_3.62)**
3 to 4	1.79(1.37_2.39)***	3.47(2.50_4.81)***
5 and more	1.71(1.31_2.23)***	4.72(3.34_6.67)***
<b># of Contraceptive methods knows</b>		
1-2 methods(ref)	1.00	1.00
3 or more methods	2.83(2.48_3.23)***	1.65(1.42_1.92)***
<b>Religion</b>		
Orthodox (ref)	1.00	1.00
Moslem	0.46(0.39_0.53)***	0.66(0.55_0.78)***
Others	0.63(0.54_0.73)***	0.77(0.62_0.95)***
<b>Region</b>		
Oromia (ref)	1.00	1.00
Amhara	1.30(1.12_1.52)***	1.55(1.29_1.86)***
SNNP	1.00(0.84_1.19)	0.98(0.81_1.20)
Tigray	1.23(0.97_1.57)	0.89(0.67_1.18)
Urban regions	6.65(5.15_8.58)***	1.76(1.29_2.40)***
Others	0.99(0.69_1.46)	1.15(0.76_1.75)
<b>Women's Education</b>		
None (ref)	1.00	1.00
Primary education	2.45(2.12_2.84)***	1.70(1.43_2.02)***
Secondary and above	8.51(7.09_10.22)***	2.89(2.21_3.79)***
<b>Respondent's working status</b>		
Not working (ref)	1.00	1.00
Working	1.75(1.54-1.98)***	1.46(1.27-1.68)***
<b>Husband's education</b>		
No education (ref)	1.00	1.00
Primary education	1.85(1.61-2.14)***	1.58(1.35_1.86)***
Secondary +	5.45(5.41_7.31)***	1.92(1.55_2.39)***
<b>Heard of FP from community events</b>		
No (ref)	1.00	1.00
Yes	1.82(1.35_1.72)***	1.24(1.08_1.42)***
<b>Heard of FP from Radio</b>		
No (ref)	1.00	1.00
Yes	3.05(2.70_3.45)***	1.53(1.31_1.79)***
<b>Visited Health facility</b>		
No (ref)	1.00	1.00
Yes	3.02(2.68_3.41)***	2.24(2.00_2.55)***

Ref=reference category; \*\*p<0.05; \*\*\*p<0.001

rural to urban migrants and urban native women dropped from 5.03 unadjusted odds ratios (95%CI, 4.03 to 6.28) to 3.25 adjusted odds ratios (95%CI, 2.52 to 4.20) and from 5.23 unadjusted odds ratios (95%CI, 4.47 to 6.11) to 3.30 adjusted odds ratios (95%CI, 2.70 to 5.70), respectively. Demographic variables such as women's age and number of living children have also a significant effect on women's use of contraceptive methods. In comparison with women aged 15 to 24 years, women aged 25 to 34 years were over twice as likely to use contraceptive methods (UOR 2.04 95%CI, 1.65 to 2.94). Following adjustment, the likelihood of the use of contraceptives reduced to 1.21 (95%CI, 1.32 to 2.42). In relation to the number of living children, women with 1 to 2 children (AOR, 2.69, 95%CI, 2.00 to 3.62), women with 3 to 4 children (AOR, 3.47, 95%CI, 2.50 to 4.81), and women with 5 or more children (AOR, 4.72, 95%CI, 3.34 to 6.67) were more likely to use contraceptives than women with no children.

Women who knew 3 or more contraceptive methods, the odds of the use of contraceptives reduced from 2.83 unadjusted odds ratios (95%CI, 2.48 to 3.23) to 1.65 adjusted odds ratios (95%CI, 1.42 to 1.92) compared with women who knew 1 to 2 methods. Contraceptive use of women also varies by religion. Muslims were the lowest in contraceptive use (AOR, 0.66, 95%CI, 0.55 to 0.78), followed by followers of 'other' religions (AOR 0.77, 95%CI, 0.62 to 0.95) compared to Orthodox Christian followers. Differences in contraceptive use by regions were also evident. Women in urban administrative and Amhara region were 1.76 and 1.55 times more likely to use contraceptives (AOR, 1.76, 95%CI, 1.29 to 2.40; AOR, 1.55, 95%CI, 1.29 to 1.86) compared to women living in the Oromiya region.

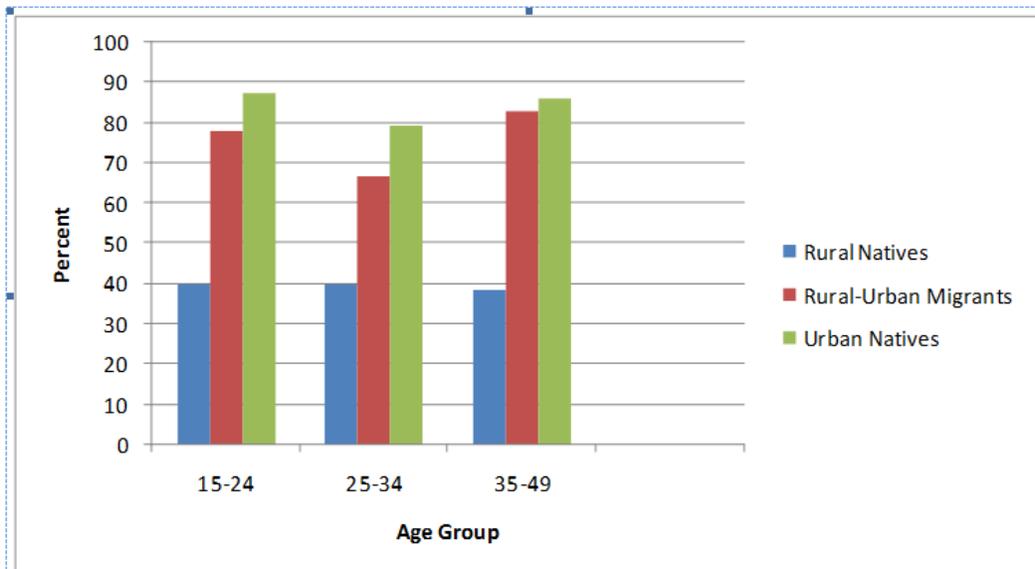
It is also evident from Table 4.5 that the uses of contraceptives were strongly associated with educational attainment of women and their husbands. For instance, women with secondary education or higher were eight and a half times more likely to use contraceptives compared to women with no education (UOR, 8.71, 95%CI, 7.09 to 10.22). However, after adjustment, the association between the use of contraceptives and women's secondary education, were nearly by fourfold reduced the odds of the use of contraceptives (AOR, 2.89, 95%CI, 2.21 to 3.79). Similarly, women with primary education were nearly two times more likely to use contraception (AOR, 1.70, 95%CI, 1.43 to 2.02) compared with women with no education. Working women were more likely to use contraceptive methods compared to non-working women (AOR, 1.46, 95%CI, 1.27 to 1.68). Likewise, the unadjusted odds ration indicated that women who heard of

FP from community events, heard of FP from radio, and visited health facility in the last 12 months before the survey were 2.65, 1.82, 3.05, and 3.02 more likely to use contraceptive compared to women who did not. After adjusting for other relevant factors, women who heard of FP from community events, radio and visited health facility in the last 12 months before the survey were, respectively, 1.24, 1.53, 2.24 times more likely to use contraceptives as compared to other women who did not heard FP from community events and radio, and who did not visit a health facility in the last 12 months before the survey.

#### 4.7. Women’s HIV/AIDS Knowledge by Migration Status

Figure 4.1 illustrates the levels of HIV/AIDS knowledge among women of different ages, for rural natives, rural to urban migrants and urban natives. In all age groups, women’s HIV/AIDS knowledge is highest in urban natives, followed by rural to urban migrants. Rural native women’s HIV/AIDS knowledge however, is consistently lower than urban natives and rural to urban migrants irrespective of age group.

**Figure 4-1: The Percentage of Women who have HIV/AIDS Knowledge by Age and Migration Status.**



#### **4.8. Logistic Regression Analysis of the Determinants of Women's HIV/AIDS Knowledge - Unadjusted and Adjusted Odds Ratios**

Both the unadjusted and adjusted results indicate that migration status has a significant effect on women's HIV/AIDS knowledge. The urban native women were eight and a half times more likely to know HIV/AIDS (UOR, 8.51, 95% CI, 7.02 to 10.32), followed by rural to urban migrants (UOR, 4.80, 95% CI, 3.66 to 6.28) as compared to rural native women. After adjustment, HIV/AIDS knowledge of rural to urban migrant women was nearly two times higher (AOR, 1.83, 95% CI, 1.83 - 3.29) than rural natives and urban native women's knowledge was also increased by 66% (AOR, 1.66, 95% CI, 1.27 - 2.18) compared to rural native women. However, the HIV/AIDS knowledge was lower for women aged 25 to 34 (UOR, 0.78, 95% CI, 0.61 to 0.90) and women aged 35 to 49 (UOR, 0.66, 95% CI, 0.51 to 0.87) compared to women aged 15 to 24, respectively, but after adjustment, women aged 35 to 49 years had not a statistical significance difference with women aged 15 to 24 years. The differences in HIV/AIDS knowledge also remained noticeable by women's religion. Although there is a little change in the odds ratio of HIV/AIDS knowledge between the unadjusted and adjusted odds ratio, Muslims and women from 'other' religious categories were less likely to have knowledge of HIV/AIDS compared with Orthodox women (see Table 4.6).

The adjusted results indicated that socioeconomic variables such as education and working status are significantly associated with women's HIV/AIDS knowledge. Women with secondary education or higher were (AOR, 7.11, 95% CI, 4.69 - 10.78) and women with primary education (AOR, 1.83, 95% CI, 1.44 - 2.31) times more likely to know HIV/AIDS compared to women with no education, respectively. Similarly, working women (AOR, 1.53, 95% CI, 1.32 - 1.78), women whose husbands had secondary education or higher (AOR, 2.56, 95% CI, 1.89 - 3.46), women who live in urban regions of the country (AOR, 4.77, 95% CI, 2.95 - 7.73) were more likely to have knowledge of HIV/AIDS. The adjusted analysis indicated that there was an increasing knowledge with increasing wealth. Accordingly, women in the middle class households (AOR, 1.29, 95% CI, 1.01 - 1.64), richer (AOR, 1.75, 95% CI, 1.37 - 2.22), and richest (AOR, 1.86, 95% CI, 1.42 - 2.45) wealth quintiles were more likely to have knowledge of HIV/AIDS compared with women in the poorest households.

Table 4.6: The Socio-demographic Determinants of Women's HIV/AIDS Knowledge. Unadjusted and Adjusted Odds Ratios and 95% Confidence Intervals, EDHS 2005(N=14070).

Variables	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Migration status		
Rural natives (ref)	1.00	1.00
Rural to urban migrants	4.80(3.66-6.28)***	1.83(1.83-2.29)***
Urban Natives	8.51(7.02-10.32)***	1.66(1.27-2.18)***
<b>Age of respondent</b>		
15-24 (ref)	1.00	1.00
25-34	0.78(0.61-0.99)***	0.84(0.72-0.99)**
35-49	0.66(0.51-0.87)***	0.91(0.77-1.07)
Respondent's religion		
Orthodox (ref)	1.00	1.00
Moslem	0.44(0.38-0.51)***	0.65(0.54-0.78)***
Others	0.50(0.43-0.57)***	0.50(0.41-0.62)***
Educational level		
No education (ref)	1.00	1.00
Primary education	3.15(2.75-3.60)***	1.83(1.44-2.31)***
Secondary and above	32.06(23.51-43.72)***	7.11(4.69-10.78)***
Region		
Oromia (ref)	1.00	1.00
Amhara	1.45(1.25-1.68)***	1.76(1.45-2.14)***
SNNP	1.43(1.23-1.66)***	2.07(1.70-2.52)***
Tigray	1.50(1.19-1.88)***	0.84(0.63-1.14)
Other regions	1.21(0.81-1.80)	1.39(0.83-2.34)
Urban region	17.92(11.93-26.90)***	4.77(2.95-7.73)***
Working status		
Not working (ref)	1.00	1.00
Working	1.61(1.42-1.81)***	1.53(1.32-1.78)***
Husband's education		
No education (ref)	1.00	1.00
Primary education	1.55(1.33-1.81)***	1.19(0.99-1.43)
Secondary or more	8.29(6.62-10.40)***	2.56(1.89-3.46)***
Media exposure		
Yes (ref)	1.00	1.00
No	0.26(0.23-0.29)***	0.60(0.51-0.69)***
Wealth quintile		
Poorest (ref)	1.00	1.00
Poorer	1.24(1.02-1.55)**	1.06(0.83-1.35)
Middle	1.65(1.33-2.04)***	1.29(1.01-1.64)**
Richer	2.77(2.24-3.42)***	1.75(1.37-2.22)***
Richest	9.55(7.76-11.76)***	1.86(1.42-2.45)***
Heard health information in the community events		
No (ref)	1.00	1.00
Yes	2.16(1.92-2.42)***	2.78(2.40-3.22)***

Ref=reference category; \*\*p<0.05; \*\*\*p<0.001

## **4.9. Descriptive Statistics of Women's Maternal Health Care Service Utilization by Migration Status**

This section of the thesis presents the descriptive analysis of women's antenatal care and delivery at a health facility by migration status.

### **4.9.1. Prevalence of Antenatal Care by Migration Status**

Table 4.7 presents the prevalence of antenatal care by migration and selected socio-demographic variables. Less than one quarter of rural natives (23.7%), 45.9% of rural to urban migrants, and 67.6% of urban natives received antenatal care from skilled health professionals. Demographic variables (age of women and birth order) have an impact on women's use of antenatal care services. The results show that as age and birth order increases women's use of antenatal care decreases. There were also substantial differences in the use of antenatal care services across the different regions of the country. About, 88.8% of urban native women in urban administrative areas, 79.5% of women in Tigray region, 78.30% rural to urban migrant women in urban administrative areas, 72.2% of urban native women in Amhara region, 68.6% of women in SNNP region, and 65.4% of rural to urban migrant women in Tigray regions received ANC from skilled health professionals.

As one can see from Table 4.7, women's educational level has a positive effect on antenatal care service utilization. Among rural native women, antenatal care services utilization increased for women with no education (21.3%) to women with secondary education or higher (57.7%). Rural to urban migrant women's antenatal care utilization was also increased from 35.3% of women with no education to 74.4% of women with secondary education or higher. In relation to working status, working women were more likely to receive antenatal care than the non-working women. The percentage distribution of women's antenatal care utilization was also varied by women's husbands' educational level. Urban native women's antenatal care utilization was significantly higher among women whose husbands had secondary education or higher (80.7%), followed by rural to urban migrant women whose husbands had secondary education or higher (76.6%).

Table 4.7: The Percentage Distribution of Women who Had a Live Birth in the Five Years Preceding the Survey and who Received Antenatal Care by Migration Status and Selected Socio-demographic Characteristics, EDHS 2005(N=7307)

Variable	Migration status					
	Rural natives (n=6443)		Rural to urban migrants (n=284)		Urban Natives (n=580)	
	N	%	N	%	N	%
Total	1529	23.7	130	45.9	393	67.6
Age						
15-24	423	(25.6)	26	(38.8)	136	(71.2)
24-34	723	(24.4)	75	(52.4)	202	(72.4)
35-49	383	(21.0)	30	(41.1)	54	(49.1)
<b>Birth order</b>						
1	245	(25.5)	26	(49.1)	142	(80.2)
2 - 3	452	(25.6)	56	(48.5)	157	(74.1)
4 - 5	366	(23.7)	26	(47.1)	51	(54.8)
6 or more	466	(21.4)	23	(36.5)	43	(43.4)
Religion						
Orthodox	678	(24.7)	81	(51.3)	279	(77.5)
Moslem	449	(20.6)	32	(32.7)	59	(46.5)
Others	402	(26.6)	18	(32.7)	55	(58.5)
Region						
Oromia	539	(21.9)	26	(38.2)	118	(60.2)
Amhara	414	(24.2)	16	(29.6)	65	(72.2)
SNNP	420	(28.3)	27	(44.3)	59	(68.6)
Tigray	127	(31.0)	17	(65.4)	35	(79.5)
Urban regions	6	(26.1)	36	(78.3)	88	(88.9)
Others	22	(6.2)	7	(24.1)	28	(41.8)
Women's education						
Not educated	1144	(21.3)	66	(35.3)	68	(41.0)
Primary education	339	(34.5)	33	(61.1)	105	(62.1)
Secondary +	45	(57.0)	32	(74.4)	220	(89.8)
Women's working status						
Not working						
Working	925	(22.1)	72	(42.9)	223	(67.4)
	530	(27.1)	54	(54.0)	158	(70.5)
Husband's education						
Not educated	762	(18.9)	32	(26.2)	43	(33.3)
Primary education	561	(29.3)	36	(45.6)	74	(62.7)
Secondary +	186	(41.9)	59	(76.6)	264	(83.3)
Wealth quintile						
Poorest	201	(13.6)	1	(4.8)	4	(20.0)
Poorer	289	(19.2)	1	(4.2)	8	(29.6)
Middle	383	(25.3)	13	(56.5)	11	(23.4)
Richer	407	(29.8)	11	(28.9)	25	(54.3)
Richest	248	(43.1)	106	(59.2)	345	(78.2)

Table 4.7 Continued

Variables	Migration status					
	Rural natives		Rural to urban migrants		Urban Natives	
	N	%	N	%	N	%
Heard of health information from community events	627(18.3)		68(42.5)		151(53.9)	
No	902(29.9)		62(50.4)		242(80.4)	
Yes						
Heard of health information from the radio	1078(20.8)		61(34.9)		104(46.6)	
No	451(36.3)		70(64.2)		289(80.7)	
Yes						
Visited Health facility	834(17.9)		65(38.7)		152(52.8)	
No	695(38.8)		66(56.9)		241(82.3)	
Yes						
Distance to health facility	920(23.8)		80(46.5)		223(66.6)	
Big problem	609(39.8)		50(45.0)		170(69.1)	
Small problem						
Transport to health facility	960(23.5)		74(43.3)		239(64.9)	
Big problem	568(24.2)		56(50.0)		154(72.3)	
Small problem						
Women's participation in the household decision making	85(16.8)		5(35.7)		8(36.4)	
None	375(21.6)		19(33.3)		40(59.7)	
1-2	956(25.6)		91(52.6)		293(71.6)	
3 or more						

Antenatal care services utilization were significantly more common among women in the richest households compared to women in the other categories of household wealth status. Forty- three percent of the rural native women, 59.2% of the rural to urban migrant women, and 78.2% of the urban native women who were in the richest households received antenatal care services. Women who had access to health information from community events and radio, women who had visited a health facility in the last 12 months before the survey, women who reported distance to a health facility and transportation to health facilities were only small problems, and women who participated in household decision making were more likely to receive antenatal care services compared to their counterpart women.

#### 4.9.2. Prevalence of Delivery at a Health Facility by Migration Status

The results of the descriptive analysis from Table 4.8 show that the proportion of women who delivered in a health facility was very low in Ethiopia. Only, 2.5% of rural natives, 24.3% of

rural to urban migrants and 40.6% of urban natives delivered in health facilities. Women's delivery at a health facility decreases with increasing women's age and birth orders. Health facility delivery was higher in Orthodox urban native women (47.8%), followed by the Muslim rural to urban migrant women (27.8%), and Orthodox rural native women (5.1%). There were also regional disparities in the health facility delivery in the country. The results show that, except rural to urban migrants and urban native women in urban administrative areas and urban native women in Tigray region, women's delivery at a health facility was below 50% in other regions of the country.

Table 4.8 shows that delivery in a health facility increases with increasing women's educational levels. Among urban native women, 12.6% of women with no education, 27.8% of women with primary education, and 65.4% of women with secondary education or higher were delivered at the health facility. The corresponding percentages of rural to urban migrants were 14.4, 35.2 and 54.5%, respectively. Similarly, women whose husbands' education with secondary or higher was more likely to deliver at a health facility (57.6%), followed by women whose husbands with primary education (23.7%) and women whose husband with no education (15.5%).

A woman's delivery in a health facility is also strongly related to the household's wealth status. For example, 36.3% of rural to urban migrant women and 52.5% of the urban native women who were in the richest households were delivered in a health facility. Other variables such as women's exposure to health related information from community events and radio, women who visited health facilities in the last 12 months before the survey had a positive effect on women's delivery at a health facility. Similarly, women who reported distance and transportation as small problems and women who participated in household decision making were more likely to deliver at a health facility compared to women who reported distance and transportation as a big problem and women who did not participate in household decision making.

Table 4.8: The Percentage Distribution of Women who had a Live birth in the Five Years Preceding the Survey and who Delivered at a Health Facility by Migration Status and Selected Socio-demographic Characteristics, EDHS 2005 (N=7307)

	Migration status					
	Rural natives (n=6443)		Rural to urban migrants (n=284)		Urban natives (n=580)	
	N	%	N	%	N	%
Total	162	2.5	69	24.3	235	40.6
Age						
15-24	60	(3.4)	20	(29.4)	76	(39.8)
24-34	68	(2.3)	38	(26.6)	122	(43.7)
35-49	34	(1.9)	12	(16.2)	38	(34.5)
Birth order						
1	65	(6.8)	25	(46.3)	101	(57.1)
2 - 3	40	(2.3)	28	(24.8)	96	(45.3)
4 - 5	21	(1.4)	7	(13.0)	24	(25.8)
6 or more	37	(1.7)	9	(14.3)	14	(14.3)
Religion						
Orthodox	78	(2.8)	42	(26.8)	172	(47.8)
Moslem	32	(1.5)	20	(27.8)	33	(26.2)
Others	51	(3.4)	7	(12.70)	30	(31.9)
Region						
Oromia	69	(2.8)	11	(16.2)	57	(28.9)
Amhara	33	(1.9)	12	(22.2)	33	(36.7)
SNNP	45	(3.0)	7	(11.5)	16	(18.8)
Tigray	10	(2.4)	4	(15.4)	23	(52.3)
Urban regions	1	(4.3)	30	(65.2)	86	(86.9)
Others	4	(1.1)	5	(17.9)	20	(30.3)
Respondent's education						
Not educated	100	(1.9)	27	(14.4)	21	(12.6)
Primary education	54	(5.5)	19	(35.2)	47	(27.8)
Secondary+	8	(10.1)	24	(54.5)	167	(68.4)
Respondent's working status						
Not working	108	(2.6)	39	(23.1)	122	(36.7)
Working	50	(2.6)	30	(30.00)	109	(48.7)
Husband's education						
No education	49	(1.2)	15	(12.3)	20	(15.5)
Primary	70	(3.7)	15	(19.0)	28	(23.7)
Secondary educ+	43	(9.7)	37	(48.7)	182	(57.6)
Wealth quintile						
Poorest	9	(0.6)	1	(4.6)	2	(10.0)
Poorer	21	(1.4)	2	(5.8)	0	(0)
Middle	29	(1.9)	1	(7.3)	0	(0)
Richer	60	(4.4)	3	(7.9)	3	(6.5)
Richest	43	(7.5)	65	(36.3)	231	(52.5)
Heard of health information from community events						
No	73	(2.1)	41	(25.6)	103	(36.9)
Yes	89	(3.0)	28	(28.6)	133	(44.2)
Heard of health information from radio						
No	116	(2.2)	25	(14.3)	53	(23.9)
Yes	46	(3.7)	44	(40.4)	182	(50.8)

Visited Health facility			
No	72(1.6)	33(19.6)	96(33.3)
Yes	90(5.0)	36(31.00)	140(47.8)
Distance to health facility			
Big problem	94(2.4)	43(24.9)	123(36.7)
Small problem	68(2.6)	26(25.4)	113(46.1)
Transport to health facility			
Big problem	102(2.5)	38(22.2)	141(38.4)
Small problem	61(2.6)	31(27.4)	94(44.3)
Women's household's decision making involvements			
None	2(0.4)	3(21.4)	2(8.7)
1-2	47(2.7)	3(5.4)	16(23.5)
3 or more	96(2.6)	54(31.2)	182(44.6)

#### **4.10. The Determinants of Women's Utilization of Maternal Health Care Service Utilization (Antenatal Care and Delivery at a Health Facility)**

The multivariate analyses of the determinants of women's use of maternal health care services utilization (antenatal care and delivery at a health facility) are presented in the following consecutive sections. The analysis was for women who had at least one live birth in the five years before the survey (N=7, 307)

##### **4.10.1. Determinants of women's Antenatal Care Utilization-Unadjusted and Adjusted Odds Ratios**

Table 4.9 presents the results of the univariate and multivariate analyses of the determinants of women's antenatal care services utilization during their recent past pregnancy. Antenatal care visits of rural to urban migrants and urban native women were nearly three and seven (UOR, 2.72, 95% CI, 2.15 to 3.48; UOR, 6.72, 95% CI, 5.60 to 8.07, respectively) times more likely to receive antenatal care compared to rural native women. After adjustment for socio-demographic predictors, once again migration status has a significant association with women's antenatal care utilization. The uses of antenatal care were higher for urban natives (AOR, 2.49, 95%CI, 1.93 to 3.18), followed by rural to urban migrants (AOR, 1.56, 95%CI, 1.17 to 2.08) compared by rural native women. Demographic factors such as women's age and birth order have also a significant

effect on women's antenatal care service utilization. The adjusted results showed that women aged 35 to 49 and women with 6 or more birth orders were less likely to receive antenatal care (AOR, 0.82, 95% CI, 0.70 to 0.95), and (AOR, 0.77, 95% CI, 0.65 to 0.93), compared with women aged 15 to 24 and women with first birth order, respectively.

In relation to religion, Moslem and 'other' religious followers were less likely to receive antenatal care compared to Orthodox Christian women (UOR, 0.63; 95% CI, 0.56 to 0.71; OR, 0.86; 95% CI, 0.75 to 0.98, respectively). However, women who live in urban administrative areas, Tigray, and SNNP regions had an increasing odds of the use of antenatal care (UOR, 10.28, 95% CI, 7.09 to 14.93), (UOR, 1.77, 95% CI, 1.45 to 2.18) and (UOR, 1.34, 95% CI, 1.17 to 1.54), respectively compared with women in Oromiya region. The results of the adjusted analysis of the relationship of women's region of residence with women's antenatal care utilization show that although the magnitude changed, the use of antenatal care utilization remained significant among women who lived in urban administrative areas with an adjusted odds ratio of 2.97 compared with women in the Oromiya region. However, women who lived in other regions (Ethiopia-Somali, Afar and Gambella) were less likely to use antenatal care (AOR, 0.68, 95%CI, 0.49-0.96) compared to women in the Oromiya region.

A positive relationship between educational achievements and women's antenatal care services utilization were evident. Women with secondary education or higher were more than fourteen times use of antenatal care (UOR, 14.62, 95%CI, 11.20 to 19.9) compared with women with no education. However, following adjustment, the odds of use of antenatal care reduced to 2.01. Likewise, the odds of receiving antenatal care by women's working status decreased after adjustment from 1.42 unadjusted odds ratio (, 95%CI, 1.26 to 1.58) to 1.17 adjusted odds ratio (95%CI, 1.02 to 1.33) compared to non-working women.

The household's wealth status was a strong predictor of antenatal care utilization in unadjusted results, but the effect was attenuated after adjustment for other socio-demographic factors (see Table 4.9). For instance, for women in richest, richer and middle household, the odds of receiving antenatal care dropped substantially following adjustment, from 9.04 (UOR 95% 7.50 to 10.90) to 2.79 (AOR, 95%CI, 2.20 to 3.55), from 2.82 (UOR, 95%CI, 2.34 to 3.39) to 1.98

Table 4.9: The Unadjusted and Adjusted Analysis of Binary Logistic Regression Model for the Determinants of Women's Antenatal Care Services, EDHS 2005 (N=7307)

Variables	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Migration status		
Rural natives (ref)	1.00	1.00
R-U migrants	2.73(2.15_3.48)***	1.56(1.17_2.08)***
Urban Natives	6.72(5.60_8.07)***	2.49(1.95_3.18)***
Age of respondent		
15 to 24 (ref)	1.00	1.00
25 to 34	0.95(0.84_1.07)	0.94(0.83-1.08)
35 to 49	0.69(0.60_0.79)***	0.82(0.70-0.95)**
Birth order		
1 (ref)	1.00	1.00
2-3	0.88(0.76_1.02)	0.95(0.79_1.13)
4-5	0.67(0.57_0.79)***	0.84(0.70_1.02)
6+	0.56(0.48_0.65)***	0.77(0.65_0.93)***
Religion		
Orthodox (ref)	1.00	1.00
Moslem	0.63(0.56_0.71)***	1.18(1.03_1.138)***
Others	0.86(0.75_0.98)**	0.98(0.81_1.19)
Region		
Oromia (ref)	1.00	1.00
Amhara	1.08(0.95_1.24)	1.26(0.27_1.51)
SNNP	1.34(1.17_1.54)***	1.53(0.29_1.82)
Tigray	1.77(1.45_2.18)***	2.13(0.60_2.76)
Urban regions	10.28(7.09_14.93)***	2.97(1.85_4.77)***
Others	0.44(0.33_0.59)***	0.68(0.49_0.96)**
Respondent's education		
Not educated (ref)	1.00	1.00
Primary education	2.28(2.00_2.60)***	1.19(0.97_1.47)
Secondary education+	14.62(11.20_19.9)***	2.01(1.36_2.98)***
Respondent's working status		
Not working (ref)	1.00	1.00
Working	1.42(1.26_1.58)***	1.17(1.02_1.33)***
Husband's education		
Not educated (ref)	1.00	1.00
Primary education	1.93(1.71_2.17)***	1.32(1.15_1.51)***
Secondary education	6.40(5.46_7.49)***	1.97(1.59_2.43)***
Wealth quintile		
Poorest (ref)	1.00	1.00
Poorer	1.52(1.25-1.85)***	1.29(1.05_1.58)**
Middle	2.21(1.84-2.66)***	1.70(1.39_2.08)***
Richer	2.82(2.34-3.39)***	1.98(1.61_2.43)***
Richest	9.04(7.50-10.90)***	2.79(2.20_3.55)***
Heard of health information from community events		
No (ref)	1.00	1.00
Yes	1.93(1.74_2.14)***	1.43(1.26_1.62)***
Heard of health information from the radio		
No (ref)	1.00	1.00
Yes	3.15(2.81_3.52)***	1.37(1.18_1.58)***

Visited health facility		
No (ref)	1.00	1.00
Yes	3.22(2.89_3.59)***	2.36(2.10_2.67)***
Distance to health facility		
Big problem (ref)	1.00	1.00
Small problem	3.43(2.22-3.13)***	2.05(1.16-3.61)**
Women's empowerment indices in household decision making		
None (ref)	100	
1-2	1.36(1.07-1.73)**	1.20(0.93-1.55)
3 or more	2.02(1.60-2.52)***	1.48(1.16-1.88)***

Ref=reference category; \*\*p<0.05; \*\*\*p<0.001

(AOR, 95%CI, 1.61 to 2.43) and from 2.21 (UOR, 95%CI, 1.84 to 2.66) to 1.70 (AOR, 95%CI, 1.39 to 2.08, respectively.

According to the adjusted odds ratios, women who heard of health information from community events and radio were significantly more likely to receive antenatal care (AOR, 1.43, 95%CI, 1.26 to 1.62 and AOR, 1.37, 95%CI, 1.18 to 1.58) compared to women who did not hear health information from community events and radio, respectively. Similarly, women who visited a health facility were significantly more likely to use antenatal care (AOR, 2.36, 95%CI, 2.10 to 2.67) compared to women who did not visit. Likewise, woman who reported distance to a nearest health facility was a small problem were more likely to use antenatal care (AOR, 2.05, 95%CI, 1.16 to 3.61) compared to a women who reported distance to a nearest health was a big problem. Moreover, women who involved in 3 or more numbers of household decision making were more likely to receive antenatal care services (AOR, 1.48, 95%CI, 1.16 to 1.88) compared to women who did not involve in a household decision making.

#### **4.10.2. Determinants of Delivery at a Health Facility-Unadjusted and Adjusted Odds Ratios**

Table 4.10 presents the determinants of odds of delivery at a health facility by migration status and selected socio-background characteristics. The results show that women's delivery at a health facility was significantly associated with women's migration status both in the unadjusted and adjusted models. The odds of urban natives and rural to urban migrants delivery at a health

Table 4.10: The Unadjusted and Adjusted Binary Logistic Regression Model for the Determinants Women's Delivery at a Health Facility, EDHS 2005 (N=7307)

Variables	Unadjusted OR (95%CI)	Adjusted OR (95%CI)
Migration status		
Rural natives (ref)	1.00	1.00
R-U migrants	12.42(9.08_16.98)***	2.22(1.42_3.46)***
Urban Natives	26.45(21.07_33.20)***	2.54(1.76_3.67)***
Age of respondent		
15 to 24 (ref)	1.00	1.00
25 to 34	0.95(0.84_1.07)	0.76(0.58-1.99)
35 to 49	0.45(0.60_0.79)***	0.67(0.48-0.94)**
Birth order		
1 (ref)	1.00	1.00
2-3	0.45(0.36_56)***	0.34(0.25_0.46)***
4-5	0.16(0.12_0.23)***	0.21(0.15_0.31)***
6+	0.14(0.10-0.19)***	0.25(0.18_0.36)***
Respondent's education		
Not educated (ref)	1.00	1.00
Primary education	4.22(3.29_5.41)***	1.45(1.05_1.99)**
Secondary education+	44.99(34.59_58.49)***	3.03(2.00_4.58)***
Respondent's working status		
Not working (ref)	1.00	1.00
Working	1.52(1.25_1.86)***	1.43(1.20_1.56)***
Husband's education		
Not educated (ref)	1.00	1.00
Primary education	2.83(2.12_3.76)***	1.48(1.05_2.08)**
Secondary education	22.72(17.51_29.47)***	2.96(2.03_4.33)***
Wealth quintile		
Poorest (ref)	1.00	1.00
Poorer	1.88(0.90-3.93)	1.75(0.82_3.71)
Middle	2.68(1.34-5.39)**	2.33(1.14_3.78)**
Richer	6.57(3.44-12.53)***	5.25(2.66_10.36)***
Richest	54.94(29.86-101.8)***	8.47(4.20_17.10)***
Heard of health information from the radio		
No (ref)	1.00	1.00
Yes	5.27(4.35_6.40)***	1.25(1.10_1.44)***
Visited health facility		
No (ref)	1.00	1.00
Yes	3.35(2.77_4.05)***	1.69(1.31_2.16)***
Distance to health facility		
Big problem (ref)	1.00	1.00
Small problem	2.21(2.06-2.47)***	1.32(1.27-2.14)**
Women's household decision making involvement		
None (ref)	1.00	1.00
1-2	3.02(0.64-14.17)	2.87(1.26-6.51)**
3 or more	8.11(1.90-34.59)***	3.07(1.40-6.75)***

Ref=reference category; \*\*p<0.05; \*\*\*p<0.001

facility reduced substantially following adjustment from 26.45 unadjusted odds ratios (95%CI, 21.07 to 33.20) to 2.54 adjusted odds ratios (95%CI, 1.76 to 3.67) and from 12.42 unadjusted odds ratios (95%CI, 9.08 to 16.98) to 2.22 adjusted odds ratios (95%CI, 1.42 to 3.46) compared to rural natives, respectively.

The odds of women's delivery in a health facility decreased with increasing women's age. For instance, women aged 35 to 49 were less likely to deliver at a health facility (AOR, 0.67, 95%CI, 0.48 to 0.94) compared to women aged 15 to 24. Similarly, there was an inverse association between birth order and the odds of delivery at a health facility. The probability of health facility delivery were lowest for women with 2-3 birth orders (AOR, 0.34, 95%CI, 0.25 to 0.46), women with 4 to 5 birth orders (AOR, 0.21, 95%CI, 0.15 to 0.31), and women with 6 or more (AOR, 0.25, 95%CI, 0.18 to 0.36) compared to women with first birth order. Women who lived in urban administrative areas were seven times more likely to deliver at a health facility (AOR, 7.23, 95%CI, 4.32 to 12.12), followed by women who lived in 'other' regions (AOR, 2.26, 95%CI, 1.31 to 3.88) compared to women who lived in the Oromiya region. Furthermore, both women and husbands' levels of education had a significant effect on women's delivery at a health facility. For example, the odds of delivery at a health facility for women with secondary education or higher were 44.99 (95%CI, 34.59 to 58.49) than women with no education, but after adjustment the odds reduced to 3.03.

Working women were also more likely to deliver at a health facility (AOR, 1.43, 95%CI, 1.20 to 1.56) compared to non-working women. In relation to wealth status, women in the richest (AOR, 8.47, 95% CI, 4.20 -17.20), richer (OR, 5.25, 95% CI, 2.66 - 10.36), and middle (OR, 2.33, 95% CI, 1.14 - 3.78) wealth quintiles were delivered in a health facility compared to women in the poorest wealth quintile. The results also reveal that women who heard of health information from radio (AOR, 1.25, 95% CI 1.10–1.44), women who visited a health facility in the last 12 months before the survey (AOR, 1.69, 95%CI, 1.31 to 2.16), women who reported that distance to a health facility was a small problem (AOR, 1.32, 95% CI 1.27–2.14), and women who participated 1-2 and 3 or more decisions in the households (AOR, 2.87, 95% CI 1.26–6.51; AOR, 3.07, 95%CI, 1.40 to 6.75) were more likely to deliver their children at a health facility, respectively.

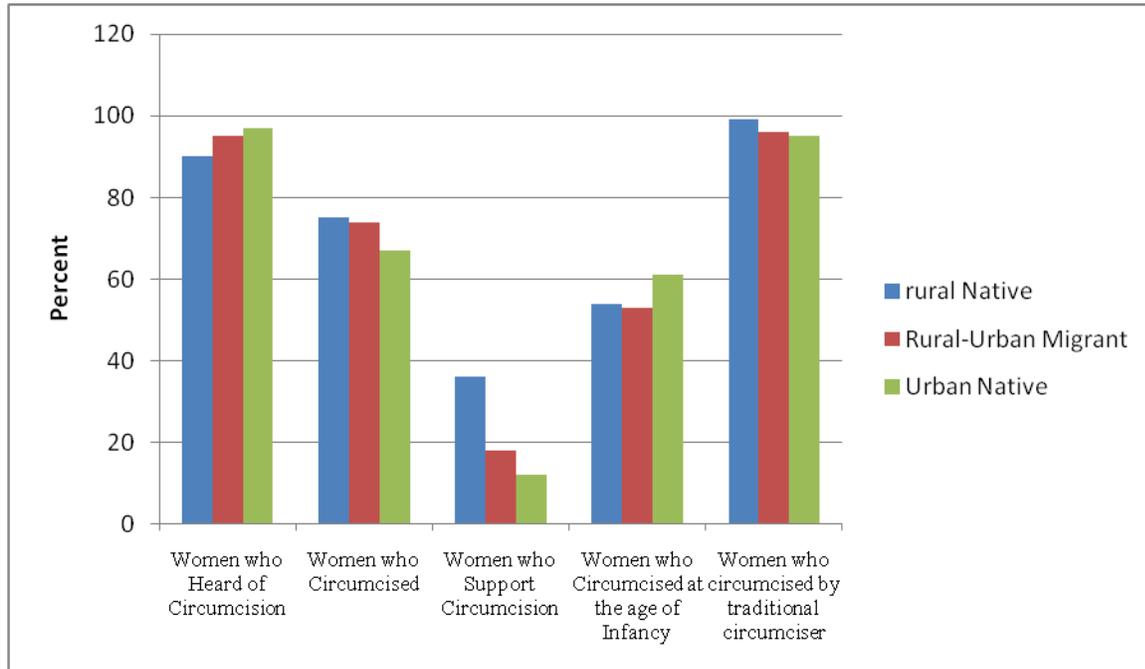
## **4.11. Reproductive Health Related Harmful Traditional Practices in Ethiopia: Female Circumcision and Early Marriage.**

In the following sections, the study investigates the prevalence and socio-cultural factors that are responsible for the perpetuation of female circumcision and early marriage in the country. These two traditional harmful practices are the major factors that affect women's reproductive health in the country, for instance, a circumcised woman and women who married at her early age are more likely to face complications during childbirth than a non-circumcised and woman who married at a later age. The scar tissue due to circumcision is relatively inelastic and can lead to obstruction and tearing of tissues around the vagina during childbirth that lead to heavy bleeding and complications that cause maternal mortality and morbidity. A woman who married at an early age is also more likely develops obstetric fistula and severe bleeding at childbirth that cause for maternal and child mortality and morbidity. Against this background, the study tried to look at the prevalence of female circumcision in Ethiopia using the 2005 EDHS data.

### **4.11.1. Descriptive Analysis of the Prevalence of Female Circumcision by Migration status**

Figure 4.2 shows that the proportion of women who were circumcised was high in Ethiopia. About 75.5% of rural natives, 74.5% of rural to urban migrants and 67.8% of urban natives were circumcised. The attitude of women towards circumcision also indicates that 36.4% of rural natives, 17.7% of rural to urban migrants and 11.7% of urban natives supported the practice of female circumcision. Furthermore, 42.8% of rural native women, 36.9% of rural to urban migrants and 29.4% urban native women supported circumcision for their daughter(s). In relation to age of circumcision, 54.0% of rural native women, 53.7% of rural to urban migrant women, and 61.0% of urban native women circumcised their daughter during infancy. Almost, 95% of the circumcisions were conducted by a traditional circumciser in all the three migration status. In some communities, after circumcision, the circumcised female's genital organ was sewn closed to protect her virginity. According to the data, 4.2% of rural natives, 5.2% of rural to urban migrants, and 4.4% of urban native women reported that after circumcision, their daughters' genital area was sewn closed.

Figure 4-2: the Percentage of Women who circumcised and who Support the Practice of Circumcision by Migration Status.



#### 4.12. Binary Logistic Analysis of the Determinants of Female Circumcision- Unadjusted and Adjusted Odds Ratios

In the following sections, the multivariate analyses of the determinants of female circumcision are presented. Among women in the three migration status, the risks of circumcision were less likely for urban native females (UOR, 0.73, 95%CI, 0.58 to 0.92) and rural to urban migrants (UOR, 0.98, 95%CI, 0.74 to 1.28) compared to rural native women, respectively. After adjusting other socio-demographic factors, there were no significant differences between rural to urban migrants and rural natives in terms of circumcision (AOR, 1.09, 95%CI, 0.88 to 1.35). But being urban natives remained significant (AOR, 0.78, 95% CI, and 0.66 to 0.92).

In relation to age of women, both the unadjusted and adjusted odds ratios indicate that female circumcision were significantly higher for women aged 25 to 34 (UOR, 1.73, 95%CI, 1.58 to 1.90) and 35 to 49 (UOR, 2.14, 95%CI, 1.94 to 2.36) compared with women aged 15 to 24. However, the magnitude changed little with adjustment, for example, women aged 25 to 34

Table 4.11: The Unadjusted and Adjusted Binary logistic Regression Analysis of the Determinants of Female Circumcision, EDHS 2005(N=14, 070)

Variables	Female circumcision	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Migration status		
Rural natives (ref)	1.00	1.00
Rural to urban migrant	0.98(0.74_1.28)	1.09(0.88-1.35)
Urban Natives	0.73(0.58_0.92)**	0.78(0.66-0.92)***
Age of respondent		
15-24 (ref)	1.00	1.00
25-34	1.73(1.58_1.90)***	1.43(1.27-1.60)***
35-49	2.14(1.94_2.36)***	1.80(1.59-2.04)***
Region		
Tigray (ref)	1.00	1.00
Afar	26.32(14.42_48.02)***	20.70(11.14-38.46)***
Amhara	5.27(4.50_6.18)***	4.73(4.01-5.58)***
Oromiya	16.48(13.98_19.43)***	16.23(13.51-19.49)***
Somali	85.94(48.93_150.94)***	64.55(36.13-115.31)***
Ben-Gumz	5.04(3.37_7.53)***	4.08(2.67-6.23)
SNNP	5.92(5.03_6.96)***	7.14(5.88-8.68)***
Gambela	0.90(0.46_1.77)	1.04(0.51-2.12)
Harari	13.76(5.62_33.69)***	13.48(5.26-8.51)***
Addis Ababa	4.63(3.77_5.69)***	6.69(5.26-8.51)
Dire Dawa	28.93(11.81_70.86)***	19.31(11.72-73.25)***
Marital status		
Never married (ref)	1.00	1.00
Currently married	2.24(2.05-2.45)***	2.37(2.14-2.65)***
Formerly married	1.66(1.44-1.91)***	2.01(1.71-2.36)***
Women's education		
None (ref)	1.00	1.00
Primary	0.70(0.63-0.76)***	0.95(0.85-1.06)
Secondary edu+	0.54(0.48-0.60)***	0.91(0.77-0.98)**
Religion		
Orthodox (ref)	1.00	1.00
Moslem	3.88(3.47-4.33)***	1.76(1.55-2.01)***
Others	1.14(1.04-1.25)***	0.66(0.58-0.75)***
Wealth quintile		
Poorest (ref)	1.00	1.00
Poorer	1.16(1.03-1.32)**	1.47(1.27-1.70)***
Middle	1.13(1.01-1.29)**	1.48(1.28-1.71)***
Richer	1.28(1.13-1.46)***	1.67(1.44-1.93)***
Richest	0.89(0.79-0.99)**	1.45(1.22-1.72)***

Ref=reference category; \*\*p<0.05; \*\*\*p<0.001.

(AOR, 1.43, 95%CI, 1.27 to 1.60) and 35 to 49 (AOR, 1.80, 95%CI, 1.59 to 2.04). Female circumcision was also significantly associated with regions. Female circumcision was highest among women in Ethiopia-Somali (AOR, 64.55, 95%CI, 36.13 to 115.31), Afar (AOR, 20.70,

95%CI, 11.14 to 38.46), Dire Dawa (AOR, 19.31, 95%CI, 11.72 to 73.25), and Oromiya (AOR, 16.23, 95%CI, 13.51 to 19.49) compared to women in the Tigray region.

The adjusted odds ratio for women with primary education was 0.95 (95%CI, 0.85 to 1.06) compared with an unadjusted odds ratio of 0.70 (95%CI, 0.63 to 0.76). Women with secondary education had the adjusted odds ratios of 0.91 (95%CI, 0.77 to 0.98) compared with an unadjusted odds ratio of 0.54 (95%CI, 0.48 to 0.60). Religious affiliation was also one of the important factors that affect the prevalence of female circumcision. The results showed that Moslem women were more likely to be circumcised compared to Orthodox women (AOR, 1.76, 95%CI, and 1.55 to 2.01). Those 'other' religious followers were less likely to be circumcised (AOR, 0.60, 95%CI, 0.58 to 0.75) compared to Orthodox women. Even though, the pattern was not consistent, there was a positive association between female circumcision and the households' wealth status. A slightly higher rate of female circumcision was found in the middle income household compared to women in the poorest households.

#### **4.13. The Prevalence of Child Marriage or Early Marriage in Ethiopia**

Table 4.12 presents the prevalence of early marriage (child marriage) among all ever married women aged 15 to 49. The results indicate that first marriage occurs relatively early in Ethiopia. Among the three migration status, 72.6% of rural natives, 69.2% of rural to urban migrants, and 58.1% of urban natives were married before age 18. The proportion of women married before age 18 increased from 67.6% among women age 15 to 24 to 77.7% among women age 35 to 49. The proportion of women who married before age 18 was also highest among women in the Amhara region (88.8%), Orthodox women (76.6%), women with no education (73.6%), women who were not working at the time of the survey (71.6), and women who did not listen to radio in the last 12 months before the survey.

##### **4.13.1. Binary Logistic Regression Analysis of the Determinants of Early Marriage- Unadjusted and Adjusted Odds Ratios**

Socio-demographic factors (such as age, place of region, religion, education, media exposure and household wealth quintiles) were introduced along with migration status in the adjusted models.

Table 4.12. The Percentage Distribution of Women who Married before Age 18 and the Unadjusted and Adjusted Odds Ratios of the Determinants of Early Marriage, EDHS 2005 (N=9, 066)

Variables	Age at first marriage		Unadjusted OR (95% CI)	Adjusted OR (95% CI)
	≥18 years old (n=2674)	<18 yrs old (n=6393)		
<b>Migration Status</b>				
Rural natives (ref)	2421(27.4)	6416(72.6)	1.00	1.00
Rural to urban migrants	170(30.8)	382(69.2)	0.64(0.71-0.98)***	0.99(0.58-1.07)
Urban non-migrants	488(41.9)	676(58.1)	0.49(0.46-0.59)***	0.66(0.53-83)**
<b>Age of the respondent</b>				
15-24 (ref)	1302(32.4)	2716(67.6)	1.00	1.00
25-34	1186(30.5)	2703(69.5)	1.47(0.41-0.55)***	1.15(1.01-1.31)**
35-49	591(22.3)	2056(77.7)	1.51(0.45-0.59)***	1.05(0.92-1.19)
<b>Region</b>				
Tigray (ref)	164(23.2)	542(76.8)	1.00	1.00
Afar	40(32.3)	84(67.7)	0.64(0.37-1.11)***	0.59(0.33-1.07)
Amhara	344(11.8)	2567(88.2)	2.25(1.82-3.04)***	2.23(1.70-2.92)***
Orimiya	1295(35.0)	2410(65.0)	0.57(0.46-0.72)***	0.53(0.41-0.69)***
Somali	174(43.6)	225(56.4)	0.45(0.32-0.61)***	0.41(0.28-0.59)***
Ben-Gumz	20(19.4)	83(80.6)	1.24(0.66-2.34)	1.21(0.58-2.18)
SNNP	834(38.5)	1332(61.5)	0.47(0.37-0.59)***	0.42(0.32-0.56)
Gambela	9(24.3)	28(75.7)	0.79(0.31-2.03)	0.83(0.30-2.26)
Harari	12(46.2)	14(53.8)	0.40(0.14-1.14)	0.43(0.14-1.37)
Addis Ababa	167(50.8)	162(49.2)	0.15(0.09-0.22)***	0.27(0.16-0.44)***
Dire Dawa	19(40.4)	28(59.6)	0.40(0.18-0.93)**	0.42(0.17-1.02)**
<b>Religion</b>				
Orthodox (ref)	1201(23.4)	3926(76.6)	1.00	1.00
Moslem	1001(31.1)	2216(68.9)	0.70(0.62-0.79)***	0.98(0.94-1.28)
Others	875(39.6)	1333(60.4)	0.49(0.43-0.56)***	0.92(0.78-0.99)**
<b>Education of respondent</b>				
No education (ref)	2168(26.4)	6040(73.6)	1.00	1.00
Primary	505(30.7)	1139(69.3)	0.80(0.70-0.92)***	0.93(0.80-1.08)
Secondary education+	406(57.8)	297(42.2)	0.26(0.21-0.32)***	0.28(0.21-0.38)***
<b>Listen radio in the last 12 months before the survey</b>				
No (ref)	1975(28.5)	4943(71.5)	1.00	1.00
Yes	180(50.7)	175(49.3)	0.39(0.31-0.48)***	0.74(0.55-0.99)**
<b>Wealth quintile</b>				
Poorest (ref)	619(30.2)	1432(69.8)	1.00	1.00
Poorer	537(24.6)	1643(75.4)	1.23(1.43-1.75)***	1.28(0.97-1.52)
Middle	609(28.6)	1524(71.4)	1.12(0.96-1.31)	1.07(0.90-1.28)
Richer	547(26.8)	1495(73.2)	1.07(0.91-1.25)	1.10(0.92-1.32)
Richest	767(35.7)	1381(64.3)	1.23(1.13-1.55)***	1.34(1.07-1.69)**

Ref=reference category; \*\*p<0.05; \*\*\*p<0.001

Among the migration status, the risk of early marriage was less likely for urban native females (UOR, 0.49, 95% CI, 0.46 to 0.59) and rural to urban migrants (UOR, 0.64, 95% CI, 0.71 to 0.98) compared to rural natives. The association between being urban natives and early marriage

remained significant after adjustment (AOR, 0.66, 95%CI, 0.53 to 0.83) while the adjusted odds ratios of rural to urban migrant women were not statistically different from rural natives (see Table 4.12). It is expected that women in the oldest cohorts were more likely to marry earlier than women in the youngest cohort, with unadjusted odds ratios of 1.47 (95%CI, 0.41 to 0.55) for women age 25 to 34 and 1.51(95%CI, 0.45 to 0.59) for women age 35 to 49 years compared to women age 15 to 24 years. After adjustment, the odds of being married early reduced to 1.15 (95%CI, 1.01 to 1.31) and 1.05 (95%CI, 0.92 to 1.19) for women aged 25 to 34 and 35 to 49 years, respectively.

With respect to regions, females in Amhara region were more than two times more likely to marry early compared to females in Tigray region (AOR, 2.23, 95%CI, 1.82 to 3.04). A significant association was also found with religion. Moslem women were less likely to marry early (UOR, 0.70, 95%CI, 0.62 to 0.79) compared to Orthodox women, but after adjustment, there was no significant difference between being Moslem and Orthodox in relation to early marriage. Education was also negatively associated with early marriage. For instance, women with secondary or higher education were by about 74% less likely to marry early as compared to non-educated women (UOR, 0.26, 95%CI, 0.21 to 0.32), followed by women with primary education (UOR, 0.80, 95%CI, 0.70 to 0.92). After adjustment secondary education or higher remained significant with the adjusted odds ratio of 0.28 but not primary education. Media exposure, especially radio has a significant effect on the likelihood of early marriage. The probability of early marriage was reduced by 26% for those women who had media exposure compared to women who did not have media exposure (AOR, 0.74, 95%CI, 0.55 to 0.99). The probability of early marriage by household's wealth status showed that women in the richest household were more likely to marry early as compared to women in the poorest household (AOR, 1.34, 95%CI, 1.07 to 1.69).

## **4.14. EDHS Data Limitations and Justification for Study Two**

### **4.14.1. EDHS Data Limitations**

From the previous chapter of EDHS data analysis, it has been shown that the data source for this study, the EDHS data, has a number of limitations. One of the limitations is related to migration data. Migration is one of the key variables in this study. However, EDHS collected minimal information about migration. However, different migration characteristics affect not only the extent to which migrants' access to reproductive health care services but also their knowledge and attitude towards the various reproductive health care services. EDHS data are also not representative of all migrant populations since it is a household based survey; it excluded those migrants who did not have permanent residences and homeless migrants.

Although detailed evaluation of DHS data has shown that the data are reasonably well reported, omissions of births or deaths are the most serious problem of the cross-sectional survey. EDHS survey employs a cross-sectional retrospective design to collect information about women's reproductive health in the five years preceding the survey. However, the validity, reliability and completeness of a cross-sectional retrospective data depend on the respondent's recalling ability of the events occurred in the past. Differences in recall periods have been shown to influence the quality of data in relation to reproductive health care services, since individuals tend to recall the most recent period, and recall diminishes rapidly with time. This is particularly true for questions related to date of birth, age of respondents, date of marriage, age at marriage and age at first birth. The other limitation of DHS data emanates from the fact that most of the data have been collected through self reported information by the respondents, but self reported responses might have a response bias that affect the quality of the data. The accuracy of self-reported responses is affected by many factors such as memory lapses, sensitivity of the reported issues, and background characteristics of the respondents. Because some of the reproductive health information such as contraceptive use, circumcision, age at marriage and sexual health are so sensitive to report the truth to the interviewer especially in illiterate and culturally secretive society. So it is important to recognize potential bias that may arise from such problems. The survey also has no mechanism for checking the accuracy and validity of the self reported

answers. One may also expect refusal to report or purposefully misreport the information that likely affect the quality and reliability of the data.

Although a wide range of data is collected in relation to reproductive health care services and background variables, the scope of the survey in term of the depth of information is relatively minimal compared to the quantity of information. Demographic and Health Survey is exclusively focused on quantitative data. The quantitative nature of EDHS data does not allow an in-depth analysis of the socio-cultural fabric of the society and attitude of participants towards reproductive health care services utilization. EDHS also have very long questionnaires that adversely affect the motivation and response rate of a respondent. As the number of questions increases, there is a serious loss of respondents or deterioration in the quality of the responses. EDHS data also lack information in relation to the quality care, attitude of health care providers towards users, affordability and accessibility of the health services. EDHS also has limited information about the satisfaction of users of the various reproductive health care services. EDHS survey results are also applicable to national and regional level, but not for the lower level administrative units (such as Kebele, Districts, or zonal level).

Another major limitation of EDHS is that information about attendants at delivery and place of delivery recorded only for live births. This means it is not possible to collect perinatal mortality by type of attendant. There are also questions as to how women are able to accurately identify their attendants at birth. Different categories of the attendants may appear similar, and it is not known to what extent women can distinguish for example, between a trained traditional birth attendant (TBA) and midwives and between midwives and doctors. Also, there is no way of knowing the level of skills of individual practitioners who are involved in the activities. The level of involvement of attendants reported by the woman also may not be accurate and clear. It is assumed that the attendants recorded those had significant involvement in the delivery, but this is not certain.

EDHS used an asset-based wealth index to measure households' economic status. However, asset-based wealth index is a proxy indicator of household economic status, which may not produce similar results with that of the direct measurements of income and expenditure. DHS survey is also expensive; cost depends on the number of variables targeted. For instance,

estimating HIV prevalence among the population is so expensive because in areas where the HIV prevalence is low, a large sample size is needed to permit having reliable estimates.

#### **4.14.2. Justification for Study two**

In the preceding sections, the study highlighted some of the limitations of EDHS as a data source for this study. The following section outlines what study 2 adds over and above study 1.

- Although, the 2005 EDHS was the most recent data set at the time when this research project started, the data set is now not very timely and up to date and may not reflect the current situations or status of reproductive health services at local level. Therefore, it was important to conduct a study at the local level that provided more up to date and timely data reflecting the current reproductive health status, problems or needs of the local population,
- EDHS data are applicable only at a national or regional level, but not at district, or zonal levels. Disaggregation of data at local level is desirable, since a local level is often the major unit of formulation and implementation of policies. A local level specific study of reproductive health issues was felt to be required to facilitate designing, planning, and implementing of programs to improve the reproductive health problems of the local population.
- Policy interventions at a national level may not reflect the specific needs of the local population; therefore, data on reproductive health outcomes at local level are important to determine the proportions of the population in specific localities that are affected by reproductive health problems. The EDHS data are unable to detect changes at local level for the specific period of time since EDHS conducted at the interval of 5 years or more. Therefore, the new study provides new information about the change of reproductive health care services and identifies the size of the local population with reproductive health problems.
- The aim of this study was to investigate the impact of migration on reproductive knowledge, health and use of services. The EDHS survey did not collect detailed migration data on age at migration, reasons for migration, kebele registration status, and

reasons for not registering as a kebele resident. All these characteristics of migration affect not only migrants' access to reproductive health care services but also their knowledge and attitude towards the various reproductive health care services. Therefore, a new study was developed to collect detailed migration data and to address one of the objectives of the study, namely, migrants' kebele registration status. Migrants' kebele registration status has significant policy implications for migrant women's access to and use of reproductive health care services.

- The EDHS also lacks information in relation to the distance to a nearest health facility and quality of the reproductive health services. In order to find out about the accessibility and quality of some of the reproductive health care services, the new study collected information about the distance to the nearest health facility and the quality of maternal health care services measured by the availability of a separate room for diagnosis and treatment and waiting times to see a doctor.

In order to address the limitations of the EDHA data a new study was developed and conducted in the Amhara Region, a local region known to have very low utilization of maternal health care services compared to other regions of the country. According to EDHS 2005 results, more than 90% of women delivered at home. Therefore, the researcher was decided to conduct the new study in Gondar and Dabate rural areas in the Amhara region of Ethiopia to provide information about the local population's reproductive health problems, needs and status that require policy intervention by the local policy makers.

## **Chapter Five: Study Two- Methods**

### **5.1. Introduction**

This chapter presents the methods of the primary survey to study the impact of migration on women's access to the local reproductive health services in Gondar and Dabat, including, the research approaches (methodology) a description of the study areas, the study design, the study population, the sample size selection procedures, the design of survey questionnaires, the survey management processes and the data quality handling procedures.

### **5.2. The Research Methodology (Approach)**

This section presents the development of the study which used a quantitative approach. The study used a quantitative approach because of the following reasons: Quantitative approach is helpful to determine the major factors that affect women's reproductive health care service utilization in the study area. Quantitative method is the best approach to make generalizations about the study population or test the study hypotheses or theories of migration and its effect on women's reproductive health care service utilization. In addition to this, quantitative method is also important to collect data on large population to determine the level or prevalent of reproductive health problems among women in the local population. It enables the researcher to summarize the survey results through the use of SPSS software package to compare and contrast women's reproductive health care utilization. It allows the researcher to measure data the relationship between women's reproductive health care utilization and migration status and other socio-demographic variables. Quantitative approach also can be used to quantify survey data objectively and capable of replication by subsequent researchers. Quantitative method enables the researcher to collect information from a large sample in a short period of time with a relatively cost effective way. Despite these advantages, quantitative approach has the following weakness; it does not study women's reproductive health problems in actual setting or discuss the different meaning attached to reproductive health in different contexts as qualitative research does. Quantitative method is not effective in managing and understanding of sensitive, contextually and culturally specific topics such as contraceptive and reproductive health issues. Another weakness of quantitative approach is not suitable to explore reproductive health

behavior such as attitudes and social norms, as well as values of respondents towards reproductive health.

### **5.3. The study setting**

The data was collected between 1 February 2012 and 30 April 2012. The survey was designed to cover both rural and urban areas, investigating access to and use of reproductive health care services. The study was carried out in one rural area to investigate rural non-migrants and one urban area for urban non-migrants and rural to urban migrants. To compare and contrast their reproductive health care utilization to influence a potential health policy and the provision of health services through an appreciation of the different reproductive health needs of rural-urban migrants relative to non-migrants groups. The study of the urban community was conducted in Gondar city. Gondar city is divided into 11 Kebeles (the smallest administrative unit). According to the 2007 Population and Housing Census, the total number of households in Gondar city was 48, 201 and the total population of the city was 207, 044. From the 11 kebeles, the study selected four kebeles using simple random sampling techniques. The selected kebeles are Abajale, Mahile Arada, Lideta and Maraki and their household sizes was 2,241, 2,368, 4, 177, and 8,089 respectively. After the selection of the sample kebeles, the selection of households was done using a systematic random sampling technique proportional to the size of each sample kebele's population. Gondar city was chosen as an urban study area because it is one of the commercial and historical cities in Amhara region that attracts a huge influx of migrants from different parts of the region in search of job opportunities, especially in the commercial and construction sectors, because it has an outlet to the Sudan. In addition to economic opportunities, a relatively health and education supply also attracts more migrants from the surrounding rural areas.

In the rural community, the study was conducted on Dabat Rural Health Project (DRHP) site which is 70 kilometers from Gondar city. The project was administered by the University of Gondar. The project area comprised seven rural kebeles. According to the 2008 Dabat Health project, baseline survey, the total number of households was 9, 533 and the total population of the project area was 45, 912. This study selected five rural kebeles out of the seven Dabat Rural Health Project sites. The selected kebeles were: Chila, Dequa, Tinseye, Meskele Eyesu, and

Benker. The rural sampling took place after a preliminary survey of migrant population in Gondar city. The objective of the preliminary survey was to identify where the majority of the migrant population came from. A sample of 100 migrants was interviewed and the results showed that almost more than 50% of the migrants came from the two districts (Dabate and Debark areas). From the two districts, Dabate was selected as a rural study area because it is one of the poorest areas in the region. The area is characterized by poor health infrastructure, poverty, out-migration, food insecurity, poor sanitation, and generally poorer health indicators compared to other rural areas of the region. Therefore, a total of 12 kebeles were selected, comprising 7 kebeles in the rural areas and 5 in the urban areas. From these sample kebeles, 1800 women were interviewed in total (600 from Dabate and 1200 from Gondar City). Female interviewers visited the sample households and interviewed selected women aged 15 to 49 years. (csa, 2007). The calculation of the sample size is given below.

#### **5.4. Study Sample Size and Power**

Sample size for the study was determined by considering the following three factors:

1. The estimated prevalence rate, in this case the contraceptive prevalence rate.
2. The desired level of confidence and
3. The acceptable margin of error

To estimate the sample size of the study the national contraceptive prevalence rate was used, which varied from 11% in the rural areas to 47% in the urban areas (CSA, 2006). Because there is no local study that shows the prevalence of contraceptive methods. In order to detect the significance level at 95% desired confidence level and the 5% level of statistical significance, with 80% power; the study used the following formula.

**For Urban Population:**

$$n = \frac{t^2 \times p(1-p)}{m^2}$$

Where:

n= required sample size

t= confidence level of 95 % ( standard value 1.96)

p= the national urban contraceptive prevalence rate, that was 47 % (0.47)

m= margin of error at 5% (standard value of 0.05).

$$n = \frac{1.96^2 \times 0.47(1-0.47)}{0.05^2}$$

$$n = \frac{3.8416 \times 0.2491}{0.0025}$$

$$n = 382.72 = 383$$

### **Design Effect:**

Since the EDHS survey was conducted using a stratified sampling technique. In order to accommodate the design effect, the sample size is further multiplied by the number of strata (d). The number of strata was assumed to be three (3)

$$N \times \text{design effect (D)} = 383 \times 3 = 1152$$

### **Contingency:**

In order to account for contingencies such as non-response, lost to follow up and lack of compliance the sample was increased by 10%.

$$n \times 10\% = 1152 \times 1.10 = 1267 \text{ round to } 1200$$

### **For rural Population:**

The same formula and procedures were applied to calculate the sample size at 95% desired confidence level and 5% level of statistical significance and with 80% power and at 11% contraceptive prevalence rate. Based on this calculation, a sample of 600 women was determined.

## **5.5. The Study Design**

The study used a cross-sectional study design and recruited women age 15 to 49, from rural and urban communities. This study design was selected as it is less expensive than other survey methods. It enables us to estimate the prevalence of the outcome of interest using a sample population and to make generalizations about the whole population. Cross-sectional surveys are also used to collect data about past events using retrospective questions, although this may introduce recall bias. Despite this problem, cross-sectional surveys are cost effective when conducting large surveys within a limited time frame.

## **5.6. Selection of Data Collectors and Supervisors**

Thirteen data collectors and 4 supervisors were recruited all of whom were women with many years of experience of survey data collection. The selection of supervisors and data collectors was based on survey experiences and educational levels. Among the applicants, those who had long experience in data collection, who spoke the local language, who completed 12 grade education and who were familiar with the local culture were selected. The responsibility of supervisors was to assist data collectors, manage the whole survey processes and check the completeness and the accuracy of questionnaires every day at the end of the survey to increase the survey quality.

## **5.7. Training of the Data Collectors**

After the selection of the supervisors and data collectors, a two day training course was provided by the researcher. The training focused on the study objectives, interview techniques, survey instruments, probing techniques and data recording procedures. The training also included respecting the dignity of respondents when dealing with sensitive issues. The last day of the training also involved a field trial to enable the researchers gets acquainted with the actual experience with the study tools.

## **5.8. Description of the Survey Management Process**

Before the survey was administered, pre-survey activities such as identification of sample kebeles, selection of sample household in each sample kebele, and registration of eligible women were done in advance.

### **5.8.1. Selection of Sample Kebele**

In the first stage, the numbers of kebeles in the two study areas were listed. The sample kebeles were then randomly selected from the list of kebeles. To make representative of the study sample, a total of 9 kebeles (smallest administrative units) was selected randomly, 4 from Gondar and 5 from Dabate. After selection of the sample kebeles, the researcher were contacted each sample Kebele administrative office to get permission and cooperation to contact households and to recruit key informants who have close contact with the local population.

### **5.8.2. Selection of the Households in Sample Kebele**

After the sample kebeles was determined from the two study areas, the next stage was the determination of the size of sample households in each sample kebele. The selection of households was done proportional to the size of the population of each Kebele. In Dabate, the following households were determined from the following sample Kebeles: Dequa kebele(121 households from a population of 927 households), T/Mesk (134 households from a population of 1022 households), Tenseye (107 households from a population of 818 households), Benker (121 households from a population of 920 households) and Chila(117 households from a population of 889). While in Gondat town, the sample households were selected in Lideta kebele (329 households from a population of 4, 561), Mehal Arada (147 households, from a population of 2, 038), Aba Jale (165 households, from a population of 2, 277 households) and Maraki(559 households, from a population of 7,752 households). After the size of the sample households in each sample kebele was determined, the selection of individual households from the master list of households (sampling frame) was carried out for each sample kebele.

Table 5.1. The Distribution of the Study Population Across the Different Rural and Urban Kebeles

Study site	Name of sample Kebele	Total household of the sample kebele	Sample household population
Gondar Town	Lidata	4,561	329
	Mehal Arada	2, 038	147
	Aba Jale	2, 277	165
	Maraki	7, 752	559
	Total	16, 628	1200
Dabat District	Dequa	927	121
	T/Mesk	1022	134
	Tinseye	818	107
	Benker	920	121
	Chilla	889	117
	Total	4, 576	600

The selection was based on systematic random sampling techniques. To select the starting household to conduct a systematic selection, a random number between 1 and 9 using a lottery method was selected. The selected number was 5. To determine the interval between two numbers, the following formula was applied in each sample kebele (Household interval = Total number of households/Total number of sample households). For example, the total number of households in Dequa Kebele was 927 and the total number of households to be selected was 121, then the household interval was  $927/121 = 7$ . The 5<sup>th</sup> household was selected randomly as a starting household, then the next household was the 12<sup>th</sup> household, and the third was 19<sup>th</sup> household. The data collectors allocated a unique identification number to each selected household unit with their identification number. The identification number of each selected household was written both in the master list of household roster and in front of the door of each selected household to be easily identified by the data collector during the field visit. During the data collection process, the data collector traced the selected households using the household identification number as well as with the help of key informants from each sample kebele.

### **5.8.3. Selection of Eligible Women**

A house-to-house visit was carried out to register all eligible women from each selected sample household. With the help of the head of the household or other member of the household, the data collectors registered all eligible women whose age 15 to 49 years in each sample household. Only one eligible woman was selected for interview per household. If the sample household has not eligible woman/women, the next household was taken. After the registration of eligible women, the researcher decided the number of women to be interviewed in each selected household using simple random sampling technique. A total of 1800 women was registered for interview, 600 from Dabat and 1200 were from Gondar town. The disparity of the sample size between the two study areas was due to the fact that the rural population was homogeneous in terms of religion, ethnicity and socio-economic characteristics as compared to the population in Gondar. The population of Gondar was heterogeneous in terms of religion, ethnicity and socio-economic status. As a result, the researcher decided to take a large sample size in Gondar to accommodate the heterogeneous characteristics of the population.

### **5.8.4. Ethical clearance and Consent**

The study was received an ethical approval from the University of Gondar and University of Leicester. Prior to administering the women's questionnaire, consent was also obtained from each individual woman. Therefore, all written and verbal consent was witnessed by a field worker.

## **5.9. Data Quality Handling Procedures**

Data quality issues were considered throughout the study including the questionnaire design, during questionnaire administration, data analysis and interpretation and report writing.

### **5.9.1. Designing and pre-testing of the survey Questionnaire**

Before the designing of the survey questionnaire, the researcher consulted the literature review to identify the major variables in relation to migration and reproductive health. The survey

questionnaires were developed to collect information on background, migration and reproductive health characteristics of the respondents and included some questions that were adapted from the instrument used for the Ethiopian Demographic and Health Survey. Some of the new questions are migrant women's kebele registration status that is whether a woman registered as kebele resident or not, reasons not registered as a kebele resident, reasons of migration, age at migration, with whom migrant women live after migration, questions refers to quality of reproductive health care services such as whether there is a separate room for consultation and treatment at a health facility and waiting time at a health facility to get treatment. The questionnaires were first developed in English and then translated into *the local language (Amharic)* by the researcher without changing either content or meaning. After the designing of the survey questionnaire, the draft questionnaire submitted to expertise to evaluate the questionnaire's content validity, coherence, consistency and language flow. After expert feedback the questionnaire was amended appropriately. For further improvement of the questionnaire, a pilot was conducted to evaluate the language validity, simplicity, clarity and to identify potential problem areas, unanticipated interpretations, and cultural contradictions before being used for data collection. The pilot was conducted on 50 randomly selected women from areas not included in the main study. One of the main objectives of the pre-test was to know if the respondents have difficulty to understand the words, terms, and concepts of the questionnaire. The pre-test results provided information to finalize the survey questionnaires to make them clear to the respondents. After the pilot the questionnaire was finalized by incorporating feedbacks obtained from the pilot test.

### **5.9.2. Administration of Women's Questionnaire**

Following the designing and pre-testing of the questionnaire, the women's questionnaires were administered. When the numbers of women were two or more in one household, only one woman was selected using simple random sampling technique. The data collector was conducted a repeated visit to contact a respondent who was not at home during the first visit in order to increase the response rate. The fieldwork was conducted over a three month period from 1<sup>st</sup> February 2011 to 30<sup>th</sup> April 2011. Interviews were conducted at the homes of respondents and

lasted, on average, about 40 minutes (23 interviews are missing information about the duration of the interview).

### **5.9.3. Privacy in Asking Sensitive Questions:**

During the data collection process, the interview was conducted in privacy to enable the women to speak openly and honestly about sensitive issues such as contraceptive use, maternal health care service use, and sexually related questions..

### **5.9.4. Confidentiality**

The researcher and data collectors confirmed that any information given by the participants would remain confidential and stored in a secure environment. Participants' names and information were not released to anyone else except to the researcher. All information provided by the respondents was anonymised.

### **5.9.5. Checking of the Returned Questionnaire**

During the field work as well as at the end of the field work, each survey questionnaire was subjected to different types of checks; these typically included range checks, checks against reference date, skip checks, consistency checks, and typographic checks. This review process was monitored to avoid duplicate records, undefined values for categorical variables, Values outside the logical range for numeric variables, and Missing values

### **5.9.6. Data Entry**

Once the field work was finalized, the collected data were entered into a computer using the SPSS software package. After the data entry was completed, any inconsistencies arising during the entry time were identified and checked with the researcher.

### **5.9.7. Data Cleaning**

Following the completion of the data entry and any additional data checking further data cleaning was carried out using the completed data set. This involved the cross-tabulation of

logically related variables and final range checks for individual variables. Any inconsistencies in the data were identified and outliers for specific variables validated using both the questionnaires and any additional data available from the interviewers.

## **5.10. Methods of Data Analysis**

Data analysis for this study followed the same protocol as for the analysis of the EDHS data.

## **5.11. Variables**

The study has the following dependent and independent variables.

### **5. 11.1 Dependent Variables**

The dependent variables for this study were identical to the study one.

### **5.11.2. Predictor Variables**

The selection of appropriate socio-demographic background variables as predictors in the analysis was aided by previous studies on migration and women's reproductive health care utilization, and theoretical considerations. Except the following variables, some of the variables in this study were identical with the variables in the study one so that they are not listed under the following Table.

**Figure 5-1: Shows the Independent Variables Used to Modeling of a Women's Reproductive Health Care Service.**

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variables	Operational Definition
Duration of residence	1= 0-4, 2=5-9, 3=10 and more
Reasons of migration	1= marriage, 2=jobs/educ/other
Age at migration	1= less than 15 years, 2= 15 or more years
Kebele registration status	0= not registered, 1= registered
Reason not registered as kebele residence	1= kebele related problems, 2=personal reason
Child mortality experience	0= none, 1=one child, 2= 2 or more children
Women's occupation	1= not working, 2= non-agriculture, 3= agriculture
Knowledge of sexually transmitted disease	0=no, 1= yes
Distance to a health facility	0= less than an hour, 1= an hour and more
Waiting time to get the doctor at a health facility	0= less than an hour, 1= an hour and more

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## **Chapter six: Results of Study Two**

### **6.1. Introduction**

This chapter presents the results from study two which set out to examine the impact of migration status on women's access to and use of reproductive health care services. As indicated in section 6.6, the purpose of study two was to fill in the limitations of study one, focusing specifically on the impact of a kebele registration status on women's access to reproductive health care services and to provide up to date information for the study areas.

### **6.2. Background Characteristics of the Study Population**

A description of the background characteristics of the study population is presented in Table 6.1. Of 1800 eligible women aged 15 to 49, 1783 agreed to participate in the study; a response rate of 99.06%. The data show that 42.1% of rural natives, 39.0 % of rural to urban migrant women, and 42.0% of urban native women were between aged 25 to 34 years. In relation to marital status, the majority of women were currently married. The distribution of married women by their migration status indicated that 90.6%, 69.1% and 62.6% were rural natives, rural to urban migrants and urban natives, respectively.

More than 99% of rural natives, 87.6% of rural to urban migrants, and 78.9% of urban natives were Orthodox Christian followers. In terms of ethnicity, almost more than 90 % of respondents were Amhara. In relation to the number of living children, the majority of rural native women (69.4%) had 3 or more living children while 41.5% of rural to urban migrants and 47.4% of urban natives had 1 to 2 living children. As one can see from the data, the educational level of women in the study areas was very low. A very small proportion of women who attended secondary education or higher, only 4% of rural women, 18.9% of rural to urban migrant women, and 60.5% of urban native women had secondary education or higher. . A very small percentage of women were also working outside their homes, about 2.0% of rural natives, and 25.3% of rural to urban migrants and 33.4% of urban natives were working outside of their home.

Table 6.1: The Percentage Distribution of the Study Population by Migration Status and Selected Socio-demographic Characteristics (N= 1800).

Background variables	Rural natives(N=594) N (%)	R-U migrants(N=434) N (%)	Urban Natives (N=772) N (%)
<b>Age of respondent</b>			
15-24	139(23.4)	128(29.5)	272(35.2)
25-34	250(42.1)	171(39.4)	324(42.0)
35-49	205(34.5)	135(31.1)	176(22.8)
<b>Marital status of respondent</b>			
Single	29(4.9)	32(7.4)	150(19.4)
Divorced/widowed	27(4.5)	102(23.5)	139(18.0)
Currently married	594(90.6)	300(69.1)	483(62.6)
<b>Respondent's religion</b>			
Orthodox Christian	593(99.8)	380(87.6)	609(78.9)
Moslem/others	1(0.2)	54(12.4)	163(21.1)
<b>Respondent's ethnicity</b>			
Amhara	593(99.8)	395(91.0)	738(95.6)
Others	1(0.2)	39(9.0)	34(4.4)
<b>Number of living children</b>			
None	40(6.7)	75(17.3)	188(24.4)
1-2 children	142(23.9)	180(41.5)	366(47.4)
3 and above	412(69.4)	179(41.2)	218(28.2)
<b>Respondent's level of education</b>			
Not educated	469(79.0)	217(50.0)	96(12.4)
Primary education	101(17.0)	135(31.1)	209(27.1)
Secondary education and above	24(4.0)	82(18.9)	467(60.5)
<b>Respondent's Occupation</b>			
Not working	38(6.4)	102(23.5)	226(29.3)
Working outside home	14(2.4)	61(14.1)	175(22.7)
Housewife	542(91.2)	271(62.4)	371(48.1)
<b>Husband's educational level</b>			
Not educated	484(81.5)	169(38.9)	191(24.7)
Primary education	100(16.8)	140(32.3)	208(26.9)
Secondary and above	10(1.7)	125(28.8)	373(48.3)
<b>Visited by Health extension workers</b>			
No	115(19.4)	291(67.1)	505(65.4)
Yes	479(80.6)	143(32.9)	267(34.6)
<b>Discussed about FP with a partner</b>			
No	380(68.0)	136(40.4)	173(31)
Yes	179(32.0)	201(59.6)	385(89.0)
<b>Heard of FP from community events</b>			
No	267(44.9)	232(53.5)	375(48.6)
Yes	327(55.1)	202(46.5)	397(51.4)
<b>Heard of FP from a health professional</b>			
No	278(46.8)	188(43.3)	520(67.4)
Yes	316(53.2)	246(56.7)	252(32.6)
<b>Availability of waiting places at health institution</b>			
No	363(73.5)	42(18.8)	41(10.6)
Yes	131(26.5)	181(81.2)	347(89.4)

Person Who decides for respondent's health expenditure			
Respondent	58(11.7)	76(33.9)	136(35.0)
Husband	329(66.5)	41(18.3)	40(10.3)
Both respondent and husband	108(21.8)	107(47.8)	213(45.8)
To take time from a health institution to respondent's home			
Less than an hour	51(10.3)	215(96.0)	378(97.2)
An hour and above	444(89.7)	9(4.0)	11(2.8)
Waiting to get the doctor/nurse			
Less than an hour	95(19.2)	143(63.8)	255(65.7)
An hour and more	400(80.8)	81(36.2)	133(34.3)

The majority of rural women (91.2%), rural to urban migrant women (62.4%), and urban natives (48.1%) were housewives. There were also significant differences in educational level of husbands. Around 81.5% of rural natives, 38.9% of rural to urban migrants and 24.7% of urban native women's husbands were not attended any formal education. Only, 1.7%, 28.8% and 48.3% of rural natives, rural to urban migrants and urban native women's husbands, respectively had secondary education or higher

Table 6.1 also shows that the percentage distribution of women who were visited by health extension in the last 12 months before the survey. About 80.6% of rural natives, 32.9% of rural to urban migrants and 34.6% of urban natives were visited by health extension workers. Community conversation is also one of the means to disseminate information and raise awareness of women. Accordingly, 55.1% of rural natives, 46.5% of rural to urban migrants and 51.4% of urban natives were heard of FP from community events. Discussion about family planning with husband/partners also indicated that the majority of urban natives (89.0%), followed by rural to urban migrants (59.6%), and 32.0% of rural natives discussed about family planning with their husbands/partners.

With regard to the availability of waiting places at a health facility, a few percentages of rural natives (26.5%), 81.2% of rural to urban migrants and 89.4 % of urban natives reported that there were waiting places from the health institutions in which they visited in the last 12 months before the survey. Only a small percentage of rural natives (11.7%), 33.9% of rural to urban migrants and 35.0% of urban natives were decided their health expenditure by themselves. The average distance traveled by a woman to reach a nearby health facility also varied among women in the

three migration status. Around 89.7% of rural natives, 4.0% of rural to urban migrants and 2.8% urban natives took an hour or more to reach a nearest health facility. Similarly, waiting time to get a doctor/ nurse at a health facility also varied by migration status. Among women, 80.8% of rural natives, followed by rural to urban migrants (36.2%), and urban natives (34.3%) reported that they waited at least an hour or more to see their doctors/nurses in a health facility

### **6.3. Rural to Urban Migrant Women's Contraceptive Knowledge and Contraceptive Use by Migration Status**

In this section, the study describes the level of women's contraceptive knowledge and use among married women aged 15 to 49 (Table 6.2). Generally contraceptive knowledge was high in the study area. About, 85.2% of rural natives, 97.8% of rural to urban migrants, and 99.3% of urban natives had contraceptives knowledge. However, there is a gap between contraceptive knowledge and use. Women's use of contraceptives was very low compared to their contraceptive knowledge. Among women in the three migration status, 20.6% of rural native women, 56.0% of rural to urban migrant women and 63.4% of urban native women used contraceptive methods. There was a slight difference in contraceptive use by migrant women's kebele registration status; 43.8% of registered women compared to 39.9% of non-registered women used contraceptive methods. Use of contraceptive methods also varies by age at migration. The results show that women who migrated before age 15 were more likely to use contraceptives (44.0%) than women who migrated at age 15 or older (36.9%).

In relation to reasons of migration, the use of contraceptives has increased from 39.5% for women who migrated because of marriage to 48.5% of women who migrated for work/education/others. Migrants' duration of residence in Gondar town also affects women's contraceptive knowledge and use. About 39.0 % of women who lived 0 to 4 years, 44.4% of women who lived 5 to 9 years, and 46.7% who lived 10 or more years used any contraceptive methods. In relation to educational status, use of contraceptive methods was highest among women with secondary education (63.1 %) followed by women with primary education (52.9%), and women with no education (30.8%).

**Table 6.2: Percentage Distribution of Married Women's Contraceptive Knowledge and Use Contraceptives by Migration Characteristics(N=1321)..**

Variables	Contraceptive knowledge N (%)	Contraceptive use N (%)
Migration status		
Rural natives	512(85.2)	111(20.6)
Rural to urban migrants	298(97.8)	168(56.0)
Urban Natives	477(99.3)	306(63.4)
Kebele registration status		
Not registered	131(95.6)	56(39.9)
Registered	290(97.6)	130(43.8)
Reasons not register as kebele members		
Kebele insitutional related barriers	118(95.9)	55(44.7)
Personal reasons	69(98.6)	33(47.1)
With whom you live after migration		
Alone/husband/parents	765(96.8)	285(41.3)
Friends/employees/other	192(95.5)	83(36.1)
Age at migration		
Less than 15	115(97.5)	47(44.0)
15 or more	306(96.8)	139(36.9)
Reasons for migration		
Marriage	159(96.7)	79(39.5)
Work/Educ/others	262(97.5)	107(48.5)
Duration of migrant's residence in Gondar		
0-4 yrs	103(95.4)	48(39.3)
5-9 yrs	134(96.3)	63(44.4)
10 or more yrs	184(99.3)	75(46.7)
Respondent's age		
15-24	320(98.2)	160(49.1)
25-34	587(95.0)	288(46.1)
35-49	380(94.0)	137(34.6)
Respondents' educational level		
Not educated	640(95.4)	207(30.8)
Primary education	312(99.4)	166(52.9)
Secondary education or higher	335(99.7)	212(63.1)
Respondents' occupation		
Not working	1056(97.1)	442(40.6)
agriculture	93(98.9)	83(59.7)
non-agriculture	138(99.3)	60(63.8)

Likewise, women working in the non-agricultural sectors were more likely to use contraceptive methods (63.8%) than non-working women (40.6%) and women working in agriculture (59.7%).

#### **6.4. Women's HIV/AIDS Knowledge by Migration Status and Selected Socio-demographic Characteristics**

Among the three migration status, rural natives had the lowest HIV/AIDS knowledge compared to rural to urban migrants and urban natives. About 35.5% of rural natives, 65.5% of rural to urban migrants and 80.9% urban natives had HIV/AIDS knowledge. In relation to kebele registration status, 57.3% of women who did not register as kebele residence and 59.3% of women who registered as a kebele resident had HIV/AIDS knowledge. Women's HIV/AIDS knowledge by age at migration also indicates that about 59.0% of women who migrated before age 15 and 54.5% of women who migrated at age 15 or older had HIV/AIDS knowledge. Women's HIV/AIDS knowledge by reasons of migration show that 49.1% of women who migrated for marriage and 72.1% who migrated for work/education/others had HIV/AIDS knowledge. Among rural to urban migrants, 65.1% of women who stayed 0 to 4 years, and 57.0% of women who lived 5 to 9 years and 56.8% of women who lived 10 or more years had HIV/AIDS knowledge. More than 68.0% of women aged 15- 24 had HIV/AIDS knowledge followed by women aged 25-34 (62.9.0 %) and then women aged 35-49 (59.0). Women's educational levels also had a significant effect on women's HIV/AIDS knowledge. About, 83.7% of women with secondary education or higher, 69.3% of women with primary education and 43.7% of women with no education had HIV/AIDS knowledge.

Table 6.3 also shows the percentage of women's HIV/AIDS knowledge by their husbands' levels of education. More than 83% of women whose husbands with secondary education or higher, 70.1% of women whose husbands with primary education and 46.6% of women whose husbands with no education had HIV/AIDS knowledge. With regard to women's occupation, 56.7%% of women who were working in the agricultural sector, 82.2% of women who were working in non-agricultural sectors, and 71.7% of non-working women at the time of the survey had HIV/AIDS knowledge. Discussion of spouses about family planning had an effect on women's HIV/AIDS knowledge. For instance, 72.5% of women who discussed family planning with husbands/partners and 48.0% of women who did not discuss family planning with husbands/partners had high HIV/AIDS knowledge. According to the data, more than 80% of

**Table 6.3: The Percentage Distribution of Women Aged 15 to 49 who Reported Knowing HIV/AIDS by Migration Status and Selected Socio-demographic Characteristics (N=1577).**

Variables	N (%)
Migration status	
Rural natives	167(35.5)
Rural to urban migrants	266(65.8)
Urban Natives	568(80.9)
Kebele registration status	
Not registered	126(57.3)
Registered	380(59.3)
Age at migration	
Less than 15	151(59.4)
15 or more	355(54.5)
Reasons for migration	
Marriage	245(49.1)
Work/Educ/others	261(72.1)
Reasons for not registered as kebele residence	
Kebele insitutional related barriers	75(56.4)
Personal reasons	37(67.6)
Duration of migrant's residence in Gondar	
0-4 yrs	127(65.1)
5-9 yrs	133(57.0)
10 or more yrs	246(56.8)
Age of women	
15-24	327(68.4)
25-34	411(62.9)
35-49	263(59.0)
Women's Educational level	
No education	284(43.7)
Primary education	282(69.3)
Secondary and above	435(84.7)
Husband's educational level	
No education	334(46.6)
Primary education	276(70.1)
Secondary and above	391(83.9)
Women's occupation	
Not working	236(71.7)
Non-agriculture	185(82.2)
Agriculture	580(56.7)
Discussed about FP with husband/partner	
No	276(48.0)
Yes	504(72.5)
Frequency of listening radio	
Not at all	644(56.4)
Sometimes	357(82.1)
Frequency of Watching	
Not at all	606(56.3)
Sometimes	395(78.8)

women who listened to the radio sometimes in the last 12 months before the survey had high HIV/AIDS knowledge. Among women who watched TV sometimes in the last 12 months before the survey, 78.8% of them had HIV/AIDS knowledge. Among women who heard of health related information from community events, 67.8% of them had HIV/AIDS knowledge. However, only 58.5% women who did not hear health related information from community events had HIV/AIDS knowledge. The proportion of women who had HIV/AIDS knowledge was 71.9% among married women who received antenatal care services (ANC) compared to women who did not receive ANC services (29.4%).

## **6.5. Descriptive Analysis of Women's Antenatal Care and Delivery at a Health Facility by Migration Status and Selected Socio-demographic Variables**

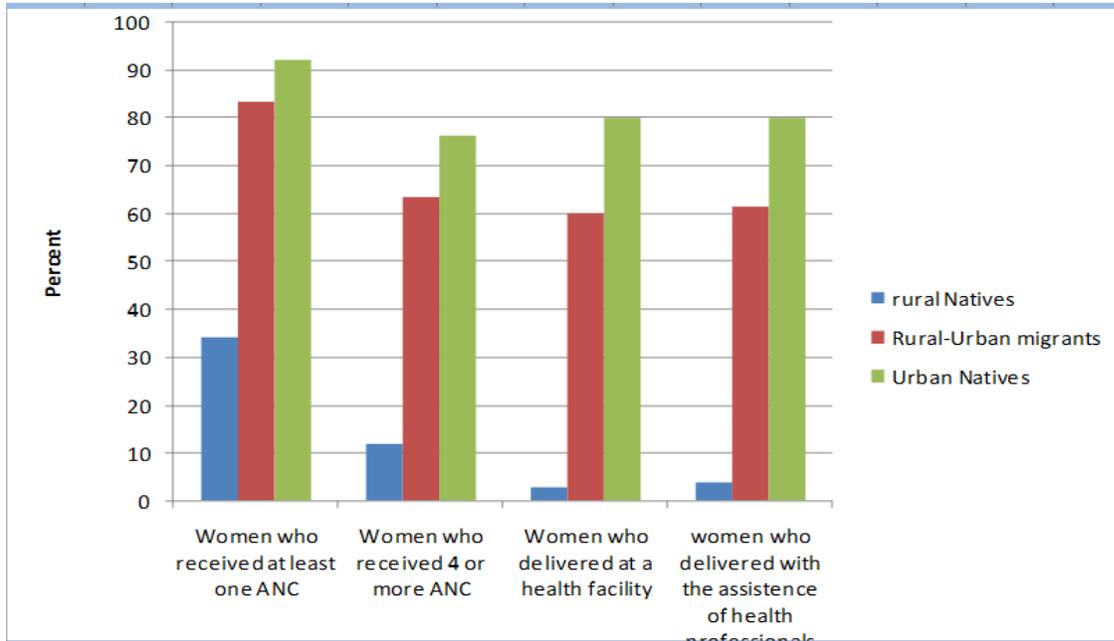
In the following sections, the descriptive analysis of maternal health care service utilization (antenatal care and delivery in a health facility) by migration status and selected socio-demographic characteristics are presented.

### **6.5.1. Maternal Health Care Service Utilization by Migration Status**

The utilization of maternal health care services in the study areas is very low. Especially, rural natives appeared to be greatly disadvantaged as compared to rural to urban migrants and urban natives. As one see Fig 6.1, among the women, 92.3% of urban natives, and 83.5% of rural to urban migrants and 34.1% of rural natives received antenatal care from a trained health professional. In relation to the number of antenatal care visits, 11.7% of rural natives, 63.4% rural to urban migrants and 76.3% of urban natives received 4 or more antenatal care services. Similarly, there were also differences in delivery at a health facility among women in the three migration status. According the results, 2.8% of rural natives, 60.3% of rural to urban migrants and 79.9% of urban natives were delivered in a health facility. Rural natives were also received limited delivery care from skilled health professionals, only 3.6% of rural natives, 61.6% of

rural to urban migrants and 80.2% of urban native received delivery care from skilled health professionals.

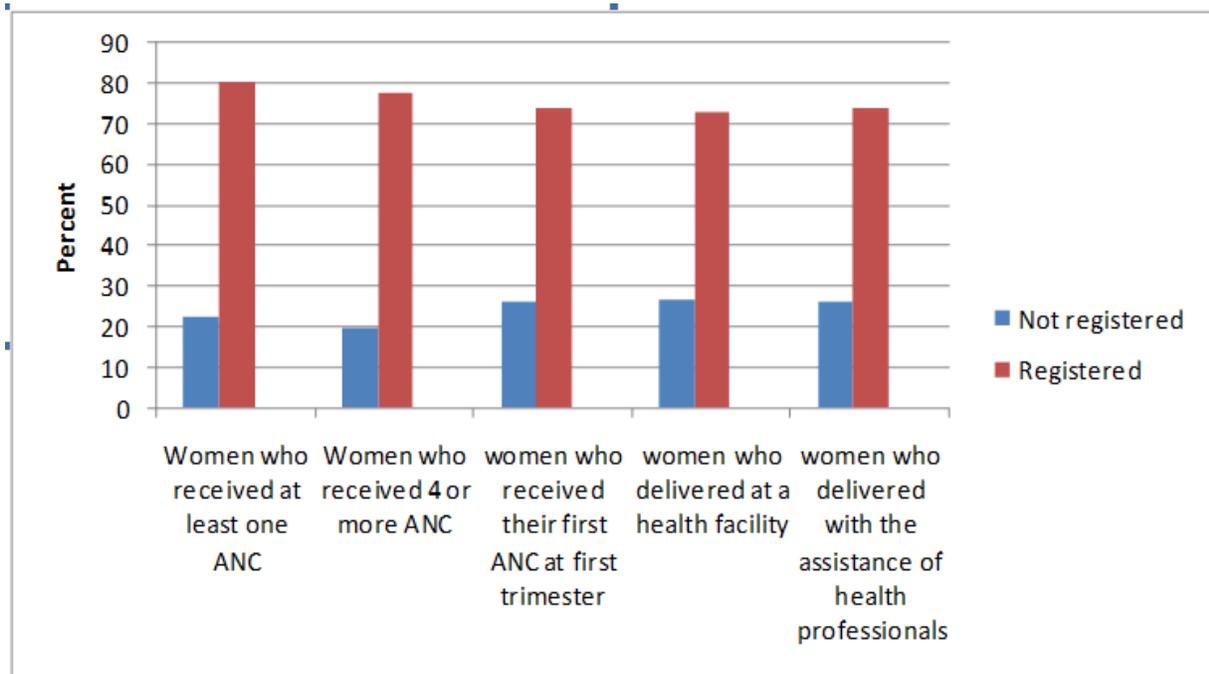
**Figure 6-1: Percentage of Women who Received Different Maternal Health Care Service by Migration Status.**



### **6.5.2. Percentage Distribution of Rural to Urban Migrant Women who Received Different Maternal Health Care Services by Kebele Registration Status**

Figure 6.2 presents women’s maternal health services utilization by migrant women’s kebele registration status. A higher proportion of rural to urban migrants who registered as kebele residence received antenatal care (80.5%). Among the registered women who received antenatal care, the majority of them received 4 or more antenatal care services (77.5%) compared to 19.5% of non-registered women. In relation to the time of the first antenatal care, 73.9% of women who registered as kebele residence compared to 26.1% of women who did not registered as a kebele residence received their first antenatal care in the first trimester. Women who registered as a kebel residence also delivered at a health facility (73.2%), delivered and with the assistance of skilled health professionals (73.9%), compared to non-registered women who delivered at health facility (26.8%), received delivery assistance from skilled health personnel (26.1%).

**Figure 6-2: Percentage of Migrant Women who Received Different Maternal Health Care Services by Kebele Resident Registration Status.**



### 6.6. Percentage Distribution of Rural to Urban Migrant women who Received ANC Services and Delivered at Health Facilities

Table 6.4 presents women’s antenatal care and delivery at a health facility by migration status and background characteristics of women. The proportion of women who received antenatal care and delivered at the health facilities were 75.8 and 62.5%, respectively, for migrants who did not register as a kebele resident because of personal reasons. Rural to migrant women who lived with friends/employees/others were less likely to utilize antenatal care and deliver at a health facility compared to women who lived alone/husband/parents.

**Table 6.4: The Percentage Distribution of Rural to Urban Migrant Women who Received Antenatal and Delivered at a Health Facility by Migration Characteristics and Selected Background Variables for their Recent Pregnancy(N=1107).**

Variables	Received ANC N (%)	Delivered at health Facility N (%)
Migration status		
Rural natives	169(34.1)	14(2.8)
Rural to urban migrants	187(83.5)	136(60.7)
Urban Natives	358(92.3)	310(79.9)
Kebele registration status		
Not registered	52(66.7)	35(44.9)
Registered	135(92.5)	101(69.2)
Reasons for not register as kebele members		
Kebele related barriers		
Personal related problems	55(64.6)	40(47.5)
	25(75.8)	21(62.7)
With whom you live after migration		
Alone/husband/parents	324(85.9)	167(73.9)
Friends/employees/other	79(58.0)	68(29.9)
Age at migration		
Less than 15	47(87.0)	38(70.4)
15 or more	140(82.4)	98(57.6)
Reasons of migration		
Marriage	74(80.4)	49(53.3)
Job/Educ/others	113(85.6)	87(65.9)
Duration of migrant's residence in Gondar		
0-4 yrs	45(81.4)	28(52.8)
5-9 yrs	72(84.7)	52(61.2)
10 or more yrs	70(84.9)	56(65.1)
Age of respondent		
15 -24	62(89.9)	44(63.8)
25-34	92(83.6)	67(60.9)
35-49	33(73.3)	25(55.6)
Women's educational level		
Not educated	100(78.7)	65(51.2)
Primary education	57(89.1)	47(72.7)
Secondary education or higher	30(90.9)	24(73.4)
Women's occupation		
Not working	26(74.3)	18(51.4)
Non-agriculture	26(96.3)	21(77.8)
Agriculture	135(83.3)	97(59.9)

Table 6.4 also indicates that maternal health care services utilization was strongly linked with women's age at migration. Women who migrated before age 15 were more likely to use maternal health care services than women who migrated at age 15 or older. For instance, among women who migrated before age 15, 87.0 and 70.4% of them received antenatal care, and delivered at a

health facility, respectively compared to women who migrated at age 15 or over. The results from Table 6.4 show that reasons for migration also have an effect on women's use of maternal health care services.

The women who migrated for work/education were more likely to use antenatal care (85.6%) and delivered at health facility (65.9) compared to women who migrated for marriage. Migrants' duration of residence in the current place of residence has also an effect on women's access to antenatal care and delivery at a health facility. The results show that as duration of residence in the current place of residence increases women's utilization of antenatal care services, and delivery in a health facility also increases. The prevalence of reported antenatal care utilization decreased with age from 73.3% in age 35 to 49 to 89.9% by age 15 to 24. The distribution of antenatal care utilization by the socio-economic characteristics shows that women with secondary education followed by women with primary education were more likely to use antenatal care and deliver at health facility compared with women with no education. Also, the prevalence of antenatal care was 96.3 for women who were working in non-agricultural sectors and 74.3 for non-working women.

## **6.7. Multivariate Analysis of the Determinants of Women's Contraceptives Knowledge- Unadjusted and Adjusted Odds Ratios**

Table 6.5 shows the relationship of women's contraceptive knowledge with migration status, demographic and socio-economic variables for both the unadjusted and adjusted models. The odds of contraceptive knowledge was reduced from 30.16 unadjusted odds ratio (95% CI, 21.62–42.07) to 8.29 adjusted odds ratio (95%CI, 5.40 to 13.77) and from 17.78 unadjusted odds ratio (95%CI, 12.53 to 25.25) to 7.04 adjusted odds ratio (95%CI, 6.92 to 16.54) for urban natives and rural to urban migrants compared to rural natives, respectively. The contribution of women's kebele registration status also indicated that women who registered as kebele residence were two times more likely to know contraceptive methods compared with the non-registered migrants (UOR, 2.02, 95%CI, 1.56 to 2.55). The differences in contraceptive knowledge also remained apparent after adjustment; although there was little change of the odds ratios (AOR, 1.45, 95%CI, 1.15 to 2.12).

Table 6.5: Migration Status and Socio-demographic Determinants of Married Women's Contraceptive Knowledge : Unadjusted and Adjusted Odds Ratios and 95% CI(N=1321):.

Variables	Contraceptive knowledge	
	Unadjusted OR (95%CI)	Adjusted OR (95% CI)
Migration status		
Rural natives ( ref)	1.00	1.00
Rural to urban migrants	17.78(12.53_25.25)***	7.04(6.92_16.54)***
Urban Natives	30.16(21.62-42.07)***	8.29(5.40_13.77)***
Kebele registration status		
Not registered (ref)	1.00	1.00
Registered	2.02(1.56-2.55)***	1.45(1.15-2.12)**
Duration of residence in Gondar		
0-4 years (ref)	1.00	1.00
5-9 years	2.26(1.28-3.96)**	0.94(0.68_1.29)
10 + years	1.44(1.01_2.05)***	0.67(0.53_0.85)**
Age of respondents		
15 24 (ref)	1.00	1.00
25-34	0.80(0.64_0.99)**	1.00(0.49_2.04)
35 to 49	0.54(0.42_0.69)***	0.43(0.22_0.83)**
Respondent's education		
No education (ref)	1.00	1.00
Primary education	3.66(2.86_4.69)***	1.76(1.01_2.77)***
Secondary education or higher	10.79(8.36_13.94)***	3.56(2.30_5.53)***
No_ of living children		
No child (ref)	1.00	1.00
1 to 2 children	1.87(1.16_3.02)**	1.12(0.85_1.48)
3 and more	1.67(1.01_2.77)**	0.38(0.29_0.50)***
Respondent's occupation		
Not working (ref)	1.00	1.00
non-agriculture	1.74(1.23_2.48)***	1.81(1.03_3.20)**
Agriculture	0.42(0.33_0.53)***	0.63(0.67_1.58)
Husbands' educational level		
No education (ref)	1.00	1.00
Primary education	4.04(1.65-9.89)***	1.67(0.99-2.59)
Secondary education or higher	7.57(1.78-32.11)***	2.17(1.18-3.95)**
Discussed FP with husband/partner		
No (ref)	1.00	1.00
Yes	3.61(2.91_4.50)***	1.49(1.11_2.01)***
Visited by health extension workers		
No (ref)	1.00	1.00
Yes	2.29(1.86_2.81)***	1.63(1.20_2.21)***
Heard of FP on TV		
No(ref)	1.00	1.00
Yes	7.43(6.03_9.17)***	1.51(1.09_2.11)**

Ref=reference category; \*\*p<0.05; \*\*\*p<0.001

Furthermore, women who lived in Gondar from 5 to 9 and 10 or more years were more than two (UOR, 2.26, 95%CI, 1.28 to 3.96) and 1.44 (95%CI, 1.01 to 2.05) times more likely to know contraceptives compared with women who lived 0-4 years, respectively. However, after adjustment, women who lived 10 or more years were less likely to know contraceptives compared with women who lived 0 to 4 years (AOR, 0.67, 95%CI, 0.53 to 0.85). In relation to age of women and the number of living children, the results indicated that women aged 35 to 49 and women who had 3 or more children were less likely to contraceptive methods compare with women aged 15 to 24 and women who had no children (see Table 6.5).

The socio-economic variables such as educational level (both women's and husbands' education) and working status showed a significant association with women's contraceptive knowledge. Women and whose husbands' with secondary education or higher were more likely to know contraceptive methods compared to women and whose husbands with no education (AOR, 3.56; 95%CI, 2.30 to 5.53; AOR; 2.17; 95%CI; 1.18 to 3.95, respectively). Women who had primary education were also nearly two times more likely to know a contraceptive method than women with no education (AOR, 1.76; 95%CI, 1.01 to 2.77). In relation to women's occupation, women who were working in non-agriculture were more likely to know contraceptive methods than women who were not working at the time of the survey (AOR, 1.81; 95%CI, 1.03 to 3.20). Moreover, women who were visited by a health extension worker and who discussed about family planning with husband/partner were more likely to know any contraceptive methods (AOR, 1.63, 95%CI, 1.20 to 2.21; AOR, 1.49, 95%CI, 1.11 to 2.01, respectively). Women who heard of family planning from TV were more likely to know at least one contraceptive method than their counterpart women who did not hear family planning information from TV (AOR, 1.51; 95%CI, 1.09 to 2.11).

## **6.8. Multivariate Analysis of the Determinants of Women's Use of Contraceptives - Unadjusted and Adjusted Odds Ratios**

Table 6.6 presents the odds ratios for unadjusted and adjusted analyses. The unadjusted odds ratios indicated that migration status, kebele registration status, duration of residence in Gondar town, women aged 25 to 34, number of living children, being secondary or primary educated, discussion about family planning with partners and visited by health extension workers were positively associated with the use of contraceptives. Furthermore, the adjusted analysis continues to show a strong association of contraceptive use with migration status, kebele registration status, duration of residence in Gondar town, and other socio-demographic factors. For instance, the urban native women and rural to urban migrants were more likely to use contraceptives compared to rural natives (AOR, 4.71; 95% CI, 2.91-7.61; AOR, 4.26; 95% CI, 2.75-6.58), respectively. Women's kebele registration status also indicated that women who registered as a kebele residence were more likely to use contraceptive methods compared to non-registered women (AOR, 1.22, 95%CI, 1.05-2.01).

Duration of residence in Gondar after migration also has a positive effect on women's use of contraceptive methods. Women who stayed 5 to 9 years (compared to women who stayed 0 to 4 years) were more likely to use contraceptive methods (AOR, 1.23; 95% CI, 1.76-3.28). Similarly, women who stayed 10 years or more in Gondar town were over two times more likely to use contraceptive methods than women who stayed 0 to 4 years (AOR, 2.03, 95%CI, and 2.65 to 6.14). However, women aged 35 to 49 were less likely to use contraceptive methods compared to women aged 15 to 24 (AOR, 0.53; 95%CI, 0.33 to 0.86). On the other hand, women who had a number of living children were positively associated with women's contraceptive methods use. The adjusted odds of women's contraceptive use was 2.33 (95% CI, 1.37 to 3.98) for those women who had 1 to 2 children and the odds increasing to 2.99 (95% CI, 2.12 to 4.25) for those women who had 3 to 4 children and women who had 5 or more children, the odds of use of contraceptive method was 1.62 (95% CI, 1.12 to 2.34). There was a positive association between contraceptive use and educational status of the women and their husbands. The adjusted odds ratio of the use of contraceptives among women with primary and secondary levels of education

Table 6.6: Migration Status and Socio-demographic Determinants of Married Women's Use of Contraceptives: Unadjusted and Adjusted Odds Ratios and 95%CI(N=1321).

Variables	Current contraceptive use	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
<b>Migration status</b>		
Rural natives (ref)	1.00	1.00
Rural to urban migrants	5.14(3.77_6.99)***	4.26(2.75_6.58)***
Urban Natives	6.43(4.87_8.49)***	4.71(2.91_7.61)***
<b>Kebele registration status</b>		
Not registered (ref)	1.00	1.00
Registered	2.58(2.01-3.45)***	1.22(1.05-2.01)**
<b>Duration of residence in Gondar</b>		
0-4 years (ref)	1.00	1.00
5-9 years	1.70(1.22_2.37)**	1.23(1.76_3.28)**
10 + years	3.09(2.78_6.02)***	2.03(2.65_6.14)***
<b>Age of respondents</b>		
15-24 (ref)	1.00	1.00
25-34	1.32(1.05_1.66)**	0.82(0.56_1.20)
45 to 49	0.68(0.52_0.88)***	0.53(0.33_0.86)**
<b>Respondent's education</b>		
None (ref)	1.00	1.00
Primary education	2.57(1.95_3.39)***	1.79(1.40_2.29)***
Secondary education+	3.78(2.87_4.97)***	1.87(1.49_2.35)***
<b>No. of living children</b>		
None (ref)	1.00	1.00
1 to 2 children	3.77(2.72_5.22)***	2.33(1.37_3.98)***
3 to 4 children	3.08(1.67_5.69)***	2.99(2.12_4.25)***
5 and more	2.29(1.15_4.54)**	1.62(1.12_2.34)**
<b>Discussed FP with husband/partner</b>		
No (ref)	1.00	1.00
Yes	8.45(6.62_10.79)***	4.99(3.72_6.68)***
<b>Visited by health extension workers</b>		
No (ref)	1.00	1.00
Yes	4.62(3.72_5.73)***	3.03(2.27_4.05)***
<b>Heard of FP on the radio</b>		
No (ref)	1.00	1.00
Yes	2.64(3.23_4.11)***	2.02(1.66_2.45)***
<b>Knowledge of Sexually Transmitted disease</b>		
No (ref)	1.00	1.00
Yes	1.82(1.49_2.23)***	1.55(1.15_2.11)***
<b>Child Mortality Experience</b>		
None (ref)	1.00	1.00
One child	0.50(0.34_0.74)***	0.36(0.24_0.53)**
2 and more children	0.32(0.19_0.55)***	0.22(0.13_0.39)

Ref=reference category; \*\*p<0.05; \*\*\*p<0.001

were about 1.79 (95%CI, 1.40 to 2.29) and 1.87 (95%CI, 1.49 to 2.35) times, respectively more likely to use contraceptives than women with no education.

Similarly, women who discussed with their husbands/partners about FP were approximately five times more likely to use contraceptive methods compared with women who did not discuss with husbands/partners about family planning methods (AOR, 4.99, 95% CI, 3.72 to 6.68). Women who also visited by health extension workers were also three times more likely to use contraceptive methods compared with women who were not visited by health extension workers in the last 12 months before the survey. Women who heard of family planning from radios were two times more likely to use contraceptive methods compared to women who did not hear family planning information from radios (AOR; 2.02; 95%CI; 1.66 to 2.45). Women who had the knowledge of sexually transmitted diseases were more likely to use contraceptive methods than those women who had no knowledge of sexually transmitted diseases. In relation to women's child mortality experience, women who experienced child mortality were less likely to use contraceptive methods compared to women who did not experience child mortality.

## **6.9. Multivariate Analysis of the Determinants of Women's HIV/AIDS Knowledge- Unadjusted and Adjusted Odds Ratios**

Table 6.7 also presents the unadjusted and adjusted analyses of the determinants of women's HIV/AIDS knowledge. The unadjusted results show that migration status has a significant positive effect on women's HIV/AIDS knowledge. Similarly, the adjusted results show that urban natives and rural to urban migration were more than two times (AOR, 2.32, 95%CI, 1.38 to 3.88) and 1.63 (95%CI, 1.02 to 2.61) more likely to know HIV/AIDS compared to rural natives, respectively. In relation to reasons for migration, women who migrated for work/education were nearly two times more likely to know HIV/AIDS than women migrated for marriage (AOR, 1.92, 95%CI, 1.10 to 3.34). Although, it was not statistically significant, women aged 25 to 34 were less likely to know HIV/AIDS compared to women aged 15 to 24 (AOR; 0.60; 95%CI; 0.90 to 1.45). Women aged 35 to 49 were also less likely to know HIV/AIDS compared to women aged 15 to 24 (AOR, 0.46; 95%CI, 0.32 to 0.64).

Table 6.7: **Migration Status and Socio-demographic Determinants of Women's HIV/AIDS Knowledge: Unadjusted and Adjusted Odds Ratios and 95%CI (N=1577).**

Variables	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Migration status		
Rural natives (ref)	1.00	1.00
Rural to urban migrants	3.51(2.65-4.64)***	1.63(1.02-2.61)**
Urban Natives	7.72(5.91-10.07)***	2.32(1.38-3.88)***
Reasons of migration		
Marriage (ref)	1.00	1.00
Job/educ/other	2.68(2.01-3.58)***	1.92(1.10-3.34)**
Duration of residence in Gondar		
0-4 years (ref)	1.00	1.00
5-9 years	0.71(0.48-1.04)	0.42(0.72-1.34)
10 or more years	5.71(4.53-8.15)***	2.23(1.25-3.99)**
<b>Age of respondent</b>		
15-24 (ref)	1.00	1.00
25-34	0.78(0.61-0.99)**	0.60(0.90-1.45)
35-49	0.66(0.51-0.87)***	0.46(0.32-0.64)**
Educational level		
No education (ref)	1.00	1.00
Primary education	2.91(2.24-3.78)***	1.48(0.98-2.23)
Secondary and above	6.60(4.99-8.72)***	2.16(1.19-3.92)**
Respondent's occupation		
Not working	1.00	1.00
Non-agriculture	2.55(1.01-6.46)***	1.82(1.20-2.77)**
Agriculture	0.52(0.39-0.68)***	1.13(0.61-2.07)
Husband's education		
No education (ref)	1.00	1.00
Primary education	2.68(2.07-3.48)***	1.73(1.16-2.59)**
Secondary or more	5.98(4.49-7.97)***	1.84(1.08-3.13)**
Discussed about FP		
No (ref)	1.00	1.00
Yes	2.86(2.27-3.61)***	1.43(1.02-2.00)**
Frequency of listening radio		
Not at all (ref)	1.00	1.00
Sometimes	3.54(2.70-4.64)***	1.22(1.43-2.45)**
Frequency of Watching TV		
Not at all (ref)	1.00	1.00
Sometimes	2.89(2.26-3.70)***	1.21(1.26-1.93)**
Heard of health information from community events		
No (ref)	1.00	1.00
Yes	1.50(1.22-1.85)***	1.88(1.36-2.61)***
Received ANC care		
No (ref)	1.00	1.00
Yes	6.02(4.47-8.11)***	2.33(1.60-3.39)***

Ref=reference category; \*\*p<0.05; \*\*\*p<0.001

The unadjusted odds ratios indicated that women with secondary education or higher were more than threefold more likely to know HIV/AIDS compared with women with no education (UOR, 6.60, 95%CI, 4.99 to 8.72). After adjustment, the association between education and HIV/AIDS knowledge remained significant for women with secondary education or higher (AOR, 2.16, 95%CI, 1.19 to 3.92). Similarly, women whose husbands with secondary or higher were more likely to have HIV/AIDS knowledge (AOR, 1.84; 95%CI, 1.08 to 3.13), followed by women whose husbands with primary education (AOR, 1.73; 95%CI, 1.16 to 2.59) compared to women whose husbands with no education. Knowledge of HIV/AIDS was relatively higher among women who were working in non-agricultural sectors than non-working women (AOR, 1.82; 95%CI, 1.20 to 2.77). Women who discussed family planning with husband/partners were more likely to have HIV/AIDS knowledge than women who did not discuss with husbands/partners about family planning (AOR, 1.43; 95%CI, 1.02 to 2.00). Among women who listened to the radio and watched TV in the last 12 months before the survey were more likely to know HIV/AIDS than women who did not listen to the radio and watch TV (AOR, 1.22, 95%CI, 1.43 to 2.45; AOR, 1.21, 95%CI, 1.26 to 1.93, respectively). A woman who visited a health facility for her antenatal care were more likely to have HIV/AIDS knowledge compared to a woman who did not visit health facility for her antenatal care (AOR, 2.33; 95%CI, 1.60 to 3.39).

#### **6.10. Multivariate Analysis of the Determinants of Antenatal Care Services Utilization-Unadjusted and Adjusted Odds Ratios**

The unadjusted and adjusted analyses of the determinants of women's antenatal care services utilization, and delivery in a health facility are presented in the following consecutive sections. As compared with the rural natives, the odds of receiving antenatal care, were more than twenty times higher among urban native women (UOR, 23.08, 95% CI, 15.22–35.0), followed by rural to urban migrants (UOR, 9.75; 95% CI, 6.54–14.52). However, the association between urban natives and rural to urban migrants with women's antenatal care services utilization was further

Table 6.8: Migration Status and Socio-demographic Determinants of Women's Antenatal Care Services Utilization: Unadjusted and Adjusted Odds Ratios and 95% CI (N=1107)

Variable	Antenatal care visits (use/not use)	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
<b>Migration status</b>		
Rural natives (ref)	1.00	1.00
R-U migrants	9.75(6.54_14.52)***	2.52(1.29_4.93)***
Urban Natives	23.08(15.22_35.0)***	3.56(1.72_7.33)***
<b>Kebele registration status</b>		
Not registered (ref)	1.00	1.00
Registered	3.15(2.10-4.73)***	2.76(1.94-3.93)***
<b>Duration of stay in Gondar</b>		
0-4 years (ref)	1.00	1.00
5-9 years	1.44(1.01_2.05)**	1.06(0.75_1.51)
10 + years	2.26(1.28_3.96)**	1.36(1.81_2.30)**
<b>Age of respondent</b>		
15-24 (ref)	1.00	1.00
25-34	0.75(0.55_1.02)	0.81(0.56_1.19)
35-49	0.39(0.27_0.56)***	0.60(0.39_0.94)**
<b>Marital status</b>		
Currently married (ref)	1.00	1.00
Single/divorced/separated	1.56(1.03_2.36)**	0.42(0.25_0.72)**
<b>Respondent's education</b>		
No education (ref)	1.00	1.00
Primary education	3.93(2.83_5.45)***	2.02(1.35_3.04)****
Secondary and above	22.8(12.75_40.76)**	6.52(3.27_12.99)***
<b>Respondent's occupation</b>		
Not working (ref)	1.00	1.00
non-agriculture	3.88(1.53_9.84)***	3.47(1.20_16.21)**
Agriculture	0.35(0.23_0.56)***	0.83(0.89_3.76)
<b>Visited by HE workers</b>		
No (ref)	1.00	1.00
Yes	3.36(2.48_4.55)***	2.01(1.39_3.10)***
<b>Discussed FP with husband</b>		
No (ref)	1.00	1.00
Yes	3.78(2.89_4.95)***	1.58(1.14_2.21)**
<b>Distance to health facility</b>		
Less than an hour (ref)	1.00	1.00
An hour and more	0.08(0.6_0.11)***	0.43(0.25_0.75)***
<b>Knowledge sexually transmitted disease</b>		
No(ref)	1.00	1.00
Yes	2.87(2.23_3.71)***	1.48(1.07_2.04)**
<b>waiting time to get the doctor at health facility</b>		
less than an hour(ref)	1.00	1.00
An hour and more	0.19(0.14_0.25)***	0.47(0.32_0.68)***

attenuated after adjustment (AOR, 3.56, 95%CI, 1.72 to 7.33; AOR, 2.52, 95%CI, 1.29 to 4.93) compared with rural natives, respectively. Similarly, the adjusted odds ratios show that migrants who registered as kebele resident and who lived 10 or more years in the current place of residence were 2.76 (95%CI, 1.94 to 3.93) and 1.36 (95%CI, 1.81-2.30) times more likely to use antenatal care compared to women who did not register as kebele residents and women who lived 0-4 years in the current place of residence, respectively. In comparison with women aged 15 to 24 years, women aged 35 to 49 were less likely to receive antenatal care (AOR, 0.60, 95%CI, 0.39 to 0.94). In relation to marital status, results of the adjusted analysis indicated that single/divorced/separated women were less likely to use antenatal care services compared to currently married women (AOR, 0.42; 95%CI, 0.25 to 0.72).

Education was a strong predictor of antenatal care services utilization in unadjusted and adjusted analyses, but the effect was reduced after adjustment for other socio-demographic factors (see Table 8.10). For instance, women with secondary education or higher and women with primary education, the odds of using antenatal care dropped substantially following adjustment, from 22.8 unadjusted odds ratio (95% CI, 12.75 to 40.76) to 6.52 adjusted odds ratio (95%CI, 3.27 to 12.99) and from 3.93 unadjusted odds ratio (95%CI, 2.83 to 5.45) to 2.02 adjusted odds ratio (95%CI, 1.35 to 3.04), respectively. Similarly, the odds of using antenatal care by women's occupation indicated that women who worked in non-agriculture were more than three times more likely to receive antenatal care (AOR, 3.47, 95%CI, 1.20 to 16.21) compared to non-working women.

The likelihood of receiving antenatal care was also higher among women who were visited by health extension workers in the last 12 months before the survey. Women who were visited by health extension workers were two times more likely to receive antenatal care compared to women who were not visited by health extension workers (AOR, 2.01, 95%CI, 1.39 to 3.10). The likelihood of women's antenatal care service utilization were more likely for women who discussed family planning with their husbands/partners than among women who did not discuss with husbands/partners about family planning (AOR 1.58, 95%CI, 1.14 to 2.21). Distance to a nearest health facility was also one the factors that affects women's utilization of antenatal care services. For instance, women who took an hour or more to reach the nearest health facility were

less likely to receive antenatal care services compared to women who took less than an hour to reach the nearest health facility (AOR, 0.43; 95%CI, 0.25 to 0.75). Women who waited more than an hour in a health facility to get the doctor was also less likely to receive antenatal care compared to women who waited less than an hour to get their doctors (AOR, 0.47; 0.32 to 0.68).

### **6.11. Multivariate Analysis of the Determinants of Delivery at a Health Facility -Unadjusted and Adjusted Odds Ratios**

Table 6.9 presents both the unadjusted and adjusted results of the determinants of women's delivery at a health facility. The unadjusted odds ratio indicated that urban natives and rural to urban migrants were 134.82 and 53.10 times more likely to deliver at a health facility compared to rural native women (Table 6.9). After adjusting with other socio-demographic variables, rural to urban migrant women were still 33.60 times more likely to deliver at a health facility than rural natives (95% CI, 12.67 to 89.13). Similarly, urban native women were also 47.26 times more likely to deliver in a health facility compared to rural native women (95% CI, 17.59 to 126.98). Migrants who registered as a kebele resident were also more likely to deliver at a health facility compared to non-registered women (AOR, 1.33, 95%CI, 1.26 to 1.98). Duration of residence in the current place of residence shows that women who stayed 10 or more years in Gondar were more likely to deliver at a health facility compared to women who stayed 0-4 years (AOR, 1.70, 95%CI, 1.00 to 2.90).

Women aged 25 to 34 and 35 to 49 were less likely to deliver in a health facility (AOR, 0.70, 95%CI, 0.57 to 0.99; AOR, 0.42, 95%CI, 0.30 to 0.60) compared to women aged 15 to 24, respectively. Women's educational levels were also positively associated with women's delivery in a health facility. Women with secondary education or higher were more than seven times more likely to deliver at a health facility compared to women with no education (AOR, 7.28; 96%CI, 3.87 to 13.67). The odds of delivery in a health facility for women with primary education were over two times more likely than women with no education. There were also significant differences in a health facility delivery by women's occupation. Women who were working in non-agriculture sectors were three times more likely to deliver at a health facility compared to women who were not working at the time of the survey (AOR, 3.00; 95%CI, 1.91 to 7.57).

Table 6.9. Migration Status and Socio-demographic Determinants of Women's Delivery at Health Facility: Unadjusted and Adjusted Odds Ratios and 95%CI (N=1107)

variable	Women who Delivered at a Health Facility	
	Unadjusted OR(95% CI)	Adjusted OR(95% CI)
<b>migration status</b>		
rural natives (ref)	1.00	1.00
R-U migrants	53.10(2928_96.29)***	33.61(12.67_89.13)***
urban natives	134.82(75.03_242.24)***	47.26(17.59_126.98)***
<b>Kebele registration status</b>		
Not registered (ref)	1.00	1.00
registered	2.23(2.27-3.45)***	1.33(1.26-1.98)**
<b>Duration of residence in Gondar</b>		
0-4 years (ref)	1.00	1.00
5-9 years	1.44(1.01_2.05)**	1.38(0.50_1.02)
10 + years	2.26(1.28_3.96)**	1.70(1.00_2.90)**
<b>Age of respondent</b>		
15-24(ref)	1.00	1.00
25-34	1.32(1.82_2.11)**	0.76(0.57_0.99)**
35-49	1.88(1.01_3.51)**	0.42(0.30_0.60)**
<b>Marital status</b>		
Currently married (ref)	1.00	1.00
Single/divorced/separated	2.28(1.56_3.33)***	0.49(0.24_0.93)**
<b>Respondent's education</b>		
No education(ref)	1.00	1.00
Primary education	5.26(3.81_7.27)***	2.41(1.46-3.98)***
Secondary and above	29.41(19.52_44.29)***	7.28(3.87_13.67)***
<b>Respondent's occupation</b>		
Not working (ref)	1.00	1.00
Non-agriculture	10.70(6.16_18.60)***	3.00(1.91_7.57)**
Agriculture	4.12(2.79_6.10)***	1.36(0.75_2.46)
<b>Visited by health Extension workers</b>		
No(ref)	1.00	1.00
Yes	3.02(2.33_3.92)***	1.91(1.25_2.93)***
<b>Discussed FP with husband/partner</b>		
No (rfe)	1.00	1.00
Yes	4.75(3.60_6.26)***	1.92(1.28_2.85)***
<b>Distance to health facility</b>		
Less than an hour (ref)	1.00	1.00
An hour and more	0.03(0.02_0.04)***	0.04(0.03_0.06)***
<b>waiting time to get the doctor at health facility</b>		
Less than an hour (ref)	1.00	1.00
An hour and more	0.22(0.17_2.9)***	0.60(0.38-0.94)**
<b>Number of ANC visits</b>		
less than 4 visits (ref)	1.00	1.00
4 and more visits	14.79(11.01_19.87)***	3.33(2.17-5.12)***

Ref=reference category; \*\*p<0.05; \*\*\*p<0.001

Women who were visited by health extension workers in the last 12 months before the survey were more likely to deliver in a health facility than women who were not visited by health extension worker (AOR, 1.91; 95%CI, 1.25 to 2.93). In relation to distance to a nearest health facility, women who took an hour or more to reach a nearest health facility were less likely to deliver at a health facility compared to women who took less than an hour to reach the nearest health facility. Waiting time at a health facility to get a doctor also negatively affects women's delivery in a health facility. Women who waited an hour or more to get a doctor at a health facility were less likely to deliver in a health facility than women who waited less than an hour to get the doctor or nurse (AOR, 0.60; 95%CI, 0.38 to 0.84). Relative to women who had received less than four antenatal care visits during their last pregnancy, women who had received 4 or more antenatal care visits were more likely to deliver at a health facility (AOR, 3.33; 95%CI, 2.17 to 5.12).

## **Chapter Seven: Discussion of the Major Findings of the Study**

### **7.1. Introduction**

Based on the findings from study 1 and study 2, this chapter presents the discussion of the major findings which sought to test the following research hypotheses:(i) Rural to urban migrants are more likely to know and use of reproductive health care services than rural natives, but they are less likely than urban natives, (ii) rural to urban migrants who registered as a kebele resident were more likely to use reproductive health care services (contraceptive and maternal health care services) than non-registered migrants, and (iii) long term migrants were more likely to use reproductive health care services than the short term migrants

### **7.2. Determinants of Women’s Reproductive Health Care Service Utilization**

The overall aim of the study was to establish whether there were differences in the use of reproductive health care services across the three migration status: rural-urban migrants, rural and urban natives. The findings from both studies and its linkage with the three migration theories (selection, disruption and adaptation) are discussed in next sections. The discussion also links the findings from the two studies with previous studies to look at any changes over time in relation to reproductive health services utilization, and to identify the major factors that affect women’s health seeking behavior in Ethiopia.

The results indicate that there are differences in reproductive health knowledge and use among the three migration status. According to both studies contraceptive knowledge of women was high; almost 85% of rural native women and more than 90% of urban natives and rural to urban migrant women knew at least one contraceptive method. Many other studies also reported similar results (Owoaje, Adebisi, & Adbayo, 2011; Brockerhoff, & Biddlecom, 1999). However, women’s HIV/AIDS knowledge was lower in the new study compared to the EDHS results. A significant decline over time can be seen by migration status, from 39.4% to 35.5% for rural natives, from 75.8% to 65.8 for rural to urban migrants and from 84.7 % to 80.9% for urban natives between 2005 EDHS and the new survey, respectively. A similar rate of HIV/AIDS

knowledge reported in Ethiopia (CSA, 2006, CSA, 2001 ).The findings confirm the hypothesis that rural to urban migrants have lower contraceptive knowledge and use of reproductive health care services compared to urban natives, but were more likely to know and use services than rural natives. These differences are largely attributable to migration selection, adaptation and disruption. Such factors are also documented in various studies (Weeks, Rumbaut, & Ojeda, 1998; Johnson & Marrahi, 2009; Hanna, 1998; Farber & Lee, 2003). Migration can affect reproductive health utilization through selectivity, adaptation (either by adopting destination reproductive norms or by responding to destination opportunity costs), or disruption. Out of the three factors, the study results show strong evidence for migration selectivity and adaptation because migrants were more likely to use reproductive health care services at the time of migration and after migration. The positive effect of migration selection persist event after adjusting for known risk factors in the models including socio-demographic variables. The role of migration selection and adaptation in affecting women's access to reproductive health reported in other studies (Stephenson, & Mathews, 2004; Santelli et al, 2009).The results from this study do not, however, confirm the disruption effect of migration on women's reproductive health care service utilization.

A challenging issue arising from migration analysis is that of separating compositional and contextual effects (Fotso et al, 2008). Do migrants have better reproductive health because they are selected by characteristics that are conducive for good health or due to relocation to areas with better access to reproductive health care services? The answer could have important policy and program implications. The results of rural to urban migration for this study are based on cross-sectional data suggest that selection effects may induce healthy and motivated rural women to migrate to urban areas. These results, however, are based on characteristics measured at the time of the survey and may therefore not reflect the conditions of migrants before migration. Addressing the question of compositional versus contextual effects conclusively requires the collection of person-level data in a longitudinal study (Tran et al, 2011). However, the longitudinal data are not currently available in 2005 Ethiopia Demographic and Health Survey as well as in the new survey. With longitudinal data it would be possible to assess the effects of both the characteristics of migrants before and after migration. In particular, it would help highlight whether selection mechanisms are responsible for the advantage enjoyed by migrant

women after a number of years of urban residence. Therefore, a longitudinal study is important to address the factors that affect rural-urban migrant's use of reproductive health care services.

The potential for migrant selectivity and adaptation is a complex issue in the analyses of the relationship between migration and reproductive health care utilization because migrants may be selected by various background characteristics (Brockerhoff, & Eu, 1993). Women of rural origin who migrate to urban areas are likely to possess attributes like a higher tolerance for risk and a greater openness to innovation that are also associated with early adaptation of modern reproductive health care services. The migration selectivity and adaptation of the reproductive norms of the destination areas are together accounting for a potential post-migration access and use of reproductive health care services. This finding also documented in many other countries (Lindstrom & Hernandez, 2006; Liebig, & Sousa-Poza, 2004; Zhan, Zhenwei, & Blas, 2002). The increased use of maternal care and contraception among rural to urban migrants (as compared with rural natives) strongly suggest the positive effect of migration adaptation, that is acculturation and structural adaptation of urban reproductive life. For instance, the prevalence of contraceptive use among urban women is approximately the same for rural-urban migrants and urban natives, 56.0 and 63.4%, respectively, compared to 20.6% among rural non-migrant women.

If rural to urban migrant women did not adapt to the urban reproductive behavior and norms, their knowledge and use of reproductive health care services would remain roughly equivalent to rural natives. However, the studies showed that the contraceptive use of rural-urban migrants is higher than that of rural natives. This implies that rural-urban migrants are significantly adapted urban reproductive behaviors. The assertion is consistent with the recent evidence from Indonesia (Liew, 2009). At least two explanations can be offered. The first emphasizes the critical role of resources in general, and housing conditions in particular. In Ethiopia (as in many other African countries), most people in rural areas live in his or her own houses, while in urban areas, especially in the larger cities living space is a serious problem so that migrants live in crowded accommodation where one room serves as sleeping quarters, kitchen, dining room and a bathroom. The lack of housing, higher costs in raising children, higher overall living costs, strong desire for economic advancement and high opportunity costs in urban areas force migrants to limit their fertility by adapting to urban reproductive behaviors. The second

explanation draws upon the cultural approach in reproductive health studies, 'modern reproductive information spread first among urban community, and only later reached the rural areas. Therefore, migrants have an opportunity to access modern reproductive health information and they are more likely to adapt and utilize it. However, life in rural areas has remained more 'traditional' and there is a resistance of adaption of family planning ideas. Furthermore, rural populations tend to be very conservative and have a strong cultural resistance to the use of family planning services. Other studies also found similar evidences (Gupta & Mitra, 1999 Lindstrom & Munoz-Franco, 2006; Liew, 2009).

The effect of migration on women's knowledge and use of reproductive health care services could also be explained by the duration of residence in Gondar town since migration. According to the multivariate results, rural to urban migrants who lived 10 or more years in Gondar city were 3 time more likely to use reproductive health care services than recent migrants (women who lived 0 to 4 years), suggesting that as duration of residence increases women's access and use of reproductive health services also increases. Other studies have also underlined the importance of duration of residence on women's access to reproductive health care services (Chen and Xie, 2010; Leclere, Jense and Biddlecom, 1994; Hervitz, 1985; Urquia et al, 2011). The finding supports the hypothesis of the study that long term migrants are more likely to use reproductive health care services than short term migrants. Long term migrants are exposed to the social and economic conditions of urban environment that have a positive effect on access and use of various reproductive health care services compared to recent migrants. Another possible explanation is that as migrant's duration of stay increases their social networks and social integration to the host community also increases. In the course of their cohesion with city's culture and norm, their reproductive idea and behavior will surely be influenced by the city's reproductive behavior and culture (1979). However, recent migrants were not familiar with the government health system in the new urban environment. Recent migrants are not also entitled for most of the public-funded programs, such as employment, housing, education, and healthcare services. In addition to the lack of access to public-funded services, unfamiliarity with the new environment, lack of a social support and network, and unawareness of where to get the health care services further complicated a recent migrant woman's reproductive health problems. Women's low socio-economic status, lack of knowledge, and lack of access to quality

reproductive health care facilities were also important determinants of women's access to reproductive health care services for the recent migrant women (Feng, Zuo, & Ruan, 2002; Hassain, 2011).

Differences in reproductive health knowledge and use are not only apparent among women in the three migration groups and women with different duration of residence since migration, but also among kebele registered and non-registered migrant women. According to the descriptive and multivariate results, non-registered migrants were less likely to know of, or utilize contraceptives and maternal health care services compared to registered migrants. Therefore, the findings confirm the hypothesis that rural to urban migrants who registered as a residence were more likely to use reproductive health care services than the non-registered migrants. There are formal and informal institutional barriers that affect migrant women's access to reproductive health care services. Women's access to social and health care services in the urban areas demands the registration of migrants as a kebele residence and having kebele identification cards. Those migrants who are not registered as a kebele residence and those who have not kebele identification cards are not eligible for many social and economic services such as access to health care services, housing services and free medical services. It is not only the formal system, but also the informal systems that marginalize a non-registered migrant from the social and economic benefits of the host society. Some studies in China have reported similar results (Zhao et al, 2012; Zhao et al, 2009; Zhan, Zhenwei, and Blas, 2002). For instance, a non-registered migrant will not allow being a member of the informal institution such as 'Iqub'-informal financial institutions and 'Idir'- informal institution which is established to support a funeral ceremony and provide financial support to a sick person. Migrants are excluded from such informal institutional membership because the host communities do not trust those migrants who are not formally registered as a kebele residence. All these problems directly or indirectly affect migrant women's access various reproductive health services.

Age at migration and age of women also have a significant effect on women's knowledge and use of reproductive health care services. For instance, women who migrated before age 15 years were more likely to know and use of contraceptives and maternal health care services. Younger migrants usually find it easier to adapt and socialize the urban reproductive life so that they can easily access and use reproductive health care services than the old migrants. Uses of

contraceptives by women's age indicated that women aged 35 to 49 were less likely to use contraceptive methods than women in younger age groups (15 to 24 years). Because a woman's contraceptive knowledge and use depend on a woman's stages of reproductive life cycle as indicated by their age and number of living children. Both study results indicated that women in the middle age were more likely to know and use of contraceptives compared to younger and older women (Lindstrom and Muñoz-Franco, 2005; Hussain, 2011; Tawiah, 1997; Omondi, and Ayiemba, 2003). This may be women aged 25 to 34 are at their peak reproductive age, so that they may have more concern to use a contraceptive method until they achieve their social and economic motives. However, older women may believe themselves as less fertile or infecund so that they may not use contraceptive methods.

Similarly, the multivariate analysis results show that older women and women with higher birth orders were less likely to deliver at a health facility (Negdeve and Bharati, 2003). This may be older women had long experiences in home deliveries so that they may not be interested to go to health facilities. Another reason may be older woman may not have a positive attitude towards modern maternal health care services because they are more likely influenced by traditional culture and religious factors that resist them to use maternal health facilities than younger women. On the contrary, younger women are generally less experienced about pregnancy and childbirth. They feel insecure about the status of their pregnancy and they are also at a higher risk of adverse effects during pregnancy and at childbirth than older women. As a result, younger women need to visit a health institution for antenatal care services and they are more likely to deliver in a health facility with the assistance of trained health professionals than older women (Gage, 2007). In relation to birth order, women with first birth order had no the experience of childbirth and they fear the risks associated with childbirth so that they seek maternal health care services than higher-order births. Moreover, low utilization of maternal health care services among higher parity women could be due to time and resource constraints faced by those with large families and the greater experience of higher parity women with pregnancy and child birth.

The numbers of living children women have had an important factor to influence women's reproductive behavior. As the number of living children increases, the probability of women's knowledge and use of reproductive health care services also increases. For instance, women who

had 5 or more children were over 4 times more likely to know contraceptives compared to women with no children. Studies in many developing countries were also found that women who have many children were more likely to know and use of contraceptive methods than women with no child (Rahman, Islam, and Islam, 2010; Moreno, 1994; Tawiah, 1997; Narzary, 2009; Lindstrom and Muñoz-Franco, 2005; Tawiah, 1997; Hussain, 2011; Omondi, and Ayiembra, 2003). Women who had many children may reach the desired family size so that they may not want to have any more children. Moreover, women who have had more births may have the experiences to receive information regarding contraceptive methods. In contrast, women who have had no child may not have the experience where to get the contraceptive information or they may not be interested to know about family planning methods because they are not yet achieved their desired family size.

Religious background has been identified as one of the factors that affect women's reproductive behavior because religion determines the social and personal behavior of the women within the communities. A number of studies have shown that the influence of religious background on women's reproductive health knowledge and use are the functions of religious faiths as well as cultural values (Wilso, 2009; Najafi *et al*, 2012). It is believed that the Ethiopian religious values and cultural norms discourage the use of family planning methods. Especially the Orthodox and Moslem religion discourages the use of family planning. As a result, the majority of the religious community is highly resistant to modern family planning methods. Similarly, evidences from developing countries indicated that Moslem women are less likely to know contraceptive methods compared to Christian women (Hussain, 2011; Omondi, and Ayiembra, 2003; Wilson, 2008; UNFPA, 2012).

Regional variation in women's knowledge and use of reproductive health services were also observed among women in the 11 regions of the country. Contraceptive knowledge and use were higher among women in Amhara region and urban administrative areas, but lower among women in 'other' regions (Afar and Somali). The majority of the communities in Afar and Somali regions are nomadic who has no permanent residence rather they moved from place to place to search for grazing land for their cattle and it makes them difficult to access reproductive health related information. In addition to this, health infrastructures and health personnel are not equally

distributed across the different regions of the country. The study also shows that low maternal health care service utilization was observed in the Amhara and SNNP regions, while women in the urban administrative areas such as Addis Ababa, Dire Dawa and Harari were more likely to use maternal health care services. This may be due to variations in the implementation of maternal health care program as well as differences in availability and accessibility between regions. We may also observe that the determinants of maternal health care services vary not only across the regions but also by the type of maternal health services.

Apart from migration variables, socio-economic factors such as education, working status, and household wealth status and media exposure have been widely perceived as the most important determinants of women's reproductive health knowledge and use (Pandey, and Karki, 2010; Titaley, Dibley and Roberts, 2010; Tjers *et al*, 2011). Among socio-economic factors, education is the most important factor that affects women's knowledge and use of reproductive health care services. However, according to the two survey results, very little improvements have been documented over the years in between the two studies in relation to women's educational participation. This was in particular the case for rural native women's secondary education increased slightly from 1.4% in 2005 EDHS to 4.0% in the new survey. Similarly, primary education also increased from 14.3% in 2005 EDHS to 17.0% in the new survey. Although women's education participation was limited, women with secondary and higher education were significantly more likely to use contraceptives and maternal health care services than women with no education. This may create the impression that the efforts to increase maternal education and socio-economic status of the household will improve women's access to and use of reproductive health care services. For instance, education affects birth interval and age at birth of the child through use of family planning or for the latter through delayed start of childbearing because of prolonged schooling.

Education is not only transforms women's knowledge, but also empowers women and improves their self-esteem. It is expected that educated women are more likely to aware their health status and seek health knowledge. Furthermore, educated women may have a greater decision making power on health related matters. Therefore, education is not only increases women's knowledge, but also increases their confidence and capability to make decisions regarding the use of

reproductive health care services. It enables women to make informed choices and decision about contraceptive methods. It is also a means to avoid cultural and religious barriers that resist in using modern health care services. Similar findings were reported elsewhere (Lindstrom, and Hernandez, 2006; Kessler, Goldenberg, and Quezada, 2010; Thwin, Kamsrichan, and Chompikul, 2008; erman, 1992; Tawiah, 1997; Beckman, 1984; Behrman, 2002; Thwin, Kamsrichan, Chompikul, 2008; UNFPA, 2012; Omondi, and Ayiemba, 2003; Do and Kurimoto, 2008; Gupta and Mitra, 1999; London, and Driscoll, 1999; Tavoosi, et al, 2004; Feldman et al, 2010; Rahman, 2007; Peltzer *et al*, 2009; Kimuna et al, 2012; Tonoyan, 2009). In addition to this, the reproductive health care service utilization variation could be also attributed to factors such as culture, public health quality, inequality, and infrastructure among others.

The reproductive health care services utilization differences among women in the three migration status could be also explained by differences in the standard of living which is measured by wealth index. The economic and social disadvantages of rural- natives create reproductive health differentials between rural-urban migrants and rural and urban natives. As a result, the findings from multivariate analysis shows that woman in the richest household was 2.79 and 8.47 times more likely to receive ANC and deliver at a health facility than women in the poorest household, respectively. These findings are not unique to this study and are consistent with other studies (Rahman *et al*, 2008; Titaley, Dibley and Roberts, 2010; Tran et al, 2012; Rahman et al, 2008; Simkhada et al, 2007; (Lemessa *et al*, 2013). Women in the richest households are more likely to be well educated and have a positive attitude or belief towards modern maternal health care services. Moreover, women in the richest households have the financial capacity to afford the services.

It is believed that urban living relatively increases migrant women's opportunity to be employed in either the formal or informal sectors, which can result in improve women's financial capacity and this in turn increase their access to reproductive health care services. In relation to this, the study results indicated that close to 31.3% of rural to urban migrant women in urban areas are in the labor force compared to 36.7% of urban non-migrants, and 7.9% of women in rural areas. The results further explained that working women were three times more likely to use contraceptive services compared to non-working women. This suggests that earning capacity

could contribute to the use of family planning services by empowering women within the household. It is also possible that earning women have greater exposure to accessing relevant information and knowledge regarding reproductive health care services. It was also found that working women's likelihood of seeking maternal health care services was higher than non-working women. According to the two study results, women who worked in non-agricultural sectors were 4 times more likely to deliver at a health facility than the non-working women. The possible reason for why working women delivered at health facility is that they may have enough income to cover the service fees. In addition, working women were more likely educated and have awareness and knowledge about the value of delivering at a health facility. It is generally accepted that female labor force participation increased women's knowledge and use of reproductive health care services.

The empowerment of women in the household decision making has a significant effect on women's maternal health care service utilization. The study found that women who involved in 3 or more types of household decisions were 1.48, and 3.07 times more likely to receive antenatal care and deliver at a health facility, respectively than women who did not involve in any of the household decisions. The effect of women's empowerment on maternal health care utilization has been documented in other studies (Furuta, and Salway, 2006; Mahapatro, 2012). The decision to seek health care services in Ethiopia is largely dependent on the good will of women's husbands. Women in Ethiopia have low social status and autonomy than men, and this in turn affects women's utilization of maternal health care services. Moreover, women's access to maternal health care services in Ethiopia is constrained by financial problems, long waiting times, and poor quality of the health care systems. Improving women's status and financial capacity have been seen as pathway to increase women's access and use of maternal health care services (Chaya, 2007).

Distance to the nearest health facility is one of the major problems of women, especially in rural areas access to maternal health care services. A negative relationship existed between distance of health facilities and the utilization of health services. Women who took more than an hour to reach the nearest health facility were found to be less likely to deliver at a health facility. A similar result is also documented a study conducted in Kenya (Fotso, Ezeh, and Oronje, 2008). In

addition to distance problems, waiting time at health facility to get the services also affects women's access to deliver at a health facility with the assistance of trained health professionals. Women who did four or more antenatal visits were more likely to deliver in a health facility. This could be that woman during their antenatal visit received educational advices from health professional about the importance of health facility delivery as well as the potential risks that might be associated with home delivery. Frequent contacts between health professional and pregnant women usually help develop a positive attitude towards maternal health care service utilization.

In general, the findings of the study have shown that following adjustment for known demographic and socio-economic factors migration status plays a major role in determining women's knowledge and use of reproductive health care services.

### **7.3. Determinants for the Prevalence of Traditional Harmful Practices (Female Circumcision and Early Marriage) in Ethiopia**

This section discusses the socio-cultural and demographic determinants for the prevalence of female circumcision and early marriage in Ethiopia. Female circumcision is also known as female genital mutilation (FGM), is the practice of the partial or total removal of the external female genital organ for cultural, religious or sexual related reasons (Kolawole and Anke, 2010) and it has both health and psychological consequences (Kaplan *et al*, 2011; Yirga et al, 2012). Both are widespread traditional harmful practices in the country. These two practices are also interlinked to each other in many ways and have a negative effect on women's reproductive health. For instance, female circumcision is a prerequisite for marriage in some context, especially in Ethiopia. Immediately after circumcision, marriage will be followed in some communities. Therefore, circumcision tends to be seen as a precursor to early marriage. Circumcision and early marriage are also the major cause of complications of labour and delivery. Moreover, both practices have short term and long term health consequences such as sexual pain, sexual dysfunction, increased risk of fistula, bleeding and difficulty during labor. Many Ethiopians believe that circumcision helps to maintain girls' virginity until the time of marriage because it is assumed that a circumcised girl is less likely to engage in premarital sex. Parents also believe that a circumcised girl is sexually 'pure' so that she will be attractive for her

husband. Circumcision is also believed to ensure that girls remain calm, are less likely to be clumsy and are more likely to have a respectful attitude towards their husbands.

According to the results, the overall prevalence of female circumcision and early marriage were 75% and 74%, respectively, and the mean age at first marriage was 15.3 years, indicating that Ethiopian women married 3 years earlier than the legal age at first marriage. Female circumcision and early marriage were higher in rural native women (75.5% vs 72.6%), followed by rural to urban migrants (74.5% vs 69.2%), and urban natives (67.8% vs 58.1%), respectively. The data also showed that there were marked differences in the prevalence of female circumcision and early marriage across the different regions of the country. The prevalence of female circumcision was highest in eastern Ethiopia, particularly in Somalia (97%), Afar (92.4%), and Dire Dawa (91.6%) while early marriage was highest in Northern part of Ethiopia, especially in Amhara region (88.2%), Ben-Gumz (80.6%) and Tigray (76.8%). In relation to age, the study found an overall decline in both practices in the younger cohort compared with the old cohort. This could be that younger women's attitude may be changed through formal and informal education as well as advocacy programs against the practice of female circumcision and early marriage.

The results of the study also showed that the practice of female circumcision and early marriage varied by religion. The practice of female circumcision is deep-rooted in the social and cultural fabric of the Ethiopian society, especially in the Moslem communities (Abebe et al, 2009; Snow *et al*, 2002). The Moslem women are more likely to be circumcised than Christian women. In Moslem culture, a woman is not accepted as a woman unless or until she is circumcised. Even elderly women have to undergo circumcision later in life to get acceptance from the community. Moslem women believe that uncircumcised girls will have a high desire for sex that force them to commit extramarital sex after marriage and uncircumcised girls also may not able to maintain their virginity until marriage. Parents prefer to circumcise their daughters to maintain their virginity, to be attractive and honest for their husband despite they know the adverse health consequence of circumcision. There are also a number of the traditional explanations for promoting early marriage in the region. For instance, people believe that early marriage protects a girl's virginity, since sex before marriage is seen as an extremely shameful act. A girl gets honor if she is virgin at the time of her first marriage. Early marriages also strengthen the

economic and social alliances of the families of grooms and brides. However, if a girl becomes older and does not marry, the society considers her as unwanted girl and she named as ‘Kumo Ker’

Education was inversely associated with the practice of female circumcision and early marriage. This may due to the fact that educated parents may have the awareness about the adverse consequence of female circumcision and early marriage (Jackson *et al*, 2003; Abebe et al, 2009). Women with higher education are expected to have more access and exposure to media and advocacy messages and possess a greater awareness of the negative effect of circumcision and early marriage. Education also empowers women to challenge the practice of female circumcision and early marriage. Improving women’s education and economic opportunities could enable women to realize the full extent of their rights to fight against the practice of female circumcision and early marriage. Education is also important to raise public awareness to eradicate the practice of female circumcision and early marriage. Educated women were less likely to circumcise their daughters compared to uneducated women. Similar to this study, other studies also reported that higher educational attainment was associated with a more negative attitude towards female circumcision (Herieka, and Dhar, 2003; Abebe et al, 2009; Broussard, 2008; Elmusharaf, 2006). This implies women’s education would be one of the important factors to eradicate the practice of female circumcision.

The level of female circumcision and early marriage was lower among women in the richest household compared with women in the poorest household. The association of female circumcision with household wealth status has been observed in other studies (Karmaker et al, 2010). Richest women may have modern values and beliefs against the practice of female circumcision.

## **7.4. Strengths and Limitations of the Study**

### **7.4.1. Strengths**

The study has a number of strengths. The primary strength of the study is its high response rates. The household and individual woman’s response rates of the Ethiopian Demographic and Health survey were 96% and 99%, respectively (CSA, 2006). Similarly, the primary survey response rate

was 96%. The two surveys provided data on a wide range of reproductive health indicators such as fertility, family planning, maternal health care, reproductive and sexual health knowledge, including HIV/AIDS, traditional harmful practices such as female circumcision and early marriage. Therefore, the study provides population based comparative data for various reproductive health indicators across countries and within the country. The study also provided disaggregated data by rural-urban residence, migration status, and socio-economic characteristics of respondents to assess the reproductive health changes in the country over time. The data quality of the study is relatively high as compared to other surveys due to a number of factors such as continuous improvement of the survey procedures, extensive training and support during the field work, concurrent data entry and editing with feedback during field work. The two surveys were also carried out with standardized and well-tested questionnaires, including field control, supervision, and management. All these procedures helped to improve the data quality of the study.

One of the sources of the data for this study is the Ethiopian demographic and Health Survey. It is a population-based survey, which is conducted nationwide to represent the general population, and provides a general picture about the country's reproductive health situation. It has also an advantage of permitting more detailed data collection than is feasible in a small scale household survey. As part of the international survey, some of the survey's questions have been adapted from survey questionnaires that have been tested in different developing countries for more than 100 surveys and this increases instrument validity and reliability. Both survey questionnaires also contain substantial household and individual woman background variables that can be used to explain the relationship between household characteristics and women's background variables with women's reproductive health care outcome variables. The EDHS survey is usually conducted every 5 years and can provide an important data for monitoring of various reproductive health indicators in the country. The survey identifies important indicators regarding reproductive health program coverage and effectiveness in a given country.

The primary strength of this study is that it is the first in country that tries to document the institutional barriers such as a kebele registration status that makes more difficult for migrant women's access to and use of reproductive health care services in the study area. The other

strengths of the study stem from its sample size. The study has employed a large sample size that represents the population under study. In addition to its sample size, the survey instruments were also tested their validity and reliability to make the results more rigorous. The innovativeness of the study also lies in the use of the three defined migration status, namely rural natives, rural to urban migrants and urban native to compare information for rural non-migrants in the origin area and for rural to urban migrants and urban non-migrants to the urban areas. These comparative studies have provided for the policy and decision makers with a general picture about the reproductive health status of women in the three migration status.

#### **7.4.2. Limitations**

Although the study has strengths, it has also some limitations. Both surveys were conducted using a cross-sectional survey. But the cross-sectional survey may not enable to detect the causal relationship of migration and women's reproductive health utilization. To establish a causal relationship of migration and women's reproductive health utilization, a longitudinal study is important. Another limitation of the study survey was that it did not collect data in relation to service quality, the attitude of service providers towards service users, and the costs of the services. Because of low literacy rate in the study area and because of the sensitiveness of the issue under study, the respondents may not provide the accurate information. Many factors may also affect the accuracy of self reporting, including memory lapse, sensitivity of the issue, and knowledge of the respondents about the subject under study. Finally, the study used a quantitative method to analysis the data. But quantitative methods may not fully capture the context, cultural and gender dynamics that influence women's reproductive health care services utilization.

## **Chapter Eight: Conclusions and Recommendations of the Study**

In the following sections, the study presents the overall conclusion of the study, and the recommendations that will be put forward for policy intervention.

### **8.1. Conclusions**

The effect of migration status on women's reproductive health care service utilization has been studied by a comparison of three groups of women with age 15 to 49: 1) rural natives; 2) rural to urban migrants; and 3) urban natives. In conclusion, this study confirms that rural to urban migrants were more likely to know and use of reproductive health care services than rural natives, but they were less likely than urban natives; and rural to urban migrants who registered as a kebele resident were more likely to use reproductive health care services (contraceptive and maternal health care services) than non-registered migrants. Moreover, long term migrants were more likely to use reproductive health care services than the short term migrants. The reproductive health care services utilization differences among women in the three migration status were accountable to migration selection, adaptation and disruption. However, migrants never equally adapt the patterns of urban natives in maternal care and contraceptive utilization, suggesting the persistence of traditional social and cultural barriers. As a result, the reproductive health care utilization of migrant falls between that of rural and urban natives.

The study also showed the changes in reproductive health care services utilization over times in between the two studies. Accordingly, the use of contraceptives increased from 14.7% in 2005 EDHS to 44.0% in the new survey. In relation to antenatal care utilization, the proportion of rural natives, rural to urban migrants and urban native women who received antenatal care were 23.7%, 45.9%, 67.6 in 2005 EDHS compared to 34.1% 83.5%, 92.3% in the new survey, respectively. The percentage of rural native, rural to urban migrant and urban native women who delivered in a health facility also increased from 2.5%, 24.3% and 40.6% in 2005 EDHS to 2.8%, 60.3% and 79.9% in the new survey, respectively. The results showed that despite the progress that has been made by the Ethiopian government in relation to maternal health care services in the past few years, women's reproductive health care services utilizations are still far behind compared to other developing countries. The study identified the following disadvantages groups

of women in relation to reproductive health care utilization in the study areas: the rural natives and rural to urban migrants who recently migrated to urban areas and those who were not registered as a kebele residence. Because of formal and informal institutional barriers in relation to kebele residence registration status, rural to urban migrant women's access to and use of reproductive health care services were less likely compared to urban natives. Urban kebele registration status has restricted rural to urban migrant women's access to social and health care services in urban areas. According to the results of this study, migrant women who did not register as a kebele residence were less likely to use contraceptives and maternal health care services than the registered migrants. To get free medical and health care services at their residence, migrants should be legally registered as a community member otherwise they will be excluded from the social, health care services and economic benefits.

Migrant women's use of contraceptives and maternal health care services depend on the relative number of years migrant lived in the current place of residence since the migration. The study found that as the duration of residence in Gondar town increases, the likelihood of women's access to and use of reproductive health care services also increases. As a result, long term migrants were more likely to use contraceptives and maternal health care services (antenatal care and deliver at a health facility) than recent migrants. For instance, migrant women who lived 10 years or more in the current place of residence were more likely to use contraceptive methods and maternal health care services compared to the short term migrants (migrants who lived 0 to 4 in Gondar town). Therefore, based on the findings, the study can conclude that as duration of residence in Gondar town increases migrant women's use of contraceptives and maternal health care services utilization also increases.

The study also confirmed that the differences in the use of contraceptives and maternal health care services among women in the three migration status were mediated by their socio-economic and demographic factors. Among the various socio-economic and demographic factors, the study identified the following socio-economic and demographic factors as the determinants of women's use of reproductive health care services: educational levels of the women and their husbands, women's occupation types, women's empowerment (measured by women's involvement in household decision making) and household wealth status, discussion of family planning with husbands/partners, visited by health extension workers, women's exposure to

media, age, number of living children and birth orders. The study also found that distance to a nearest health facility and waiting time at a health facility were significantly affected women's use of maternal health care services. Therefore, the study can conclude that by improving women's educational levels, employment opportunities, by availing health facilities to the rural communities and by improving household wealth status and women's empowerment in the household decision making can be substantially improved women's use of reproductive health care services utilization in Ethiopia. Moreover, the underlying efforts to improve women's use of reproductive health care services in Ethiopia should, thus, focus on the rural natives and rural to urban migrants, particularly the recent migrants and migrants who did not register as urban residence.

## **8.2. Recommendations**

This study has various implications for policies and programs that help improve women's reproductive health care services utilization in Ethiopia. According to the 2005 EDHS results there were significant disparity in knowledge and use of reproductive health care services among women in the different regions of the country. Especially, women in Afar and Somali regions had lower reproductive health care utilization. Because the majority of the populations of these two regions are pastoralist communities who frequently move from place to place in search of grass and water for their cattle. Therefore, the government should introduce mobile health clinics which go along with the needs of the pastoralist communities.

The study result showed that there were disparities in maternal health care service utilization among women in the three migration status, especially rural women's accesses to maternal health care service are constrained by lack of health care services and education. Therefore, to improve rural women's use of maternal health care services utilization, the local and national government of Ethiopia should give priority to create health care access for the rural communities. It is also equally important to give priority for education of girls. Because education improves women's awareness towards maternal health care services utilization. Girls and women's education is also important to reduce economic and gender inequality and this in turn increases women's

empowerment to exercise their rights to make decision not only on their own reproductive health but also on their economic and social life.

To avoid the practice of female circumcision and early marriage, various actions should be taken both at the local and national levels. Some of the actions should include enforcing the already endorsed laws and policies that protect girls from harmful traditional practices such as early marriage and circumcision. The local governments should take strong legal actions upon those people who continue the practice of female circumcision and early marriage. In addition, to avoid the practice of early marriage and female circumcision, the community leaders should play a role to aware the community about the harmful effects of female circumcision and early marriage. The community discussion and mass media should also play a role to raise the awareness of the population against the practice of female circumcision and early marriage.

The study results also indicate that both migrant and non-migrant women's working status and household wealth status significantly affect women's access to maternal health care services. For example non-working women and women in the poorest household were less likely to use maternal health care services. To improve women's access to and use of maternal health care services, there is a need to target the economic problem of women. Women should be encouraged to participate in various economic activities such as access to formal employment opportunities as well as micro finance credit in order to raise their economic independence and social status.

The findings of the study show that rural to urban migrants were less likely to use maternal health care services compared to urban native women. Especially, recent rural to urban migrants and those migrants who did not register as a kebele residence were the most disadvantaged groups in terms of maternal health care services utilization. To ensure the reproductive health care access of socially and institutionally excluded groups, the urban kebele administrative offices should revise the policies that demands migrants to be registered as a kebele residence to eligibility for social and economic benefits. The kebele residence registration and having a kebele identification card should not be a prerequisite to access to public services, including reproductive health care services. The migrant should provide equal opportunities with the urban

native to access health care and housing services in their new place of destination. The policy makers should also redesign the reproductive health policies to target the disadvantaged groups of migrants who have difficulty to access and use of various reproductive health care services.

Migration is usually associated with changes in many of the life events. A detail investigation of the impact of migration history on women's knowledge and use of reproductive health care services require a comprehensive research on migrants' socioeconomic and demographic history over an extended time period. Therefore, a life history approaches provide a particularly useful research tools to collect detailed information on migrants' migration history and its associated effect on women's reproductive health care utilization both at the local and national levels with more representative geographic locations and study populations. In addition to this, the Ethiopian Central Statistical Agencies should incorporate more migration related questions both in the Ethiopian population and housing census and the Ethiopian demographic and Health survey for further analysis of the relationship of migration and women's reproductive health care utilization

This study results indicate that reproductive and sexual health problems are common in Ethiopia, particularly in the study area. Especially migrant women appear to have lower access and use of contraception, poorer knowledge of family planning and less access to information and low use of maternal health care services. Therefore, the local government should give priority for migrant women's access and use of reproductive health. Reproductive health policies and programs should be also an integral part of efforts to improve maternal health and ensure universal access to reproductive health needs of migrants. However, policy and decision makers should understand that migrants will not automatically benefit from policies and programs that are aimed at the general population. Therefore, further research is required to better understand the barriers that affect rural to urban migrant women's access to and use of reproductive health services, and their preferences, so that interventions can be effectively targeted to meet migrant women's reproductive health needs. In addition, greater investment is needed to support further research and strategies that target migrant women's reproductive health problems' so that effective intervention can be identified.

The study concludes that reproductive and sexual health problems are common in Ethiopia, particularly in the study area. Especially migrant women appear to have lower access and use of contraception, poorer knowledge of family planning and less access to information and low use of maternal health care services. The study highlighted that migrant's registration status at their place of destination has a significant effect on women's access to and use of reproductive health care services. However migrant's registration status alone may not provide a complete picture of the problem. To get a more complete understanding of how migration affects the health care and social support of migrants at their destination area requires more detailed information about migrant's pre- and post-migration background characteristics and reproductive health problems. Understanding of migrant's registration status differences in reproductive health would also benefit from further understanding of both formal and informal institutional factors and policies that affect migrant women's access to reproductive health care services at their place of destination. Therefore, the local government should give priority to improve maternal health and ensure universal access to reproductive health needs of women in general and migrant women in particular. Policy and decision makers should also understand that migrants will not automatically benefit from policies and programs that are aimed at the general population. Therefore, further research is required to better understand the barriers that affect rural to urban migrant women's access to and use of reproductive health services, and their preferences, so that interventions can be effectively targeted to meet migrant women's reproductive health needs.

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## Appendices

1. The 2005 women's questionnaires can be accessed at [www.unicef.org/ethiopia/DHS\\_2005\\_Ethiopia.pdf](http://www.unicef.org/ethiopia/DHS_2005_Ethiopia.pdf) from page 323 to 386.

## 2. The Primary Survey Questionnaires

### Women's Questionnaire on migration and reproductive health care service utilization

#### Section One: Background

*Now, I Would Like to Ask You a Few Questions about Your Background History*

No	Questions	Choice of Answer	skip
1	In what year were you born?	_____Year 98. DK	
2	How old were you at your last birth day?	Age in complete years-----	
3	What is your religion?	1.Orthodox Christian 2.Catholic 3.Protestant 4.Moslem 5.Traditional Other_____ ( specify-)	
4	What is your ethnic group?	Write your ethnic origin_____	
5	What is your current marital status?	1. Single 2. Married 3. Living in union 4. Widowed 5. Divorced 6 Living Separated	7
6	What was your age at first marriage?	Age in complete year_____	
7	Have you ever attended school?	1.Yes 0.No	8

8	What is the highest level of education that you achieved?	Grade _____ - 13.Tech/Voc. Certificate University/college Diploma University/college degree	
9	Besides the household activities, do you have any other work	1.Yes 0.No	
10	What is your main occupation?	1.Not working 2.Agriculture 3.Student 4.Government employee 5.Daly laborer 6.House wife Other _____	
11	How often do you read a newspaper or Magazine?	1. At least once a week 2. some times 3. Not at all	
12	How often do you listen to the radio?	1. At least once a week 2. some times 3. Not at all	
13	How often do you watch television?	1.At least once a week 2.Some times 3.Not at all	
<b>Section Two: Migration Histories</b>			
<b><i>Now, I Would Like to Ask You a Few Questions about Your migration History</i></b>			
14	Was your place of birth?	Rural _____ Small town _____ Large town _____	
15	What was the name of Region, Zone, Woreda or town that you were born?	Region _____ Zone _____ Woreda _____	
16	How long have you been living continuously in the current place of residence? If less than one year record "00" years	Years _____ 96. Always 97. Guest 98. DK	33 →
17	Just before you moved here, did you live in?	1. Large town 2. Small town 3.countryside	

18	Could you tell me the reason why you moved to your current home?	1.marriage 2.Job opportunities 3.Job transfer/assignment 4.Better education opportunities 5.Conflict with husband/relatives 6.Move with family 7.Death of spouse/divorce 8.Lack of land/Drought/ famine Other(specify-----)	
19	What was your age when you came to the current place of residence?	Age in complete years_____	
20	Did you attend a regular education before you came to the current place of esidence?	1.Yes 2. No	22
21	What was the highest level of education that you achieved before you came to the current place of residence?	Grade_____ 13.Tech/Voc. Certificate 14. University/college Diploma 15. University/college degree	
22	What was your marital status before you came to the current place of residence?	1. Single 2. Married 3. Living in union 4. Widowed 5 Divorced 6.Separated	
23	What was your occupation before you came to the current place of residence?	1. Not working 2. Student 3. farmer 4. Government employee 5. housewife 6. daily laborer Other( specify)_____	
24	After you arrived here did you face any difficulties in relation to your reproductive health?	1.Yes 2.No	26
25	If yes, what difficulties did you face with regard to accessing health care services?	1 Doesn't know where to get the services 2 Unable to afford the cost of the services 3 Not available the service that I want 4 Unable to access public health care service 5 Difficult / inconvenient to use the services 6 Too far to access the service Others-----	

26	Did you register as the residence in the kebele where you are living?	1 Yes  2 No	28
27	If no, why you did not register?	1.I do not want to register 2.To register you have to stay long time in the kebele 3.Complicated procedure 4.I do not get permission for registration 5.Don't know the procedures for registration 6.I need a person who become guarantee for registration 7. Other(specify)_____	
28	With whom did you live after you arrive in the current place of residence?	1 Alone 2 Parents/families 3 With my husband 4 Relatives/friends 5 employers Other(specify)_____	
29	How would you rate your reproductive health access immediately following migration in the current place of residence?	1 Very difficult 2 difficult 3 not bad 4 good 5 Very good 6 Dk	
30	How do you compare your reproductive health to others of your age at your place of origin before you moved here?	1 Very difficult 2 difficult 3 not bad 4 good 5 very good 6 DK	
31	Thinking about your reproductive health now, how does it compare to the reproductive health of non-migrant residents in the current place of residence?	1 Very difficult 2 difficult 3 not bad 4 good 5 very good 6 DK	
32	Do you think that your access to reproductive health care services in the current location improved as compared to the previous place of residence?	1 Very difficult 2 difficult 3 not bad 4 good 5 very good 6 DK	
<p><b>Section3: Birth and Family planning</b></p> <p><i>Now, I Would Like to Ask You a Few Questions about Your birth and FP/contraceptive</i></p>			

<i>History</i>			
33	Have you ever given birth?	1.Yes 2.No 	37
34	If yes, how many children ever born?	Girls _____ Boys _____ Total _____	
35	What was your age at first birth	Age in complete year _____	
36	How many living children do you have?	Girls _____ Boys _____ Total _____	
37	Are you currently pregnant?	1.Yes 2.No 3.Unsure 	39
38	Was this pregnancy wanted?	1.Wanted 2.Not wanted	
39	Would you like to have another child ,or would you prefer not to have any more children?	1. Have (a/another )child 2. No more/none 3. Says she can't get pregnant 4. Undecided/DK 5. It depends	
40	At the time you became pregnant did you want to become pregnant then, did you want to wait until later or did you not want to have any (more) children at all?	1.I need then  2. I need later  2.I need not at all	

41	<p><b>See question 37 if the respondent is not pregnant:</b> How long would you like to wait from now before the birth of (a/another)child?</p>	<p>1. Months _____  2. Years _____  992. not want to have another child  993.immediately/soon  994.unable to become pregnant  995. after marriage  996.it depends on the condition  997.Undecided  998.othe _____</p>
42	<p><b>See question 37 if the respondent is pregnant</b> After the birth the child you are expecting now, how long would you like to wait before the birth of another child?</p>	<p>Months _____  Years _____  992. not want to have another child  993.immediately/soon  994.unable to become pregnant  995. after marriage  996.it depends on the condition  997.Undecided/other</p>
43	<p><b><u>See question 37 if the respondent is not pregnant or unsure about her pregnancy:</u></b></p> <p>Does the respondent currently use any contraceptive method?</p>	<p>1.currently not use any method  2. currently use any method</p>

44.I am going to ask you about contraceptive methods. For each of the following contraceptive methods of preventing pregnancy, please tell me whether you have heard of it, whether you know how to use it, and whether you know where to get it?

METHOD	44.1 Have you ever heard of it?  Yes      No	44.2 Do you know how to use it?  Yes      No	44.3 Have you ever used it?  Yes      No	44.4 Do you currently using it?  Yes      No	44.5.Put the side effect of each contraceptive method from least to Highest 1= low effect 2= medium effect 3= high effect 4= DK

1. The Pill	1	2	1	2	1	2	1	2	1	2	3	8
2. IUD	1	2	1	2	1	2	1	2	1	2	3	8
3. Condoms	1	2	1	2	1	2	1	2	1	2	3	8
4. Foam/Jelly/	1	2	1	2	1	2	1	2	1	2	3	8
5. Tubal Ligation	1	2	1	2	1	2	1	2	1	2	3	8
6. female sterilization	1	2	1	2	1	2	1	2	1	2	3	8
6. Vasectomy(male sterilization)	1	2	1	2	1	2	1	2	1	2	3	8
7. Injectables	1	2	1	2	1	2	1	2	1	2	3	8
8. Emergency Contraception	1	2	1	2	1	2	1	2	1	2	3	8
9. Rhythm/Calendar	1	2	1	2	1	2	1	2	1	2	3	8
10. Withdrawal	1	2	1	2	1	2	1	2	1	2	3	8
11. Other contraceptive (specify)	1	2	1	2	1	2	1	2	1	2	3	8

45	Have there been times in the past where you have wanted to use contraception , but have not	1.Yes 3.No 3.Unable to become pregnant →46 4.Never had sexual intercourse →55																		
46	What has prevented you from using contraceptives in the past ( if you wanted to )	1.Lack of supply 2.The service costly 4.Health related problem 5.Cultural/ religious barriers 6.I did get the type of method which I want 7.My husband not interested 8.Wanted to be pregnant Other(specify)_____																		
47	Have you discussed contraceptive use with your current sexual partner?	1.Yes 2.No 3.I did not rember																		
48	In the last few months, did you get information about family or contraceptive methods from any one the following media?	<table border="1"> <thead> <tr> <th></th> <th>Yes</th> <th>no</th> </tr> </thead> <tbody> <tr> <td>Radio</td> <td>1</td> <td>2</td> </tr> <tr> <td>Television</td> <td>1</td> <td>2</td> </tr> <tr> <td>Newspaper/Magazines</td> <td>1</td> <td>2</td> </tr> <tr> <td>Proscher/poster</td> <td>1</td> <td>2</td> </tr> <tr> <td>Community events</td> <td>1</td> <td>2</td> </tr> </tbody> </table>		Yes	no	Radio	1	2	Television	1	2	Newspaper/Magazines	1	2	Proscher/poster	1	2	Community events	1	2
	Yes	no																		
Radio	1	2																		
Television	1	2																		
Newspaper/Magazines	1	2																		
Proscher/poster	1	2																		
Community events	1	2																		

		Health extension	1	2
49	Have you been provided with enough information about different family planning options?		1.Yes 2.No	
50	<b>From question 50 to 52 refers to women who ever used or currently use any contraceptive methods,</b>  did you get information about the side effect of the contraceptive that you ever used or currently using.		1.Yes 2.No	
51	Did your doctor inform you of the appropriate procedures to take if your contraceptive fails (or you forgot to use it)?		1.Yes 2.No 3.Unsure	
52	Were you provided with the options of a follow-up consultation after commencing your new contraceptive options?		1.Yes 2.No 3.Unsure	
53	In the last 12 months, were you visited by a community based health agent/distributor who talked to you about family planning		1.Yes 2.No	
54	Did any staff member at health facility speak to you about family planning		1.Yes 2.No	
<b>Section four: Maternal health care services</b>				
55	With in the last five years from this survey did you give birth?		1.Yes 2.No	→ 74
56	Did you receive ANC for your recent pregnancy?		1.Yes 2.No	→ 62
57	If yes, who did you provide?		1.Health professional 2.Trained traditional birth attendant 3.Untrained traditional birth Att. 4.Community health agent 5.Other _____ 6. No One-	
58	Where did receive your ANC for your recent pregnancy		1.home 2.government health institution 3.non-governmental health institution 4.private health institution other(specify) _____	
59	How many months pregnant were you when you first received antenatal care for your recent pregnancy?		Month _____ 98.DK	

60	How many times did you receive antenatal care for your recent pregnancy	Number _____ 98.DK	
61	As part of your ANC during this pregnancy, were any of the following done at least once	yes      no	
		Was your blood pre.measured      1      2	
		Did you give a urine sample      1      2	
	Did you give a blood sample      1      2		
62	During your recent pregnancy, were you given an injection in the arm to prevent the baby from getting tetanus	1. Yes 2. No 3. DK	
63	During your recent pregnancy, how many times did you get this tetanus injection?	Times _____ 98 DK	
64	What was your average waiting time to see your doctors?	_____minutes	
65	Was there a waiting area available for you to use prior to your consultation?	1 .Yes 2 .No 3 .DK	
66	Was the examination space separated from the rest of working space?	1 .Yes 2 .No 3 .DK	
67	How far is the health facility from your house?	It takes _____minutes	
68	In your family who makes the decision to visits health care facility?	1 .My self 2 .Spouse 3 .Both myself and husband 4 .Somebody else Others-----	
69	Who assisted at deliver for your recent birth?	1.Health professionals 2.Trained traditional birth Att. 3.Untrained traditional birth Att. 4.Relative 5.Other 6.No one	
70	Where did you deliver for your recent birth?	1.At Home 2.Government health institution 3.Non-governmental health Institution 4.Private health Facility Others(specify)_____	
71	Was (Name) delivered by caesarean section?	1. Yes 2. no	

72	<b>See question 71, if the respondent delivered at home:</b> Why she did not delivered at health facility?	1. I can't afford the cost 2.The facility was not open 3.Distance/no transportation 4.I do not trust the facility 5.No female doctor in the facility 6.My husband not permitted to deliver at the facility 7.Not necessary to deliver at health facility 8.not common to deliver at the facility
73	After delivery of (name) within two months, did a health professionals check on your health?	1.Yes 2.No
<b>Section 5: HIV and sexual Health</b>		
74	Among the following sexually transmitted diseases which one do you know?	1.HIV/AIDS 2.Gonorrhea 3.Syphilis 4.Chancroid 5.Others(specify)_____ 8.DK
75	Have you ever heard of an illness called HIV/AIDS?	1.Yes 2.DK
76	Can people reduce their chance of getting the AIDS virus by using condom every time when have sex?	1.Yes 2.No 3.DK
77	Can people get the AIDS virus by sharing food with a person who had AIDS	1.Yes 2.No 3. DK
78	Can people reduce their chance of getting the AIDS virus by abstaining from sexual intercourse?	1.Yes 2.No 3.DK
79	Can people reduce their chance of getting the AIDS virus by having just one sex partner who is not infected and who has no other partners?	1.Yes 2.No 8.DK
80	Is it possible a healthy-looking person to have the AIDS virus?	1.Yes 2.No 8.DK
81	Can the virus that causes AIDS be transmitted from a mother to her baby:	Yes    No    DK
	During pregnancy?	1    2    8
	During delivery?	1    2    8
	By breastfeeding?	1    2    8

82	Are there any special medication that a doctor or a nurse can give to a woman infected with the AIDs virus to reduce the risk of transmission to her baby?	1. Yes 2. No 8 .DK
83	From question 510 to 514 refers to woman who had ANC for her recent birth from health professional?	yes no DK
	Did any health professional told you about the transmission of HIV/AIDS from mother to child?	Mother to child transmission 1 2 8
	Did the health professional told you how to prevent HIV/AIDS transmission?	Prevention of HIV/AIDS 1 2 8
	Did the health professional told you about the test of HIV/AIDS	HIV/AIDS test 1 2 8
84	Were you offered a test for the AIDS virus as part of your antenatal care?	1.yes 2.No
85	In addition to the HIV/AIDS test that you offered at antenatal care visit, did you take any other test to see if you have the AIDS virus?	1.Yes 2.No
86	Where was the test done?	1 governmental health Institution 2 non-governmental health institution 3 private health Institution other(specify)_____
87	I don't know the results, but were you tested for the AIDS virus as part of your antenatal care?"	1.yes 2.No
88	I don't know the results, but did you get the results of the test?	1.yes 2.No
89	When was the last time you were tested for the AIDS virus?	1 .Before few months_____ (specify the months) 2. from 2 or more years
90	How does a person know whether he/she is infected with HIV/AIDS?	1. By blood testing 2.When either the wife or the husband dies 3.When he/she infected with TV 4.When there is symptom on his/her body 5.Other 8.DK
91	Do you know what is meant by voluntary based HIV/AIDS counseling and test?	1.Yes 2.No
92	Do you know a place where people can go to get voluntary HIV/AIDS counseling and test?	1.Yes 2.No

93	Have ever taken voluntary based HIV/AIDS counseling and test?	1.Yes 2.No
94	Have you seen the test result?	1.Yes 2. No
95	Would you buy fresh vegetables from a shop keeper or vendor if you knew that he/she had the AIDS virus”	1.yes 2. No 8. DK
96	If a member of your family got infected with the AIDS virus, would you want it to remain a secret or not?	1.Should not be secrete 2.Should be kept secrete 8.DK/not sure/depend
97	If your relative became sick with the virus that causes AIDS, would you be willing to care for her or him in your own household?	1.Yes 2. No 8. DK
98	Would you allow your children to play with children who lost their parents by HIV/AIDS virus?	1.Yes 2. No 8. DK/not sure
99	In your opinion, if a teacher has the AIDS virus but is not sick, should se/she be allowed to continue teaching in the school?	1. Should be allowed 2. Should not be allowed 8. DK/not sure
100	When a woman knows her husband/partner has a disease that can be transmitted through sexual contact, is she justified in asking that they use condom when they have sex?	1. Yes 2. No 8. DK/not sure
100	If woman knows that her husband or partner had a sex with other sexual partner, is she right to ask her husband/partner to use condom?	1. Yes 2. No 8. DK
101	Can a woman say no to her husband/partner if she do not want to have sexual intercourse?	1. Yes 2.No 8. DK/unsure
102	Could you ask your husband/partner to use a condom if you wanted him to?	1.Yes 2.No 8.DK/not sure

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Research & Community  
 Core Process  
 University of Gondar  
 Gondar, Ethiopia

Ref No BCS/05/1519/2010-10  
 Date: 22/07/2010

To: Ato Kassahun Tegegne  
 Faculty of Social Science and Humanities  
 University of Gondar

Subject: Ethical Clearance

Your research project proposal title Migration and Socio-Demographic Factors that Affect Women's Reproductive Health Care Service Utilization in Ethiopia has been reviewed in detail by Institutional Ethical Review Board of the University of Gondar for its ethical soundness and it is found to be ethically acceptable. Thus, the Research and Community Service Core Process Office has awarded this ethical clearance for the aforementioned study to be carried out by Ato Kassahun Tegegne as a principal investigator as of July 26, 2010.

The investigator is highly expected to present their research progress report to the Research and Community Service Core Process Office of the University of Gondar.

With best regards

**Wondwossen Molla (Dr.)**  
 General Director for Research  
 and Community Service



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