Promoting contraceptive uptake to reduce the unmet need for family planning during the postpartum period in Ethiopia

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Chapter 1

General Introduction
Chapter 1

Chapter 1: General Introduction

Background

Some Facts about Ethiopia

According to Ethiopia’s Central Statistical Agency population projections for 2007–2037, the country is expected to have a population of over 110 million in 2023[^1:2], making it the second-most populated nation in Africa, behind Nigeria[^3]. The numbers of males and females are approximately equal[^3]. Approximately 64% of all women are anticipated to be of reproductive age[^1]. The rate of population increase is estimated at 2.6% per year. In recent years, the life expectancy has been increasing and is now expected to be 64 years at birth: 61.8 for males and 65.9 for females[^1], which is attributed to the reduction of morbidity and mortality, mainly in child mortality, and the improvement of social determinants of health[^2]. In low-income nations including Ethiopia, communicable diseases, accidents, and maternal conditions are the leading causes of death and are also a major factor in the disparity in life expectancy between men and women[^3]. The population of the country is mostly agrarian and rural, with a low per capita income[^4]. The World Bank report states that Ethiopia’s gross domestic product (GDP) per capita, which was last calculated at 834.96 US dollars in 2021, is predicted to increase to 878.38 US dollars by the end of 2023[^5].

History of Modern Family Planning in Ethiopia

Modern family planning service in Ethiopia was started by the Family Guidance Association of Ethiopia (FGAE) in 1966. Since 1980, the Ministry of Health (MOH) has further expanded its FP services through support program primarily funded by the United Nations Population Fund (UNFPA). After Ethiopia adopted a population policy in 1993, the government worked with local and international organizations to increase access to FP services. After that, the National Office of Population was established to implement and monitor the population policy’s strategies into practice.

In order to direct stakeholders and increase the quality of FP services, the MOH published the first guidelines for the service in 1996. As part of those guidelines, the ministry designated additional FP service outlets in addition to the facility-based and outreach FP services that had already been in place[^6].
General Introduction

Overview of Maternal and Child Health Services in Ethiopia

The Ethiopian government in its Health Sector Transformation Plan (HSTP) identified major impact indicators to achieve by 2020. These include increasing CPR from 36% to 55%, reducing the unmet need for FP from 22 to 10, and reducing the teenage/adolescent pregnancy rate from 12% to 3%. It also set a target to reduce the maternal mortality ratio from 412/100,000 to 199/100,000 live births, the under-five mortality from 64/1000 to 30/1000, the infant mortality rate from 44/1000 live births to 20/1000 live births, and the neonatal mortality rate from 20 and 10 per 1,000 live births, and increase the life expectancy at birth from 64 years to 69 years. The Ethiopian government has made considerable investments in enhancing the health system during the past 20 years, guided by its pro-poor policies and strategies, which have significantly improved the health status of Ethiopians [2].

Globally, the progress is fast enough to attain Sustainable Development Goal (SDG) targets in under-5 mortality and neonatal mortality, but too slow with maternal mortality [3] to reach the SDG target, which is to reduce the global maternal mortality ratio to less than 70 per 100,000 live births [7]. In Ethiopia, Childhood mortality has declined substantially since 2000, even though the change in neonatal mortality and maternal mortality is not as significant as the change in child mortality[8].

The Ethiopia Mini Demographic and Health Survey-2019 (EMDHS-19) showed an increase in the use of modern contraceptive method from 14% in 2005 to 41% in 2019. EMDHS-19 also indicated that injectable and implants comprise 65.7% and 22.5% compared to the 72.4% and 10.3% in 2011, a dramatic shift in method mix[9] (figure 1).

The percentage of women receiving antenatal care from a skilled provider increased from 28% in 2005 to 74% in 2019. This represents a 46 percentage point gain over the preceding 14 years. Impressive progress has also been made, with half of women now giving birth in a facility, reducing the risk of death due to complications during childbirth [10]. The percentage of live births delivered by a skilled provider increased from 6% in the 2005 EDHS, to 11% in the 2011 EDHS, to 28% in the 2016 EDHS, and up to 50% in the 2019 EMDHS (Figure 2)[9].
Chapter 1

According to data from EMDHS-19, early childhood mortality has been declining throughout the last four EDHS reports. Under-5 mortality rates declined from 123 deaths per 1,000 live births in the 2005 EDHS to 55 deaths per 1,000 live births in the 2019 EMDHS. Similarly, infant mortality decreased from 77 deaths per 1,000 live births in the 2005 EDHS to 43 deaths per 1,000 live births in the 2019 EMDHS. Neonatal mortality decreased from 39 to 29 between the 2005 and 2016 EDHS, but has remained stable since the 2016 EDHS (Figure 3)[9].

**Figure 1:** Trends in contraceptive use  
**Figure 2:** Trends in ANC and delivery care coverage  
**Figure 3:** Trends in early childhood mortality rates

**Source:** adopted from Demographic and Health Survey 2019
General Introduction

The Health Benefits of Family Planning for Women

Pregnancy and childbirth complications are the leading cause of maternal deaths, with low- and middle-income countries accounting for 99% of global maternal deaths of women ages 15 to 49\cite{11}. The leading causes of maternal mortality are haemorrhage, hypertensive disorders, sepsis, obstructed labour, and complications from unsafe abortions \cite{12}. Promotion of contraceptive use is an effective primary prevention strategy for reducing maternal mortality in developing countries. Contraceptive use contributes to a 44% reduction in maternal mortality, and satisfying the unmet need for contraception could prevent another 29% of maternal deaths. Therefore, there is a need to accelerate access to contraception in countries with a low prevalence of contraceptive use where gains in maternal mortality prevention could be greatest \cite{13} (Figure 4).

![Figure 4: Contraceptive prevalence rate and estimated maternal mortality reduction (Source: Ahmed S, Li Q, Liu L, Tsui AO, 2012)](image)

Ethiopian Health Service Delivery Arrangement

The Ethiopian health service is restructured into a three-tier system: primary, secondary, and tertiary levels of care. The primary level of care includes the primary hospital, health center, and health post \cite{2, 4}.

The primary health care unit (PHCU) is composed of a health center (HC) and a number of satellite health posts (HPs). It provides both preventive and curative services to approximately 25,000 people altogether. A Health centre is staffed with an average of 20 health care providers and serves as a
referral centre and practical training institution for HEWs. A primary hospital provides inpatient and ambulatory services to an average population of 100,000. In addition to what a HC can provide, a primary hospital provides emergency surgical services, including caesarean sections, and gives access to blood transfusion services. It also serves as a referral centre for HCs in its catchment areas and a practical training centre for nurses and other paramedical health professionals. A primary hospital is staffed by an average of 53 workers. A general hospital provides inpatient and ambulatory services to 1 to 1.5 million people. It is staffed by an average of 234 professionals. It serves as a referral centre for primary hospitals. It also serves as a training centre for health officers, nurses, and emergency surgeons, all categories of health workers. A specialised hospital serves an average of five million people. It is staffed by an average of 440 professionals. It serves as a referral for general hospitals \([2, 4]\) (See figure 5 below).

![Ethiopian health tier system]

**Figure 5**: Ethiopian Health Tier System (Adapted from Ethiopian Health Sector Transformation Plan 2015-2020)
General Introduction

According to Ethiopia’s National Guidelines for Family Planning Services, all health posts, health centres, primary hospitals, general hospitals, and specialty hospitals are required to offer family planning counselling and services \[6\] (see table 1 below).

**Table 1: Organization of services by level of care in the public health structure**

<table>
<thead>
<tr>
<th>Level of facility</th>
<th>Type of health personnel available for FP</th>
<th>FP services</th>
</tr>
</thead>
</table>
| **Health post**   | Health Extension Workers                 | • Counsel on fertility awareness and FP methods  
|                   |                                          | • Provide injectable, and implant insertion  
|                   |                                          | • Provide implant removal where there is a trained provider  
|                   |                                          | • Provide IUCD insertion and removal where there is a trained provider  
|                   |                                          | • Refer to health center for permanent methods  |
| **Health center** | Health Officers (HOs), Midwives, and Nurses | The above activities, plus:  
|                   |                                          | • Manage complications and side effects of contraceptive methods  
|                   |                                          | • Train HEWs and junior health professional  
|                   |                                          | • Conduct supportive supervision to health posts  |
| **Primary Hospital** | Integrated Emergency Surgical Officers (IESOs), General Medical Practitioners (GPs), HOs, Midwives, and Nurses | The above activities, plus:  
|                   |                                          | • Provide permanent methods of contraception  
|                   |                                          | • Manage complications and side effects of contraceptive methods  
|                   |                                          | • Train health workers on family planning  |
| **General and specialized hospital** | Obstetrician-Gynecologists, GPs, HOs, Midwives, and Nurses | The above activities, plus:  
|                   |                                          | • Manage complications and side effects of contraceptive methods  
|                   |                                          | • Conduct supportive supervision to primary hospitals in its catchment area  
|                   |                                          | • Pre-service training on comprehensive contraception  
|                   |                                          | • Perform research on family planning  |

**Study Area Setting**

All five studies were carried out in the Arsi Zone of the Oromia Regional State in southeast Ethiopia. Arsi Zone covers an area of 19,825.22 km\(^2\), divided into 25 districts (weredas). The official estimate of population for this zone was 3,894,248 as of mid-2022, of which 1,944,164 were male and
Chapter 1

1,950,084 were female; the population density was 196.4 per km² [14,15]. The highest point in Arsi Zone is Mount Chilalo, which is part of Arsi Mountains National Park. The administrative centre of this zone is Asella, with an estimated 139,537 inhabitants in mid-2022 [14,16]. One woreda (Dugda) from the East Shoa Zone, which is close by and shares many characteristics with the woredas of the Arsi Zone, was also included in one of our investigations (Figure 6).

![Study Woredas/Districts map](image)

**Figure 6: Study Woredas/Districts map**

**Problem Statement and Justification**

**Postpartum Family Planning (PPFP) in Ethiopia**
The World Health Organization defined postpartum family planning as “the prevention of unintended and closely spaced pregnancies through the first 12 months following childbirth”. Due to the link between shorter intervals and adverse maternal, neonatal, and child outcomes, it is advised that women wait at least 24 months between pregnancies (or three years between births) [17,18,19,20]. The resting time between pregnancies allows the mother
General Introduction

time to recover from pregnancy, labor, and lactation as well as time to replenish her nutritional reserves. It also allows her uterus to return to its natural state and gives the lastborn child time to establish his or her right to comprehensive care and sufficient breastfeeding.[21]

Low use of contraception contributes to the high level of short inter-pregnancy intervals [22,23]. Globally, more than half of births occur less than three years after the previous live birth [24].

A significant proportion of women in Sub-Saharan African (SSA) countries have short inter-pregnancy intervals: 30.2% in Chad [25], 27.1% in the Democratic Republic of the Congo [25], and 33% in Uganda [26]. A multilevel analysis of recent DHS data from nine SSA countries (Niger, the Democratic Republic Congo, Mali, Chad, Angola, Burundi, Nigeria, Gambia, and Burkina Faso) showed a short inter-pregnancy interval of 58.74 percent [27]. The SSA region has the highest total fertility rate (an average of 5.5 children born to a woman during her lifetime); the highest population growth rate (2.4 percent); and the lowest contraceptive use rate (23 percent). These data are caused by pregnancies that are too early, too many, or spaced too closely. Only approximately 5% of women who have just given birth want another pregnancy within two years [28]. However, many women are unable to access contraceptive services soon after giving birth, despite their need to space pregnancies in a healthy way. The deficiency of appropriate and consistent messaging at critical service points in the continuum of care is a significant contributor to this gap. This in turn contributes to high fertility rates and poor health for both the mothers and the children [20, 28]. Short inter-pregnancy interval is also quite common among Ethiopian women, with rates of 23.3% in Debre Berhan town (close to Addis Ababa) [29], 40.9% in northern Ethiopia [30], and 56.0% in eastern Ethiopia [31].

Adverse maternal and infant health outcomes have been associated with short inter-pregnancy interval less than 24 months [32, 33]. Pregnancy and newborn complications associated with the short inter-pregnancy interval are low birth weight, preterm birth, small for gestational age, a low Apgar score [32, 34, 35], uterine rupture [36, 37], congenital anomalies [34, 38], maternal, fetal, neonatal, or infant death [34], premature rupture of membranes, preeclampsia, and placental abruption [34]. A short inter-pregnancy interval is also linked with an increased risk of maternal anemia [19, 34, 39, 40], maternal nutritional depletion [19, 41, 42], and sibling competition [19, 34]. According to the Maternal Depletion Syndrome, mothers with short inter-pregnancy intervals
do not have enough time to replace macro- and micro-nutrients, which may cause the mother and fetus to compete for essential nutrients. Autism in children is also linked to short inter-pregnancy intervals.

While the global trend data on actual and preferred birth intervals show that more women want to avoid and are avoiding short intervals than in the past, many women still have shorter intervals than they would have liked, and some women increasingly prefer intervals that are even longer than optimal. The appropriate use of modern contraceptives is the principal strategy that women can use to delay the next pregnancy until the recommended period of time has passed since the last birth. While postpartum amenorrhea due to breastfeeding and postpartum abstinence do delay the next conception, they are not enough by themselves to ensure the 24-month inter-pregnancy interval, making contraceptives necessary. About one-quarter of women worldwide want to use contraception to space their next birth. Unfortunately, for almost half of the women who have a need for contraception to space births, that need is unmet.

In Ethiopia, the proportion of married women using modern contraception has significantly increased over the previous 20 years, rising from 6% in 2000 to 41% in 2019. Yet, 22% of currently married Ethiopian women have an unmet need for family planning. Sometimes, ovulation happens before the first postpartum menses, so it is also possible for a woman to get pregnant before having the first postpartum menses. The fact that many women do not recognise their pregnancy risk at this time, especially in low-income nations like Ethiopia, is one of the biggest barriers to them taking contraception during the postpartum period.

The specific contraceptive needs of women during the postpartum period have not been given enough attention, despite the fact that Ethiopia’s health policy already permits Health extension workers (HEWs) to offer family planning counselling, services, and referrals.

The rate of short-interval pregnancies currently observed in Ethiopia can be reduced by increasing postpartum family planning (PPFP) utilisation. PPFP utilisation may be improved by effectively using the primary health care system, particularly the Health Extension Programme, involving Health Extension Workers (HEWs) and community volunteers. Offering contraception to women immediately after birth in a health facility is one important strategy. Strengthening community-based family planning
General Introduction

service is another important strategy to improving contraceptive use specially for women who give birth at their home [44].

We carried out five separate studies, each of which is represented by a chapter in this thesis book. These studies were conducted to identify individual, community, and health facility-level influencers of PPFP uptake across the continuum of care (ANC, delivery, PNC, and EPI) in primary health care settings: community, health post, and health center. The Ethiopian health system envisages that a number of health contacts should occur for women and babies from pregnancy through to the extended postpartum. Table 2 below illustrates these contacts [43, 46].

**Table 2:** Possible Contacts with the Health System for Pregnant Women in Ethiopia

<table>
<thead>
<tr>
<th>Month</th>
<th>4</th>
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<th>8</th>
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</table>

**Source:** Adapted from a technical report of Ethiopian PPFP study, 2019
Story 1: The family planning experience of Kuftu was taken from a conversation that took place while data was being collected in the Hogolcho town, Arsi Zone, Ziway Dugda woreda, Oromia Regional State.

Kuftu Ketebo is a 31 years woman living in Hogolcho town(a small town) of Ziway Dugda woreda/district. Her family used to live in the rural kebele of Golbe, but they have recently moved to Hogolcho town during the last four years.

At the age of 17, while still in grade 8, she got married. She eventually left school permanently. During the time of our data collection, which was in 2022, she had already given birth to six children and was currently pregnant again.

Her husband is a farmer, and this is the only income for the family, which is very low.

They obtained a small farmland from the husband’s family. Due to the lowland location of their woreda/district, where their farmland is situated, it is frequently impacted by rainfall shortages and occasionally flooding. They consequently harvest a little maize from their farmland.

There was not enough food for them to eat at home. All the time she prepares food in her home, she first gives some to her husband, then some to her children, and only a few to herself. She occasionally skips meals altogether because there is not enough food after this distribution specially during Summer (Kiremt). She and her children look to have chronic energy malnutrition.

Four of her kids are already old enough to attend school. But she could not send them to school because she could not buy exercise books and school uniforms for them.

She was the only one who was suffering with her children. Her husband is quite ignorant. Most husbands in her society are, of course, ignorant of their wives suffering. But he is the worst.

She is aware that several family planning options are available in her village and that many women use them. During her visit to the health center for ANC, childbirth, and child immunization sessions, health professionals also gave her advice to use contraception. She very much wanted to use family planning and delay pregnancy starting with her fourth pregnancy. However, she was unable to do so for two reasons: first, her husband is not interested in family planning, and second, she believes that family planning methods could be harmful to her health because she lacks adequate and good food to eat.
Conceptual Framework

The following conceptual framework illustrates the factors, influencers, and inputs that affect postpartum family-planning uptake and how tracking pregnant women can contribute to improved uptake. We adapted it from the Ethiopia PPFP Study’s technical report, in which the author of this thesis was involved [43]. This conceptual framework, which describes women’s decision-making and contraceptive use over the continuum of care, guided the design of the study. The framework describes opportunities for health care workers (HCWs) to influence women’s postpartum contraceptive use during basic maternal and child service contacts at multiple levels in the health facilities, particularly at the primary health care level (Figure 7).

Figure 7: Conceptual framework showing factors affecting uptake of postpartum family planning (PPFP).
Research aim and questions

The aim of this PhD thesis was to explore factors influencing contraceptive uptake during the postpartum period in Arsi, southeast Ethiopia. Under this overall theme, we conducted five studies, each using a different study design in accordance with the nature of our five research questions. The research questions and methodologies are presented in Table 3.

Table 3: Research questions and methodologies

<table>
<thead>
<tr>
<th>Research questions</th>
<th>Study design</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does integrating PPFP counseling and services into Health Extension Program in Ethiopia increase adoption of modern contraception during the PPP?</td>
<td>A quasi-experimental study used a controlled trial design with random assignment of health centers and surrounding health posts to intervention and comparison arms. 772 (390 in intervention areas, 382 in comparison) pregnant women were enrolled from February to March 2017, and, 706 (351 in intervention areas, 355 in comparison) were interviewed again in May 2018 to collect information on contacts with Health Extension Workers (HEW) and Women Development Army (WDA) during and after pregnancy. Information received on family planning and the use of contraception since delivery was also assessed.</td>
<td>2</td>
</tr>
<tr>
<td>Does each additional MNCH contact where contraception is discussed increase the uptake of contraception during the PPP?</td>
<td>A prospective cohort study was used in February 2017 to enroll 375 pregnant women in two arms, for a total of 750 women. Women were re-interviewed 15 months later to assess how many and what health contacts they had with the health facilities from the beginning of pregnancy up to the end of the follow-up period. For each health facility contact, women answered questions about whether that contact included a discussion of FP. Women also reported on their use of PPFP, including the timing of initiating that method since birth. The ‘dose’ for this analysis was the total number of antenatal, delivery, postnatal, and child immunization contacts where the woman reported a health care provider talked to her about FP.</td>
<td>3</td>
</tr>
</tbody>
</table>
General Introduction

What are the factors associated with contraceptive uptake during the postpartum period?

We conducted a systematic review and meta-analysis of 22 observational studies published in English before April 16, 2021.

Does postnatal women’s contact with the health professionals at the health facilities influence contraception uptake during the postnatal period (the first 6 weeks after birth)?

A prospective cohort study was performed from October 01, 2020 to March 01, 2021. The study included 418 postnatal women who gave birth during the previous week. Data were gathered twice: once during the first week following birth and once again within the 1st week after the end of the postnatal period.

What are the short inter-pregnancy interval level and associated factors among reproductive-age women in southeast Ethiopia?

A community-based cross-sectional study was conducted from January 01–31, 2022. Data were collected from a random sample of 563 women using a structured pre-tested questionnaire.

Outline of the thesis

This thesis is built around seven chapters. The first chapter is about the general introduction to the thesis. The second chapter of this thesis documents whether integrating postpartum family planning counseling and services into basic maternal, child and neonatal health services at Health Post level increases adoption of modern contraception during the extended postpartum period.

The third chapter examines the effect of each additional MNCH contact where contraception is discussed on the uptake of contraception during the extended postpartum period. The fourth chapter discusses the pooled variables influencing the use of modern contraceptives in Ethiopia during the first year following child birth. Chapter five examines whether postnatal women’s interactions with healthcare providers at healthcare facilities have an impact on their use of contraception during the postnatal period (the first six weeks after delivery). The sixth chapter assesses the prevalence of short inter-pregnancy intervals and related characteristics among Ethiopian women of reproductive age. The final chapter covers general discussions regarding the thesis.
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General Introduction


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General Introduction


Chapter 1


Chapter 1