COLLEGE OF HEALTH SCIENCES

DEPARTMENT OF GYNECOLOGY AND OBSTETRICS

The Contraceptive Use in Non-Communicable Chronic Medical Illness Among Reproductive Age Women of Having Follow up in TASH, ZMH And SPMMC In Addis Ababa, Ethiopia, 2024

Principal investigator: - Bethel Degefa (MD, Gyn Obs resident)

A Thesis submitted to the department of gynecology and obstetrics, college of health sciences, Addis Ababa university in partial fulfillment of the requirements for the specialty in gynecology and obstetrics.

October, 2024,

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College of Health Sciences, Department of Obstetrics and Gynecology

Research report attesting page

Student declaration

I declare that this work has not been previously submitted and approved for the

Award of a degree by this or any other University. To the best of my knowledge and

belief, the dissertation contains no material previously published or written by

Another person except where due reference is made in the dissertation itself.

Name of student…….

Signature…… Date……/……/…….

Supervisors' Declaration

I have undersigned and certify that I have read and hereby recommend for
Acceptance to the Addis Ababa University dissertation entitled "The Contraceptive Use in Non-Communicable Chronic Medical Illness Among Reproductive Age Women of Having Follow up in TASH, ZMH And SPMMC In Addis Ababa, Ethiopia, 2024"

Advisors:

Dr Endalkachew Mekonnen, (MD, MPH, Assistant professor of obstetrics and gynecology, Urogynecology and female pelvic reconstructive surgery subspecialist, Addis Abeba University, Collage of Health Sciences)

Signature……..Date…../…..…/…..…….

Dr Andualem Eresmo (MD, Assistant professor of obstetrics and gynecology, Addis Ababa university, Collage of Health Sciences)

Signature……..Date…../…..…/…..…….

Acknowledgment

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Abbreviation and Acronym

AOR	Adjusted Odd Ratio
CI	Confidence Interval
CVD	Cardio vascular disease
DM	Diabetes Mellitus
FP	Family planning
HTN	Hypertension
MCMs	Modern Contraceptive methods
NGO	Nongovernmental Organization
SPMMC	Saint Paul Millenium Medical Collage
TASH	Tikur Anbessa Specialized hospital
ZMH	Zewditu Memorial Hospital

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Abstract

Background: Chronic diseases, including heart disease, hypertension, diabetes, cancer, and chronic respiratory conditions, are the leading causes of mortality and morbidity worldwide. Women, who make up 60% of the global poor, face even greater challenges in surviving these conditions due to the impact of poverty. For women with chronic illnesses, unintended pregnancies carry a high risk of severe maternal and perinatal complications, such as congenital abnormalities, preterm labor, spontaneous abortion, premature birth, and fetal death. Ensuring access to contraceptives, especially modern methods, is crucial to enabling these women to have safe pregnancies and avoid pregnancy-related complications.

Objective: - Assessment of contraception use in non-communicable chronic medical illness among reproductive age women of having follow up in TASH, ZMH and SPMMC in Addis Ababa, Ethiopia, 2024.

Methods: -An institution based cross-sectional study design was employed with a total of 361 samples. Simple random sampling method was used to select study units. Descriptive statistics were used for determining practice of contraceptive. Presence and degree of association between outcome and independent variables was computed through bivariate logistic regression analysis. Factors that have ≤ 0.05 significance level of the multivariable logistic regression analysis were considered as statistically significance.

Result: - The utilization of modern contraceptive among study participants having modern contraceptive was 39% [95% CI 0.34,0.44]. The determinant factor for contraceptive use were age of 20-24 years had 7.9 folds increase its contraceptive use (AOR=**7.90**,95% CI: 3.08, 20.27) and age of 25-29 years had 26.9 folds increase its contraceptive use (AOR=**26.95** ,95% CI: 10.16, 71.47), residency of rural were 79% less likely of contraceptive use (AOR=0.21, 95%CI=0.07, 0.60), , ever counselling about FP were 5.9 times increase its contraceptive use (AOR=5.96, 95% CI: 3.01, 11.78) and, Multiparous and grand multiparous were 7.5 and 7.8 times increase its contraceptive use compared to nulliparous respectively.

Conclusion-: The study highlights the relatively low utilization of contraceptives among women with NCDs in Addis Ababa. Education, occupation, counseling, and parity were significant determinants of contraceptive use. Targeted interventions focusing on rural women, those with

lower education levels, and enhancing counseling services are recommended to improve contraceptive uptake in this population.

Recommendation - Overall **government bodies, NGOs, and healthcare providers** should collaborate to create targeted interventions that address the **specific needs** of rural women, women with chronic illnesses, and high-parity women. Expanding **access to education, counseling, and contraceptive services** will help ensure that all women have the resources and support they need to make informed reproductive health decisions.

Key words: contraceptive use, chronic medical illness

1. Introduction

1.1 Background

Noncommunicable chronic diseases (NCDs) refer to a group of conditions that are not primarily caused by acute infections, have long-term health impacts, and often require ongoing treatment and care. The most common NCDs include hypertension, diabetes, epilepsy, asthma, mental health conditions, and cancer. According to the WHO, 17 million people die annually from NCDs before reaching the age of 70, with 86% of these premature deaths occurring in low- and middle-income countries (1). Chronic diseases such as heart disease, hypertension, diabetes, cancer, and chronic respiratory diseases are the leading causes of morbidity and mortality worldwide (2). Women are particularly affected by chronic illnesses, with the impact of these conditions being even more pronounced in the developing world. Globally, maternal deaths dropped from 523,000 in 1990 to 358,000 in 2008, with 99% of these deaths occurring in developing countries. Specifically, 87% (313,000) of maternal deaths occurred in sub-Saharan Africa and South Asia (2). Women, who make up 60% of the global poor, face increased risks from chronic diseases due to poverty (4).

Women with conditions such as diabetes and hypertension face a higher risk of pregnancy-related complications, including spontaneous abortion, preterm labor, hypertensive disorders, and the need for cesarean delivery (5). Studies have shown that diabetic mothers have higher rates of congenital abnormalities and prenatal mortality compared to non-diabetic mothers (6-7).

In a large international study of pregnant women with heart disease, 38% of the 1,321 participants were classified as high-risk, with 4% being advised against pregnancy (8). Although guidelines are regularly updated by international experts, they are often based on scientific evidence from women without heart disease due to a lack of specific studies on contraception in women with heart disease (9).

Clinical and experimental data suggest that the increased risk of congenital malformations and spontaneous abortion in diabetic pregnancies is linked to disruptions in maternal metabolism during conception and organ development (10). Unfortunately, two-thirds

of pregnancies in women with diabetes are unplanned, leading to a persistently high rate of malformations in their infants (11).

While unintended pregnancies can happen to any woman of reproductive age, certain subgroups, particularly women with chronic diseases, are at higher risk. Research indicates that women with chronic illnesses experience unintended pregnancies at a higher rate, with some studies reporting rates as high as 60% (12-13). For these women, unintended pregnancies can lead to severe maternal and perinatal complications, such as congenital abnormalities, preterm labor, spontaneous abortion, premature birth, and fetal death (14).

In developing countries, unintended pregnancies are a major cause of maternal morbidity and mortality, with more than half of all pregnancies being unintended or mistimed (15-16). Using modern contraceptive methods can significantly reduce infant, child, and maternal mortality (17). Access to modern contraceptive methods (MCMs) is crucial for ensuring safe pregnancies and protecting women from pregnancy-related complications (18). Long-acting and permanent contraceptives are particularly effective due to their reliability, reversibility, and the rapid return of fertility after discontinuation if pregnancy is desired (17).

1.2 Statement of the problem

Various studies have shown that the prevalence of chronic diseases is rising significantly across generations. For women with chronic conditions, unintended pregnancies can lead to serious maternal and perinatal complications, including congenital abnormalities, early pregnancy loss, and stillbirth (19-22). The use of effective contraception is recommended as an essential strategy to help these women plan pregnancies during times of optimal health. It also allows them sufficient time to discontinue potentially harmful medications and switch to those that are safer for pregnancy. Despite this, contraceptive counseling for women with chronic diseases remains inadequate (23-24). Gaining a better understanding of their contraceptive use—or lack thereof—is vital for developing tailored counseling interventions that meet the unique reproductive needs of women with chronic illnesses as they progress through their childbearing years (25-26).

When selecting a contraceptive method for a woman with a medical condition, it is important to consider potential adverse or beneficial interactions with the disease itself, as well as possible drug interactions with her treatment. It should be acknowledged that there may not be a completely risk-free or perfectly effective contraceptive option. However, preventing pregnancy may present a lower overall risk, and careful monitoring for complications can further reduce any risks associated with the chosen contraceptive method (27).

Women with diabetes and hypertension face a higher risk of pregnancy-related complications, such as pre-eclampsia, preterm labor, polyhydramnios, and an increased likelihood of operative deliveries (28). These women are also at greater risk of giving birth to babies with congenital anomalies or experiencing stillbirths (29). Additionally, prediabetes and hypertension are known risk factors for developing gestational diabetes (30-31). Research has shown that children born to mothers with gestational diabetes are more likely to develop high blood pressure in early childhood (32). This highlights the urgent need for effective family planning and contraceptive use, along with proper management of diabetes and hypertension.

1.3 Significance of the study

Provision of contraceptive for non-communicable chronic disease patient is one of important mechanism for alleviating pregnancy related complication. Now a days there are different alternative family planning methods used for avoiding unintended pregnancy. This study therefore, sought to investigate the practice of contraceptive utilization and the determinant factor affecting utilization among reproductive women having non-communicable medical follow up in TASH, ZMH and SPMMC.

The finding also will be useful for different Governmental and non-governmental organizations (NGOs) working related to maternity care to develop long term intervention strategies regarding FP. Finding will be used as a baseline to design a plan to prevent pregnancy related complication of non-communicable chronic disease patient. And it could be used by researchers for further study.

This in turn will play a role to improve the overall maternal quality of care. In addition, as there is scarcity of study in the country regarding the topic the information generated from the study will be an opener for further study and as a source of information for other researchers to conduct similar study in different areas of Ethiopia. Women would have a better awareness of their right under FP unit.

2. Literature review

2.1 Chronic medical conditions

Study done on chronic diseases and use of contraception among women with risk of unintended pregnancy revealed that the overall weighted prevalence was 11.2% for any chronic disease, 2.7% for diabetes, 2.1% for CVD, and 7.7% for current asthma in our sample women <35 years of age with or without chronic disease tended to use short acting contraceptive methods more than older women (≥35 years) ($p < 0.01$). The prevalence of sterilization was significantly higher among women <35 years of age with chronic diseases (27.4%) than among women <35 years of age without chronic diseases (16.2%) (33).

A study conducted in northwest Ethiopia on contraceptive use among women with hypertension and diabetes found that 49.5% of the participants had diabetes mellitus, 35.7% had hypertension, and the remaining 14.8% had both conditions. Over 80% of the women had been receiving follow-up care for at least one year, with 69.1% of them having well-controlled disease. Additionally, 25.5% of the women had comorbidities, and 17.3% reported experiencing pregnancy complications after developing their chronic condition (34).

Among the total women with chronic non-communicable diseases, 140 (39.5%) had diabetes, 134 (37.5%) had hypertension, 39 (10.9%) had heart disease, 30 (8.4%) had cervical cancer, and 14 (4%) had renal dysfunction or other conditions. In terms of hospital admissions, 196 women (54.6%) reported having been hospitalized at least once (35).

It is projected that by 2020, NCDs will account for 27% of mortality in sub-Saharan Africa (SSA). The unmet needs of sexual and reproductive health services among SSA women are coupled with the rising burden of non-communicable diseases. In recent years, NCDs among women of reproductive age has doubled in many African countries. (36)

2.2 Contraceptive practice

A study found that 271 women (69.1%) reported having used contraceptive methods at some point, but only 53.8% were using modern contraceptives at the time of data collection. The most commonly used methods included injectables (39.8%), intrauterine contraceptive devices (IUCD) (18%), pills (16.1%), and implants (14.2%). More than half of the women (53.1%) were using contraceptives to limit births. Reasons for not using contraception included fear of side effects (12.8%), desire for more children (12.2%), religious restrictions (11.2%), opposition from husbands (11%), and lack of knowledge about contraceptives (8.9%) (34).

In Bangladesh, a study on contraceptive use among women with diabetes and/or hypertension revealed that the prevalence of modern contraceptive use was 56.4% among women with diabetes, 54.4% among women with hypertension, and 46.4% among women with both conditions. The most frequently used modern contraceptives were oral contraceptive pills (27.2%) and injectables (12.4%) across all groups. The use of traditional contraceptive methods was higher among women with both diabetes and hypertension, increasing from 11.1% among all women to 15.6% in this subgroup. Overall, 68% of women with both conditions reported using either modern or traditional contraceptive methods, though this dropped to 46.4% when considering only modern contraceptive use (37).

A Pennsylvania study among diabetic, overweight, and obese women found that 18.9% were not using contraception despite indications for contraceptive use. Non-use rates were even higher among subgroups of diabetic women (25.8%), overweight women (20%), and obese women (23.4%) (38). Similarly, a study in New-Castle, United Kingdom, found that 35% of women with congenital heart disease had never discussed contraception with a healthcare provider (39). In Malaysia, 69.3% of women with chronic medical conditions reported either not using contraception or relying on ineffective methods such as withdrawal, safe-period calculation, herbal medicine, or other traditional practices (40).

In Addis Ababa, a study on contraceptive use among women with chronic non-communicable diseases found that the most commonly used contraceptive was the IUCD, with 48 women (39.7%) using it, followed by tubal ligation (15%). Among IUCD users, the majority were

diabetic (39.5%) or hypertensive (37.5%). Tubal ligation was the second most popular method, with 50% of users being diabetic and 33.3% hypertensive. The highest rate of non-use was observed among women with renal disease, goiter, and asthma, with 79% not using any contraceptive method (35).

2.3 Factors associated with contraceptive use

Women aged 25–34 years (adjusted odds ratio, AOR [95% CI] = 3.6 [1.1–12.4]) and 35–39 years (AOR [95% CI] = 2.3 [1.2–4.5]) were more likely to use contraceptives compared to those younger than 25 years. Additionally, participants in the high-income group (AOR [95% CI] = 2.1 [1.2–3.8]) and middle-income group (AOR [95% CI] = 5.0 [2.2–11.5]) were more likely to use contraceptives than those in the low-income group. The number of living children also significantly influenced contraceptive use. Women with one to four children (AOR [95% CI] = 7.2 [2.4–21.9]) and those with five or more children (AOR [95% CI] = 7.6 [2.9–19.5]) were approximately seven times more likely to use contraceptives than women with no children. Furthermore, discussions with healthcare professionals about contraception were important for women with chronic diseases, as it significantly increased contraceptive use. Women who reported discussing contraceptives with healthcare providers were about nine times more likely to use contraception (AOR [95% CI] = 9.0 [4.40–18.5]) (34).

Women with auto-inflammatory diseases were more likely to use condoms and natural methods (OR = 1.20, 95% CI = 1.00–1.44), as well as sterilization and other methods (OR = 1.61, 95% CI = 1.08–2.39), or to not use any contraception at all (OR = 1.32, 95% CI = 1.04–1.66), compared to women without chronic diseases who used short-acting methods and condoms (38).

A study indicates that any contraceptive use was lower in the older age groups [30–39 years: odds ratio (OR) 0.58, 95% confidence interval (CI) 0.37–1.0; 40–50 years: OR 0.51, 95% CI 0.27–0.97] when compared to age 20–29 years. There was no significant difference seen in any contraceptive use by race/ethnicity, poverty-income ratio, insurance coverage, or co-morbidity (39).

A study conducted in Bangladesh on the patterns of contraceptive use among reproductive-aged women with diabetes and/or hypertension found that women with both diabetes and hypertension were significantly more likely to use traditional methods or no contraceptives compared to women without these conditions (PR: 1.29, 95% CI 1.08–1.53; p=0.005). Similarly, women with only hypertension (PR: 1.30, 95% CI 1.04–1.62; p=0.021) and those with both diabetes and hypertension (PR: 1.70, 95% CI 1.14–2.52; p=0.008) were also more likely to report using traditional contraceptive methods than their counterparts (36).

A study done on patterns of contraceptive use among young Australian women with chronic disease revealed that chronic disease was associated with increased odds of using other contraception and condoms (OR=1.29, 95% CI 1.07 to 1.57), compared to use of the pill alone. Women with cardiac disease were more likely to use a combination of the pill and condoms (OR = 1.39, 95% CI 1.03 to 1.89), as well as to not use any contraception at all (OR = 1.54, 95% CI 1.10 to 2.16), compared to those who used the pill alone. Additionally, women with cardiac disease showed more than a twofold increase in the odds of using other contraceptive methods along with condoms (OR = 2.20, 95% CI 1.34 to 3.59). Similarly, women with auto-inflammatory diseases had higher odds of using long-acting reversible contraception (LARC) and condoms (OR = 1.58), as well as increased odds of utilizing other contraceptives and condoms (OR = 1.69) and a combination of the pill and condoms (OR = 1.38) compared to using the pill alone (41).

Study done on chronic diseases and use of contraception among women at risk of unintended pregnancy revealed that relative to women without CVD, women with CVD were more likely to use any contraception (AOR = 1.09, 95% CI: 1.04, 1.15), less effective (AOR = 1.39, 95% CI: 1.13, 1.70), and effective/highly effective (AOR = 1.10, 95% CI: 1.03, 1.19) methods of contraception Women with diabetes were more likely to use less effective methods than women without diabetes (AOR = 1.34, 95% CI: 1.05, 1.72) (33).

A study conducted in Addis Ababa on contraceptive use among women with chronic non-communicable diseases found that those who received counseling about contraceptives were 3.6 times more likely to use them compared to women who had never received such counseling (AOR = 3.6, p = 0.003). Additionally, women who discussed contraceptive options with their

husbands were 2.5 times more likely to use contraceptives than those who did not engage in such discussions (AOR = 2.51, p = 0.01) (35).

Nationally, in a cross-sectional study done in Addis Abeba, among 360 reproductive age women with chronic NCD, majority (91%) of respondents had heard about contraceptive, 40.9% had supportive perception about contraception and the most common contraceptive used by the respondents were injectable (45.2%) followed by pills (24.4%) [44]. In a facility-based cross-sectional study conducted in St.Paul hospital, Addis Abeba, among women on follow up for cardiovascular diseases, 69.8% of them were found to have used a modern contraceptive method at least once in their lifetime.[45]

In a cross-sectional study conducted in northwest Ethiopia involving 392 women with hypertension and diabetes, it was found that 271 women (69.1%) reported having ever used contraceptive methods. However, only 53.8% (211) were using modern contraceptive methods at the time of the data collection. The most commonly used methods included injectables (39.8%), intrauterine contraceptive devices (IUCD) (18%), pills (16.1%), and implants (14.2%). Over half of the participants (53.1%) reported using contraceptives primarily to limit the number of births. The main reasons cited for not using contraceptives included fear of side effects (12.8%), a desire for children (12.2%), religious prohibitions (11.2%), opposition from husbands (11%), and a lack of knowledge about contraceptives (8.9%) (46).

In a facility-based cross-sectional study conducted in Addis Ababa involving 422 psychiatric patients of reproductive age, two-thirds (68%; n = 287) of the participants reported having heard of family planning (FP) methods. The most commonly recognized methods included the oral contraceptive pill (29.6%; n = 48), injectables (29%; n = 47), condoms (22.8%; n = 37), contraceptive implants (10%; n = 16), and intrauterine devices (5%; n = 8). Six participants (4%) mentioned knowledge of other FP methods, such as natural methods. Health professionals were the most frequently cited source of information about FP, accounting for 52.6% (n = 151) of responses, followed by friends or neighbors (20.2%; n = 58), schools (10.5%; n = 30), and media (5.2%; n = 22). Just over half (56.6%; n = 239) of the respondents indicated that they had ever used FP methods, with 38.4% (n = 162) currently using at least one method. The most commonly used contraceptive methods were pills (29.7%; n = 50) and injectables (26.7%; n = 45). Additionally, 22% (n = 37) used condoms, 11.3% (n = 19) used implants, and

0.4% (n = 8) used intrauterine devices. Among all users, only six participants utilized traditional methods along with modern contraceptive methods like intrauterine devices or tubal ligation. Among the women not currently using FP, 60% (n = 156) did not intend to use contraception, while 38.1% (n = 99) expressed an intention to use FP in the future, and 1.2% (n = 5) were uncertain. The main reasons for not using contraceptive methods included concerns that psychotropic medications might be incompatible with contraceptives (37.8%; n = 61), fear of side effects from contraceptives (20.5%; n = 32), and stigma associated with using FP services as individuals with mental illness (17.9%; n = 28). Additionally, 25 women (16.0%) expressed a desire to become pregnant, while the remaining 6.4% (n = 10) chose to abstain from contraception (47).

In a qualitative study done in rural Ethiopia among 16 severe mental illness reproductive age group women, injection, pills and condoms were the contraceptives which were widely recognized by the participants. Only a few of the participants expressed awareness about implants and intra-uterine contraceptive devices. None of the participants had ever heard about emergency contraceptives. Some women expressed the view that the concept of family planning refers only to limiting the number of children an individual has but does not include controlling the timing of pregnancy. Misconceptions about contraceptives were evident. A majority of women considered contraception to be the only role of family planning. Some of the participants considered the definition of family planning to be only caring for the family and managing household activities. (48)

In a prospective cohort study done in Australia on pattern of contraceptive use among 15,376 of chronic diseases patients, in 2013, the proportion of women using some form of contraception at the time of their last vaginal sex was similar for women with (85.5%) and without chronic disease (86.7%), with similar proportions observed in 2017. By 2017, there was lower use of the oral contraceptive pill and condoms, although use of hormonal long acting reversible contraceptives had increased, with a noticeable increase in the use of the progestogen IUD. In 2013, use of the progestogen IUD was relatively low for women with and without chronic disease (3.0% vs. 1.8% respectively) but had a similar rise in both groups of women by 2017 (10.8% vs. 8.8% respectively).(49)

An article written on contraceptive use among patients with inflammatory bowel disease has discussed that women with IBD are over 50% less likely to have been prescribed any form of contraception by a physician. (50)

In an analysis of national prospective cohort study among 299 cancer survivor in United States, 56% reported receiving contraceptives services since cancer diagnosis, and 50% reported receiving them in the past 12 months. Twenty-nine participants (10%) reported emergency contraception use. Among 31 participants with a pregnancy after cancer diagnosis, 5 reported an unintended pregnancy, with 2 resulting from contraceptive failure. Three participants with unintended pregnancies underwent pregnancy termination. (51)

In a separate cross-sectional study conducted in the United States involving 150 breast cancer survivors, the majority of participants reported being sexually active with a male partner both before (n=142, 95%) and during (n=106, 71%) their primary cancer treatment, as well as after treatment (n=127, 85%). Among those who were sexually active and not attempting to become pregnant, most indicated that they used a contraceptive method prior to (n=115, 94%), during (n=94, 90%), and after (n=103, 83%) their cancer treatment. The most commonly used contraceptive methods in the year leading up to cancer treatment included the pill, patch, ring, injectable, and male condoms, which were predominant during and after treatment. There was a noticeable shift from higher-tier, more effective methods to lower-tier methods, as well as a transition from hormonal to non-hormonal methods following the cancer diagnosis. Throughout all time points, significant differences in contraceptive method choices were observed when categorized by effectiveness level ($p<0.001$). The primary reason for selecting specific methods during and after treatment was safety concerns related to their breast cancer diagnosis. Additionally, 61% (n=92) of the women expressed worry that prior use of birth control pills may have contributed to their breast cancer diagnosis, with 85% (n=78) of these women stating that this concern influenced their current choice of contraceptive method. Among sexually active participants not seeking pregnancy, 6.5% (n=8), 10% (n=11), and 17% (n=21) reported not using any contraceptive method in the year prior to cancer diagnosis, during treatment, and currently, respectively. The most common reasons for not using contraceptives before cancer treatment included simply not thinking about it or not caring if they became pregnant (25%; n=2), along with breastfeeding or being in a postpartum period (25%; n=2). After treatment, the predominant

reason cited for not using contraception was the belief that they were unable to become pregnant (63%; n=7 during treatment and 71%; n=15 after treatment) (52).

In a retrospective cohort study done on contraceptive use among women with end stage kidney disease which included 115,713 patients, among the women receiving dialysis, the rate of any contraception use during the study period was 5.30% (95% CI, 5.17%-5.42%) person-years, during which at least 1 contraception was used. Rates of different types of contraceptive use were as follows: intrauterine device insertions (1.58%;95% CI, 1.51%-1.65%), injection (1.25%; 95% CI,1.19%-1.32%), implant (0.48%; 95% CI, 0.44%-0.51%),tubal ligation (0.38%; 95% CI, 0.35%-0.42%), diaphragm (0.01%; 95% CI, <0.01%-0.1%), emergency contraception (0.02%; 95% CI, 0.01%-0.02%), and pills/others (3.32%; 95% CI, 3.22%-3.43%)(53)

3. Objective

3.1 General objective

Assessment of the contraception use in non-communicable chronic medical illness among reproductive age women of having follow up in TASH, ZMH and SPMMC

3.2 Specific objective

- To assess the utilization of contraceptive among reproductive age women having non-communicable chronic medical illness
- To identify the pattern of contraceptive used by women having non-communicable chronic medical illness
- To assess the relation between non-communicable medical illness and contraceptive utilization
- To identify the determinant factor of contraceptive utilization among women having non-communicable chronic medical illness

4. Methodology

4.1 Study area and period

The study was conducted in Tikur Anbessa Specialized hospital, St. Paul millennium medical college and Zewditu memorial hospital which, are found in Addis Ababa and cover the higher non-communicable disease service in Addis Ababa. The study was conducted from Janury-1/2024-March30, 2024.

4.2. Study Design

A hospital-based cross-sectional descriptive study design were conducted.

4.3. Source Population

Reproductive age women having chronic non-communicable medical illness

4.4. Study population

All reproductive age women who have medical follow up at TASH, ZMH and SPMMMC.

4.5. Inclusion Criteria

- Sexually active women
- Have non-communicable medical illness
- Reproductive age group

4.6. Exclusion Criteria

- Having communicable disease,
- Currently not sexually active,
- Age less than 18 years and
- Pregnant in the data collection
- Not willing to answer the questionnaire.

4.7. Operational Definition

Non-communicable disease: - a group of conditions that are not mainly caused by an acute infection, result in long-term health consequences and often create a need for long-term treatment and care.

Contraceptive current use: - refers to if a woman is currently (at the time of data collection) using anyone of hormonal, barrier, or sterilization method. Hence, a woman was categorized as current contraceptive user if she used one of the methods, otherwise as a nonuser

Sexually active- refers to sexual intercourse in the last 4 months

4.8. Variables

4.8.1 Dependent variable:

Practice of contraception use

4.8.2 Independent variables

- **Socio-demographic characteristics**

- ✓ Age
- ✓ Occupation
- ✓ Educational status
- ✓ Partner education level
- ✓ Income

- **Types of Chronic disease**

- ✓ DM
- ✓ CHTN
- ✓ Cardiac
- ✓ Renal
- ✓ Hematology
- ✓ Rheumatology
- ✓ Thyroid disease
- ✓ Asthma
- ✓ GI

- **Reproductive characteristics**

- ✓ Number of alive children
- ✓ Parity
- ✓ Abortion

- **Decision maker on family size**

- ✓ Self
- ✓ Husband/partner
- ✓ Both

4.9. Sampling Methods

4.9.1. Sampling procedure

The estimated study population was counted from the register HMIS prior to data collection then the sample size was proportionally allocated to the respected study facility based

on the base line data and data was collected consecutively for three months using census method until fulfill the required sample size.

4.9.2. Sample size determination

Single population proportion formula was used to calculate the sample size by using assumption of 69.1% a study done in north west Ethiopia on contraceptive use in women with hypertension and diabetes (33).

$n = (Z\alpha/_2)^2 \times p\ (1\text{-}P)/d^2 = (1.96)^2 \times 0.691(1 - 0.691/\ (0.05)^2 = 328$

Where; n= Sample size

Z=Standard normal deviation (1.96 for 95% CI)

d=Desired degree of accuracy (0.05)

Adding 10% none response rate sample size becomes **361.**

4.10. Data Collection Tool and Procedure

4.10.1. Data collection tool

The data collection tool was adopted from the literatures. The tool contains socio-demographic characteristics, reproductive characteristics, disease characteristics and contraceptive characteristics. It contains questions that assess: socio-demographic characteristics, medical illness character and reproductive characteristics and practice of contraceptive.

4.10.2. Data collection procedure

Selection of participants were done from HMIS registration at which the visitors of the certain OPD was recorded. The selected women who fulfill the eligibility criteria were asked for their willingness to participate in the study and if they are sexually active or not verbally. Data was collected through an exit interview of sampled women using a paper-based, structured, and pretested questionnaire. The women then were interviewed and medical record of those volunteer women was reviewed form the chart for patients with cardiac illness and diabetes. The data was collected by trained data collector after given training by principal investigator

4.11. Data Analysis

The collected data was coded, entered, verified, cleaned, and analyzed using SPSS version 25. The proportion of contraceptive use was calculated through descriptive statistics,

followed by bivariate and multivariable logistic regression to assess the statistical association between independent and dependent variables. Factors with a significance level of ≤ 0.25 in the bivariate logistic regression analysis were included in the multivariable logistic regression analysis. The presence and strength of the association between the outcome and independent variables were determined using odds ratios with 95% confidence intervals (CI) and a p-value of less than 0.05.

4.12. Data Quality Control

Data collectors were trained on the objective of the study and the data collection procedures, and the data collection tool. The data collection tool was adapted from the literature and modified based on contextual situations. The tool was pre-tested in 5% of similar population in Yikatet-12 hospital medical college prior to data collection to assure the consistence and modify accordingly if necessary. During the data collection period the principal investigator were there to watch over the procedure. Moreover, collected data was reviewed and checked for completeness and consistency by the principal investigator on a daily basis.

4.13. Ethical Consideration

Ethical clearance was obtained from Addis Ababa University College of Health Sciences, department of gynecology and obstetrics. Permission was also be obtained from heads of each target health facility to conduct the study. Participants were informed about the study's objectives, risks, and benefits before being asked for their consent to participate. All information obtained from the medical records was kept confidential and used solely for the intended purposes of the study.

4.14. Dissemination of the Result

The result of the study will be first presented in Addis Ababa University department of gynecology and obstetrics. It will also be presented in national as well as international seminars and will be published in reputable journals.

5. Result

5.1Sociodemographic characteristics of the study participants

In this study 352 study participants were involved making a response rate of 97.5%. thirty-five percent of the study participants were in the age group of ≥35 years with mean age of 31.1(SD ±6.038) with range of 23. Eighty-six percent of the participants were from urban and 52.6% were orthodox in religion. Twenty-nine percent of the participants have primary level of education. Thirty-three percent of the partners have secondary education level and 42% of the participants were a monthly income of 5000-10000ETB.

Table 1. The sociodemographic characteristics of the study participants Non-Communicable Chronic Medical Illness Among Reproductive Age Women of Having Follow up in TASH, ZMH And SPMMC In Addis Ababa, 2024.

Variable	Frequency	Percent
Age of the study participants		
20-24	59	16.8
25-29	101	28.7
30-34	68	19.3
≥35	124	35.2
Residency		
Urban	303	86.1
Rural	49	13.9
Religion		
Orthodox	185	52.6
Muslim	72	20.5
Protestant	82	23.3
Catholic	13	3.7
Marital status		
Married	287	81.5
Single	25	7.1
Divorced	30	8.5
Widowed	10	2.8
Education level		
Can not read and write	44	12.5
Primary	103	29.3
Secondary	103	29.3
Collage and above	102	29.0
Occupation		

Housewife	162	46
Private employee	110	31.3
Government employee	38	10.8
Daily laborer	42	11.9
Husband education status(n=287)		
Cannot read and write	47	13.4
Primary	54	15.3
Secondary	107	30.4
Collage and above	79	22.4
Husband occupation(n=287)		
Government employee	58	16.5
Private employee	89	25.3
Merchant	88	25.0
Farmer	14	4.0
Daily laborer	38	10.8
Decision maker in the family (n=352)		
Self	128	36.4
Husband	56	15.9
Both	168	47.7
Household monthly income		
<5000	136	38.6
5000-10000	148	42.0
>10000	68	19.3

5.2 Reproductive and family size related characteristics of the study participants

Three-fourth of the study participants had a family size of <4 and 55.4% of the participants were multiparous. Thirty-eight percent of the participants had history of abortion and 46% of the participants had 1-2 children. Nine percent of the participants had history of still birth.

Table 2. The reproductive and family size related characteristics of the study participants.

Variable	Frequency	Percent
Family size		
<4	267	75.9
≥4	85	24.1
Parity		
Nulliparous	95	27.0
Primiparous	42	11.9
Multiparous	195	55.4

Grand multiparous	20	5.7
Abortion		
Yes	133	37.8
No	219	62.2
Number of abortions		
One	88	66.2
Two and above	45	33.8
Number of children		
No children	103	29.3
1-2	162	46.0
3-4	71	20.2
≥5	16	4.5
History of still birth		
Yes	32	9.1
No	320	90.9

5.3 Chronic medical conditions related characteristics of the study participants

Fifteen percent of the participants had hematologic and rheumatologic disease followed thyroid disease (13.1%), DM (11.6%), Asthma (11.4%) and HTN (14.3%). from those having cardiac disease the majority of the disease were MS (62.5%) and from those of DM disease the majority was type II (65.9%). Thirty-percent of the participants had disease had 2-5 years of years of follow up period.

Table 3. Medical disease related characteristics of the study participants.

Variable	Frequency	Percent
Type of chronic disease		
Hematology (* ITP, AML, CML, Aplastic anemia…)	53	15.1
Renal (*kidney stone, renal cyst, CKD…)	12	3.4
Rheumatology (* Gout, RA)	53	15.1
Thyroid disease(* grave's disease, thyroid tumor, hypothyroidism)	46	13.1
Asthma	40	11.4
Cardiac	24	6.8
DM	41	11.6
Neurology (*stroke, migraine)	6	1.7
Epilepsy	5	1.4
GERD	6	1.7

GI(*CLD, IBD, hepatic hemangioma, fatty liver disease)	15	4.3
CHTN	51	14.5
Types of cardiac disease (n=24)		
Valvular heart disease	15	62.5
Ischemic heart disease	2	8.3
Cardiomyopathies	4	16.7
Others	3	12.5
NYHA class(n=24)		
Class II	21	87.5
Class III	3	12.5
Types of DM (n=41)		
Type I	10	24.3
Type II	31	75.6
Recent HbA1c (41)		
<5.5	36	87.8
≥5.5	5	12.2
Duration of follow up		
<6month	96	27.3
6month-1yrs	107	30.4
2-5 years	108	30.7
>5 years	41	11.6

5.4 Contraceptive use related characteristics of the study participants

The finding of the study showed that 39% [95% CI 0.34,0.44] of the study participants do utilize modern contraceptive, while 61% of the study participants do not utilize modern contraceptive.

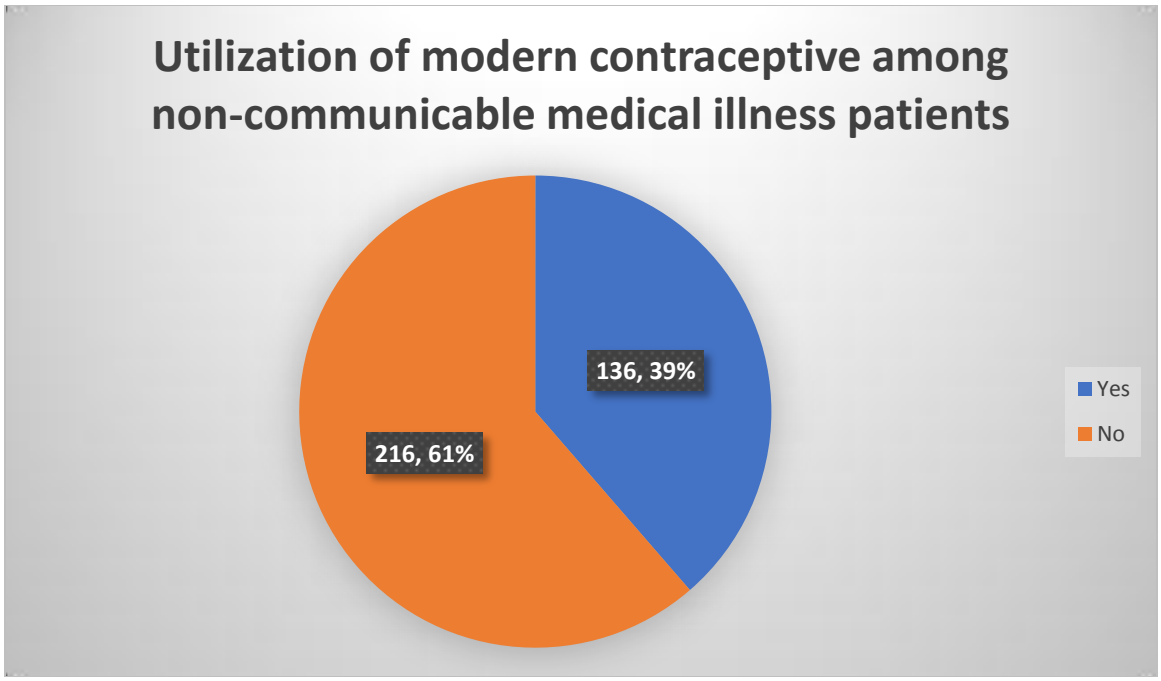

Figure 1. The utilization of modern contraceptive among study participants having non-communicable disease.

Table 4 Contraceptive type current use and type of chronic disease relation

			Type of chronic disease												Total
			Hematology	Nephrology	Rheumatology	Thyroid disease	Asthma	Cardiac	DM	Neurology	epilepsy	GERD	GI	HTN	
Contraceptive type current use	DMPA	Count	10	0	3	5	8	3	1	0	0	0	0	6	36
		% within type of chronic disease	18.9%	0.0%	5.7%	10.9%	20.0%	12.5%	2.4%	0.0%	0.0%	0.0%	0.0%	11.8%	10.2%
	emergency pill	Count	0	0	0	0	0	2	2	0	0	0	0	0	4
		% within type of chronic disease	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	4.9%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%
	IUCD	Count	10	0	3	2	2	1	2	0	0	0	0	8	28
		% within type of chronic disease	18.9%	0.0%	5.7%	4.3%	5.0%	4.2%	4.9%	0.0%	0.0%	0.0%	0.0%	15.7%	8.0%
	Norpl	Count	2	1	0	6	10	1	6	1	1	2	1	1	32

	ant	% within type of chronic disease	3.8%	8.3%	0.0%	13.0%	25.0%	4.2%	14.6%	16.7%	20.0%	33.3%	6.7%	2.0%	9.1%
	Pill	Count	2	2	4	5	1	1	8	2	1	1	3	6	36
		% within type of chronic disease	3.8%	16.7%	7.5%	10.9%	2.5%	4.2%	19.5%	33.3%	20.0%	16.7%	20.0%	11.8%	10.2%
Total		Count	24	3	10	18	21	8	19	3	2	3	4	21	136

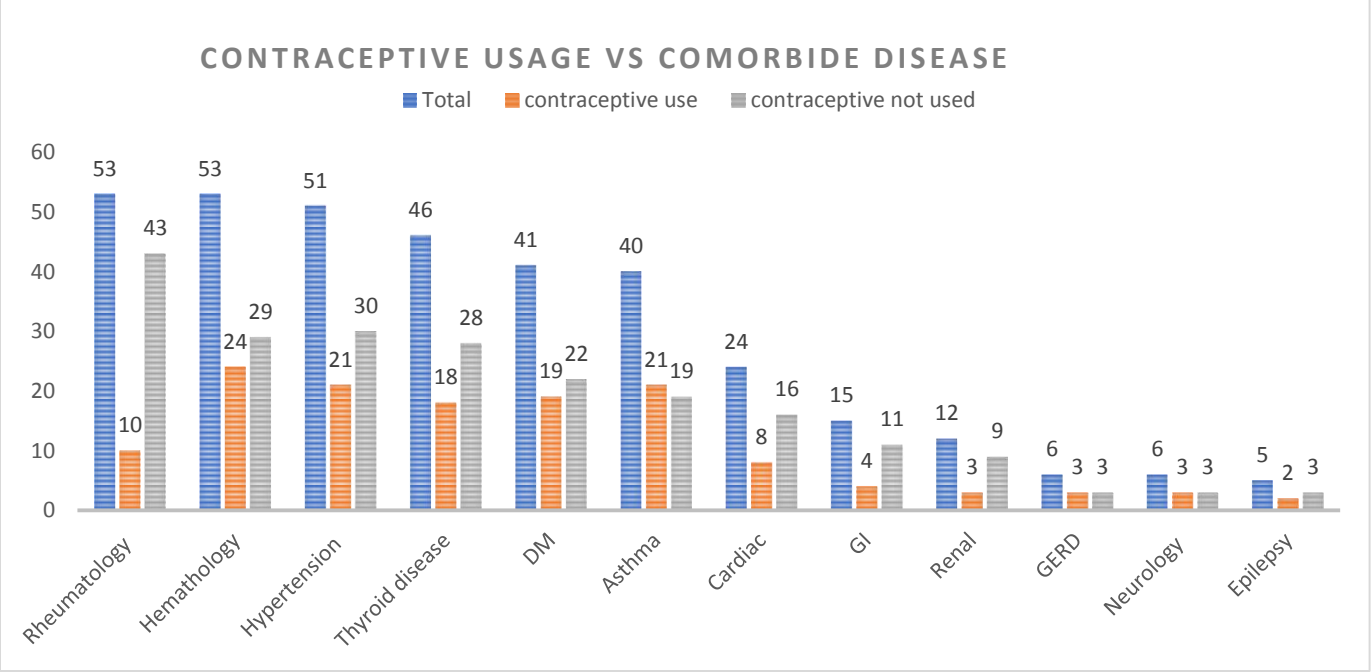

Figure 2. The relation between the types of contraceptive use and comorbid disease

Fifty-six percent of the study participants were ever counselled about contraceptives and 31.8% of the participants had a plan to pregnant the next 1 years. Almost thirty-nine percent of the participants were utilizing contraceptive. From those of used contraceptive, DMPA accounts 26.5% followed by Norplant (23.5%) and IUCD (20.6%). From those of contraceptive user, forty-seven percent of the participants were used for birth space, 11.7% were due to pregnancy contradiction due to disease. Majority of the reason for not use contraceptive were desire for children (31%) followed by fear of side effect (26.9%), infrequent sex (25.5%) and not aware of contraceptive (5.6%).

Table 5 Contraceptive use related characteristics of the study participants

Variable	Frequency	Percent
Ever counselled about contraceptive		
Yes	198	56.3
No	154	43.8
Any plan to get pregnant in the next 1year		
Yes	112	31.8
No	240	68.2
Current use of contraception during the data collection time		
No	216	61.4
Yes	136	38.6
Contraceptive type current use (n=136)		
DMPA	36	26.5
Emergency pill	4	2.9
IUCD	28	20.6
Norplant	32	23.5
Pill	36	26.5
Purpose of using contraceptive(n=136)		
Child spacing	64	47.1
Limit the number of children	56	41.2
Pregnancy contraindicated due to disease	16	11.7
Have you disclosed to your partner about the contraceptive use (n=136)		
Yes	120	88.2
No	16	11.8
Does your partner approve of your contraceptive use (n=120)		
Approved	96	80
Disapproved	24	20
Reason for not used modern contraceptive (n=216)		
Desire for children	67	31
Fear of side effect	58	26.9
Husband opposition	4	1.9
Infrequent sex	55	25.5
Not aware of contraceptive	12	5.6
Not aware of contraceptive; infrequent sex	4	1.9
Religion prohibition	8	3.6
Religion prohibition; desire for children	8	3.6

5.5 The determinant factor of contraceptive use among study participants

The bivariate logistic regression revealed that study participants age, residency, religion, education level, religion, Decision maker of FP, Parity and counselling of family planning, plan to get pregnant in the next 1 year, husband's occupation and types of chronic medical illness have an association with contraceptive use. The multivariate logistic regression revealed that study participants whose age of 20-24 years had 7.90 folds increase its contraceptive use (AOR=**7.90,**95%CI= **3.08,20.27**) and age of 25-29 years had 26.95 folds increase its contraceptive use (AOR=**26.95** (95% CI: 10.16, 71.48) compared to those of ≥35years. Study participant whose residency of Rural were 79% less likely of contraceptive use compared to urban (AOR=**0.21** (95% CI: 0.07,0.60). Husbands working as **daily laborers** are associated with significantly lower odds of contraceptive use (AOR = 0.003,95% CI=0.00,0.10).The decision maker for family size does not show significant results in this result whether the decision is made by the husband, the woman herself or jointly does not significantly affect the contraceptive use. Multiparous and grand multiparous were 7.53 and 7.83 times increase its contraceptive use compared to nulliparous respectively as shown the table below. Women who have been **counseled about contraceptives** are **5.96 times more likely** to use contraception (AOR=5.96 95% CI= **3.01,11.78**). When we see type of chronic illness the participants have women with **rheumatological diseases** are significantly less likely (84%) to use contraception (AOR = 0.16 95% CI=0.03,0.84). Regarding plan to get pregnant in the coming one year, women who **plan to get pregnant in the next year** are **93% less likely** to use contraception (AOR = 0.07, 95% CI=0.03,0.17).

TABLE 6 THE ASSOCIATION OF INDEPENDENT VARIABLE AND CONTRACEPTIVE USE USING BINARY LOGISTIC REGRESSION**,**

Variable	Contraceptive use		p-value	COR with 95%CI	P-value	AOR with 95%CI
	Yes	No				
Age in years						
20-24	28	31	0.002	**2.8(1.47, 5.45)**	0.000	**7.90(3.08,20.27**
25-29	53	48	0.000	**3.5(1.96, 6.09)**	0.000	**26.95(10.16,71.48)**
30-34	25	43	0.067	1.8(0.96, 3.46)	0.130	2.02(0.81,4.99)
≥35	30	94	1	1	1	
Residency						
Urban	128	175	1		1	

Rural	8	41	0.001	**0.27(0.12, 0.59)**	0.004	**0.21(0.07, 0.60)**
Religion						
Orthodox	78	107	1		1	
Muslim	16	56	0.003	0.39(0.21, 0.73)	0.322	0.63(0.25,1.58)
Protestant	36	46	0.791	1.1(0.64, 1.81)	0.787	1.11(0.52,2.40)
Catholic	6	7	0.779	1.2(0.38, 3.64)	0.342	.0.45(0.90,2.32)
Education level						
Cannot read and write	14	30	1		1	
Primary	37	66	0.632	1.2(0.57, 2.55)	0.080	**0.35(0.11, 1.13)**
Secondary	29	74	0.655	0.84(0.39, 1.81)	0.053	**0.35(0.12, 1.02)**
Collage and above	56	46	0.012	2.6(1.24, 5.49)	0.288	1.82(0.60,5.51)
Occupation						
Housewife	51	111	1		1	
Private employee	48	62	0.04	**1.69(1.02,2.78)**	0.014	**3.62(1.29,10.13)**
Government employee	13	25	0.75	1.13(0.53,2.39)	0.516	0.51(0.07,3.90)
Daily laborer	24	18	0.003	**2.90(1.45,5.81)**	0.000	**4.6(1.15,18.69)**
Husband occupation						
Government employee	31	46	1		1	
Private employee	35	54	0.007	2.78(1.32,5.84)	0.311	2.36(0.45,12.39)
Merchant	35	53	0.196	1.57(0.80,3.10)	0.776	0.78(0.14,3.28)
Farmer	2	12	0.179	01.60(0.80,3.17)	0.628	0.68(014,3.28)
Daily laborer	14	24	0.263	0.40(0.08,1.98)	0.001	**0.003(0.00,0.10)**
Decision maker on family planning						
Self	43	85	1		1	
Husband	19	37	0.796	0.92(0.47, 1.77)	0.119	0.45(0.16, 1.23)
Both	74	94	0.122	1.2(0.70, 1.99)	0.512	1.3(0.63, 2.50)
Parity						
Nulliparous	23	72	1		1	
Primiparous	12	30	0.590	1.3(0.55, 2.84)	0.509	1.53(0.43, 5.41)
Multiparous	92	103	0.000	**2.8(1.62, 4.83)**	0.000	**7.53(3.08, 18.39)**
Grand multiparous	9	11	0.065	2.6(0.94, 6.95)	0.004	**7.83(1.94, 31.55)**
Are you sexually active						
Yes	104	148	0.108	1.5(0.92, 2.44)	0.235	0.63(0.30, 1.35)
No	32	68	1		1	
Ever counselled about contraceptive						
Yes	101	97	0.000	**3.5(2.22, 5.66)**	0.000	**5.96(3.01,11.78**)
No	35	119	1		1	
Type of chronic illness						
Hematology	24	29	1		1	
Nephrology	3	9	0.208	0.40 (0.09,1.66)	0.068	0.10(0.00,1.20)

Rheumatology	10	43	0.004	**0.28(0.12,0.67)**	0.030	**0.16(0.03,0.84)**
Thyroid disease	18	28	0.537	0.78(0.35,1.73)	0.988	1.01(0.21,4.94)
Asthma	21	19	0.491	1.34(0.59,3.04)	0.224	2.65(0.55,12.80)
Cardiac	8	16	0.326	0.60(0.21,1.65)	0.423	0.47(0.07,2.98)
DM	19	22	0.919	1.04(0.46,2.36)	0.121	0.32(0.08,1.35)
Neurology	5	6	0.992	1.01(0.27,3.71)	0.579	0.48(0.04,6.50)
GI	7	14	0.350	0.60(0.21,1.73)	0.993	1.01(0.19,5.44)
HTN	21	30	0.673	0.85(0.39,1.84)	0.697	0.75(0.18,3.17)
Any plan to get pregnant in the next 1 year						
Yes	24	88	0.000	0.31(0.19,0.52)	0.000	**0.07(0.03,0.17)**
No	112	128	1		1	

6. Discussion

The present study, which involved 352 participants with a high response rate of 97.5%, aimed to assess the sociodemographic characteristics, reproductive and family size-related factors, chronic disease burden, and contraceptive use among reproductive-age women attending follow-up in Addis Ababa. A significant proportion of participants were urban residents (86%), and the majority identified as Orthodox Christians (52.6%). Over one-third of the study participants were aged 35 years or older, with a mean age of 31.1 years. Modern contraceptive use was relatively low, with only 39% of participants utilizing modern contraceptives. Interestingly, contraceptive use varied significantly based on the age and parity of the participants. The most commonly used contraceptives were injectable forms (DMPA), accounting for 10.2%, followed by IUCDs and Norplant. Despite this, a substantial proportion of women with NCDs are not utilizing any form of contraception.

The general objective was to assess the contraception use in non-communicable chronic medical illness among reproductive-age women attending follow-up in TASH, ZMH, and SPMMC in Addis Ababa. This objective was addressed through the analysis of the contraceptive use among 352 participants. The study successfully provided data on the proportion of women using contraceptives (39%) and highlighted the specific methods used (DMPA, pills, Norplant, IUCD). Additionally, it identified key demographic characteristics such as age, education level, and parity, which impacted contraceptive use. Specifically about assessing the utilization of contraceptives, the study met this objective by determining that 39% of participants were using modern contraceptives. The purpose of use, such as child spacing (47.1%) and limiting children

(41.2%), was also clearly identified and as far as Identifying the pattern of contraceptive use is concerned, the study provided a detailed analysis of contraceptive use patterns among different groups based on age, residency, and education level. It was noted that women aged 20-24 were 7.9 times more likely to use contraceptives, and those with higher education were 26.9 times more likely to use contraceptives as for assessing the relation between non-communicable medical illness and contraceptive utilization, the study evaluated the relation between chronic diseases (e.g., hypertension, diabetes) and contraceptive use, showing that women with certain chronic conditions had varying levels of contraceptive uptake. And also identifying determinants of contraceptive use was well assessed as the key determinants such as age, residency and counseling on family planning were identified.

The study found that modern contraceptive use among patients with non-communicable diseases (NCDs) was 39%. This finding is comparable to the study conducted in Addis Ababa, which reported a rate of 39.7% (35). However, it is lower than the rates found in studies conducted in northern Ethiopia (53.8%) (34) and Bangladesh (56.4%) (37). This difference may be due to variations in access to healthcare services and the quality of counseling, which can greatly influence contraceptive choices. A lack of adequate counseling and information may lead to underuse or misuse of contraceptives. Additionally, knowledge and attitudes towards contraception for women with NCDs can vary, affecting the options and advice provided. Personal preferences, cultural or religious beliefs, and partner influences may also play a significant role in contraceptive choices. Women with NCDs may prioritize certain contraceptives for convenience, effectiveness, or based on their partner's preferences.

The most commonly used modern contraceptives in the study were DMPA (26.5%), pills (26.5%), Norplant (23.5%), IUCD (20.6%), and emergency pills (2.9%). These findings are consistent with a study conducted in northern Ethiopia (34). The primary reasons for contraceptive use were child spacing (47.1%), limiting the number of children (41.2%), and pregnancy contraindicated due to disease (11.7%), which is also supported by the study in northern Ethiopia (34).

The main reasons for not using contraceptives were a desire for more children (31%), fear of side effects (26.9%), infrequent sexual activity (25.5%), and lack of awareness about

contraception (5.6%). These findings align with the study from northern Ethiopia (34). This may be attributed to misinformation about the safety and side effects of contraceptives, which can be reinforced by cultural beliefs, social networks, or inadequate healthcare counseling. Individuals who engage in infrequent sexual activity may perceive their risk of pregnancy as low and therefore may not feel the need for consistent contraceptive use.

Study participants aged 20–24 were 7.9 times more likely to use contraceptives (AOR = 7.9, 95% CI: 3.08, 20.27), while those aged 25–29 were 26.9 times more likely (AOR = 26.94, 95% CI: 10.16, 71.48) compared to participants aged ≥35 years. This is consistent with findings from northern Ethiopia (34). Younger women with NCDs may use contraceptives to plan their families more carefully, allowing them to complete their education or pursue career goals before starting a family.

Participants living in rural areas were 79% less likely to use contraceptives compared to those in urban areas (AOR = 0.20, 95% CI: 0.07, 0.60). This may be due to stronger traditional or religious beliefs that discourage contraceptive use, along with less access to accurate information about contraception and reproductive health.

Participants with a college education or higher were 5.9 times more likely to use contraceptives compared to those who could not read or write (AOR = 5.9, 95% CI: 2.07, 16.78). This may be because higher education is often associated with greater awareness of the available contraceptive methods and their benefits. Educated women are more likely to have the knowledge necessary to select the most suitable contraceptive method based on their health conditions. Additionally, higher education can empower women to make informed decisions about their reproductive health. Educated women are more likely to assert control over their reproductive choices and seek out contraceptives to prevent unintended pregnancies, especially if they have health concerns related to NCDs.

Private employees were 3.6 times more likely to use contraceptives compared to housewives (AOR = 3.62, 95% CI: 1.29–10.13). This might be because private employees may have more access to health information and services through their workplaces or a higher awareness of family planning options due to their exposure to urban environments or social

networks that support contraceptive use. Daily laborers showed a significant increase in contraceptive use compared to housewives (AOR = 4.6, 95% CI: 1.15–18.69). This could be explained by the nature of their physically demanding jobs, where limiting the number of children may be more important to manage both work and family responsibilities effectively.In contrast, government employees did not show a statistically significant difference in contraceptive use compared to housewives (AOR = 0.51, 95% CI: 0.07–3.90). This lack of significant association could be due to government employees possibly having access to stable healthcare services, but choosing not to prioritize contraceptive use, potentially due to cultural or personal factors.

Study participants who made family planning (FP) decisions jointly with their husbands were 1.2 times more likely to use contraceptives compared to those who made decisions alone (AOR = 1.2, 95% CI = 1.11, 4.59). This finding aligns with a study conducted in Addis Ababa (35). Additionally, participants who had received counseling on family planning were 4.7 times more likely to use contraceptives than those who had not (AOR = 4.7, 95% CI = 2.44, 9.13). This result is consistent with studies done in northern Ethiopia (34) and Addis Ababa (35). This may be because when couples make joint decisions about contraception, it fosters a shared sense of responsibility for reproductive health, which can promote consistent and effective contraceptive use—especially important for women with non-communicable diseases (NCDs) who face additional health risks during pregnancy.

Multiparous and grand multiparous women were 7.5 and 7.3 times more likely to use contraceptives compared to nulliparous women, respectively. This result is supported by findings from a study in northern Ethiopia (34). This may be due to their awareness of the physical and mental demands of managing multiple children alongside a chronic illness.

Women who had ever been counseled about contraception were 5.96 times more likely to use it (AOR = 5.96, 95% CI = 3.01, 11.78), with the result being highly significant (p = 0.000). This underscores the crucial role of family planning counseling in increasing contraceptive use among women with chronic conditions. Conversely, women who planned to become pregnant in

the next year were significantly less likely to use contraceptives (AOR = 0.07, 95% CI = 0.03, 0.16, p = 0.000), which is expected, as those intending to conceive naturally avoid contraceptive use.

The logistic regression analysis revealed several significant predictors of contraceptive use. Age, parity, rural residence, and family planning counseling were strong determinants of contraceptive use. Younger women, those with multiple children, and those who had received family planning counseling were much more likely to use contraception. In contrast, women living in rural areas or planning to conceive in the near future were less likely to use contraceptives.

7. Conclusion

The utilization of modern contraceptive among study participants having modern contraceptive was 39%. The commonest method of modern contraceptives was DMPA followed by pill and Norplant. IUCD and emergency pill were among the rarely used ones . The reason of contraceptive utilization was child spacing (47.1%), limit the number of children (41.2%) and pregnancy contraindicated due to disease (11.7%). The determinant factor for contraceptive use were age of 20-24 years had 7.9 folds increase its contraceptive use (AOR=7.9) and age of 25-29 years had 26.9 folds increase its contraceptive use (AOR=26.9), residency of rural were 79% less likely of contraceptive use (AOR=0.21),counselling about FP has 4.7times increase in its contraceptive use (AOR=4.7) and Multiparous and grand multiparous were 7.5 and 7.8 times increase its contraceptive use compared to nulliparous respectively.

8. Recommendation

Women with non-communicable diseases who have lower education levels, reside in rural areas, and are nulliparous (have not given birth), specific recommendations for contraceptive use need to consider their unique health needs, social context, and accessibility challenges. The recommendation will be

To give health education: Provide clear, accessible information about the various contraceptive options, emphasizing the safety and effectiveness of each method, especially for women with NCDs. Address common misconceptions and fears related to contraception.

Personalized Counseling: Offer personalized counseling that considers the woman's health status, lifestyle, and reproductive goals. This should include discussions about the importance of preventing unintended pregnancies, particularly in the context of managing NCDs.

Literacy and Communication: Use simple language and visual aids if necessary to accommodate lower education levels. Ensure that the woman understands the instructions for use and the potential side effects of the chosen contraceptive method. Furthermore, the relatively low utilization of modern contraceptives and the significant proportion of women with low educational attainment and low income suggest that health education and outreach efforts are needed to raise awareness about family planning and chronic disease prevention.

Improving Access in Rural Areas: Address the specific challenges faced by rural residents, such as limited access to healthcare facilities.

Provide Contraceptive Options for Couples: Since joint decision-making on family planning was associated with higher contraceptive use, efforts should be made to **encourage couple-based counseling**. Family planning programs should involve both partners to ensure mutual understanding and support for contraceptive use.

Overall **government bodies, NGOs, and healthcare providers** should collaborate to create targeted interventions that address the **specific needs** of rural women, women with chronic illnesses, and high-parity women. Expanding **access to education, counseling, and contraceptive services** will help ensure that all women have the resources and support they need to make informed reproductive health decisions.

Limitation of the study

The study did not explore whether specific contraceptives are unsuitable for certain non-communicable diseases, and further research is recommended to investigate this aspect.

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Annex II: English Version Information Sheet

Questionnaire Identification Number _____

My name is _____. I am working as data collector in the research Conducted by Dr Bethel, who is conducting this research for the partial fulfillment of her specialty in Obstetrics and Gynecology in AAU. We are trying to assess of the contraception use in non-communicable chronic medical illness among reproductive age women of having follow up in TASH, ZMH and SPMMC.

Purpose: I am hopeful that this research will benefit all who will have noncommunicable chronic disease. I will provide research results to concerned body for intervention.

Procedure: To assess of the contraception use in non-communicable chronic medical illness among reproductive age women of having follow up in TASH, ZMH and SPMMC. If you are willing to participate in this project, you need to understand and say „yes" on the agreement form.

Risk/ Discomfort: By participating in this research project, you may feel that it has some discomfort especially on Spending time about 30 minutes. We hope you will participate in the study for the sake of the Benefit of the research result. I am sure there is no risk in participating in this research project.

Benefits there may not be direct benefit to you but your Participation is likely to help us in assessment of the contraception use in non-communicable chronic medical illness among reproductive age women of having follow up in TASH, ZMH and SPMMC.

Confidentiality: The information collect from this research project will be kept confidential and information about you that will be collected by this study will be stored in a file, without your name, but a code number assigned to it. In addition, it will not be revealed to anyone except the principal investigator and will be kept locked with key.

Right to refuse or withdraw: You have full right to refuse from participating in this research. You can choose not to respond to some or all questions if you do not want to give your response. If you have additional questions about the study, please contact Dr Bethel's principal investigator

Annex III: English Version Consent Form

I understand all conditions stated above. I have understood that Participation in this study is entirely voluntarily. I have been told that my answers to the questions will not be given to anyone else and no reports of this study ever identify me in any way Therefore, I am ready and willing to participate in this study.

If respondent does not agree to be interviewed thanks them and go to the next respondent

If respondent say YES continue

Checked by:

Supervisor Name _____ signature_____

Date_____/_____/____E.C.

Time Interview Started: Hour: _____ Minute: _____

Questionnaire No_____

Time Interview Ended: Hour: _____ Minute: _____

Date _____/_____/____ ____E.C. signature_____

S..No	**Variable**	**Characteristics**	**Skip**

Questionnaire

Part I. Sociodemographic characteristics

1.	Age of the study participants	In year_____	
2.	Residence	I. Rural II. Urban	
3.	Religion	I. Orthodox II. Muslim III. Protestant IV. Catholic V. Others specify_____	
4.	Educational status	I. Cannot read and write II. Read and write III. Primary IV. secondary V. College or university	
5.	Women occupation	I. Housewife II. Merchant III. Daily laborer IV. Government employee V. Private employee VI. Others, specify_____	
6.	Husband educational status	I. Cannot read and write II. Read and write III. Primary IV. secondary V. College or university	

7.	Husband occupation	I. Merchant II. Government employee III. Daily laborer IV. Farmer V. Others, specify_____	
8.	Family monthly income	in birr_____	
9.	Decision maker on family size (multiple answer is possible)	I. Husband II. Myself III. Husband and wife IV. In laws V. Others specify_____	
10.	Source of information about family planning (multiple answer is possible)	I. Having TV or radio II. Heath provider III. Family IV. Friends V. None	
11.	Family size in the house	In number _____	

Part II. obstetrics and reproductive characteristics

S.no	Characteristics	Variables	Skip
12.	Parity in number	_____	If >1 go to question number 15
13.	Abortion in number	_____	
14.	Number of alive children	_____	
15.	History of Still Birth	I. Yes II. No	

Part III. Chronic medical conditions of the study participants

S.no	Characteristics	Variables	Skip
16.	Type of disease chronic disease (multiple answer is possible)	Cardiac Diabetes Hypertension Asthma Thyroid Others specify _____	if cardiac, go to part V if diabetes go to part V
17.	Duration of follow-up	in years_____, in months_____	
18.	Comorbidity other than the chronic disease	I. Yes II. No	

Part IV. Contraceptive practice of the respondents

S.No	Characteristics	Variables	Skip
19.	Ever counselled about contraceptive	I. Yes II. No	
20.	Current use	I. Yes II. No	If yes go to question number 21 If no go to question number 25
21.	Contraceptive type currently using	I. Pills II. IUCD III. DMPA IV. Norplant V. Tubal ligation VI. Emergency pills VII. Natural method	
22.	Purpose of using contraceptive	I. Spacing between children II. Limiting the number of children III. Because pregnancy is contraindicated due to the disease	
23.	Have you notified your partner about the contraceptive use?	I. Yes II. No	If yes go to question number 24

24.	Does your partner approve of your contraceptive use	I. Approve II. Disapprove	
25.	Reasons for nonuse	I. Fear of side effect II. Not aware of contraceptive III. Husband opposition IV. Infrequent sex V. Religion prohibition VI. Desire for children	
26.	Any plan to get pregnant in the near future	I. Yes II. No	

Part V -This section of the questionnaire will be filled from the charts (to be filled by the interviewer)

For cardiac patients

S.No	**Characteristics**	**Variables**	**Skip**
1.	Type of the cardiac disease	a) Valvular heart disease b) Ischemic heart disease c) Cardiomyopathy d) Others specify_____	
2.	NYHA class	A. 1 B. 2 C. 3 D. 4	
3.	On treatment	A Yes B No	If yes go to question number 4

4.	Type of treatment you got	ırgical edication	
5.	Recent echo ejection fraction result	_____	

For Diabetic patients

S.No	**Characteristics**	**Variables**	**Skip**
1.	Type of the diabetes	a. Type I b. Type II	
2. .	On treatment	A Yes B No	If yes go to question number 3
3.	Type of treatment you got	a. Injection b. per os	
4.	Recent HbA1c level	_____	
5.	Any complication	a. yes b. no	If yes go to question number 6
6.	Type of complication	a. cardiac b. cerebrovascular c. renal d. retinopathy e. neuropathy f. others specify_____	