



**UTILIZATION OF PRECONCEPTION CARE AND ASSOCIATED
FACTORS AMONG PREGNANT WOMEN ATTENDING ANTE
NATAL CARE SERVICE IN PUBLIC HOSPITALS OF ADDIS ABABA**

BY:

Dr Daniel Tarekegn (Family Medicine Resident)

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Abstract

Background: Preconception care is a set of biomedical, behavioral, and social health interventions provided before conception to improve maternal and child health outcomes. It helps in improving maternal and neonatal outcomes by addressing biomedical, behavioural, and social risk factors before pregnancy begins. However, the utilization of preconception care remains suboptimal particularly in developing countries like Ethiopia. **Objective:** This study aimed to assess the utilization of preconception care and associated factors among pregnant women's attending ANC in public health hospitals in Addis Ababa. **Methods and material:** A facility-based cross-sectional study was conducted at Alert compressive specialized hospital and Zewditu memorial hospital, which both are found in Addis Ababa, the capital of Ethiopia from April 1-September 30, 2025. All pregnant women residing in Addis Ababa town who attend ANC services in public hospitals were the source population. While each individual pregnant woman attending ANC at Alert compressive specialized hospital and Zewditu memorial were study population. Sample size calculated using a single population proportion formula with considering 40 % preconception care utilization, at 95% confidence level, marginal error of 5%, and 10% non-response rate. The final sample size was 406. A self-administered questionnaire used to gather data. The collected data were cleaned, entered and analysed using SPSS. Descriptive statistics such as a frequency distribution and summary measures was calculated. Binary logistic regression analysis was employed and variables that showed statistical significance at ($p\text{-value} < 0.25$) were entered into multivariable logistic regression. **Result:** The study's participants were mostly between the ages of 25 and 34 year (53%), followed by those under 24 year (31%), and those over 35 (16%). Majority of 286(73%) the participant have heard about PCC, but only 83(21%) of them have favourable knowledge about it. Also, only 26% of the participant received PCC service. In addition, age group 25-34 and above 35 [AOR=.18 (95%CI; .10-.33), [AOR=.27 (95%CI; .12- .62], lack of awareness about the PCC service [AOR=.16 (95%CI; .09-.28], being multiparous women [AOR= 3.22 (95%CI; 1.55-6.67) were significantly associated with utilization of preconception care. **Conclusion:** According to this study majority of pregnant women participated do not receive any of preconception care. This low utilization rate is associated with being in age group 25-34 and above 35, lack of awareness about the PCC service, and being multiparous women.

Keywords: Preconception care, Pregnant women, Utilization

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Abbreviations

ANC	Antenatal care
LMICs	Low- and middle-income countries
MCH	Maternal and child health
MMR	Maternal mortality ratio
MOH	Minister of health
PCC	Preconception care
SDG	Sustainable development goal
UNFPA	United nation fund for population of Africa
WHO	World health organization

Acknowledgment

I would like to express my special gratitude to Addis Ababa University, school of medicine, college of health science, who gave me the opportunity to do this research and helped me to learn and to know new things. I would like to forward my heartfelt gratitude to my advisors Dr. Fikremariam Gudeta (assistance professor of family medicine) for his constructive advice and valuable comments in doing this research proposal.

Introduction

Background

A collection of behavioural, social, and biological health interventions given to women and couples prior to conception with the aim of enhancing the health of the mother and the unborn child is known as preconception care (PCC) (1, 2). The World Health Organization (WHO) emphasizes PCC as an essential part of the reproductive health continuum that can lower maternal and child morbidity and mortality by addressing risk factors prior to the onset of pregnancy (2).

Preconception care is centered on promoting birth spacing by increasing the correct and consistent use of effective contraception, improving adolescent health, and preventing adolescent pregnancy(3). The reliable provision of effective contraception is closely linked to the promotion of reproductive planning on a larger scale. To encourage girls and women to plan their families, new strategies must be developed or current ones, like community-based health workers and peer educators, may need to be expanded (4).

In many low- and middle-income nations, including Ethiopia, PCC is still underutilized despite its demonstrated advantages, which include preventing unwanted pregnancies, identifying risk factors early, and encouraging healthy behaviors (5-8). Ethiopia has made great progress in prenatal, delivery, and postnatal care, and maternal and newborn health is a national priority. However, there is still a lack of awareness among women of reproductive age and a limited integration of PCC into standard maternal health services (6, 9-11).

To address these gaps, Ethiopia's Ministry of Health launched the National Preconception Care Guideline in 2024, aiming to standardize and expand PCC services across all levels of the health system (12). Understanding the current level of PCC utilization and the factors influencing its uptake among pregnant women attending antenatal care (ANC) in public hospitals is essential for informing policy, improving service delivery, and enhancing maternal and child health outcomes (12).

Statement of the problem

Globally PCC recognized as a critical intervention for improving maternal and neonatal outcomes by addressing biomedical, behavioural, and social risk factors before pregnancy begins (World Health Organization. However, in many low- and middle-income countries, including Ethiopia, PCC remains underutilized and poorly integrated into routine reproductive health services (9, 13). In Ethiopia, maternal health programs have traditionally focused on antenatal, delivery, and postnatal care, with limited attention to the preconception period (12). Although the Ministry of Health launched the National Preconception Care Guideline in 2024 to standardize PCC delivery, implementation in public hospitals remains inconsistent, and provider-level engagement is low(9, 12, 14-17).

In Ethiopia, the magnitude of PCC utilization is alarmingly low. A recent national meta-analysis reported that only 14.5% of women had accessed any form of PCC prior to pregnancy (15). Even in Addis Ababa, where health service coverage is relatively high, studies show that awareness and utilization of PCC among women of reproductive age are limited (9, 14). Also, some women start pregnancies with untreated chronic illnesses, malnutrition, or unhealthy habits that PCC could have helped them with.

This lower Utilization of PCC among pregnant women is influenced by a range of interrelated factors like socio-demographic characteristics, reproductive history, knowledge and attitudes, and health system related factors (5, 9, 18, 19). Socio-demographic characteristics such as women education levels (15), Marital status also influences PCC (20). Employment and household income (9). Reproductive related factors such as parity (21), adverse pregnancy and birth outcome (20), and also chronic medical conditions (20), use of family planning(9) influence utilization of PCC. Health-care system factors such as PCC service availability, provider involvement, cost, and wait time all have significant effects on utilization (20-22).

Even in metropolitan regions like as Addis Ababa, PCC is still not widely used in Ethiopia, despite its recognised advantages. Informational, behavioral, and institutional limitations restrict real knowledge, positive attitudes, and service acceptance even while awareness is growing. Therefore, this study aimed to assess the utilization of preconception care and associated factors among pregnant women's attending ANC in public health hospitals in Addis Ababa.

Rational of the study

Preconception care is a critical component of maternal health that aims to optimize women's health before conception, thereby reducing the risk of adverse pregnancy outcomes. Despite its proven benefits including prevention of neural tube defects, early detection of chronic conditions, and promotion of healthy behaviors PCC remains underutilized in many low-resource settings, including Ethiopia. National and global health strategies increasingly emphasize the importance of integrating PCC into routine reproductive health services, yet implementation in public hospitals remains fragmented and poorly documented. This study is therefore warranted to assess the magnitude of PCC utilization and identify its associated factors among pregnant women attending antenatal care in public hospitals of Addis Ababa. The findings will contribute to evidence-based planning, support integration of PCC into maternal health programs, and help address preventable causes of maternal and neonatal morbidity and mortality.

Literature review

Preconception care is defined by the World Health Organization (WHO) as a set of biomedical, behavioural, and social health interventions provided before conception to improve maternal and child health outcomes (23). Globally, PCC has gained recognition as a critical strategy for reducing maternal and neonatal morbidity and mortality, especially in settings with high rates of preventable complications (4). Evidence from high-income countries shows that structured PCC programs can significantly reduce the incidence of congenital anomalies, preterm births, and maternal complications such as gestational diabetes and hypertensive disorders (24).

Globally the utilization of PCC among pregnant women remains less than 40% (4). Similarly, PCC remains underutilized in many low- and middle-income awareness and uptake of PCC services were (19, 25, 26). In Africa, particularly low in sub-Saharan Africa due to limited health system integration, poor provider training, and low community awareness the utilization of PCC less than 25% (27, 28). In Ethiopia, the utilization of PCC was lower similar with other developing countries (15). The lack of standardized guidelines and fragmented service delivery further hindered PCC implementation in these regions (24).

In Ethiopia, maternal and neonatal health remains a public health priority, with significant progress made in antenatal, delivery, and postnatal care coverage (29). However, PCC has not been widely integrated into the national health system until recently until recently Ethiopian Ministry of Health launched the National Preconception Care Guideline in 2024, aiming to standardize PCC delivery across all levels of care (12). The guideline outlines essential components of PCC, including screening for chronic diseases, nutritional counselling, family planning, and risk factor modification.

Despite this policy advancement, empirical evidence suggests that PCC utilization remains low. A systematic review and meta-analyse reported that the pooled prevalence of PCC utilization among Ethiopian women was only 18.2%, with significant regional variation(15). The study identified key barriers such as lack of awareness, low educational attainment, and limited provider engagement. In Northwester Ethiopia, only 12.5% of pregnant women had received any form of PCC, and most were unaware of its existence.

Addis Ababa, as the capital city, offers relatively better access to health services compared to rural areas. However, studies show that PCC utilization remains suboptimal even in urban settings. A study conducted in private maternal and child health hospitals in Addis Ababa

found that only 22.3% of pregnant women had utilized PCC services prior to conception (9). Factors positively associated with PCC uptake included higher education, planned pregnancy, previous adverse pregnancy outcomes, and provider counselling.

In public hospitals, the situation appears more concerning, PCC awareness among pregnant women attending ANC in public hospitals was below 30%, and actual utilization was even lower. The study highlighted systemic barriers such as lack of PCC protocols, inadequate provider training, and poor integration of PCC into ANC workflows (14).

This lower Utilization of PCC among pregnant women is influenced by a range of interrelated factors such as socio-demographic characteristics, reproductive history, knowledge and attitudes, and health system related factors. Women with greater education levels are substantially more likely to use PCC services, since education improves health literacy and decision-making capacity (15). Marital status also influences PCC, with married women being more likely to seek it because of planned pregnancies and spousal support (20). Employment and household income influence utilization since financial stability enhances access to health care (9).

Another important factor is reproductive history; women who have experienced multiple births, a history of miscarriage, stillbirth chronic diseases, or pregnancy difficulties in the past are more likely to recognize the significance of PCC and seek care early (20, 21). And also use of family planning is associated with utilization of PCC (9).

Moreover, Knowledge and attitude toward PCC are major predictors of utilization; women who are aware of PCC components and believe it is advantageous are more likely to utilize it. Favourable attitudes, formed via exposure to health education, media exposure boost motivation to use PCC services (9, 20).

Multiple studies have explored the sociodemographic, obstetric, and health system factors associated with PCC utilization in Ethiopia. Educational status consistently emerges as a strong predictor. Women with secondary or higher education are significantly more likely to seek PCC services (15). This may be attributed to better health literacy and access to information.

Pregnancy intention also plays a critical role. Women with planned pregnancies are more likely to engage in health-seeking behaviors, including PCC (20). Conversely, unplanned pregnancies often result in missed opportunities for preventive care. Previous adverse

pregnancy outcomes, such as miscarriage or preterm birth, also motivate women to seek PCC in subsequent pregnancies (18).

Health-care system factors such as PCC service availability, provider involvement, cost, and wait time all have significant effects on utilization. Facilities that include PCC into normal maternal health treatments and provide counselling during family planning or prenatal visits typically report better use rates (20, 21). Health system factors are equally influential. Provider counselling during routine visits significantly increases PCC uptake (14). However, many providers lack training or time to offer PCC, especially in busy public hospitals. The absence of structured PCC programs and poor integration into ANC services further limit access (12).

Although Ethiopia has made strides in maternal health policy, PCC remains underprioritized in practice. The 2024 National Guideline provides a framework, but implementation is uneven across regions and facilities. Public hospitals, which serve the majority of the population, often lack the infrastructure and human resources to deliver PCC effectively (12).

Moreover, there is limited community-level awareness about PCC. Health education campaigns rarely include preconception topics, and women of reproductive age are not routinely targeted for PCC interventions (29). This gap is particularly concerning given the high burden of preventable maternal and neonatal complications in Ethiopia.

Conceptual frame work

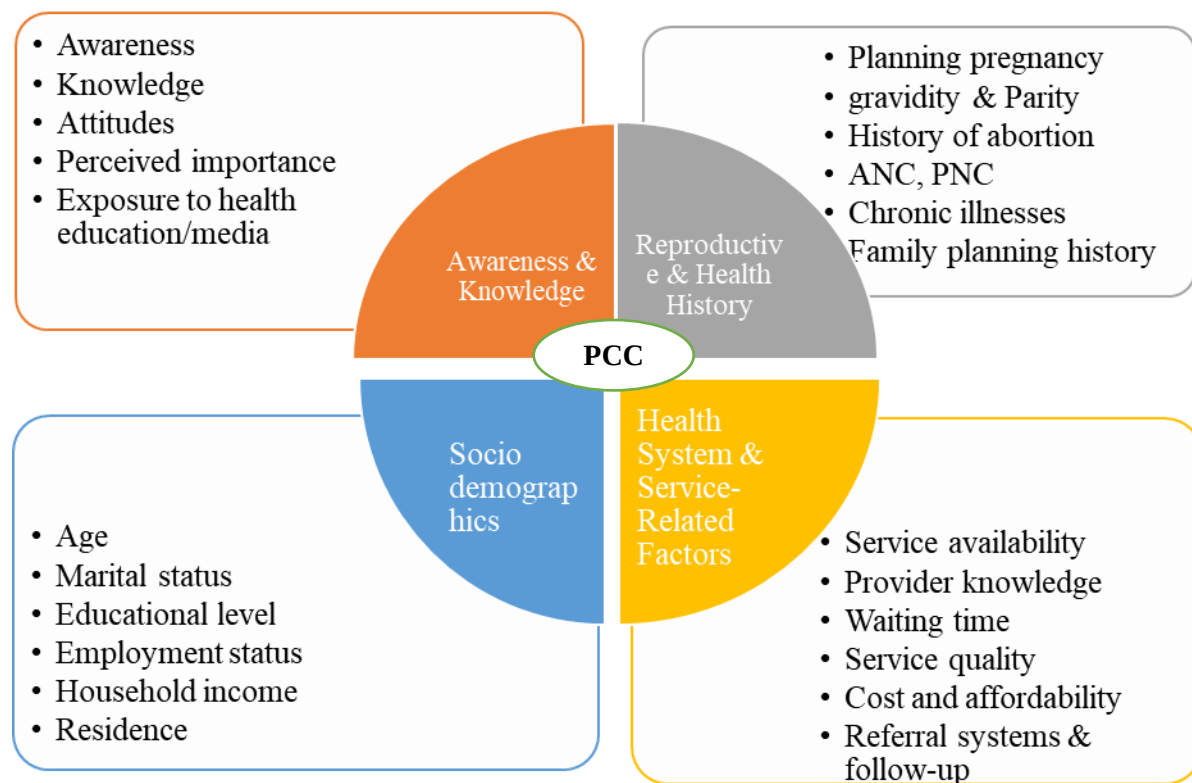


Figure 1 conceptual frame work depicting Utilization of preconception care and associated factors among pregnant women attending ante natal care service in public hospitals of Addis Ababa

Objectives

General objective

To assess the utilization of preconception care and associated factors among pregnant women's attending ANC in public health hospitals in Addis Ababa.

Specific Objectives

To determine the proportion of preconception care utilization among pregnant women attending ANC in public health hospitals in Addis Ababa.

To determine factors associated with preconception care utilization among pregnant women attending ANC in public health hospitals in Addis Ababa.

Methods and Material

Study area and period

This study was conducted at Alert compressive specialized hospital and Zewditu memorial hospital, which both are found in Addis Ababa, the capital of Ethiopia, situated in the central highlands of the country. The total population is over five million and an administrative division into eleven sub-cities (Figure 2). Addis Ababa serves as the political and economic hub of the nation. In comparison to other areas, the city has comparatively greater access to reproductive health services because of multiple public and private healthcare facilities, which includes tertiary hospitals, maternity and child health (MCH) centers, and specialty clinics. The study was conducted in public health hospital found in Addis Ababa, Ethiopia. The study was conducted from April 1-September 30, 2025.

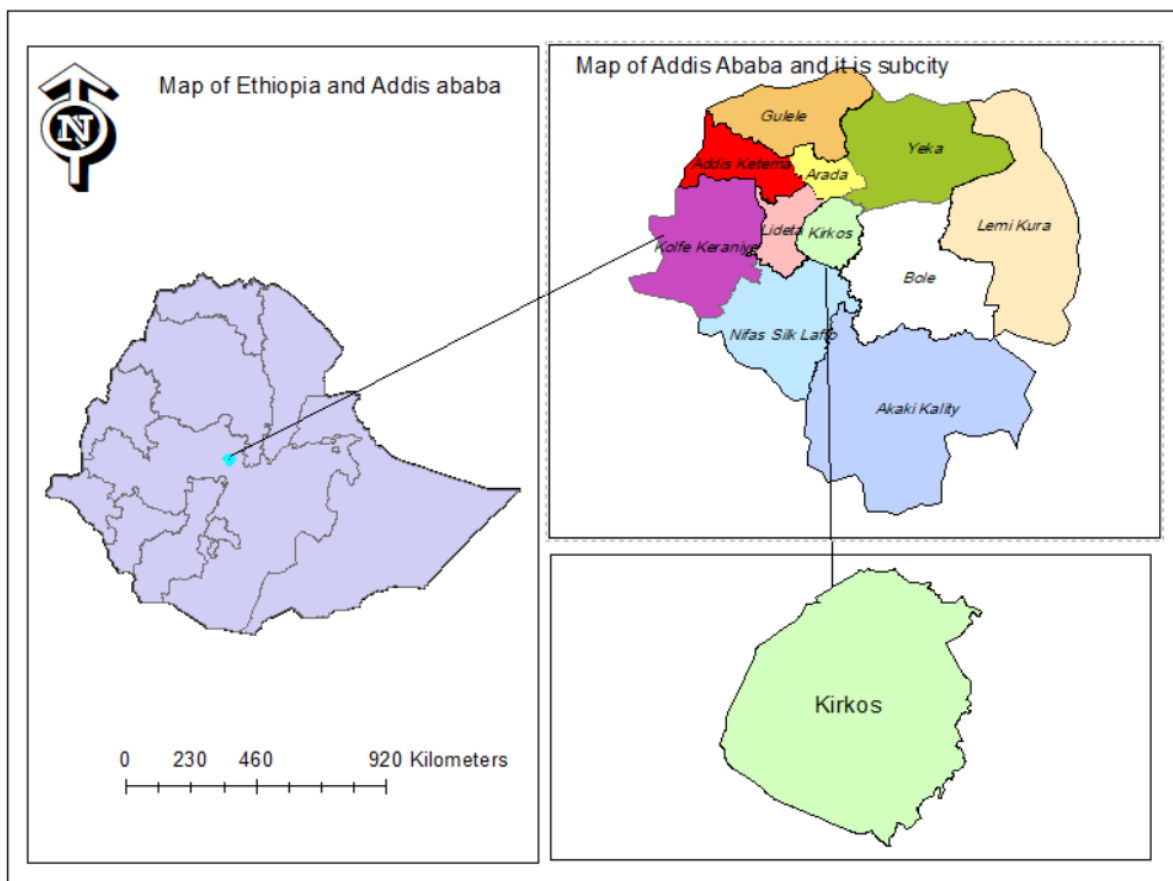


Figure 2 Study area

Study Design

A facility-based cross-sectional study was conducted.

Population

Source population

All pregnant women residing in Addis Ababa town who attend ANC services in government hospitals.

Study population

Pregnant women attending ANC services at Alert comprehensive specialized hospital and Zewditu memorial during the study period

Study unit

Each individual pregnant woman attending ANC at Alert comprehensive specialized hospital and Zewditu memorial

Sample size and sampling Technique

Sample size calculated using a single population proportion formula $= Z^2 p(p-1)/d^2$ with assumptions of 40 % population proportion of preconception care utilization (14), assuming 95% confidence level, marginal error of 5% (0.05) and 10% non-response rate. The final sample size is 406.

Sampling method

A Systematic random sampling method used to select participants.

Inclusion and exclusion criteria

All women of reproductive age group who are either planning pregnancy or have recently become pregnant were eligible for the study. Mothers who are seriously ill or unable to communicate at the time of data collection were excluded from the study

Variables

Dependent variables

Utilization of preconception care

Independent variables

Socio-demographic factors: Age, Educational level, marital status, occupational status, Income level, residence,

Reproductive History: parity, History of miscarriage/stillbirth, number of pregnancies, previous adverse pregnancy outcomes, history of contraceptive use and planning.

Knowledge of preconception care:

Attitude Towards Preconception care:

Operational definitions

Utilization of preconception care

The pregnant women considered to have utilized PCC service if she have received at least one of the following components of preconception care before pregnancy: counselling, disease screening and treatment, folic acid, vaccines, nutrition counselling/changing their diet, cessation of alcohol drinking, cessation of smoking, or creating a healthy environment (advice, treatment, and lifestyle modification) (9, 30).

Favourable Knowledge about PCC: participant who scored above 50% of the knowledge question (31, 32).

Data collection Methods and material

A self-administered, semi-structured questionnaire that was adapted from earlier related literature used to gather data from pregnant women after ANC. To ensure consistency, the questionnaire was initially developed in English and then translated into Amharic, the local language, by experts in both languages. Information on sociodemographic traits, knowledge of PCC, use of PCC before the current pregnancy, and factors influencing PCC use were all collected through the questionnaire.

Data quality assurance

Before the data was actually collected, the questionnaire was pretested on 5% of the sample at Addis Ababa healthcare facilities. Based on the results of the pertest, the questionnaire was modified as needed.

Data processing and analysis

The collected data were cleaned, entered and analysed using SPSS. Descriptive statistics such as a frequency distribution table, graph, and summary measures was calculated to explain the study population in relation to pertinent variables. Binary logistic regression analysis was employed to examine the statistical association between utilization of preconception care and every single independent variable. Variables that showed statistical significance during bivariable analysis at ($p\text{-value} < 0.25$) were entered into multivariable logistic regression to identify statistically significant variables. Multicollinearity was tested by using the variance

inflation factor and tolerance test. The Hosmer-Lemeshow test was used to check the model fitness. Adjusted odds ratios (AOR) with 95% CI were estimated to assess the strength of associations and statistical significance was declared at a p-value < 0.05.

Ethical consideration

The Addis Ababa University research review board approved the study also a formal permission letter, obtained from health bureau thorough justification of the study's objectives. Instead of recording the patients' names, a code will be assigned to each card in order to protect the privacy of their data.

Dissemination of result

The final thesis result will be disseminated to Addis Ababa University social and public health unit, Tikur Anbessa Specialized Hospital administrative office.

Result

Sociodemographic characteristics the participants

The study's participants were mostly between the ages of 25 and 34 (53%), followed by those under 24 (31%), and those over 35 (16%). 29% of people were not formally educated, whereas 23% had finished elementary school, 26% had finished secondary school, and 22% had finished university. Among occupations, more than half (52%) were merchants, 31% were housewives, and 18% worked for the government. Just 7% of respondents reported having a higher income, while 33% were in the middle-income range and 61% of respondents were in the lower income range. These demographic trends offer crucial background information for understanding differences in the use of health services (Table 1).

Table 1 The sociodemographic characteristics of pregnant women attending ANC in public hospital of Addis Ababa

		Count	Column N %
Age	< = 24	121	31%
	25-34	210	53%
	> = 35	63	16%
Marital status	Currently mired	310	79%
	Currently not married	84	21%
Educational status	No formal education	114	29%
	Primary education	92	23%
	Secondary education	101	26%
	Tertiary education	87	22%
Occupation	Government employer	69	18%
	Merchant	203	52%
	House wife	122	31%
Monthly income	Lower	239	61%
	Middle	129	33%
	Higher	26	7%

Obstetric and medical characteristics of the study participants

The majority of study participants (58%) reported having experienced one pregnancy, while 21% had two and 20% had three pregnancies. Regarding number of living children, 44% had two children, 34% had one, and smaller proportions had three (7%), four (6%), or none (9%). Most respondents (77%) had a history of previous pregnancies, whereas 23% were pregnant for the first time. Additionally, only 7% reported a history of abortion or stillbirth, with the remaining 93% having no such history. These reproductive health characteristics provide important context for understanding patterns of preconception care utilization (Table 2).

Table 2 Obstetric and medical characteristics of pregnant women attending at public health Hospital ANC at Addis Ababa

		Count	Column N %
number of pregnancies	Primi	249	63%
	multi	70	18%
	grand multi	75	19%
number of children alive	Nuli	230	58%
	Prmi	84	21%
	Multi	80	20%
do you have previous pregnancies	yes	304	77%
	no	90	23%
history of abortion or still birth	yes	29	7%
	no	365	93%

Awareness and Knowledge of participant regarding preconception care

In this study 286(73%) of the participant have heard about PCC, but only 83(21%) of them have favourable knowledge about it. Regarding their source of information majority mention social media 142(36%), health institution 72(18%), and 48 (12%) heard from school (Table 3).

Table 3 Awareness and Knowledge of participant regarding preconception care

		Count	Column N %
Information about	Yes	286	73%
	No	108	27%
Source of information	Health institution	72	18%
	Social media	142	36%
	Friend/family	23	6%
	School	48	12%
Knowledge about PCC	favourable	83	21%
	Unfavourable	311	79%

Utilization of preconception care

In this study only 26% of the participant received PCC service which shows gap in preventive maternal health services. Among those utilized 3% had undergone screening and treatment for sexually transmitted infections, 7% had received general medical check-ups, 7% had received folic acid supplements, 5% had received nutrition counselling, 4% had received general or reproductive health counselling, and only a minority had accessed certain preconception care components (Figure 3).

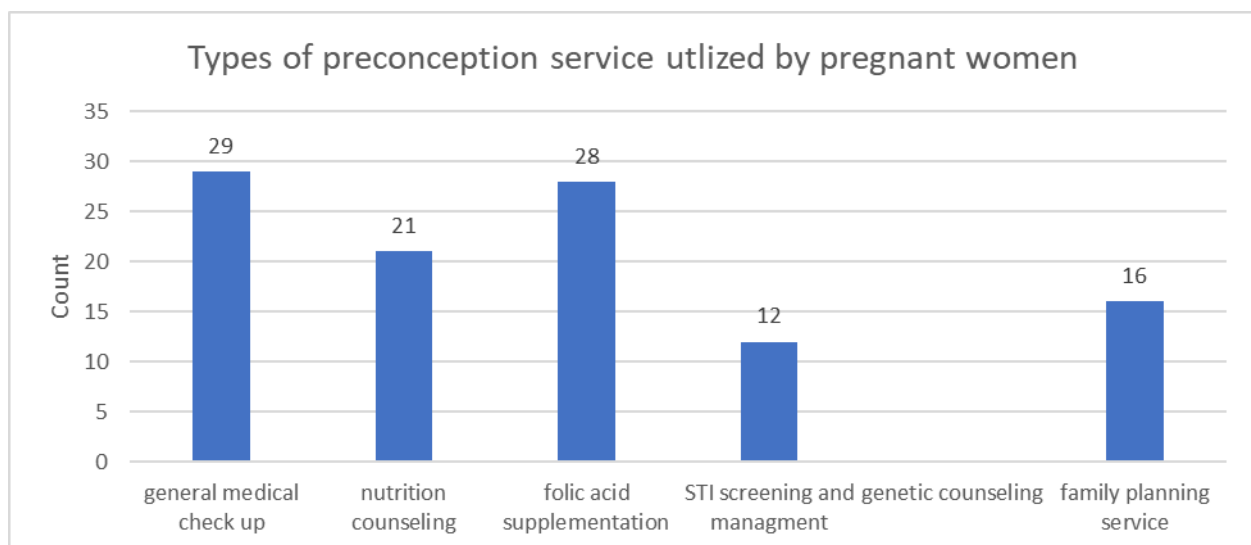


Figure 3 Type of Preconception Care service utilized by pregnant women attending ANC in public Hospital at Addis Ababa

Factors associated with utilization of preconception care

In this study the odds of utilization of PCC among pregnant women in age group 25-34 and above 35 is lowered by 82% and 73% [AOR=.18 (95%CI; .10-.33], and [AOR=.27 (95%CI; .12- .62] respectively as compared to those with age group less than or equals to 24 year. Similarly, the odds of lack of utilization of PCC among pregnant women is reduced by 84% in pregnant women who lacks awareness about the PCC service [AOR=.16 (95%CI; .09-.28]. Moreover, the odds of utilization of PCC among pregnant women is 3.22 times higher among multiparous women as compared to nulliparous pregnant women [AOR= 3.22 (95%CI; 1.55- 6.67].

Table 4 Bivariable and multivariable logistic regression analysis of factors affecting utilization of preconception care among pregnant women having ANC in public hospital in Addis Ababa

		PCC service		COR, 95% CI	AOR, 95% CI
		Not	Utilized		
Age	< = 24	67	54	1	1
	25-34	172	38	.27(.16, .45)*	.18(.10, .33)**
	> = 35	49	14	.35(.17, .70)*	.27(.12, .62)**
Marital status	Currently married	236	74	1	
	Currently not married	52	32	1.96 (1.17, 3.28)	
Educational status	No formal education	83	31	1	1
	Primary	65	27	1.11(.60,2.04)	
	Secondary	76	25	.88(.47, 1.62)	
	Tertiary	64	23	.96(.51,1.80)	
Occupation	Gov't employed	46	23	1	1
	Merchant	152	51	.67(.37, 1.21)	
	House wife	90	32	.71(37, 1.35)	
Monthly income	Lower	177	62	1	1
	Middle	95	34	1.02(.62, 1.66)	.75(.14, 1.36)
	Higher	16	10	1.78(.76, 4.13)*	2.01(.76, 5.29)
Gravidity	Primi	183	66	1	
	Multi	55	15	.75 (.40, 1.42)	
	Grand multi	50	25	1.38 (.79, 2.41)	
Parity	Nnulli para	168	62	1	1
	Prmi para	67	17	.68(.37, 1.26) *	.87(.41. 1.82)
	Multi para	53	27	1.38(.79, 2.38) *	3.22(1.55, 6.67)**
Planned pregnancy	Yes	231	73	1	1
	No	57	33	1.82(1.10, 3.03) *	1.76(.89, 3.46)
Abortion history	Yes	22	7	1	1
	No	266	99	1.17(.48, 2.82)	
Knowledge about PCC	Favourable	37	46	1	1
	Unfavourable	251	60	0.19(.11, .32)*	.16(.09, .284) **
Discussed	Yes	216	81	1	1
PCC service	No	72	25	1.08(.64, 1.82)	.92(.55, 1.56)

Discussion

In this study only 26% of the participant received PCC, and also from those received the PCC service majority 7% had received folic acid supplements, 5% had received nutrition counselling, 4% had received general or reproductive health counselling, and 3% had undergone screening and treatment for sexually transmitted infections. In addition to this the multiple logistic regression analysis showed that age group and lack of awareness reduced utilization of PCC while being multi para increased it.

In this study 73% of the participant have heard about PCC, but only 21% of them have favourable knowledge about PCC. This shows the information provided to women about PCC is not sufficient to grasp favourable knowledge regarding PCC. This finding is in line with similar studies in Ethiopia and abroad (10, 22, 31-33). This suggests that a new culture specific and tailored mechanism should be designed to improve awareness and knowledge of women regarding PCC (34, 35).

The lower rate of favourable knowledge of pregnant women about PCC is partly attributed to uncontrolled information from social media as majority of the participant received (36%) the information from social media, while (18%) receive from health institution and the remaining (12%) heard from school. This also in line with similar studies in Ethiopia (10, 15). Therefore, implementing the nationally recommended facility and school based PCC education to reach the target group is important (12).

In this study only 26% of the participant utilized PCC service before their recent pregnancy; the finding is consistent with similar studies and meta-analysis report from national and African countries (7, 15, 36). Also, because of increased exposure to reproductive health messages, better urban health infrastructure, and higher educational attainment the current finding showed better utilization of PCC among pregnant women in Addis Ababa when compared with other studies report from different regions of Ethiopia (6, 8, 21, 37, 38).

However, the finding is lower when compared with studies conducted in Addis Ababa among pregnant women attending ANC in private facilities (9). This result difference could be attributed to the population studied because those participants seeking maternal health care service have better follow up during their pregnancy than those who were seeking from public health hospitals. Moreover, the current finding is far below the study finding from Kenya which reported 40% of pregnant women utilized PCC before their recent pregnancy (39).

Therefore, this finding of the current study indicates that PCC is still hardly used in Ethiopia, even in the capital cities, despite being widely acknowledged as a critical approach for enhancing maternal and new-born outcomes by addressing modifiable risk factors prior to conception (4, 12, 23, 40).

Moreover, the current study identified that, being in age group 24-34 year and above 35 years reduced the odds of PCC service utilization among pregnant women by 82% and 73% respectively. This result is in line with similar study and meta-analysis report in Ethiopia indicating that younger women, especially those under 24, are more likely to use preconception health services (15, 20). This could be because they have been exposed to increased anticipated stress and anxiety related with pregnancy, more health education, interact with reproductive health programs more frequently, or engage in more health-seeking behaviour (10).

Furthermore, lack of favourable knowledge about PCC reduced the odds of PCC service utilization by 84 % as compared to those who have favourable knowledge about PCC regarding the service. This finding is consistent similar studies in Ethiopia (15). This could be due to the fact that informed and knowledgeable women regarding the benefit, the type, and the place where to get PCC were more likely to utilize PCC (34).

In addition, being multi para increased the odds of PCC service utilization 3.22 times as compared to those nulli parous pregnant women. This is may be due to previous pregnancy experience may improve maternal health-related awareness, perceived need, and health-seeking behaviour. The finding is in line with similar studies in Ethiopia (15, 20, 30). Similar trends have been observed in LMICs globally (41). However, this finding contradicts with similar studies in Ethiopia which reported lack of association between utilization of PCC and parity; and nulliparous women may occasionally exhibit more participation because of anticipatory worries (8, 14).

Limitation of the study

Although this study provides useful information about the magnitude of awareness, knowledge and utilization of PCC among pregnant women in Addis Ababa, there were some potential limitations. First, due to the cross-sectional design causal relationship between variables may face chicken egg dilemma. Second, data were collected through self-administered questionnaires which might lead social desirability and recollection bias. However, to minimize the limitation researcher trained data collectors, protected interview privacy and employed neutral language to reduce this. However, a useful picture of PCC dynamics in an urban Ethiopian setting is provided because Addis Ababa's heterogeneous urban population and extensive service coverage.

Conclusion

This study found that only quarter of pregnant women receiving antenatal care in Addis Ababa's public hospitals utilized PCC before their recent pregnancy, indicating a significant gap in the use of PCC services. The most frequently used services among PCC participants were folic acid supplementation and general medical check-ups (each 7%), followed by nutrition counselling (5%), general or reproductive health counselling (4%), and screening and treatment for sexually transmitted infections (3%). Also, age group 24-34, above 35, unfavourable knowledge regarding PCC significantly reduced the odds of Utilization of PCC, while being multiparous significantly associated with higher odds of utilization of PCC.

Recommendation

These results demonstrate how urgently Ethiopia's public health system needs to improve PCC delivery through enhanced provider training, service integration, and awareness initiatives. Improving maternal and neonatal health outcomes requires addressing age-related disparities, increasing outreach to new mothers, and broadening access to comprehensive PCC packages.

Therefore, the MOH should put effort in the operationalization of the national PCC guideline by integrating the ongoing maternal and child health program and other health service at all level to minimize the missed opportunity of PCC. In addition, developing national PCC communication strategies to improve the quality and content of digital communications, especially on social media platform.

Reference

1. WHO. Preconception care: Maximizing the gains for maternal and child health. Geneva 2022.
2. WHO. Preconception care – Regional Expert Consultation Report. 2014.
3. Mekonnen BD, Tsega SS. Association between preconception care and family planning and previous adverse birth outcomes in Ethiopia: systematic review and meta-analysis. *BMJ Open*. 2024;14(5):e078299.
4. Dean SV, Lassi ZS, Imam AM, Bhutta ZA. Preconception care: promoting reproductive planning. *Reprod Health*. 2014;11 Suppl 3(Suppl 3):S2.
5. Getu T, Eliso M, Lodebo M, Beraku T, Getaneh T, Anlay EA, et al. Preconception care practice among pregnant women attending antenatal care at Wachemo University, Nigist Eleni Mohammed Memorial Comprehensive Specialized Hospital, southern Ethiopia, 2022: a mixed-methods study. *Frontiers in Global Women's Health*. 2025;Volume 6 - 2025.
6. Getu T, Eliso M, Lodebo M, Beraku T, Getaneh T, Anlay EA, et al. Preconception care practice among pregnant women attending antenatal care at Wachemo University, Nigist Eleni Mohammed Memorial Comprehensive Specialized Hospital, southern Ethiopia, 2022: a mixed-methods study. *Front Glob Womens Health*. 2025;6:1569410.
7. Aweke MN, Fentie EA, Agimas MC, Baffa LD, Shewarega ES, Belew AK, et al. Folic acid supplementation during preconception period in sub-Saharan African countries: A systematic review and meta-analysis. *PLoS One*. 2025;20(1):e0318422.
8. Asresu TT, Hailu D, Girmay B, Abrha MW, Weldearegay HG. Mothers' utilization and associated factors in preconception care in northern Ethiopia: a community based cross sectional study. *BMC Pregnancy Childbirth*. 2019;19(1):347.
9. Girma A, Bedada A, Kumbi S. Utilization of preconception care and associated factors among pregnant women attending ANC in private MCH Hospitals in Addis Ababa, Ethiopia. *BMC Pregnancy and Childbirth*. 2023;23(1):649.
10. Ayele AD, Belay HG, Kassa BG, Worke MD. Knowledge and utilisation of preconception care and associated factors among women in Ethiopia: systematic review and meta-analysis. *Reprod Health*. 2021;18(1):78.
11. Zeleke AM, Tassew WC, Assefa GW, Ferede YA. Healthcare providers' preconception care practice and associated factors in Ethiopia: a systematic review and meta-analysis. *Front Health Serv*. 2025;5:1226206.
12. FMOH. National Preconception Care. Ensuring a risk-free conception experience. Addis Ababa: Federal Ministry of Health 2024.
13. Tekalign T, Lemma T, Silesh M, Lake EA, Teshome M, Yitna T, et al. Mothers' utilization and associated factors of preconception care in Africa, a systematic review and meta-analysis. *PLoS One*. 2021;16(7):e0254935.
14. EN G, DB D. Perinatal factors affecting knowledge and utilization of preconception care among pregnant women in Addis Ababa: A cross-sectional study. *MJH*. 2022;1.
15. Abneh AA, Getahun WT, Agmassie GA, Gelaw SS, Kassie TD. The magnitude of preconception care utilization and associated factors among women in Ethiopia: systematic review and meta-analysis, 2024. *BMC Pregnancy Childbirth*. 2025;25(1):259.
16. Abayneh H, Wakgari N, Ganfure G, Bulto GA. Knowledge, attitude, and practice of preconception care and associated factors among obstetric care providers working in public health facilities of West Shoa Zone, Ethiopia: A cross-sectional study. *PLoS One*. 2022;17(8):e0272316.
17. Demsew HD, Ebabey A, Tsehay W, Addis NA, Nigusie A, Arefayne NR, et al. Preconception Care: Assessing Knowledge, Attitudes, and Practices among Physicians at a Tertiary Hospital in Ethiopia. *AJP Rep*. 2025;15(3):e129-e41.

18. Wegene MA, Gejo NG, Bedecha DY, Kerbo AA, Haggisso SN, Damtew SA. Utilization of preconception care and associated factors in Hosanna Town, Southern Ethiopia. *PLOS ONE*. 2022;17(1):e0261895.
19. Adjei TK, Adarkwa OK, Ansu-Yeboah E, Ofori E, Arhin B, Tawiah A, et al. Preconception care utilization and pregnancy outcomes among postpartum women at Komfo Anokye Teaching Hospital, Ghana. *Front Reprod Health*. 2025;7:1509737.
20. Fetena N, Negash A, Kebede A, Sertsu A, Nega A, Nigussie K, et al. Utilization of preconception care and associated factors among pregnant mothers in Fiche Town, Central Ethiopia: a community-based cross-sectional study 2021. *Frontiers in Global Women's Health*. 2023;Volume 4 - 2023.
21. Desalegn SY, Mastewal Belayneh Aklil, Anteneh TA, Temesgan WZ. Determinants of Utilization of Preconception Care among Pregnant Women Attending Antenatal Care in Gondar Town, Northwest Ethiopia: A Multicenter Study. *JOJ Nursing & Health Care*. 2023.
22. Ukoha WC, Mtshali NG, Adepeju L. Current state of preconception care in sub-Saharan Africa: A systematic scoping review. *Afr J Prim Health Care Fam Med*. 2022;14(1):e1-e11.
23. WHO. Preconception care to reduce maternal and childhood mortality and morbidity: policy brief. Geneva 2013.
24. Mason E, McDougall L, Lawn JE, Gupta A, Claeson M, Pillay Y, et al. From evidence to action to deliver a healthy start for the next generation. *The Lancet*. 2014;384(9941):455-67.
25. Hernández-Martínez N, Pérez-Chablé AP, Cárdenas-Villarreal VM, Cruz-Chávez NE, Santos-Flores JM. Knowledge and practice of preconception care among women in southeastern Mexico. *Rev Cuid*. 2024;15(2):e3512.
26. Morema EN, Ouma C, Egessa R, Nyachiro L, Shisanya M. Self-reported Provision of Preconception Care and Associated Factors. *East Afr Health Res J*. 2024;8(1):58-66.
27. Okemo JK, Kamya D, Mwaniki AM, Temmerman M. Determinants of preconception care among pregnant women in an urban and a rural health facility in Kenya: a qualitative study. *BMC Pregnancy and Childbirth*. 2021;21(1):752.
28. Woldeyohannes D, Tekalegn Y, Sahiledengle B, Hailemariam Z, Erkalo D, Zegeye A, et al. Preconception care in sub-Saharan Africa: A systematic review and meta-analysis on the prevalence and its correlation with knowledge level among women in the reproductive age group. *SAGE Open Med*. 2023;11:20503121231153511.
29. EPHI. STRATEGIC PLANNING AND MANAGEMENT-III (SPM-III) 2020/21-2029/3. 2020.
30. A Y, M T, S A. Preconception Care Utilization and its Associated Factors among Pregnant Women in Adet, North-Western Ethiopia (Implication of Reproductive Health). *Journal of Women's Health Care*. 2018.
31. Teshome F, Kebede Y, Abamecha F, Birhanu Z. What do women know before getting pregnant? Knowledge of preconception care and associated factors among pregnant women in Mana district, Southwest Ethiopia: a community-based cross-sectional study. *BMJ Open*. 2020;10(7):e035937.
32. Kassa A, Yohannes Z. Women's knowledge and associated factors on preconception care at Public Health Institution in Hawassa City, South Ethiopia. *BMC Research Notes*. 2018;11(1):841.
33. Alemu AA, Bitew MS, Zeleke LB, Sharew Y, Desta M, Sahile E, et al. Knowledge of preconception care and its association with family planning utilization among women in Ethiopia: meta-analysis. *Scientific Reports*. 2021;11(1):10909.

34. Craig A, Mabetha K, Stephenson J, Schoenaker D, Norris SA. Preconception health knowledge, attitudes and behavioural intentions among adults: a multi-country study. *Reproductive Health*. 2025;22(1):66.
35. Aynalem YA, Paul P, Kung JY, Hussain A, Lassi Z, Meherali S. Understanding preconception care: a scoping review of knowledge, attitudes and practices among reproductive age individuals, healthcare workers and stakeholders in low- and middle-income countries. *BMJ Open*. 2025;15(6):e099143.
36. Setegn Alie M, Alemu T, Alemayehu D, Negesse Y, Gebremariam A. Preconception care utilization and associated factors among reproductive age women in Mizan-Aman town, Bench Sheko zone, Southwest Ethiopia, 2020. A content analysis. *PLOS ONE*. 2022;17(8):e0273297.
37. Demisse TL, Aliyu SA, Kitila SB, Tafesse TT, Gelaw KA, Zerihun MS. Utilization of preconception care and associated factors among reproductive age group women in Debre Birhan town, North Shewa, Ethiopia. *Reprod Health*. 2019;16(1):96.
38. Habte A, Dessu S, Haile D. Determinants of practice of preconception care among women of reproductive age group in southern Ethiopia, 2020: content analysis. *Reproductive health* [Internet]. 2021 2021/05//; 18(1):[100 p.]. Available from: <http://europepmc.org/abstract/MED/34020669>

<https://reproductive-health-journal.biomedcentral.com/track/pdf/10.1186/s12978-021-01154-3>

<https://doi.org/10.1186/s12978-021-01154-3>

<https://europepmc.org/articles/PMC8139064>

<https://europepmc.org/articles/PMC8139064?pdf=render>.
39. John M, Mark W, M E. Utilization of Preconception Care at Primary Healthcare Facilities in Kiambu County, Central Kenya. *International Journal of Research Publication and Reviews*. 2025.
40. Aynalem YA, Paul P, Olson J, Lassi ZS, Meherali S. Preconception Care: A Concept Analysis of an Evolving Paradigm. *J Adv Nurs*. 2025;81(7):3674-91.
41. Cohen MA, Kumar S, Hathaway M. Global Preconception and Contraception Care: Using a Life-Course Approach to Improve Health Outcomes in Lower-Resource Settings. *Obstetrics and Gynecology Clinics*. 2022;49(4):647-63.

Annex 1: Questionnaires

Socio-Demographic characteristics

1. Age: -----
2. Marital status: 1. Single 2. Married 3. Divorced 4. Widowed
3. Educational level: 1. No formal education 2. Primary 3. Secondary 4. Tertiary
4. Occupation: -----
5. Monthly income:
6. Place of residence: 1. Urban 2. Rural

Section B: Reproductive History

1. Have you ever been pregnant? 1. Yes 2. No
2. Number of pregnancies: -----
3. Number of living children: -----
Do you have any history of miscarriage or stillbirth? 1. Yes 2. No
5. Do you plan to have more children in the future? 1. Yes 2. No

Awareness and knowledge of preconception care

1. Have you ever heard of preconception care? 1. Yes 2. No
2. If yes, where did you hear about it? 1. Health facility 2. Media 3. Friends/family 4. School 5. other:-----
1. Preconception care should be given before pregnancy?
2. Preconception care meant to improve the health of both mother and baby
3. What services do you think are included in the preconception care?(check all that apply): i. Health screening ii. Nutritional advice iii. Folic acid supplementation iv. Counseling on family planning v. E.STI screening and management vi. Immunization
4. Women should visit a health facility before becoming pregnant?
5. Should women take folic acid before pregnancy to prevent birth defects?
6. Is it important to screen for chronic diseases before pregnancy? 7. Sexually transmitted infections (stis) be treated before conception? 8. Hiv testing recommended before planning a pregnancy? 9. Should women be vaccinated against rubella before getting pregnant? 10. Smoking before pregnancy harm the baby? 11. Alcohol consumption before pregnancy risky for fetal development? 12. Is poor nutrition before pregnancy linked to complications during childbirth? 13. Being overweight or underweight affect pregnancy outcomes? 14. Preconception care services available at health facilities? 15. Health professionals routinely provide information about pcc during visits? 16. Is it necessary to plan pregnancy with the help of a health provider?

Utilization of preconception care

1. have you ever received preconception care services?	
1. Yes 2. No	
2. If yes, which services did you receive? (check all that apply)	1. General health check 2. Nutritional counseling 3. Folic acid supplementation 4. STI testing 5. Genetic counseling 6. Family planning advice
3. Where did you receive preconception care?	1. Hospital 2. Health center 3. Private clinic 4. Other:-----
4. How many times have you used preconception care services? -----	

1. Do you think preconception care is important?	
1. yes 2. not 3. C. not sure	
2. What are the barriers to using preconception care?(check all that apply)	
1. lack of awareness 2. Cost of service 3. Distance to facility 4. Cultural beliefs 5. No time 6. not planning pregnancy 7. G. others: -----	
3. Do you feel healthcare providers are supportive of preconception care?	
1. yes 2. no	
4. Have you ever discussed future pregnancy plans with a health care provider?	
1. yes 2. no	

