COLLEGES OF HEALTH SCIENCES, SCHOOL OF MEDICINE

DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

PREVALENCE AND DETERMINANTS OF UNINTENDED PREGNANCIES AMONG WOMEN ATTENDING ANTENATAL CLINICS IN GOVERNMENT HOSPITALS OF ADDIS ABABA, ETHIOPIA: A CROSS-SECTIONAL STUDY.

A RESEARCH REPORT

PRINCIPAL INVESTIGATOR: DR. FISSEHA ADANE (MD, RESIDENT IN OBGYN AT ADDIS ABABA UNIVERSITY)

ADVISOR: DR. EYASU MESFIN (MD, FRM, FMIS, ASSOCIATE PROFESSOR IN OBGYN, REI SUBSPECIALIST, AAU, CHS)

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DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

PI	Dr. Fisseha Adane (MD, Resident in Obstetrics and Gynecology, AAU, CHS)
Name of Advisors	Dr. Eyasu Mesfin (MD, FRM, FMIS, Associate professor in OBGYN, REI subspecialist, AAU, CHS)
The full title of a research	Prevalence and determinants of unintended pregnancies among women attending antenatal clinics in Government Hospitals of Addis Ababa, Ethiopia: A cross sectional study.
Duration of study	December/ 2022 – June/2023
Study area	Addis Ababa, Ethiopia
Address of investigator	Phone no. +251929248831 Email; hawazf5@gmail.com

Declaration

I, undersign, hereby declare that this research report entitled "**Prevalence and determinants of unintended pregnancies among women attending antenatal clinics in Government Hospitals of Addis Ababa, Ethiopia:**" in line with the requirement of graduate studies was fully undertaken by me under the guidance of my advisors and that I have, to the best of my knowledge and effort, avoided plagiarism or duplication of materials unless and otherwise cited and/or acknowledged and that it has not been so far submitted for any form of research application or consideration.

Dr. Fisseha Adane (MD) _____ _____

Principal investigator Signature Date

I hereby certify that I have read and evaluated this research report relating to "**Prevalence and determinants of unintended pregnancies among women attending antenatal clinics in Government Hospitals of Addis Ababa, Ethiopia:"** under our guidance from its inception up to its current format INCLUDING ETHICAL ISSUES and that it can be submitted to the DRPC for further administrative processing & documentation of the research report by the Department as part of the resident's research undertaking for his partial fulfillment of Specialty in Obstetrics and Gynecology.

Dr. Eyasu Mesifin (MD) _____ _____

1. Advisor Signature Date

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Abstract

Background: Unintended pregnancies are a serious public health concern around the world, since they contribute considerably to negative mother and newborn health, social, and economic outcomes, as well as increasing the risk of maternal and neonatal mortality. Identifying women at risk of unintended pregnancy is critical because it can aid in the development of preventative policies and the design of interventions.

Objective: To assess Prevalence and determinants of unintended pregnancies among women attending antenatal clinics in Government Hospitals of Addis Ababa, Ethiopia:

Method: From December 1, 2022, through February 28, 2023, an institutional-based cross-sectional study was undertaken. A systematic random sampling technique was used to select a sample of 390 participants who attend ANC in five selected government hospitals in Addis Ababa. Data were collected via face-to-face interview using a structured and pre-tested questionnaire. Bivariate and multivariate analyses were made to check the associations among the variables and to control the confounding factors.

Result: The magnitude of unintended pregnancy was 32% (126/390). The multivariable analysis showed that, participants who were unmarried (AOR=13.4, 95%CI=3.43, 51.48), had unable to read and write (AOR=2.9, 95%CI=1.15, 7.79)), and having a history of unintended pregnancy (AOR=4.1, 95%CI=2.46, 6.73) were significantly associated with unintended pregnancy.

Summary and Recommendation: Unintended pregnancy was prevalent in this study to a significant degree. It was substantially correlated with being unmarried, having low maternal education, and having experienced an unintended pregnancy in the past. Strengthening health education programs to the reproductive age group women, information and counseling reproductive age women about unintended pregnancy and preventive methods, educating and empowering women is important.

Keywords: Unintended pregnancies, Prevalence, Determinants, London Measure of unintended pregnancy, Addis Ababa Ethiopia.

Abbreviations and Acronym

ANC Antenatal Care

AOR Adjusted Odds Ratio

BMI Body Mass Index

CI Confidence Interval

CDC Centre for Disease and Control and Prevention

EDHS Ethiopian Demographic Health Survey

FP Family planning

LMUP London Measure of unintended pregnancy

MDHS Mini Demographic Health survey

MCH Maternal and Child Health

MOH Ministry of Health

OR Odds Ratio

STI Sexually Transmitted Infections

WHO World Health Organization

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1. Introduction

1.1 Background

Unintended pregnancies are pregnancies that are reported to have been either unwanted (i.e., they occurred when no children, or no more children, were desired) or mistimed (i.e., they occurred earlier than desired). Pregnancies, on the other hand, are described as intended if they occur at the "proper time" or later than expected (because of infertility or difficulties in conceiving).(1)Unintended pregnancies have significant consequences for women's personal lives, family, and society.(2) Unintended pregnancy is a serious public, clinical, and social health issue around the world because it frequently leads to induced abortion and complications, which are frequently caused by a lack of abortion care facilities, especially in resource-constrained areas.(3)

In the years 2010–14, an estimated 44% of pregnancies worldwide were unintended. Between 2010 and 2014, the rate of unintended pregnancies in developed regions fell by 30% (90 percent UI 21–39). Unintended pregnancy rates declined by 16 percent in underdeveloped countries. In low and middle-income nations, 74 million women had unwanted pregnancies, with 25 million unsafe abortions and 47 thousand maternal deaths occurring each year.(2)

Unintended pregnancies were found to be prevalent in 33.9 percent of cases in Sub-Saharan Africa.(4) The overall prevalence of unplanned pregnancy in Ethiopia was 30%. Unwanted and mistimed pregnancy were found to be 12 and 17 percent of the time, respectively. (5) According to the recent study, nearly one-third of pregnant women receiving ANC in Addis Ababa (36.4 percent) had an unintended pregnancy. This implies that one of the primary reproductive health issues in the research area is unintended pregnancy.(6)

Unintended pregnancies have decreased in high-income countries compared to low- and middle-income countries because of poor knowledge of contraceptive use, low socioeconomic status, contraceptive failure, sexual violence, contraceptive shortages, unmarried status, age, religion, number of children, residence, wealth index, contraceptive intention, and first cohabitation age.(7) Globally, it is estimated that just over 40% of pregnancies are unintended, owing to a lack of contraception, inefficient contraception, or method failure. Expanding and strengthening family planning services and options, as well as reaching out to communities and underserved

demographic groups, such as sexually active teenagers and unmarried women, migrants, and poor urban slum-dwellers, can help to reduce unintended pregnancy and induced abortion.(3)

Since 2005, the usage of modern contraceptives among currently married women has consistently increased, rising from 14 percent to 41 percent, according to the MDHS, 2019. Twenty-two percent of currently married women do not have access to contraception. In Ethiopia, 75 percent of all births in the last five years and current pregnancies were wanted at the time of conception, 17% were mistimed, and 8% were unwanted. Contraception aids women in avoiding unintended or undesired pregnancies, as well as dangerous abortions. Contraception also allows women to space their children's deliveries, which is beneficial to both the mother and the child's health.(8,9).

1.2 Statement of the problem

Unintended pregnancy has decreased globally, however there has been a disparity between high-income and low- and middle-income nations, with 65 unintended conceptions per 1,000 women aged 15–44 (30%) and 45 unintended pregnancies per 1,000 women (16%) declining between 2010 and 2014. [2] Despite this general drop and the broad availability of many family planning technologies, the issue continues to be prevalent in Sub-Saharan Africa.(4)

Despite a global drop in unintended pregnancies from 1995 to 2008, induced abortion was used to end half of the unintended pregnancies in 2008. More than half of all abortions are deemed dangerous over the world. Unwanted and untimely deliveries can endanger both the mother and the baby's health.(10) However, the rate of unplanned pregnancies in underdeveloped countries remains significantly greater than in developed countries.(2)

In Sub-Saharan Africa, an estimated 14 million unintended pregnancies occur each year. Unintended pregnancy puts women at risk for a number of things, including unsafe abortion, maternal death, starvation, mental illness, and vertical HIV transmission to children (SSA). Unintended pregnancy risks a woman for unintended childbearing, which is linked to a number of negative maternal behaviors and child health outcomes, such as inadequate or delayed prenatal care, smoking and drinking during pregnancy, premature birth, and lack of breastfeeding, as well as negative physical and mental health effects on children.(11)

The most serious effects of unintended pregnancy were unsafe abortion, maternal death, starvation, mental illness, and vertical transmission of HIV to children. These had negative effects on women's quality of life, raised family economic costs, and elevated women's mental stress, all of which contributed to maternal and neonatal illness and mortality.(9)

1.3 Significant of the study

Preventing unintended pregnancies and enhancing maternal health care services are key to lowering maternal mortality rates. A key goal of family planning programs is to reduce the number of unintended pregnancies. To attain this goal, health policymakers must be given information on the prevalence of unintended pregnancies and the factors that contribute to them.

Preventing unintended pregnancies requires the use of effective contraception. Unintended pregnancy must be estimated on a regular basis so that policymakers, researchers, and other stakeholders may assess progress toward assisting women and couples in achieving their reproductive goals. It also assists in demonstrating the importance of contraceptive services as well as the impact of programs and policies on unplanned pregnancies and their outcomes.

Several studies were undertaken in Ethiopia to assess the magnitude of unplanned pregnancy and to discover the factors that influence it. As a result, this research can be used to influence national policymakers, program formulators, and program implementers, as well as to review guidelines for preventing unintended pregnancy and related issues such as unsafe abortion, future fertility problems, unwanted birth, and mother and child morbidity and mortality.

2. Literature review

2.1 Prevalence of unintended pregnancy

Unintended pregnancy is a global issue that has repercussions for women, their families, and society. Various articles speculate on the occurrence of unwanted pregnancy from a global perspective to a country-by-country level, as well as at the institutional level. The rate of unintended pregnancies in poor countries is still significantly greater than in industrialized countries.(2)

Levels across the Globe In 2008, 185 million pregnancies occurred in the developing world, out of a total of 208 million. Nationally representative and small-scale surveys in 80 countries were used to estimate the state of birth planning. Estimates suggest that 41% of the 208 million pregnancies in 2008 were unintended. In industrialized regions, the rate of unintended pregnancies decreased by 29%, whereas in developing regions, it decreased by 20%. Eastern and Middle Africa had the greatest rates of unintended pregnancies, whereas Southern and Western Europe and Eastern Asia had the lowest. Between 1995 and 2008, the global rate of unintended pregnancy decreased by 20%. The decline was greater in the developed world, but just marginally in the developing world.(12)

According to another global research, there were 213 million pregnancies in 2012, up slightly from 211 million in 2008. After a significant drop between 1995 and 2008, the global pregnancy rate declined relatively little from 2008 to 2012. In 2012, 85 million pregnancies were unintended, accounting for 40% of all pregnancies. [10]

Similarly, a study was conducted to reveal global, regional, and subregional trends in unintended pregnancy and its results from 1990 to 2014. Globally, an estimated 44% of pregnancies were unintended in 2010–14, according to the study. In industrialized regions, the rate of unintended pregnancies fell by 30%, whereas in developing regions it fell by 16%.(2)

According to research conducted in the United States, over half (49%) of pregnancies in 2006 were unintended, up significantly from 2001 (48 percent). The number of unintended pregnancies has risen.(11) Another study is being conducted to calculate pregnancy rates for the years 2008 and 2011 based on the intentions of women and girls to become pregnant and the results of such pregnancies, in 2011, less than half of all pregnancies (45%) were unintended,

compared to 51% in 2008. Unintended pregnancy rates among women and girls aged 15 to 44 years old fell by 18% between 2008 and 2011, from 54 per 1000 to 45 per 1000. A shift in the frequency and kind of contraception is a possible explanation for the decrease in the rate of unintended pregnancy. Between 2008 and 2012, evidence suggests that overall usage of any method of contraception among women and girls at risk of unintended pregnancy increased slightly. (13)

According to the most recent national demography and health survey statistics from six South Asian countries, 19.1% of pregnancies were unintended (ranging from 11.9 percent in India to 28.4 percent in Bangladesh).(17) From May to September 2015, 517 women were recruited in six European hospitals for a cross-sectional study. The majority of pregnancies that resulted in birth (83%) were planned, 15% were ambivalent, and 2% were unplanned. (14) Similarly, in the United Kingdom, between September 6, 2010, and August 31, 2012, 5686 women of reproductive age (16–44 years) were included in the pregnancy analysis, giving an annual prevalence estimate for unplanned pregnancy of 15%.(15) In comparison, the case-control study in Turkey had 314 women, 157 women had not planned their pregnancy and 157 had planned their pregnancy out of 314 women who gave birth.(16)

A total of 49 suitable publications with a sample size of 43061 were chosen for a systematic review and meta-analysis on the Prevalence of unwanted pregnancy in Iran. Unwanted pregnancy prevalence in Iran is estimated to be 30.6 percent (CI = 28.1–33.1).(18) Unintended pregnancy was found to be 41 percent and 38 percent in community-based cross-sectional data from Project Koshu, 2011–2016 in Japan, and a hospital-based cross-sectional study in Pakistan, respectively.(19,20)

A multicounty demographic and health survey study. The study combined data from 29 countries in Sub-Saharan Africa from current Demographic and Health Surveys (DHS) conducted between January 1, 2010 and December 31, 2016. Unintended pregnancies accounted for 29.0 percent of all pregnancies in the 29 SSA nations. The percentages ranged from 10.8% in Nigeria to 54.5 percent in Namibia.(21) Furthermore, a systematic evaluation of 29 papers from nine Sub–Saharan African nations revealed that the mean unintended pregnancy rate obtained from this research (33.9%) is slightly lower than the global unintentional pregnancy rate of 40%.(4)

Community-based; the prevalence of unintended pregnancy was 30.2 percent in Sudan, 24 percent in Kenya, 28 percent in Nigeria, 25.3 percent in Gambia, and 32.6 percent in Malawi, according to a cross-sectional survey done in various African nations. (22–26)

According to a Systematic Reviews and Meta-Analyses conducted in Ethiopia in 2012, the overall prevalence of unintended pregnancy was 30%.(5) which is higher than the study which was done as a secondary data analysis on women's dataset from the 2011 Ethiopian Demographic and Health Survey (DHS) from this the overall prevalence of unintended pregnancy was found to be 24%: those who wanted it at a later time and not at all accounted for 17.1% and 6.9%, respectively. (27) But in another systematic review and meta-analysis of 28 studies which was done in different regions of Ethiopia, the overall prevalence of unintended pregnancy in Ethiopia was 28 percent.(28), which is lower than the global and sub-Saharan African rates of unintended pregnancy.

Several studies on the prevalence and determinants of unintended pregnancy in Ethiopia are available. The prevalence of it varies greatly between geographical locations, according to studies, ranging from (the highest in Arsi Negele Woreda 41.5 percent, Jimma 36.5 percent, Gonder 20.6 percent, Debrebrhan 23.5 percent, the lowest in Bahirdar 15.5 percent). (29–33)

In Ethiopia, facility-based cross-sectional research on the prevalence and factors of unintended pregnancy revealed a wide range of prevalence (In Addis Ababa 36.4 percent, Gelemso General hospital, Oromia region 27.1 percent, FHRH, Bahirdar 26 percent).(6,34,35)

2.2 Factors associated with unintended pregnancy

Several studies have reported different predictors of unintended pregnancies, including socio-demographic, socio-economic, and obstetric factors. The determinants of unintended pregnancy also varied across geographical areas in Ethiopia.

Worldwide Unintended pregnancies are caused by a variety of factors, including poverty (lack of resources for child rearing), stigma against unmarried mothers, a cultural preference for sons, competing demands on women's time (such as paid work or school), family size completion, disagreement between spouses about family size, lack of support from one's partner (economic or otherwise), and poor access to family planning services. Discontinuation of contraceptive use due to problems with methods or supplies, side effects, a lack of understanding of the risk of

pregnancy, a partner's opposition to contraceptive use, difficulties accessing contraceptive services and/or supplies, and unexpected changes in life circumstances are all more proximate factors (for example divorce or separation, unemployment, or illness).(12)

According to statistics from a variety of sources, women who are at the extremes of their reproductive age are more likely to have an unintended pregnancy (younger and older ages).(36) Data from six South Asian countries' most recent national demographics and health surveys. Younger women (15–19 years) had a 1.42 times higher likelihood of unintended pregnancies, according to the logistic regression model. Adolescents, on the other hand, were more likely than older women to have experienced a mistimed pregnancy.(17)

In Sub-Saharan African countries, a multi-country analysis of demographic and health surveys was conducted. Women of all other age groups had higher probabilities of unintended pregnancies than women aged 15–19 years. Women in the 40–44 age group had the highest proportion of unintended pregnancies (37.8%), while women in the 25–29 age group had the lowest.(21) Various studies in Ethiopia suggest that women aged 35–49 years have the highest prevalence of unintended childbirth (37 percent), whereas women aged 15–19 years have the lowest prevalence (34 percent) (P 0.001).(5,37,38)

In terms of marital status, Separated, divorced, or bereaved women were more likely to report having experienced an unwanted pregnancy than single, never-married women.(24,25)

Unintended pregnancy is more common in socially disadvantaged women, according to reports from developing countries. Women with lower socioeconomic status, women in rural areas, and women with low decision-making autonomy are more likely to experience unintended pregnancy, lack of decision-making power, and inaccessibility to health facilities.(5,17,36)

The level of education has been considered a strong determinant of unintended pregnancy. According to a 2006 survey from the United States, women with the fewest years of education had the greatest rate of unintended pregnancies, which reduced as the number of years of education increased. Women with no college experience had the highest rate of unintended pregnancies. [11] Women with primary (OR = 0.74, CI = 0.69–0.80) and secondary (OR = 0.71, CI = 0.65–0.77) education had less risks of unintended pregnancies than those with little education, according to research from Sub-Saharan African countries. [21]

Even in Ethiopia, some reports demonstrate that the partner's lower educational status has a significant impact on the rate of unintended pregnancy.(30)

Fertility-related factors play a big role in predicting unintended pregnancies. According to reports from Pakistan, Sub-Saharan African countries, Nigeria, and Ethiopia, the likelihood of unintended pregnancy decreases as the age at the time of marriage increases, and women with more alive children are more likely to experience unintended pregnancy than women with fewer alive children.(20,21,24,31,36)

One of the most critical factors linked to unwanted pregnancy is contraceptive knowledge and use. Unintended pregnancy was substantially connected with having no understanding of contraception, never used family planning methods, inaccessibility to health facilities, low knowledge, and non-use of contraceptives, according to a report from numerous articles.(5,21,28,36)

A Community-Based Cross-Sectional Study in Ethiopia, 2016 Contraceptive failure was the most common reason for unwanted pregnancy, while failure to use Family planning methods was the most common reason for mistimed pregnancy.(32) Unmet needs and unexpected pregnancies are linked to a lack of access to family planning services, which is positively connected with unintended pregnancies.(36)

2.3 Conceptual framework

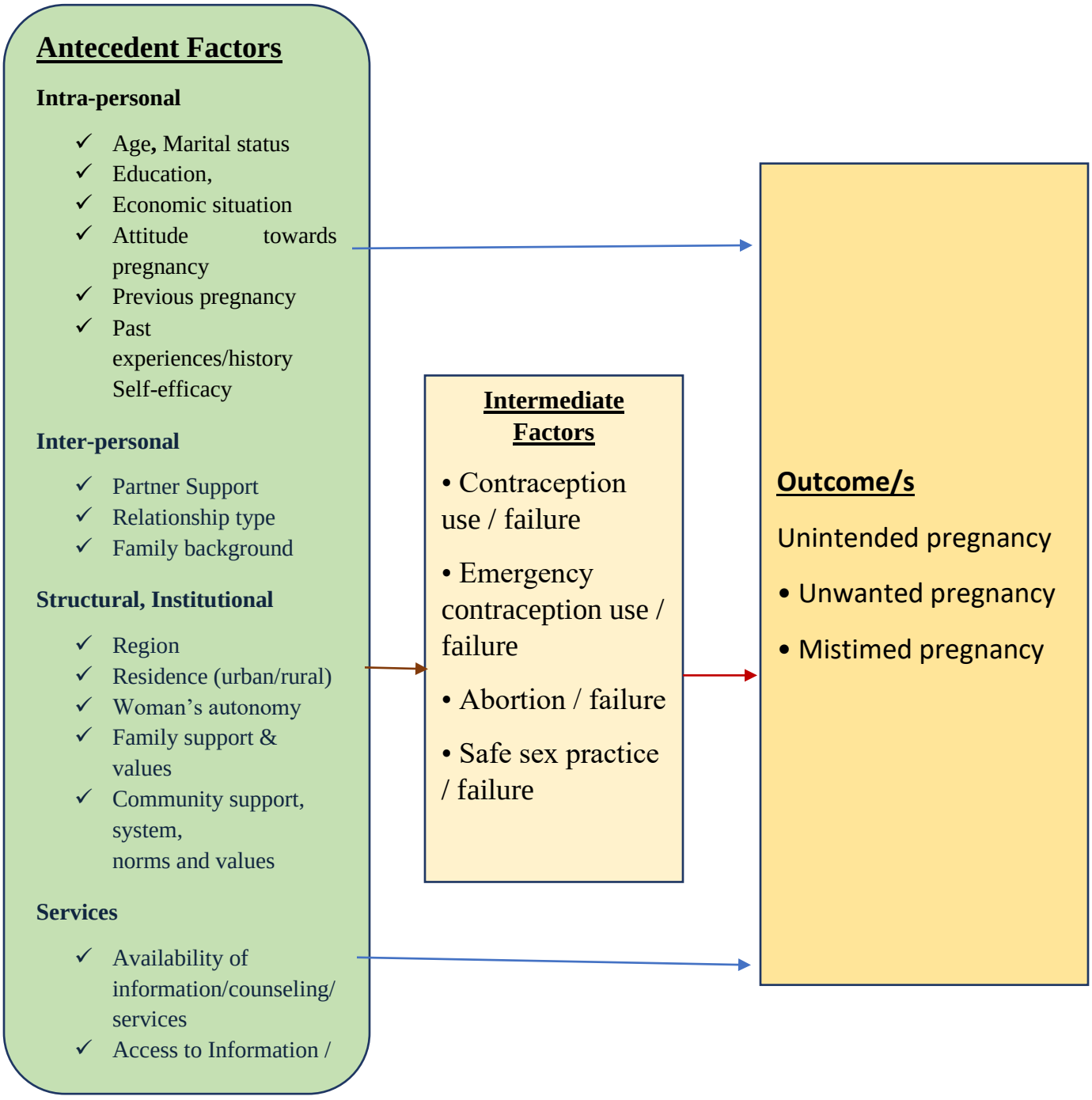

Figure 1 Conceptual Framework for Factors Associated with Unintended Pregnancies

Adapted from WHO; the Conceptual Framework for Researching on Unintended Pregnancy.(39)

3. Objectives

3.1 General Objective

To assess the prevalence and factors associated with unintended pregnancy among women attending ANC in selected hospitals in Addis Ababa.

3.2 Specific Objective

- To determine the overall prevalence of unintended pregnancy among women attending ANC in selected hospitals in Addis Ababa.
- To identify factors associated with unintended pregnancy among women attending ANC in selected hospitals in Addis Ababa.

4. Methods and Materials

4.1 Study Area and Period

The research was conducted in Addis Ababa, Ethiopia's largest and capital city, from December 2022 to February 2023. Addis Ababa is geographically located at the center of Ethiopia, at 9°1 ′48″N 38°44′24″ E, covering an approximate land area of 526.46 square km and lying at an elevation of 2,355 meters (7,726 feet). Based on the 2007 census conducted by the central statistical agency of Ethiopia (CSA), Addis Ababa city has a total population of 3,384,569.(40) There are 994 clinics, 99 health centers, and 42 hospitals in terms of health facilities and services. There are 15 registered governmental hospitals, (2021, Addis Ababa Health Bureau)**.** In this study period, a descriptive cross-sectional study was conducted in Selected Government hospitals in Addis Ababa.

4.2 Study Design

An Institutional Based cross-sectional study was conducted**.**

4.3 Source population

Women following ANC in Addis Ababa government hospitals during the study period.

4.4 Study population

Women following ANC in selected government hospitals during the study period.

4.5 Inclusion and Exclusion Criteria

4.5.1 Inclusion Criteria

Pregnant women attending ANC in the selected government hospitals, who give informed consent to participate in the study.

4.5.2 Exclusion Criteria

- The pregnant women who filled the questioner before.
- Pregnant women who can’t give consent for being minor or medically/ mentally unfit.
- Women who refuse to participate in the study.

4.6 Sampling Technique and Procedure

There were 15 public hospitals in Addis Ababa during the study period. A stratified random sampling method was used to select hospitals. There were 5 hospitals under federal administrative and 10 hospitals under Addis Ababa health bureau, of these five Government hospitals was selected by lottery method to ensure representativeness. Those were Tikur Anbessa specialized hospital, Minilik II Referral Hospital, Ghandi memorial hospital, Zewditu memorial hospital and Ras Desta Damtew Memorial Hospital. The local data of these hospitals was showed average monthly delivery of the past one year 421, 270, 454, 502 and 290 respectively. The calculated sample size was allocated proportionally based on the number of clients who have been giving births for the last one year, which was 85, 54, 92, 101 and 58 at TASH, MIIRH, GMH, ZMH and RDDMH respectively. Then a Systematic random sampling technique was used to select the study participants, every third of the pregnant women who visited the antenatal clinics interviewed, until the allocated sample size for each hospitals fulfilled.

4.7 Sample Size Determination

The sample size was determined using the single population proportion for the level of unintended pregnancy based on the assumption that the prevalence rate of unintended pregnancy was 36.4% (6), and a 95% confidence interval was used with a marginal error of 5% and by taking the non-response rate as 10% due to sensitivity of the issue.

$$N = \frac{(Z\ a/2\ )^2\ pq}{d^2}$$ p=36.4% =0.364 q=1-p, Zα=1.96 and d=0.05

Where: n = sample size, P = proportion of unintended pregnant, q = 1-p, d = desired degree of precision (5%), Z= is the standard normal value at 95% confidence level.

Then

$$\mathbf{n} = \frac{(1.96)^2 \times 0.364 \times (1-0.364)}{(0.05)^2} = \mathbf{355}$$

Adding 10% of no respondent participants; 355 + 0. 1x 355= 390

4.8 Study Variables

4.8.1 Dependent Variables

Unintended pregnancy

4.8.2 Independent Variables

Socio-demographic characteristics such as Age, Educational status, Occupation, Marital status, Gravidity, Parity, use of contraceptive, Type of contraceptive used, awareness about a contraceptive, and use of emergency contraceptive were the predictor variables.

4.9 Operational definitions

Intended pregnancy: A pregnancy that was desired at the time it occurred or sooner.

Unintended pregnancy: Is either unwanted or mistimed at the time of conception.

Miss timed pregnancy: If a woman did not want to be pregnant at the time of conception, but did want to become pregnant in the future.

Unwanted pregnancy: - If a woman did not want to become pregnant at conception or at any time in the future.

4.10 Data Collection and analysis

A validated structured questionnaire, based on existing published literature was used to collect data by interviewer-administered questionnaire. It includes a participant information sheet, a consent form, and a structured questionnaire. To ensure accuracy, all material was translated into the local language and then back-translated into English. The questionnaire was pre-tested in an antenatal clinic that is not participating in the study. Women was given the participant information sheet to read, or if they were unable to read, the research assistant explained the study to them.

The questionnaire comprised of three parts; the first part includes typical questions from demographic and health survey questionnaires to determine the respondent's characteristics and socio-demographic information. The second part contained information about the past reproductive history and family planning and third one used the English version of the pregnancy intention scale London Measure of unintended pregnancy, (LMUP) to ascertain unintended pregnancies. (41,42) In this section, the questions are designed so that each of the six responses

is scored out of two and then added together to provide a final pregnancy intendedness score ranging from zero to twelve. (20,42)

The intention scores are classified into 3 categories: unplanned (zero-three), ambivalent (four-nine), and ten-twelve (planned). The key outcome variable is unintended pregnancy. Unintended pregnancies are defined as those in which the pregnancy intendedness score is less than ten (this includes both ambivalent and unplanned pregnancies).

Socio-demographic factors and women-related factors are the two kinds of variables. Age, residence, education, and wealth index are all considered socio-demographic characteristics. The women-related characteristics include age at marriage, gestational age, parity, birth interval, history of previous miscarriage or abortion, family planning knowledge, source of family planning knowledge, and family planning use. The age of first intercourse is used as a surrogate for the age at marriage, which is a difficult subject to ask because it is culturally sensitive.

Medical interns, Residents and Midwives who have experience with data collecting and who working at particular healthcare facilities was collect the data under the supervision of principal investigator. After being informed of the study's goals and methods, these data collectors were chosen voluntarily. The questionnaire's contents and suitable data collection techniques including how to take consent from the participants was covered in a one-day training session for both data collectors and supervisors in order to reduce errors. The principal investigator was on hand to check and review all the completed questionnaires, as well as to guarantee the accuracy and consistency of the data gathered

After being collected from the respondents, the information was translated back into English and analyzed using the statistical program SPSS. The responses from the data produced by LMUP graded once the prevalence of unintended pregnancy has been determined using data from all six items in the pregnancy intention instrument. The chi square taste was used to examine and summarized the distribution of each independent variables. Bivariant analysis used to test the association between the independent and outcome variables, for those p-value less than 0.05 on chi square. All variables with a p value of less than 0.05 in the bivariate analysis was then be added into the multivariable logistic regression model. The multivariable analysis was conducted using customary input methods. Factors in the multivariable analysis deemed significant predictors if their p-value is less than 0.05.

4.11 Data Quality Assurance

Data collectors and supervisors were receiving training. The lead investigator and supervisors were review and closely regulate the data compilation system and data completeness. To assure the study's validity, double data entry and random checks was performed. During the training session and data collecting period, the participants' confidentiality and privacy was respected.

4.12 Ethical Consideration

The study was conducted after the proposal was approved by Addis Ababa University, College of Health Sciences, Obstetrics and Gynecology Department Ethical Committee. The letter of permission was obtained from Addis Ababa University ethical review committee and from each of involved Hospital administration before data collection.

Oral informed permission was obtained from each participant once they have been informed of the overall purpose of the study, the confidentiality of their information, the voluntary nature of their participation, and the significance of providing accurate information to support the goal of the study.

All participants was asked whether they are willing to take part in the study, and they were informed that there is no risk to them and that they can opt out at any moment if they choose not to. The respondent's privacy and the confidentiality of the information was respected, and their names never be made public.

4.13 Dissemination Plan

After approval, the study results presented to AAU, TASH Department of Obstetrics and Gynecology and will be published. For future reference, a copy of the article kept at the college of health science library at AAU.

5. RESULT

5.1 Sociodemographic characteristics of the study participants

In this study 390 participants were involved making a response rate of 100%. Two-third of the study participants, 65.6% (256/390), were in the age group of 25-34 years with mean and SD of 28.5±4.6 respectively. Almost all, 95.1% (371/390), were married and 33.8% were completed primary education level. More than half, 58.5% (228/390), were orthodox in religion, 56.7% (221/390) unemployed and 42.8% (167/390) had <5000 ETB house hold monthly income. (See table 1 below)

Table 5. The socio-demographic characteristics of the study participants

Variable	Frequency	Percent
Age of the study participants		
<24	78	20.0
25-34	256	65.6
≥35	56	14.4
Marital status of the study participants		
Married	371	95.1
Single	19	4.9
Education level of the study participants		
Unable to read and write	30	7.7
Read and write	52	13.3
Complete primary education level	132	33.8
Complete secondary education level	87	22.3
Complete higher education level	89	22.8
Partner education level		
Unable to read and write	15	3.8
Read and write	51	13.1
Complete primary education level	103	26.4
Complete secondary education level	109	27.9
Complete higher education level	112	28.7
Religion of the study participants		
Orthodox	228	58.5
Muslim	114	29.2
Protestant	48	12.3
Occupation of the study participants		
Employed	169	43.3
Unemployed	221	56.7
House hold monthly income		
<5000	167	42.8
5000-10000	143	36.7
>10000	80	20.5

5.2 Reproductive history and family planning characteristics of study participants

Most of the study participants, 86.4% (337/390), first marriage age was from 18-29 year and half of the study participants had 1-2 viable pregnancy. From those of having viable pregnancy, 63.8% (183/287) had more than 2 years birth interval. One-third of the study participants had history of abortion and from those 71.4% were spontaneously. Pregnancy was unintended in 29.2% (114/390) of the participants, of those unintended pregnancies 50.9% (58/114) had didn't take any action for its continuity but 16.7% (19/114) attempted to stop though not successful while 32.5% (37/114) attempted to stop and succeeded. Concerning family planning, 94.4% (368/390) had ever heard about any family planning and 77.2% (301/390) had ever used any family planning. See Table -2 below

Table 6. Reproductive history and family planning characteristics study participants

Variable	frequency	Percent
Age of your first marriage		
≤17	37	9.5
18-29	337	86.4
≥30	16	4.1
Number of viable pregnancies		
0	103	26.4
1-2	201	51.5
>2	86	22.1
Birth interval of the study participants		
<12 month	24	8.4
12-24 month	80	27.9
>24 month	183	63.8
History of abortion		
Yes	132	33.8
No	258	66.2
Types of abortion		
Spontaneous	94	71.4
Induced	38	28.6
History of unintended pregnancy		
Yes	114	29.2
No	276	70.8
Previous unintended pregnancy action		
Noting continuing	58	50.9

Attempt to stop not success	19	16.7
Attempt to stop and success	37	32.5
Have you ever heard of any family planning method		
Yes	368	94.4
No	22	5.6
Have you ever used any family planning method		
Yes	301	77.2
No	89	22.8

5.3 The types of family planning

Majority of the participants heard (n=316, n=85.9%) oral contraceptive followed by injectable, implant, IUCD as shown figure 1. Below.

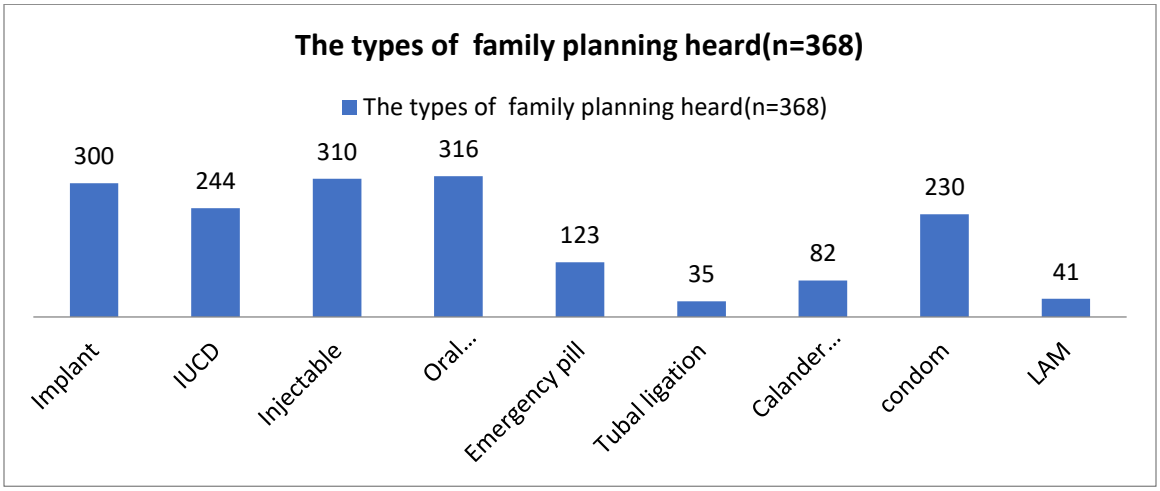

Figure 2. The types of family planning heard by the study participants.

5.4 The types of family planning the study participants ever used

The finding shows that, majority of the participant ever used injectable contraceptive (141/301) followed by implant, oral, emergency pill, IUCD, condom, calendar method and LAM as shown figure 2 on next page.

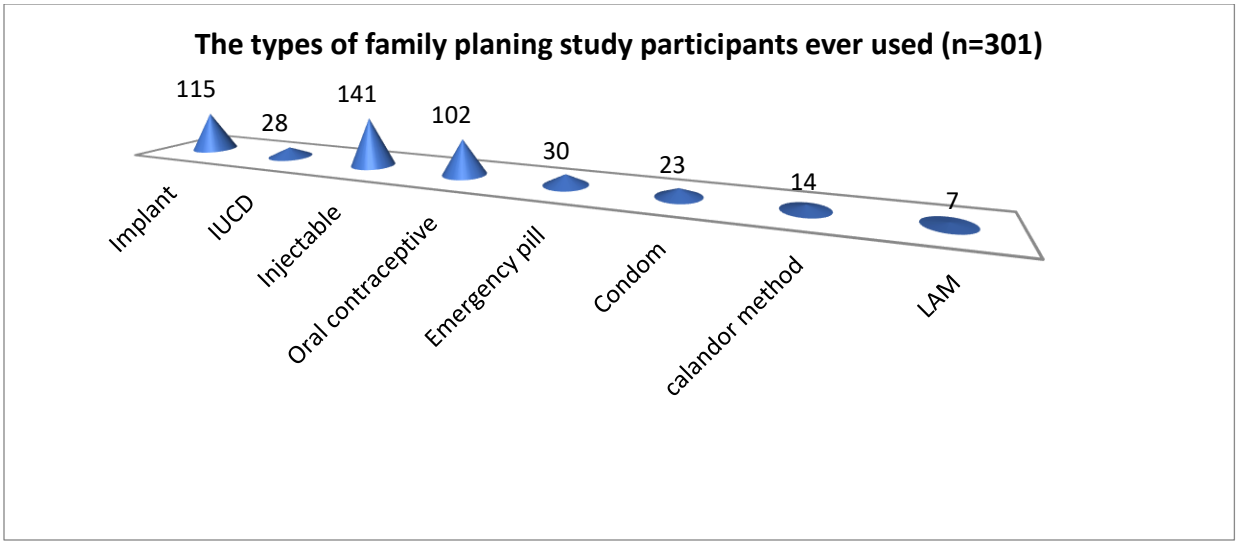

Figure 3. The types of family planning the study participants ever used ever used

5.5 Reasons for not using family planning

In this finding the main reason for not used family planning were wanted more children (40.4%), fear of side effect (27%) and others as shown the figure 3. Below.

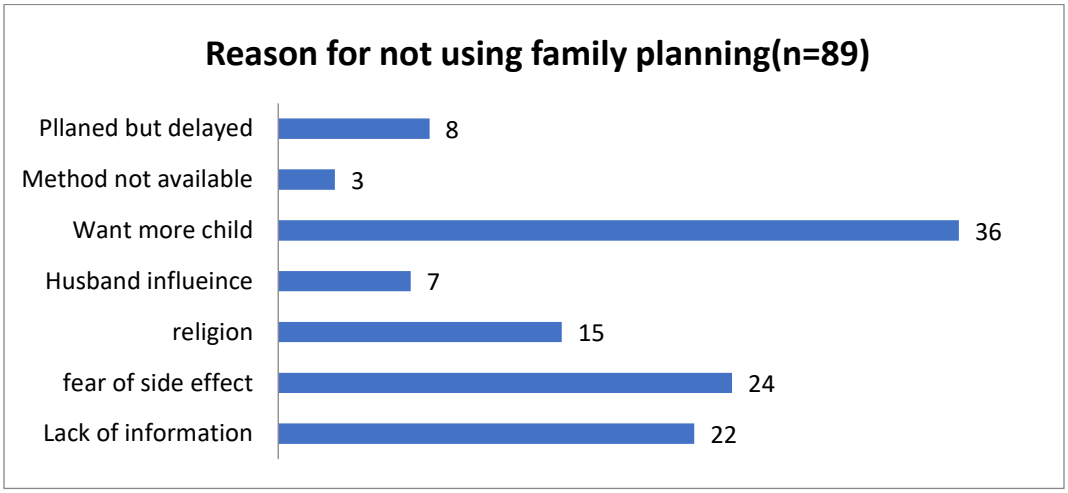

Figure 4. Reasons for not using family planning

5.6 Pregnancy intention scale to ascertain unintended pregnancies.

The pregnancy imitation scale revealed that 67.7% (264/390) were intended while, 22.7 (88/390) were ambivalent and 9.7% (38/390) unplanned. See figure 4 below.

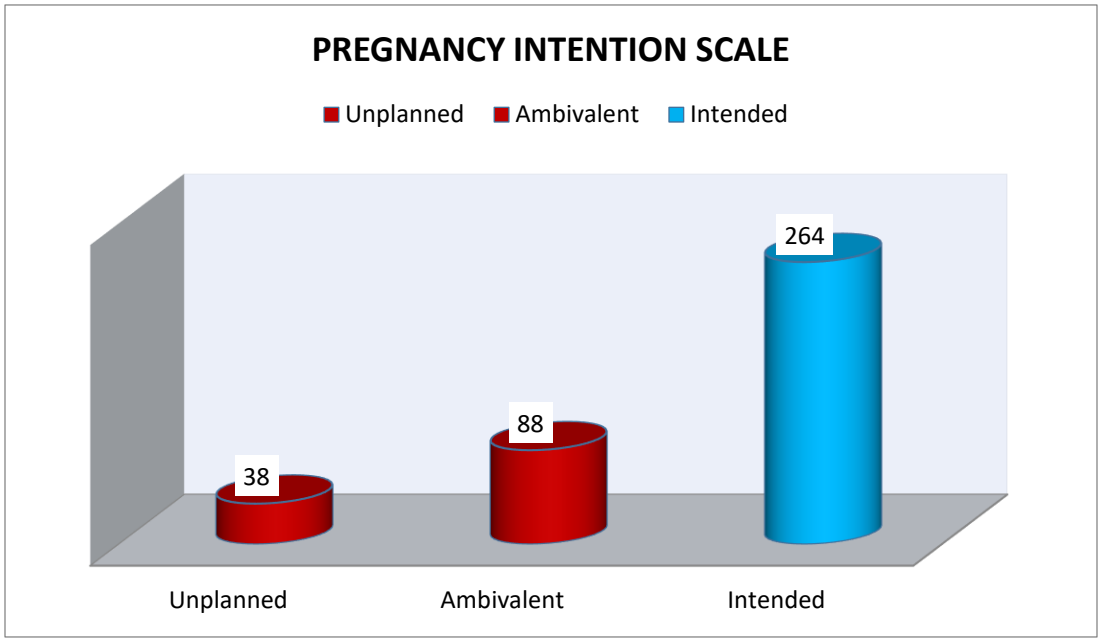

Figure 5. Pregnancy intention scale to ascertain unintended pregnancies

5.7 The magnitude of unintended pregnancy

The magnitude of unintended pregnancy was significantly palpable as shown in the figure. About one third of pregnancies, 32% (126/390), according to pregnancy intention scale were unintended. See figure 5.

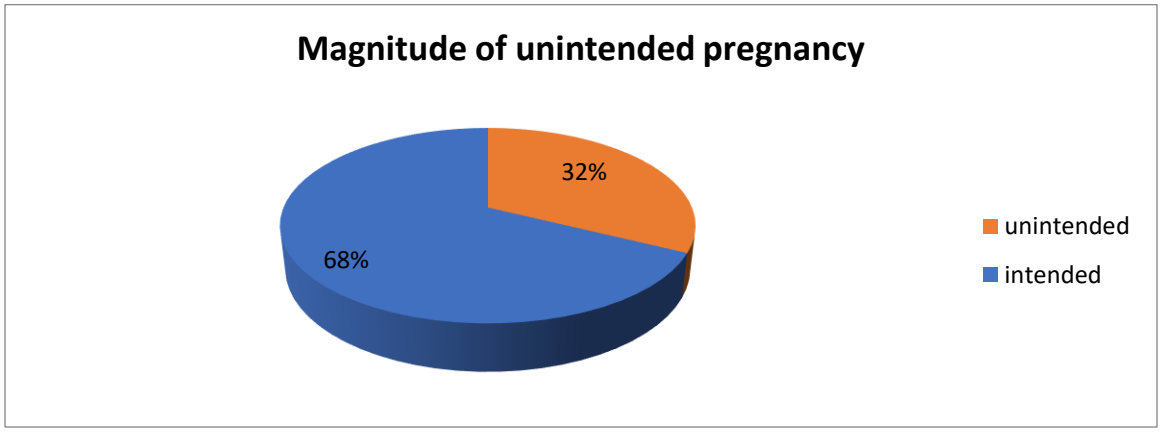

Figure 6. The magnitude unintended pregnancy of the study participants

Regarding to the specific measurement of the unintended pregnancy, half of the participants were not using contraceptives followed by 71.5% (279/390) had right time pregnancy, 73.6% (287/390) had intended to get pregnant, 80.5% (314/390) had wanted baby and 73.6% (287/390) had discussed with partner but no firm agreement. See Table 3 below

Table 7. The magnitude of unintended pregnancy

Variable	Frequency	Percent
Use of contraception		
Always used contraception	44	11.3
Inconsistently use	153	39.2
Was not using contraception	193	49.5
Time of pregnancy		
Working time	41	10.5
Ok but not quite the right time	70	17.9
Right time	279	71.5
Pregnancy intention		
Did not intend to become pregnant	77	19.7
Changing intentions	26	6.7
Intended to get pregnant	287	73.6
The desire for baby		
Did not want to a baby	26	6.7
Mixed feeling about having a baby	50	12.8
Wanted baby	314	80.5
Partner discussion		
Had never discussed getting pregnancy	40	10.3
Discussed but no firm agreement	63	16.2
Agreed to pregnancy	287	73.6
Preparation for pregnancy		
No preparatory lifestyle changes	118	30.3
Did one preparatory life style change	114	29.2
Did two or more preparatory life style change	158	40.5

5.8 The determinant factor affecting unintended pregnancy

The strength of association between the independent and the outcome (unintended) pregnancy was measured by odd ratio and 95% confidence interval. All independent variables were tried to associate with the outcome variable by bivariate binary logistic regression. Accordingly, marital status, education level, gravidity, ever used any family planning and history of unintended pregnancy were associated with the outcome variable (unintended pregnancy).

Independent variables having a p-value <0.05 by bivariate logistic regression were transferred to multivariable logistic regression. So, the multivariable logistic regression showed that, participants who were unmarried had 13.4 folds increase its unintended pregnancy than married (AOR=13.4, 95%CI=3.43, 51.48).

Participants who had unable to read and write had 2.9 folds high occurrence of unintended pregnancy compared to participant having education level of collage and above (AOR=2.9, 95%CI=1.15, 7.79)). Participant having a history of unintended pregnancy had 4.1 folds increase its recurrence of unintended pregnancy than haven't any history of unintended pregnancy (AOR=4.1, 95%CI=2.46, 6.73. see table 4 below

Table 8. The bivariate and multivariable binary logistic regression association between independent and dependent variable among women having antenatal care, 2022/3.

Variable	Unintended pregnancy		p-value	COR with 95%CI	P-value	AOR with 95%CI
	Yes	**No**				
Marital status						
Married	110	261	1		1	
Unmarried	16	3	0.000	**12.6(3.61, 44.31)**	**0.000**	**13.4(3.43, 51.48)**
Education level of the study participants						
Unable to read and write	16	14	0.014	**2.9(1.25, 6.87)**	**0.025**	**2.9(1.15, 7.79)**
Read and write	20	32	0.204	1.6(0.78, 3.30)	0.170	1.8(0.79, 3.95)
Primary education level	43	89	0.479	1.2(0.69, 2.23)	0.539	1.2(0.64, 2.33)
Secondary education level	22	65	0.674	0.87(0.44, 1.69)	0.777	0.90(0.43, 1.87)
Higher education level	25	64	1		1	
Number of viable pregnancies						
0	25	78	1		1	
<=2	70	131	0.062	1.7(0.98, 2.85)	0.538	1.2(0.64, 2.33)
>2	31	55	0.049	1**.8(0.94, 3.30)**	0.339	1.4(0.69, 0.2.95)
History of unintended pregnancy						
yes	64	50	0.000	**4.4(2.77, 7.04)**	**0.000**	**4.1(2.46, 6.73)**
no	62	214	1		1	
Have you ever used any family planning method						
yes	105	196	1		1	
No	21	68	0.047	**0.58(0.33, 0.99)**	0.153	0.63 (0.34, 1.19)

6. Discussion

The purpose of this study was to evaluate the prevalence and risk factors for unintended pregnancies among pregnant women visiting ANC clinics. Unintended pregnancy is a widespread issue in Ethiopia despite the development of contemporary family planning methods and increased knowledge and awareness of these methods, according to numerous research, including the current study.(6,9,37,38)

A total of 390 women were recruited for this study, and there was a 100% response rate. A total of 126 of them, or 32%, were unintentionally pregnant. 38 (9.4%) were unplanned, and 88 (22.6%) were ambivalent. The 264 remaining pregnancies (68%) were thought to be planned. According to these numbers, the proportion of women who became pregnant unintentionally in this study was lower than the global systematic review and metanalysis research findings from 2012, which were 40% and 49%, respectively(2,11). The methodology difference, socioeconomic differences, religious differences (people who accept a religion may accept the givenness of the pregnancy and they may intend), study time differences, cultural differences regarding pregnancy, and differences in the need for children were some of the potential causes of this difference.

The finding also almost similar or marginally different with the finding of Ethiopian systematic review and meta-analysis (30%), the results of systematic reviews conducted in Iran (30.6%), 29 sub-Saharan nations (29%), and 29 sub-Saharan papers (33.9%) (4,18,21,27,28). This similarity was may be due to similarity in health policy specially on family planning population status and may be due to no measurements taken by health policy makers according to the previous study results. This resemblance might be explained by sociodemographic traits, family planning information, and pregnancy knowledge. This may be due to the fact that the current study also included the sub-Saharan region.

The results were greater than those of the studies conducted by the EDHS (24%) Felegehiwot Referral Hospital (26%) Bahirdar (15.5%) Gelemso General Hospital (20.6%) Gondar (20.6%) and Debre-Brihan (23.5%, 27.1%) (27,31–35). The cost of living in the study location may have been different, which may have limited the number of children the couple wanted, and the study period matters.

The result was higher than the studies conducted in six Asian countries 19.1%, in six European hospitals for a cross-sectional study, the majority of pregnancies that resulted in birth (83%) were planned, 15% were ambivalent, and 2% were unplanned, similarly in United Kingdom the prevalence of unintended pregnancy was 15% (14,15,17). This difference could be attributed to the study participants' sociodemographic characteristics (educational attainment, family planning knowledge, and abortion policy), the high population growth in the area, or restrictions on family planning laws and awareness that reduced unintended pregnancies. This might be due to the increased availability and accessibility of maternal health services, including access to modern contraceptives with time since that time.

The results were lower than the study conducted in Arsi, Ethiopia (41.5%), Jimma (36.5) percent, Addis Ababa (36%) when compared to Ethiopian literatures(6,29,30). The study period, study participants' sociodemographic differences, such as their educational levels, and differences in their awareness of family planning may have contributed to this disparity.

Similar to studies done in Ethiopia, Gambia, Nigeria, being single was also found to be a statistically significant predictor of the occurrence of unwanted pregnancy. Participants who were single had a 13.4-fold higher rate of unwanted pregnancies than those who were married. This significance may have been brought on by the child's parents' fear of the effects of a variety of issues, including psychological trauma, behavioral problems, mental health and financial hardship. This is supported by research from Ethiopia. Single women engage in sexual activity for pleasure. Therefore, if pregnancy occurs it is more likely to be unintended. Furthermore, they are less likely to use contraceptive methods (12,24,25,43).

The results also demonstrated the statistical significance of education level for the occurrence of unintended pregnancy. Compared to participants with education levels of college and above, study participants who were illiterate had an unintended pregnancy rate that was 2.9 times higher. This may be because personal understanding of family planning is limited owing to lack of education. Unwanted and ambivalent pregnancies are also caused by inability to employ family planning. This result agreed with research findings from the United States, sub-Saharan African nations, and an Ethiopian study (11,21,30).

Besides other studies done in Ethiopia (6,29), The results also showed that prior unintended pregnancies were a major impact. Participants who had previously experienced an unexpected

pregnancy had a 4.1-fold higher risk of experiencing one again than those who hadn't. This might be due to the women didn’t get advised during previous deliveries or due to low level of education and understandings.

7. Limitations and Strength of the study

Since the study is a facility based, it might not indicate the true rate of unintended pregnancy in the community, as many of the clients with unintended pregnancy had less chance to visit the maternal health care service, including ANC. It is also difficult to establish a temporal relationship as the study design was cross-sectional, and the wider confidence interval observed with some variables may also indicate inadequate sample size. Furthermore, as this study focuses particularly on unintended pregnancy that ended with accepted and having ANC follow-up, finding might not be generalizable to unintended pregnancy that ended with abortion. Despite these limitations, the finding of this study is expected to contribute a lot to the understanding of the factors associated with unintended pregnancy in the study area.

The strength of the study is using the LMUP scale to confirmed whether the pregnancy was intended or unintended. Because in other studies there was limitation which may be underestimated because once pregnancies happen there is a tendency to be confirmed as intended.

8. Conclusion

According to the current study, 32% of the pregnant women receiving ANC in Addis Ababa had unintended pregnancies. This suggests that one of the main issues with reproductive health in the research area is unintended pregnancy. Pregnancy that was either ambivalent or unplanned made up 22.6% and 9.4% of all participants overall and 71% and 29% of the unintentional, respectively. Unintended pregnancy was statistically significantly influenced by marital status, educational attainment, and prior unplanned pregnancies. Strengthening health education programs to the reproductive age group women and educating and empowering women is important.

9. Recommendation

In this study the magnitude of unintended pregnancy was marginally similar and higher when compare with studies done in other local areas like Addis Ababa, Jimma, Arsi and Gelemso. This shows we are not working as expected to reduce the prevalence and associated factors.

Health Policy and program level: Address the issue of unintended pregnancies by designing strategies in policy documents strategic plans, including Health Sector Development Program in reproductive age unmarried women, those having previous history of unintended pregnancy, socially disadvantaged like homeless, uneducated.

Health worker: Provide information and counseling reproductive age women about unintended pregnancy, council women having history unintended pregnancy during the post-partum periods.

Mass media: Reproductive health programs, create awareness about the impact of unintended pregnancy, education is background for everything.

Women's: Empowering social disadvantage women, increase level of educations and act on women having previous history of unintended pregnancy is the most important factor.

Researcher: Further research with a quantitative and qualitative study is needed to determine the exact nature and pattern of this relationship. Other research areas like abortion centers should be the focus of the research to address the exact prevalence associated factors.

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11. Annexes

Annex 1: Information sheet

Title of the study: Prevalence and determinants of unintended pregnancies among women attending antenatal clinics in Government Hospitals of Addis Ababa, Ethiopia.

Purpose of the study

To assess the Prevalence and determinants of unintended pregnancies among women attending antenatal clinics in Government Hospitals of Addis Ababa, Ethiopia

Procedure

You are selected because you came for Antenatal care. The information you give will be confidential and will have no identification to keep your privacy. The information will be available only to the study team.

Benefits: There is no direct benefit to you for participating other than the satisfaction because you are contributing to increasing knowledge in this area.

Risks: There is no risk in this study. Precaution has been taken to protect the information which you will provide.

Confidentiality: To protect your information, code numbers will be used to identify you and no names will be used. The Information you provide will be treated as strictly confidential and will be used for the study.

Compensation: Your time and participation are appreciated. However, there is no compensation involved.

Withdrawal from the study: Participating in this study is entirely voluntary and you are entitled to refuse to participate as this will not affect you in any way. There is no penalty for withdrawing. Do you have any questions?

If you need further clarifications regarding this study, you may contact:

Principal Investigator: Dr Fisseha Adane

Annex 2: Informed consent sheet

Addis Ababa University, College of Health Sciences, Department of Obstetrics and Gynecology, Questionnaire designed to determine the level and determinants of utilization of preconception health care services among women following ANC in certain Hospitals.

Procedure

Greetings,

Dr. Fisseha Adane is an obstetrics and gynecology resident at Addis Ababa University's College of Health Sciences.

Prevalence and determinants of unintended pregnancies among women attending antenatal clinics in Government Hospitals of Addis Ababa, is a study I'm working on.

Procedure

I respectfully request that you take part in this research. Filling out the questionnaire may take up to 10-15 minutes of your time. Your personal information will be kept totally secret during the study. Your participation in the study is entirely voluntary, and you have the option of declining to do so.

The Department of Obstetricians and Gynecologists Research and Addis Ababa University's publication committee have given their approval and ethical clearance to the work.

 Do you agree to participate in this study?

Yes □ No □

If not thank you for your time

If yes proceed to the questionnaires

Annex 3: Data Collection tool (Questionnaire)

The checklist is prepared for the collection of socio-demographic information, past reproductive history, and family planning, and section three used the pregnancy intention scale (LMUP) to ascertain unintended pregnancy information.

Data collection date----------month----------Year----------

Name of health facility ----------

Name of data collector---------- signature----------

Name of supervisor----------signature----------

Code No._____

Part – 1: Sociodemographic Characteristics			
Code	**Questions**	**Response**	**remark**
1	How old are you?	**Specify**	
2	What is your marital status?	1. Never married 2. Married 3. Widowed 4. Divorced	
3	What is your educational level?	1. Unable to read and write **2.** Read and write **3.** Completed Primary Education **4.** Completed Secondary Education **5.** Completed Higher level Education	
4	What is your partner educational level?	1. Unable to read and write **2.** Read and write **3.** Completed Primary Education **4.** Completed Secondary Education 5. Completed Higher level Education	
5	What is your religion?	1. Orthodox Christian 2. Muslim 3. Protestant Christian 4. Catholic Christian 5. Others	
6	Average Monthly Income of the family?	Specify:	

7	What is your Occupation?	1. Employed 2. Private business 3. Unemployed 4. House wife 5. Student	

Part- 2; - Information about the past reproductive history and family planning			
Code	Question	Response	Remark
1.	Age of marriage	-------	
2.	Parity	1. 0 (if skip to no. 4) 2. =< 2 3. >2	
3.	Birth interval	1. Less than 12 months 2. 12- 24 months 3. Greater than 24 months	
4.	Do you have any history of abortion	1. Yes 2. No	
5.	If yes for question 4.	1. Spontaneous 2. Induced	
6.	History of unintended pregnancy	1. Yes 2. No (if go skip to no.8)	
7.	Previous unintended pregnancy action	1. Nothing continued 2. Attempt to stop not succeed 3. Attempt to stop and succeed	
8.	Have you ever heard of any family planning method	1. Yes 2. No (if skip to no.10)	
9.	If yes for no. 8 Which methods do you know	1. Implants 2. IUD 3. Injectables 4. Oral contraceptives 5. Emergency pills 6. Tubal ligations 7. Calendar methods 8. Condoms 9. LAM 10. Other --------	
10.	Have you ever used any family planning method	1. Yes 2. No	

11.	**If yes for no. 10** Which method do you use?	1. Implants 2. IUD 3. Injectables 4. Oral contraceptives 5. Emergency pills 6. Calendar methods 7. Condoms 8. LAM 9. Other -------	
12.	**If no for no.10** Reason for not taking?	1. Lack of information 2. Fear of side effect 3. Religion 4. Husband influence 5. Want more child 6. Method not available 7. Planned but delayed 8. Other	

Part-3; - English version of pregnancy intention scale (LMUP) to ascertain unintended pregnancies.

Code	Question	Response	Score
1	Use of contraception	**0** Always used contraception **1** Inconsistent use **2** Not using contraception	
2	Timing of pregnancy	**0** Wrong time **1** OK but not quite the right time **2** Right time	
3	Pregnancy intention	**0** Did not intend to become pregnant **1** Changing intentions **2** Intended to get pregnant	
4	The desire for baby	**0** Did not want a baby **1** Mixed feeling about having a baby **2** Wanted a baby	
5	Partner discussion	**0** Had never discussed getting pregnancy **1** Discussed but no firm agreement **2** Agreed to pregnancy	
6	Preparation for pregnancy	0 No preparatory lifestyle changes 1 Did one preparatory life style change 2 Did two or more preparatory life style change	