COLLEGE OF HEALTH SCIENCES

DEPARTMENT OF MIDWIFERY

UNINTENDED PREGNANCY AND ASSOCIATED FACTORS AMONG PREGNANT WOMEN ATTENDING ANTENATAL CARE IN MEKELLE CITY PUBLIC HEALTH FACILITIES, TIGRAY REGION, ETHIOPIA, 2025

BY: TSEGA WELEGEBRIAL

APRIL 2025

MEKELLE, ETHIOPIA

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PRINCIPAL INVESTIGATOR: TSEGAWELEGEBRIAL (B.SC.)

A THESIS SUBMITTED TO MEKELLE UNIVERSITY COLLEGE OF HEALTH SCIENCES DEPARTMENT OF MIDWIFERY IN PARTIAL FULFILLMENTS OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS IN CLINICAL MIDWIFERY

ADVISORS: MAIN ADVISOR: SOLOMON W/MARIAM (ASSIST. PROF.)

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DEPARTMENT OF MIDWIFERY

Examiner's Approval Sheet

We, the undersigned, members of the Board of Examiners of the final open defense by "Tsega Welegebrial" have read & evaluated his thesis "unintended pregnancy and associated factors among pregnant women attending antenatal care in Mekelle city Public Health Facilities, Tigray Region, Ethiopia, 2025"and evaluated the candidate. This is therefore to certify that the thesis has been accepted in partial fulfillment of the requirements for the Master's Degree in clinical midwifery.

	Name	signature	date
Chair person	_____	_____	_____
Major advisor	_____	_____	_____
Internal examiner	_____	_____	_____
External examiner	_____	_____	_____

Final approval & acceptance of the thesis is contingent upon the submission of the final copy of the thesis to the candidate's Department through the office of the Department Graduate Program Coordinator. Thesis Approved by

_____	_____	_____
Graduate Program Coordinator	Signature	Date

Certification of the Final Thesis

I hereby certify that all the corrections and recommendations suggested by the Board of Examiners are incorporated into the final thesis entitled “unintended pregnancy and associated factors among pregnant women attending antenatal care in Mekelle City Public Health Facilities, Tigray Region, Ethiopia, 2025” by Tsega Welegebrial.

_____ _____ _____

Department Head Signature Date

Stamp of the Department of Midwifery_____

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Advisor's Approval Sheet

This is to certify that the thesis entitled "unintended pregnancy and associated factors among pregnant women attending antenatal care in Mekelle City Public Health Facilities, Tigray Region, Ethiopia, 2025" is submitted in partial fulfillment of the requirements for the degree of master's thesis with specialization in "clinical midwifery" Mekelle University college of health science department of midwifery post Graduate program and has been carried out by Tsega Welegebrial under my supervision. Therefore, I recommend that the student has fulfilled the requirements and hence hereby can submit the thesis to the Department.

Name of the student_____ Signature _____ Date _____

Approval of the Major Advisor

Name of primary Advisor_____ Signature _____ Date _____

Name of Co-advisor_____ Signature _____ Date _____

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List of Acronyms and Abbreviations

ANC = Antenatal Care

AOR = Adjusted Odds Ratio

CI = Confidence Interval

ETB = Ethiopian Birr

EDHS = Ethiopian Demographic and Health Survey

FP = Family Planning

HEW = Health Extension Worker

OR = Odds Ratio

SPSS = Statistical Package for Social Sciences

SRS = Simple Random Sampling

TRHB = Tigray Regional Health Bureau

UP = Unintended Pregnancy

Abstract

Introduction: Unintended pregnancy is an important public health problem for women of child - bearing age, because of its negative impacts on health and social for both mothers and children. Unintended pregnancy causes maternal mortality and morbidity. Worldwide, although unplanned pregnancies seem to be decreasing, 38% of pregnancies are unintended. In sub-Saharan Africa, unintended pregnancy accounts for more than a quarter of the 40 million pregnancies that occur annually. In Ethiopia, about 17% and 8% of pregnancies are mistimed and unwanted, respectively. But, there is lack of information particularity post-conflict recovery in the study area on the prevalence of unintended pregnancy and its associated factors**.**

Objective: To assess the prevalence and associated factors of unintended pregnancy among pregnant women attending antenatal care in Mekelle City Public Health Facility, Tigray region, Ethiopia, 2025.

Methods: A facility-based cross-sectional study was conducted among 394 Pregnant women attending ANC in Mekelle City Public Health Facility. A simple random sampling technique was used to select study health facilities and a systematic random sampling technique was used to select study participants. Data was collected via face-to-face interview using a structured questionnaire. Data were entered into SPSS version 25 for analysis. Descriptive, bivariate, and multivariate logistic regression analyzes were used to identify the association. Variables that showed a P-value of less than 0.25 during the bivariate analysis were used and were entered into a multivariate logistic regression model to identify their independent effects. Odds ratio with a 95% CI & p value of less than 0.05 were computed to assess the presence and degree of statistical association between dependent and independent variables.

Result: The overall magnitude of unintended pregnancy was 32.7% with 95% CI (27.9, 38.1). Of those, 89.1% were mistimed and 10.9% were unwanted. The multiple logistic regression results revealed that, age group from 15 to 24 (AOR=4.702,95% CI 1.948,11.348). The women and husband's decision in the family planning (AOR=0.292,95% CI 0.155,0.551), family size of 3-5(AOR=2.730,95%CI 1.512,4.930) and family size of≥6(AOR=3.967,95%CI 1.228,12.817), no formal education (AOR=3.336, 95%CI 1.340,8.308) were significantly associated with unintended pregnancy.

Conclusion and Recommendations: There is no single factor accounted for the relatively high of unintended pregnancy rather many factors were interwoven to affect the event. Efforts should be made to scale up shared decision-making power in family planning services and there is the need to promote family planning services and awareness to minimize unintended pregnancy.
Keywords: Ethiopian, Factors, Magnitude, Mekelle, Unintended pregnancy

1. Introduction

1.1 Background

Pregnancy is wanted and a happy event for women, their husbands/partners, families and the community. But this is not always the case, because millions of women around the world become pregnant unintended (1). Unintended pregnancies are pregnancies reported to have been unwanted or mistimed. Unwanted pregnancy occurs when no children or no more children were desired, and the mistimed pregnancy is the pregnancy that occurred earlier than desired (2–6).Unintended pregnancies happen due to different reasons, like not using family planning, failure of contraceptive methods, lack of contraceptive methods, incidental sexual intercourse, including rape, and lack of awareness regarding family planning (7,8).

The global rate of unintended pregnancy was estimated to be 44% of pregnancies occurred between 2010–14 (6,9,10). Worldwide, although unplanned pregnancies seem to decrease, 38% of pregnancies are unintended. In sub-Saharan Africa, unintended pregnancy accounts for more than a quarter of the 40 million pregnancies that occur annually (11). For instance, the prevalence of unintended pregnancy was reported to be 24.3% in Tanzania (12) and 29.1% in Egypt (13). Unintended pregnancy rates declined by 30% in developed regions, from 64 per 1000 women aged 15–44 years in 1990–94 to 45 in 2010–14. In developing regions, the unintended pregnancy rate fell by 16%, from 77to 65 per 1000 women aged 15–44 years (6,9,10). Worldwide, the maternal mortality ratio dropped by about 34% between 2000 and 2020.Almost 95% of all maternal deaths occurred in low and lower- middle-income countries and 800 women died from preventable causes related to pregnancy and childbirth every day in 2020 (14).

In Ethiopia, 24.7 and 42% of unintended pregnancies are caused by contraceptive failure and not using contraceptive methods, respectively (15). According to the report of the EDHS 2019 show an increase in using any modern contraceptive method from 14% in 2005 to 41% in 2019 (16).In Ethiopia wanted fertility rate is 3.6 children as compared to total fertility rate, 4.6 children, which indicates women in Ethiopia are at the burden of having, on average one child more than they want .According to the report of the EDHS, 2016 the prevalence of unintended

pregnancy in Ethiopia is 25%, of which 17% are unplanned and 8% are unwanted (17). The prevalence of unintended pregnancy was reported to be 24.9% in Tigray (18).

Preventing unintended pregnancy and minimizing the number of abortion are the key priorities associated with maternal and child health and one of the main objectives of the public health policies in the world (19). Family planning is one of the most effective strategies in reducing maternal death due to unwanted pregnancy and risks of unsafe abortion, It can also prevent closely spaced and ill-timed pregnancies and births, which contribute to high infant mortality rate in developing world (20,21). Various programs also promote family planning methods, enhance youth-friendly services, and empower women to make informed choices to reduce unintended pregnancies (22).

The global sustainable development agenda in 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and integrating reproductive health into national strategies and programmers (23). To alleviate the problem, the Ethiopian government has prepared a national reproductive health strategy that stress on reducing unwanted pregnancies by increasing the use of contraceptives to 66% which otherwise leads to about 382,000 induced abortions per year (24).

1.2 Statement of the Problem

Unintended pregnancy represents a significant challenge to sexual and reproductive health, imposing considerable health, economic, and psychosocial burdens on individuals and society (15). Globally, about 56% of unintended pregnancies were ended in abortion. In Africa 13% of unintended pregnancies ended in abortion, 97% of them classified as unsafe abortion (25). About 80 million unintended pregnancies occur each year worldwide, resulting in 42 million induced abortions, twenty millions of these induced abortion performed in unsafe circumstances or by untrained Providers and 34 million unintended births (5,11).

Worldwide 303,000 women died due to terminating a pregnancy of these women 99% deaths were from Sub-Saharan Africa followed by South Asia (22%) (11).Unsafe abortion is the main cause of maternal death 4.7% and 13.2% in Africa and Asia respectively (25).In Ethiopia, unsafe abortion is a second common cause of maternal mortality, which accounts for 19.7% maternal mortality (26). Factors linked to unintended pregnancies include distance from the nearest health facility, higher parity, history of unintended pregnancy, unmet need for family planning, early sexual initiation and lack of autonomy (27), maternal depression, anxiety and substance use during pregnancy(20),single women, multiple sexual partners, lower/no educational level, low income, women who didn't use family planning, young women, multigravida women, and women who are not visited by health professionals (7,26).

Unintended pregnancy is one of the most critical problems in the public health system that imposes substantial, financial, social costs on society, reduction of quality of life and workforce efficiency also affects fertility (26). Unintended pregnancies has a bad consequence on both the mother and newborn health like women who have exposed to eclampsia, postpartum hemorrhage, Marital conflict, suicide, unsafe abortion and psychological distress (9,26). Women with unintended pregnancies have little attention to pregnancy-related complications and few scores self-care behaviors such as using folic acid, vaccination, and nutrition due to this problems increase maternal morbidity and mortality, premature birth, low birth weight, neonatal death, and infant abuse (28).

Unintended pregnancy is a significant public health issue in Ethiopia. However, in many low-income countries most of the previous studies different from region to region and there is little published literature focuses on prevalence and factors associated with unintended pregnancy, particularly post-conflict, and raises child and maternal morbidity and mortality

which has resulted from unintended pregnancy and abortion in Tigray region specially in study area so further research must satisfy this information gap and attempt to intervene and to minimize this problem. Therefore, the present study aims to assess the prevalence of unintended pregnancies and their associated factors among pregnant women attending ANC in Mekelle City Public Health Facility, Tigray region, Ethiopia, in 2025.

1.3. Significance of the Study

There is a notable scarcity of studies addressing the prevalence of unintended pregnancies and their associated factors among pregnant women attending antenatal care in the study area, particularly in post-conflict recovery. This study significantly contributes to bridging this knowledge gap. Therefore, the findings of this research will serve as a valuable resource for national policymakers, program developers, implementers, health bureaus, and other relevant stakeholders. They can inform revisions to guidelines about the prevention of unintended pregnancies, unsafe abortions, unwanted births, and future fertility issues, while also addressing maternal and child morbidity and mortality. Additionally, this research will aid both governmental and non-governmental organizations in planning, enhancing access to health education, and providing comprehensive sexuality education. It will promote equitable access to family planning services, including counseling and contraceptive options. This study will establish a baseline for future research endeavors in this critical area.

2. Literature Review

2.1. Magnitude of Unintended Pregnancy

Unintended pregnancies are pregnancies either mistimed or unwanted at conception. Mistimed is generally defined as a pregnancy that is desired later in life but not at conception and unwanted is defined as not wanted then or in the future (3). There are around 99.1 million (44%) unintended pregnancies per year worldwide (13).A hospital -based cross-sectional study done in Pakistan prevalence of unintended pregnancy was 38.2% (29). A hospital- based cross-sectional study done in AIIMS Patna's un intended pregnancy on pregnant women attending ANC follow-up show that 33.2% (30). Based on another A hospital- based cross-sectional study conducted in Tanzania on unintended pregnancy were reported as 24.3% (12). The prevalence of unintended pregnancy was 29.1%,16%,16.28% and 64.33% among pregnant women attending ANC follow up shown by A descriptive cross-sectional study conducted in Egypt, North Central Nigeria, Port Harcourt Nigeria and Kwazulu-Natal South Africa respectively (13,31–33).

A facility -based cross-sectional study conducted in Bako Tibe Ethiopia and Dire Dawa Eastern Ethiopia, the prevalence of unintended pregnancy was 33.3% and 23.8% respectively (28,34). Another different institutional-based cross-sectional study conducted in Addis Zemen hospital, Saesie eastern zone of Tigray, Shashemene, Jimma university, Durame and Mizan Aman indicates that the prevalence of unintended pregnancy were reported as 26.1%, 24.9%, 31.1%, 32.5%, 26.8% and 36. 8% respectively (26), (18), (8), (7), (6), (2).

2.2. Factors Associated with Unintended Pregnancy

Studies conducted in different parts of the world and Ethiopia has revealed several factors associated with unintended pregnancies among them:

2.2.1. Socio-Demographic Factors

According to a study done in Shashemene, Mizan Aman, and Pakistan age was significantly associated with unintended pregnancy (2,8,29). A study conducted in Dire Dawa, Mizan Aman, and Saesie Tsaeda Emba Tigray marital status was significantly associated with the unintended pregnancy (2,18,34). A institutional-based cross-sectional study conducted in Addis Zemen showed that religion was significantly associated with unintended pregnancy (26). A institutional-based cross-sectional study conducted in Shashemene, Mizan Aman and Addis Zemen revealed that factors like husband’s educational level and educational status were

significant association with unintended pregnancy (2,8,26). A institutional-based cross-sectional study conducted in Mizan Aman revealed that variables like age at marriage significantly associated with unintended pregnancy (2).

According to a study done in Dura me and Bako Tibe, Ethiopia, showed that family size was a significant association with unintended pregnancy. These findings show that mothers whose family size six or more were 2.8 times more likely to have an unintended pregnancy than mothers who had one and the pregnant women whose household family size was greater than 6 were 8 times more likely to report their pregnancy as unintended compared to those whose family size was less than or equal to two (6,28).

A institutional-based cross-sectional study conducted in Wollo, Ethiopia, Saesie Tsaeda Emba and Mizan Aman about unintended pregnancy and associated factors among pregnant mothers attending ANC follow up the result shows that occupational status was predictor variables of unintended pregnancy (2,11,18). Besides, a study conducted in Machew town, Tigray showed that lived alone was significant association with unintended pregnancy (15). According to a study done in Wollo Ethiopia, Shashemene, Addis zemen revealed that variables like residence were significantly associated with unintended pregnancy (8,11,26).

2.2.2. Obstetric and Reproductive Factors

According to a study done in Pakistan revealed that variables like having a pregnancy interval of ≤ 12 months a statistically significant association with unintended pregnancy (29). The study done in Tanzania also revealed age at first pregnancy was significantly associated with unintended pregnancy (12). Another different study conducted in Shashemene and Bako Tibe Ethiopia, showed that parity was a significant association with unintended pregnancy. These findings show that parity of three and above (AOR= 9.7, 95% CI 2.0-47.7) and women with parity of greater than 5 were 3 times more likely to report their pregnancy unintended than those with parity less than or equal to two (8,28).

Besides, a study conducted in Addis Zemen hospital and Durame shows that gravidity was statically significantly associated with unintended pregnancy (6,26). A facility-based cross-sectional study conducted in Dire Dawa, Ethiopia revealed that variables like number of living children significantly associated with unintended pregnancy (34).

2.2.3. Family Planning Related Factors

A study done in Pakistan revealed that variables such as not knowing about contraceptive methods and never use of contraceptive methods indicated statistically significant association with unintended pregnancy (29). Similarly, a study done in Shashemene revealed that mothers' knowledge of family planning use had a statistically significant association with untended pregnancy (8).A institutional-based cross-sectional study conducted in Durame showed that knowledge about family planning was significant association with unintended pregnancy (6). A institutional-based cross-sectional study conducted in Mizan Aman revealed that variables like knowledge about the advantage of it and ever use of contraceptives were significantly associated with unintended pregnancy (2). A institutional-based cross-sectional study conducted in Saesie Tsaeda Emba, Tigray revealed that factors like information on family planning was significant associated with unintended pregnancies. Those findings show that unintended pregnancy among women with information about family planning were 70% less likely than their counterparties (18). A facility- based cross-sectional study conducted in Dire dawa, Ethiopia showed that the history of family planning use had a significant association with unintended pregnancy (34).

2.2.4. Women's Autonomy Related Factors

According to the study conducted in Mizan Aman, variables like partner discussion about pregnancy and inter- pregnancy length were significantly associated with unintended pregnancy (2). Similarly, a facility based cross-sectional study conducted in Dire Dawa, Ethiopia revealed that variables like decision maker on Family planning were significantly associated with unintended pregnancy(34). A facility based cross-sectional study conducted in Bako Tibe, Ethiopia showed that lack of spousal communication about family planning was significant association with unintended pregnancy(28).Besides, an institutional-based cross-sectional study conducted in Saesie eastern zone of Tigray revealed that factors like ever discussed family planning with their partners were significantly associated with unintended pregnancy (18).

2.2.5. Health System Related Factors

A institutional-based cross-sectional study conducted in Saesie Tsaeda Emba, Tigray revealed that factors like ever visited by HEW for reproductive health services were significantly associated with unintended pregnancy(18).

A Facility-based descriptive cross-sectional study conducted in Kersa Woreda, Ethiopia revealed that factors like having radio and having information about unintended pregnancy were significantly associated with unintended pregnancy(35).

2.2.6. Conceptual Framework

This framework is developed from different literatures. The factors with associations with the dependent variable are categorized as socio-demographic characters, obstetric and reproductive factor, family planning related factors, women's autonomy and health system related factors are included in the diagram below.

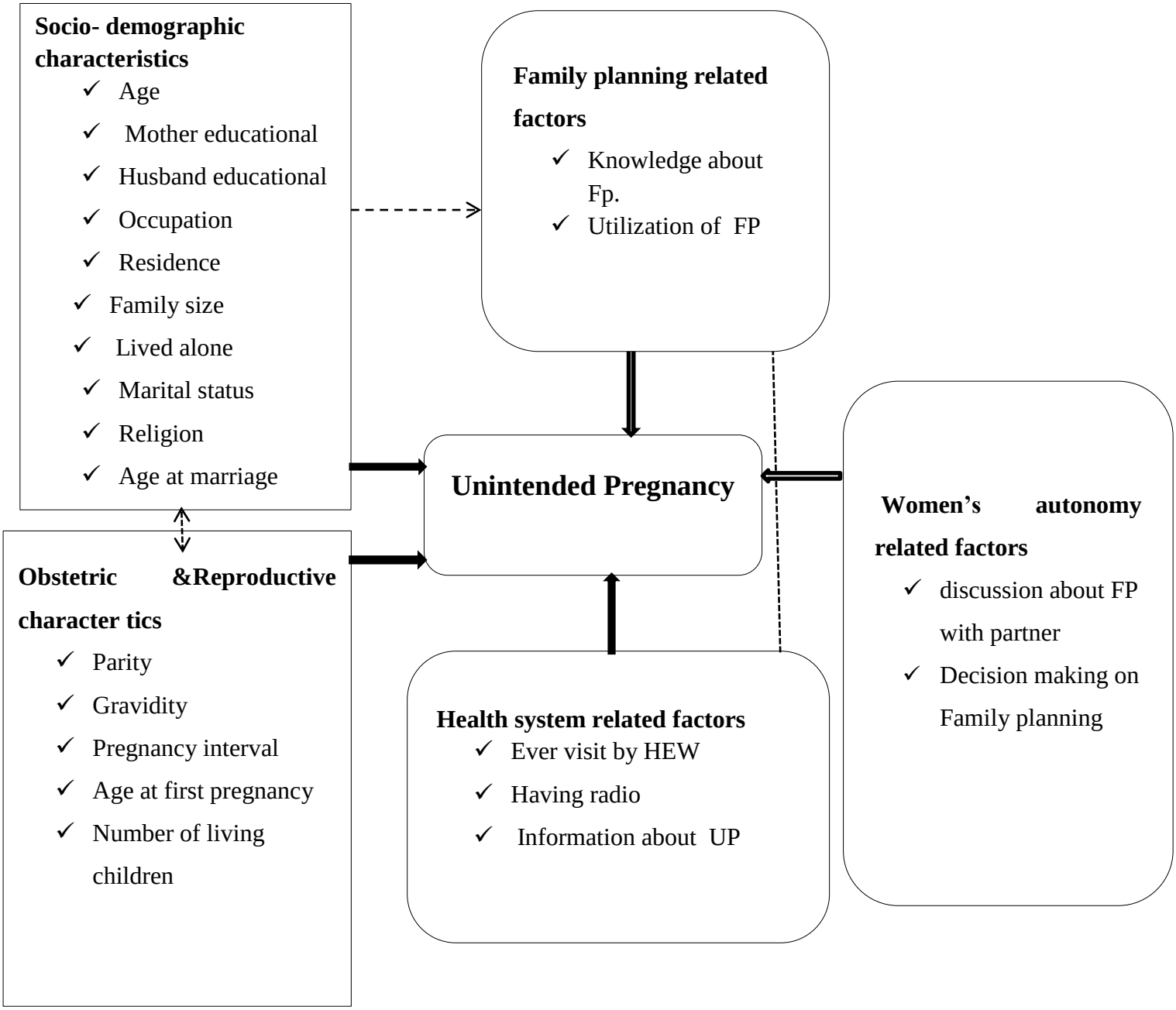

Figure 1. Conceptual framework for unintended pregnancy prevalence & associated factor among pregnant women attending ANC in Mekelle city public health facility, Tigray, Ethiopia, 2025 (2,6,11,18,29).

3. Objectives

3.1. General objective

- To assess the prevalence and associated factors of unintended pregnancy among pregnant women attending ANC in Mekelle City Public Health Facility, Tigray region, Ethiopia, 2025.

3.2. Specific Objectives

- To determine the prevalence of unintended pregnancy among pregnant women attending ANC.
- To identify factors associated with unintended pregnancy among pregnant women attending ANC.

4. Materials and Methods

4.1. Study Area and Period

This study was conducted in Mekelle City, at Public Health Facility, from November 1-December 1, 2024.Mekelle is the capital city of Tigray National Regional state, found in Northern Ethiopia. It is located around 780 kilometers North of the Ethiopian capital city, Addis Ababa, with an elevation of 2,254 meters (7,395 ft.) above sea level. Administratively, Mekelle is considered a Special Zone, which is divided into 07 sub-cities and 33 kebeles. Mekelle has one comprehensive specialized hospital, two general hospitals, two primary hospitals and eleven health centers. Mekelle zone has a total population of 612,000 by the year 2024, which is projected from 2014 Ethiopian Central Statistical Agency (36). According to the TRHB 2024 report, in three months the total number of attending the first visit ANC follow-up at Mekelle city, public health facility was 4,989 and about 852 mothers attending ANC within one month at the selected public health facility (36).

4.2. Study Design

Facility-based cross-sectional study design was conducted.

4.3. Population

4.3.1. Source Population

All pregnant mothers attending ANC in Mekelle city of public health facilities.

4.3.2. Study Population

All pregnant women attending ANC in selected public health facilities during study period.

4.3.3 Study unit

Individual pregnant mothers

4.4. Eligibility criteria

4.4.1. Inclusion criteria

Pregnant women who attend ANC service in Mekelle city selected public health facilities during the data collection period and who fulfilled the inclusion criteria were included.

4.4.2. Exclusion criteria

Unable to communicate: women who are not hear or speak and mentally disabled was excluded.

4.5. Sample Size Determination and Sampling Technique

4.5.1. Sample Size Determination

For the first objective, the sample size was determined by a single population proportion formula with the assumption of 95% CI and 0.05 margin of error. Based on study from Mizan Aman General Hospital, Southern Ethiopia, prevalence of unintended pregnancy was 36.8%(2). Taking P=0.368 from this study, the total sample size was 358, by adding 10% non-response rate; the final sample size was 394.

$n = Z^2 p (1-p) / w2$

Where; n=sample size

Z=the standard normal deviation at 95% CI (1.96)

p= proportion of unintended pregnancy was 0.368

d=marginal error (5%)

$n= (1.96)^2\ 0.368(1-0.368) / (0.05)^2 = 357.4 \sim 358$

By considering the non-response rate of 10%.

358*10%=35.8

358+35.8=393.8~394.

For the second objective double population proportion sample calculation equation using Epi info version 7.2.6 & the assumption of 95% CI, power 80% was used (18,28).The factor which put to Epi – had significant association with unintended pregnancy in the previous studies.

Table 1. Summary of sample size based on double population proportion formula Calculated by Epi-info version7.2.6 for second specific objective using three factors.

S. N	Significant Predictors	Cia tion	CI (%)	Power (%)	Exposed: Unexposed ratio	% of outcome		OR	Sample size		
						Expo Sed	Un exposed		Expo Sed	Un exp Osed	Total
1.	Family size	(28)	95	80	1:1	68	32	8	18	18	36
2.	Have information about FP	(18)	95	80	1:1	90	95.4	0.3	154	154	308
3.	Parity	(28)	95	80	1:1	75.3	24.7	3	60	60	120

Therefore, the sample size computed via single population proportion was greater and gave the highest sample size as compared to the sample size calculated using double proportion formula. Hence, the final sample size (394) was used.

4.5.2. Sampling Procedure and Techniques

There were 5 hospitals (two general, two primary and one referral hospitals) and 11 health centers in Mekelle city. By using the simple random sampling (SRS) technique (lottery method) two public hospitals and three health centers were selected. The selected public health facilities were; Ayder Comprehensive Specialized Hospital, Mekelle General Hospital, Kasech Health Center, Semien Health Center and Adishumduhun Health Center. Samples were proportionally allocated to every selected health facility based on the client flow for ANC attendance per November month from previous year (2023) since these data were collected in November (Proportion of selected health facility = Total number of client flow for ANC Attendance per November month × Sample size /Total number of client flow for ANC Attendance in all selected health facility per November month).A systematic random sampling technique was used to select study participants. The sampling fraction (K) was determined by dividing the total study population by the sample size, (852/394=2). Finally, study participants from selected public health facilities were selected every “2” intervals, until the desired sample size was attained once. The first study subject was selected using randomly.

Schematic sampling presentation

Diagrammatic presentation of the sampling procedure

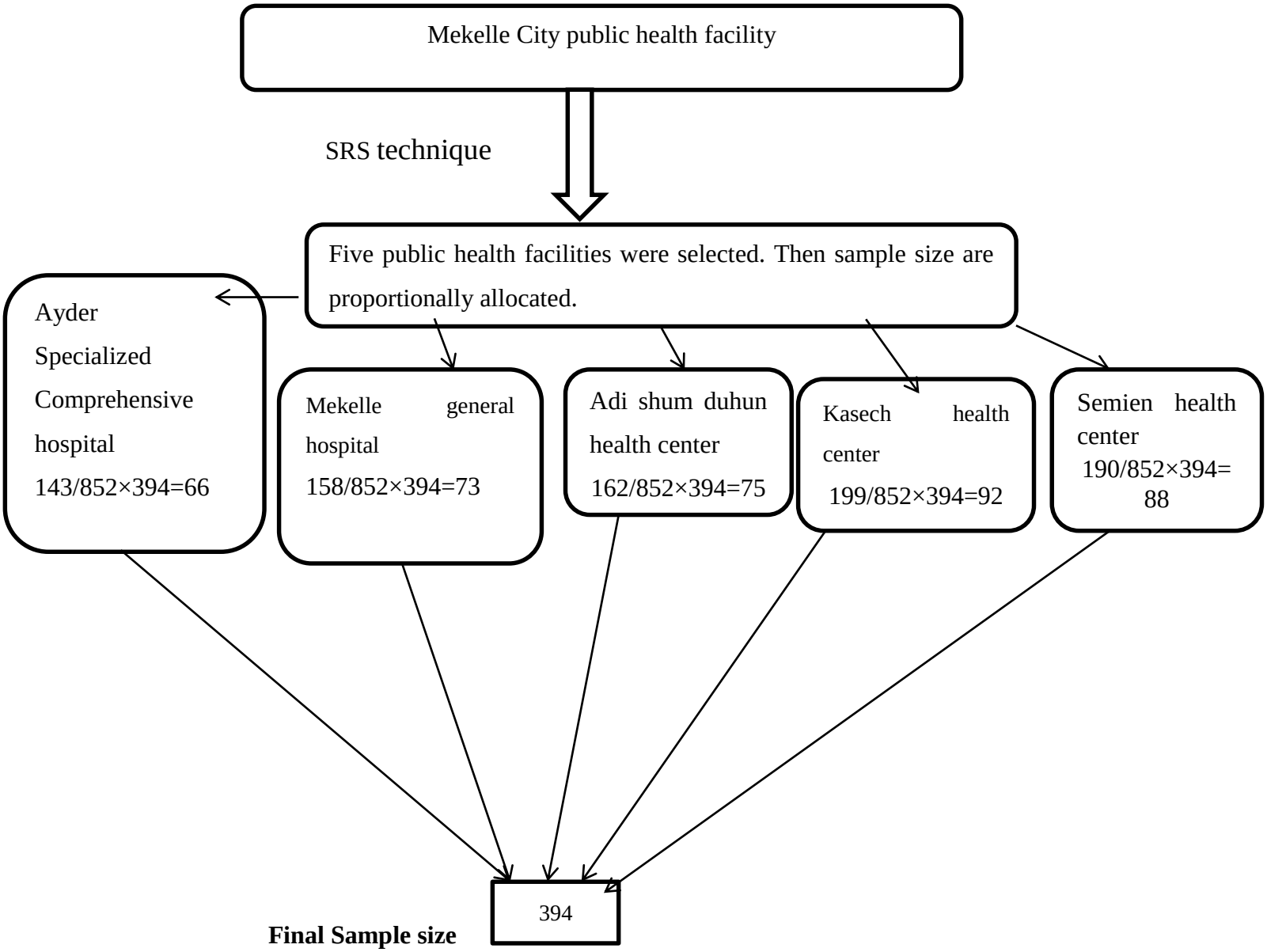

Figure 2. Schematic representation of sampling procedure to be applied to the study to reach the study participants, 2025.

4.6. Study Variables

4.6.1. Dependent Variable

Pregnancy intention

4.6.2. Independent variables

- Socio-demographic characteristics: age, family size, occupation, marital status, educational level, religion and residency, lived alone.
- Obstetric and Reproductive characteristics: age at first pregnancy, number of living children, gravidity, parity, pregnancy interval.
- Family planning related characteristics: knowledge and utilization of family planning.
- Women's autonomy factor: the women's ability to discuss and decide independently about pregnancy and the use of FP.
- Health system related factors: access information, visits by HEW.

4.7. Data Collection Tools and Procedures

The questionnaire was developed through review of relevant literatures (2,6,11,18,29).The questionnaires were consisted of information on socio-demographic, obstetric and reproductive, family planning related characteristics, women's autonomy and access to health information and service related factors. Data was collected by five trained B.Sc. midwives that have the basic skills of Tigrigna and experience of data collection. Data were collected by a face- to -face interview using a structured and pre-tested questionnaire in private room using numbers only on the questionnaire. Two supervisors and the principal investigator followed the data collection process and ensured the completeness and consistency of the collected questionnaires. Data were collected from November 1 -1 December 2024 in Mekelle city at a select public health facility, Tigray region, Ethiopia.

4.8. Data Quality Management

The questionnaires were prepared in English and translated into the local language, Tigrigna, and then translated back to English by another expert to ensure consistency. Before the actual data collection, the questionnaire was pretested with (5%) study population on a similar institution that was not included in the study (Quha hospital and Mekelle health center).

Appropriate modifications were made based on the outcomes of the pretest. Five data collectors whose profession BSc Midwife and two MSc supervisors whose profession public health were selected based on their ability to speak the local language and experience of data collection for better communication with mothers. Two days' of training were held for data collectors and supervisors by the principal investigator to have a common understanding of the objective of the study, the questionnaires, data collection procedures and techniques during the interview. The supervisor checked questionnaires filled by the data collector for their completeness and consistency and submitted them to the principal investigator within 24 hours for further checkup. The principal investigator again checked at least one tenth of the total questionnaire. Finally, to avoid errors during data entry, the collected data was entered and checked accordingly.

4.9. Data Analysis

The collected data was entered, coded and cleaned with SPSS version 25 for analysis. Descriptive statistics such as frequency and percentage for categorical variables and summary statistics for continuous data (median with IQR) were used to describe the study populations. The normality distribution test was done using the Shapiro-Wilk tests. Variance inflation factors (VIF) were used to check the multi-co-linearity effect. The Hosmer-Leme show goodness-of-fit statistic was also used to check data fits to the logistic model. Bivariate and multivariate logistic regression analyzes were used. Variables that showed a p-value of less than 0.25 during the bivariate analysis were entered into a multivariate logistic regression model to identify their independent effects. Odds ratios with a 95 % confidence interval (CI) and a p value of less than 0.05 were computed to assess the presence and degree of statistical association between dependent and independent variables. Tables, figures and text were used to present the results.

4.10. Operational or Standard Definitions

Unintended pregnancy: is a pregnancy either mistimed or unwanted at the time of conception (2–6).

Mistimed: If a woman did not want to become pregnant at the time of conception but did want to become pregnant in the future.

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

Spousal communication: this variable was measured by the respondent‘s discussion with their husband regarding family planning matters.

Ever used of family planning: a woman who had used any of modern contraceptive method s previously.

Never used family planning: a woman who had never used a modern contraceptive any time.

Women autonomy: the women’s ability to discuss and decide independently about pregnancy and contraceptive use.

Good knowledge of contraceptive methods: If the women get a score at the mean or above, they will be categorized as having good knowledge.

Poor knowledge of contraceptive methods: If the women get a score below the mean, then they will be categorized as poor knowledge.

4.11. Ethical clearance

Ethical clearance was obtained from the Institutional Review Board (IRB) of Mekelle University, College of Health Sciences with a reference number of (MU-IRB 2400/2024). A Letter of support which directs the objective of this study was written to TRHB from the Department of Midwifery College of Health Science and a written permission letter from TRHB was taken to the manager delegated to the selected public health facility, Mekelle city sites. The purpose and importance of the study was explained to the participants and written informed consent was taken before data was collected. Confidentiality, privacy and no risk issues were maintained throughout the study. Also, the right of participant to participates refuse or stop during the data collection process was assured.

4.12. Plan for Dissemination of Findings

The findings of this study were disseminated to Mekelle University, College of Health Sciences, Department of Midwifery and TRHB, effort was done to present this finding in different conferences, and attempts was done to publication a scientific journal.

5. Results

5.1. Socio-Demographic Characteristics

A total of 394 pregnant women attending antenatal care services were included in the study, giving a response rate of 100%. The median age of participants was 27 years with an IQR of (7) years. The majority, 343 (87.1%) of the study participants were married, 46 (11.7%) were single, and 5(1.3%) were divorced and widowed. Of those, 317(91.1%) got married at the age of ≥18 years, and 31 (8.9%) were married at age <18 years. About 367 (93.1%) of the participants were orthodox, followed by 24 (6.1%) Muslim, and 3 (0.8%) were Protestant. Regarding ethnicity, 390 (99.0%) were Tigray, and 4 (1.0%) were Amhara. Majority of respondents live in urban were 372 (94.4%). About occupation, 184(46.7%) were housewife, followed by 126(32%) private employees, and 48(12.2%) were government employees, 20 (5.1%) were students and 16 (4.1%) were farmers. **(See below table: 2)**

Table 2. Socio-demographic characteristics of pregnant women attending ANC in Mekelle city Public Health Facility, Tigray Region, Ethiopia, November, 2025.

Variables	Categories	Frequency	Percent (%)
Age (years)	15 – 24	125	31.7
	25 – 34	220	55.8
	35 – 45	49	12.4
Family size	<2	137	34.8
	3-5	237	60.2
	≥6	20	5.1
Educational status	No formal education	35	8.8
	Primary education (1-8)	111	28.2
	Secondary education (9-12)	145	36.8
	College and above	103	26.1
Husband Educational status	No formal education	37	9.4
	primary education (1-8)	58	14.7
	Secondary education (9-12)	142	36.0
	College and above	157	39.8
Family composition	Alone	13	3.3
	Parents	17	4.3
	Sister /Brother	12	3.0
	Husband	352	89.3

5.2. Obstetric and Reproductive History of Respondents

The majority, 307 (77.9%) of the respondents, were pregnant for the first time at the age of ≥ 20 years, and 87 (22.1%) were <20 years. About 124 (31.5%) of the study participants were primigravida, 234 (59.4%) were multigravida, and 36(9.1%) were grand multigravida. Regarding abortion, 93 (34.4%) of respondents had a history of abortion. Of these, 67 (72%) had experienced spontaneous abortion, and 26 (28%) had induced abortion. **(See below table: 3)**

Table 3. Obstetric and reproductive history of pregnant women attending ANC in Mekelle city public health facility, Tigray region, Ethiopia, November, 2025

Variables	Categories	Frequency	Percent
Have children (n =270)	Yes	240	88.9
	No	30	11.1
Number of living children (n =240)	1–2	192	80
	3–5	46	19.2
	>5	2	0.8
Parity	Nulliparous	146	37.1
	Primiparous	99	25.1
	Multiparous	141	35.8
	Grand multiparous	8	2
Birth to pregnancy interval (n =270)	<24 month	110	40.7
	24 to 59 months	132	48.9
	>59 month	28	10.4

5.3. Knowledge on Family Planning Methods and Utilization

Most of the respondents, 374(94.9%) were aware of the contraceptive methods. Of those,245(65.5%) had good knowledge, and 129 (34.5%) had poor knowledge of contraceptive methods. The sources of information about family planning for the participants were, 212(53.9%) healthcare providers, 88 (23.3%) radio, 122(31%) their friends, 86 (21.9%) schools and about 22(5.6%) of participants did not have information.

Moreover, these participants also knew that where to accesses contraceptive methods. Therefore,238(60.4%),153(38.8%),117(29.7%),46(11.7%), and 25(6.3%) of participants were reported as health centers, hospitals, pharmacies, private clinics, and health post are the sites for contraceptive methods, respectively. However, approximately 7(1.8%) of participants did not know where to get contraceptive methods.

Approximately 290(73.6%) of the respondents had ever used contraceptive methods. The most utilized contraceptive method was injectable 161(55.3%), followed by, oral pill in 124 (42.5%), implant in 101 (34.7%), emergency pill in 96 (32.9%), condom in 21 (7.2%), and IUCD

in 5 (1.7%) .The main reasons for not using contraceptive method were the mother needs to become pregnant 24(23.1%), followed by 2(1.9%) not aware of contraceptive method, 17(16.3%) used traditional method,17 (16.3%) unacceptable in religion, 9 (8.7%) fear of side effects, 13 (12.5%) contraceptive not available, and 22 (21.2%) were fear of infertility. **(See below table:4)**

Table 4. Knowledge of family planning methods among pregnant women attending ANC in Mekelle city public health facility, Tigray region, Ethiopia, November, 2025.

Variables	Categories	Frequency	Percent
Which contraceptive method do you know?	Oral pill	323	86.4
	Emergency pill	245	65.5
	Condom	198	52.9
	IUCD	126	33.7
	Implant	300	80.4
	Sterilization	12	3.2
	Injectable	317	84.8
Advantage of contraceptive	Avoid unwanted pregnancy	217	56.8
	Limiting number of children	83	21.7
	Prevent Maternal death	28	7.3
	Child spacing	153	40.2

5.4. Women's Autonomy of Respondent

Approximately, 311(78.9%) of women discussed about family planning methods with their spouses and 258 (65.5%) of the participants discussed with their spouse when to have pregnancy. Concerning the autonomy on contraceptive use, 238(60.4%) were decided jointly with their husband, 84 (21.3%) themselves, and 72 (18.3%) by their husbands

5.5. Health System related of Respondent

Majority, 262(66.5%) of the participants are living with in a walking distance of <30 minutes from the nearest health facility, and 57 (14.5%) of the respondents were visited by health workers at their home. In addition, 39 (9.9%) of the study participants obtained the

information from health professionals about unintended pregnancy and 376 (95.4%) of respondents reported having TV/Radio at home.

5.6. Magnitude of Unintended Pregnancy

Among the total respondents, 129 (32.7%) had unintended pregnancies. Out of those, 115 (89.1%) were mistimed and 14 (10.9%) were unwanted. According the finding the major reason for unintended pregnancy was had no partner 62(48%), followed by, 25 (19.4%) were being students, 42 (32.6%) due to lake of enough money to take care of the baby, 5 (3.9%) being underage, 4 (3.1%) were raped, and 39 (30.2%) had short birth to pregnancy interval. (**See below figure:3)**

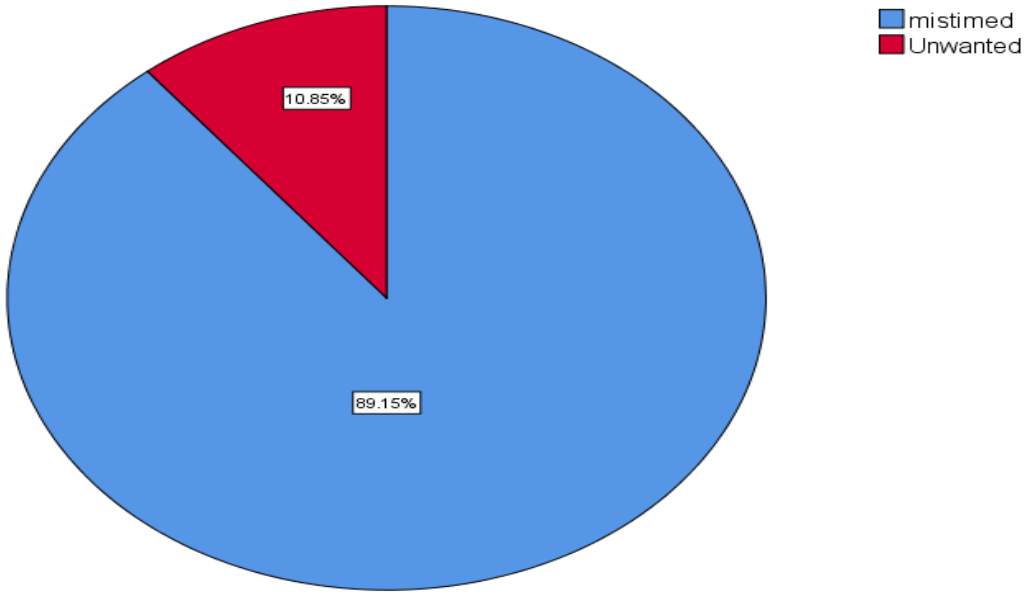

Figure 3. Magnitude of unintended pregnancy among pregnant women attending ANC in Mekelle city public health facility, Tigray region, Ethiopia, November, 2025.

5.7. Factors Associated with Unintended Pregnancy

Age, educational status, family size, having information about unintended Pregnancy, discuss about contraceptives with a husband and having decision making were significantly associated with unintended pregnancy in bivariate logistic regression analysis. From these variables, age, educational status, decision making on family planning and family size were significantly associated with unintended pregnancy in multivariate logistic regression analysis.

Regarding age, being in the age group of 15-24 was 4.702 times more likely to had unintended pregnancy than the age group from 35-45 (AOR= 4.702,95% CI 1.948,11.348).The women and husband's decision role in family planning of those pregnant women were 70.8% less likely for unintended pregnancy than women who decided by themselves (AOR = 0.292,95% CI 0.155,0.551).Women with family size of 3-5 were 2.730 times more likely to be at risk of unintended pregnancy than women with family size of ≤2 (AOR=2.730,95% CI 1.512,4.930) and women with family size of ≥6 were 3.967 times higher risk of unintended pregnancy compared to the reference group(AOR=3.967,95%CI 1.228,12.817). Besides, women with no formal education were 3.336 times higher risk of unintended pregnancy compared to the college and above (AOR=3.336, 95%CI 1.340,8.308). **(See below table: 5)**

Table 5. Logistic regressions analysis for factors associated with unintended pregnancy among pregnant women attending ANC in Mekelle city public health facility, Tigray region, Ethiopia, November, 2025.

pregnancy planned					
Variables	**Character tics**	**Yes (265) n (%)**	**No (129) n (%)**	**COR (95%CI)**	**AOR (95%)**
Age category	15 – 24	69(26.0)	56(43.4)	1.840(0.911,3.713)	4.702(1.948,11.348)*
	25 – 34	162(61.1)	58(45.0)	0.812(0.412,1.598)	1.385(0.645,2.973)
	35 – 45	34(12.8)	15(11.6)	1	1
Educational status	No formal education	20(7.5)	15(11.6)	2.929(1.285,6.672)	3.336(1.340,8.308) *
	primary (1-8)	72(27.2)	39(30.2)	2.115(1.140,3.923)	1.397(0.711,2.743)
	Secondary (9-12)	91(34.3)	54(41.9)	2.317(1.290,4.162)	1.803(0.967,3.360)
	College &Above	82(30.9)	21(16.3)	1	1
Information about unintended pregnancy	Yes	33(12.4)	6(4.6)	1	1
	No	232(87.5)	123(95.3)	0.343(0.140,0.841)	0.452(0.174,1.178)
Discussion about contraceptive with husband	Yes	219(82.6)	92(71.3)	1	1
	No	46(17.3)	37(28.6)	0.522(0.318,0.858)	0.864(0.451,1.655)
Decision making	Me only	38(14.3)	46(35.7)	1	1
	Me& husband	178(67.1)	60(46.5)	0.278(0.166,0.468)	0.292(0.155,0.551)**
	Only husband	49(18.5)	23(17.8)	0.388(0.201,0.747)	0.432(0.203,1.916)
Family size category	≤2	100(37.7)	37(28.7)	1	1
	3-5	153(57.7)	84(65.1)	1.484(0.935,2.354)	2.730(1.512,4.930) *
	≥6	12(4.5)	8(6.2)	1.802(0.682,4.757)	3.967(1.228,12.817)*

N.B: * shows p-value <0.05, ** shows p-value <0.001

6. Discussion

The findings of this study showed that the magnitude of unintended pregnancy was 32.7% (95% CI 27.9, 38.1). Age, educational status, decision making on family planning and family size were significantly associated with unintended pregnancy.

This finding was similar with the studies conducted in different parts of Ethiopia: Mizan Aman, Southern Ethiopia 36.8% (2), Kersa Woreda, Ethiopia 31.3% (35), Jimma, Ethiopia 32.5% (7), Debre-Markos, North West Ethiopia 32.9% (5) and Bako Tibe 33.3% (28).Moreover, other studies conducted in India 33.2%(30), and Egypt 29.1% (13) were similar with this finding. However, this finding was higher than the study conducted in Tanzania 24.3% (12), Addis Zemen hospital 26.1% (26), Gelasomo, East Ethiopia 27.1% (20), Durame, Southern Ethiopia 26.8% (6), Saesie Tsaeda Emba, North Ethiopia 24.9% (18), Dire Dawa, Eastern Ethiopia 23.9% (34) and Felege- hiwot referral hospital, Northwest Ethiopia 26% (4). This difference may be due to differences in the availability and accessibility of maternal health services. The reason for the gap might be due to the war in the Tigray region of Ethiopia ,which started in November 2020.As a result,78% of health posts, 72% of health centers, and 80% of hospitals in Tigray were destroyed health facilities, 37 health care workers died, and lost their jobs only 50% of the total of 25,000 health worker reported on their duty and also sociopolitical challenges severely impacted the health care system especially on maternal health service, they had limited access to and awareness of family planning(37) . However, this finding was lower than the study conducted in Pakistan, 38.2% (29) and Kwazulu South Africa 64.33%(33). This difference may be due to socio-demographics, increasing use of family planning from time to time, sampling method. The explanation may be also due to the study done in Kwazulu, South Africa convenience sampling method was used.

Age has a positive association with unintended pregnancy. Regarding age, being in the age group of 15-24 was 4.702 times more likely to had unintended pregnancy than the age group from 35-45. This finding similar with other studies conducted in Kenya and Pakistan (29,38) . This is due to the potential poor knowledge of reproductive health, less opportunity for young women to freely access family planning services and being exposed to peer pressure. Similarly, older women are also predominantly in marital union and they are more likely to plan their pregnancies. However, this finding contradicts the results of research done in Mizan Aman,

Felege Hiwot referral hospital, Arsi Negele, and Shashemene, Ethiopia(2,4,39,40). The justification for the disparity might be due to study area ad study period.

Educational status of women was one of the predictors of unintended pregnancy. Women with no formal education were 3.336 times higher risk of unintended pregnancy compared to the college and above .This finding is similar with the studies conducted in Feleg Hiwet referral-Hospital and Addis Zemen(4,26). This might be due to the fact that educated women may read information regarding complication of unintended pregnancy including prevention of unintended pregnancy. So, more educated women may easily get family planning methods .However, this finding contradicts studies in Mizan Aman (2). The justification for the disparity might be due to differences in study area.

Shared decision making in family planning of those pregnant women were 70.8% less likely for unintended pregnancy than women who decided by themselves. This finding is similar with the studies conducted in Tepi general hospital, Southwest Ethiopia, Debre Markos, Northwest Ethiopia and Bako Tibe(5,28,41). This might be due to that women having open discussion with partner encourages planning for future fertility desires and helps to manage once life very easily. In addition, both partners are involved there is less chance of misunderstanding or covert contraceptive use, which can lead to inconsistent or incorrect use and also, husbands are involved in decision-making, women are more likely to receive support emotional, and financial for accessing and using family planning services. However, this finding contradicts the result of research done in Debre Markos Town, Northwest Ethiopia where the odds of unintended pregnancy among women who had control in FP decision- making themselves were less likely than women who shared the decision making with their husband to experience unintended pregnancy (22).The justification for the disparity might be due to community-based research conducted in Debre Markos, Northwest Ethiopia.

Women with family size of 3-5 were 2.730 times more likely to be at risk of unintended pregnancy than women with family size of ≤2 and women with family size of ≥6 were 3.967 times higher risk of experience unintended pregnancy compared to the reference group. This finding similar with the studies conducted in Durame, Bako Tibe and Feleg Hiwet-Referral hospital, Ethiopia (4,6,28). This might be the unmet need for family planning and women could already have attained the number of families they desired.

7. Strengths and Limitations

7.1. Strengths

- ✓ Multi-center study.

7.2. Limitations

- ✓ The responses might have been liable to social desirability for some of the sensitive variables, since the data were collected via face-to-face interview and the participant's feelings were not studied.

- ✓ The cross-sectional nature of the study, which cannot show cause and effect relationships.

8. Conclusion and Recommendation

8.1. Conclusion

This study showed that the prevalence of unintended pregnancy in the study setting was relatively high. In this study, younger age, lower educational status, shared decision make in family planning and high family size were significantly associated with unintended pregnancy.

8.2. Recommendation

Based on the findings of this study, the following recommendation:

- ➢ **For Governmental organizations:**
- ✓ Strengthen family planning programs to ensure widespread access to and education about contraceptive methods.
- ✓ Allocate resources to improve reproductive health services, including counseling and contraceptive provision, especially for high-risk groups such younger age and high family size.
- ✓ Promote spousal communication and joint decision-making on family planning through community-based interventions.
- ➢ **For Health provider:**
- ✓ Enhance training programs for healthcare workers to improve contraceptive counseling and service delivery.
- ✓ Provide comprehensive counseling on family planning options during antenatal and postnatal visits.

- ✓ Focus on educating women about the correct use of long-acting and reversible contraceptive methods to reduce method failure and misuse.
- ✓ Provide tailored services for vulnerable groups, such as younger age, high family size.

➢ **For women:**

- ✓ Promote awareness about the availability and benefits of modern contraceptive methods to reduce unintended pregnancies.
- ✓ Advocate for women's rights to access reproductive health services without spousal or societal barriers.
- ✓ Promote women's autonomy in deciding on family planning through education and awareness campaigns.

➢ **Researcher:** Further research with qualitative study is needed to determine the exact nature and pattern of this relationship.

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10. Annex

Annex 1. Participant information sheet

Project title: prevalence and associated factors of unintended pregnancy among pregnant women attending ANC in Mekelle city public health facility, Tigray region, Ethiopia, 2024.

Investigator: Tsega Welegebrial

Introduction

Hello, I am **Tsega Welegebrial** from Mekelle University, College of Health Sciences Department of Midwifery. I am here today to collect data on "unintended pregnancy and associated factors in Mekelle public health facilities among pregnant women attending ANC Tigray region, Ethiopia." The objective of this study is to assess the prevalence and associated factors of unintended pregnancy among pregnant women attending ANC in Mekelle city public health facility, Tigray region, Ethiopia, 2024.

I kindly request you to participate in this study. Your co-operation and willingness are greatly helpful in identifying factors associated with unintended pregnancy. It needs about 20 minutes for the interview. There is no direct benefit or possible risk associated with participating in this study except the time spent on responding to the questionnaire. The information you provide will be kept strictly confidential. Your participation is voluntarily and you are not obliged to answer any question you do not want to answer. If you feel discomfort with the question, it is your right to drop it at any time you want.

Purpose

I am interviewing pregnant mothers aimed to determine unintended pregnancy at public health facilities among pregnant women attending ANC which helps to identify the factors associated with unintended pregnancy and to solve the problems detected and, at the end, it is hoped that the information you give me could help to strengthen or to design or to plan the service.

Procedure and participation

You will receive the Tigrigna version of this information sheet and consent form to read until you understand it. If you cannot read, that will not be a problem because we will also provide you oral briefing so that maximum understanding and clarity will be created. Then, subjects with interest to participate in our study will be asked to sign on the consent form, the

investigator will record your personal information. After providing your consent, we will some questions to ask you we have prepared in advance, and we will ask you to answer what you think about each question.

Confidentiality

We strongly assure you that your name and other identifiers will not be disclosed to anyone outside the study.

Rights, Risk and Benefits of the Study

Your participation in this study is voluntary and you have the right to refuse to participate or to not answer questions that you feel uncomfortable. If you change your mind about participating during the study, you have the right to withdraw. By participating in this study and answering our questions you will receive no direct benefit. However, you will help to increase understanding about 'unintended pregnancy and its associated factors in Mekelle'. The results will help to inform the international community and the government of Tigray. We will keep your information in a safe place, which can only be accessed by the study team. Therefore, I want to assure you that your participation in this study will involve no risks to you.

Inducement, incentive and compensation

There will be no monetary payment linked with your participation in this study. The benefit you will gain are mentioned in the above under the section ''Benefit''.

Results dissemination

Findings from this study will be disseminated as publication and conference presentations. Other means of communication methodologies may also be applied when necessary.

Freedom to withdraw

Your participation in this study is voluntary. No penalty or loss of benefit is involved if you change your idea that you do not want to participate.

Person to contact

If you have questions study or would like to be informed of the results after its completion, please contact the research investigator with the following address:

College of Health Sciences, Mekelle University

Cell phone number: **0945054241**

E-mail: **tsegawelegebrial21@gmail.com**

Annex 2. Consent form

The purpose of the study is to collect information regarding the prevalence and factors associated with unintended pregnancy in Mekelle. I have read the above information, or it has been read to me. I have had the opportunity to ask questions and my questions asked have been answered to my satisfaction. I consent voluntarily to participate in this study and understand that I have the right to withdraw at any time without affecting my social life or medical care.

1. Yes, of course ☐
2. No ☐

- Code of Informant_____ Signature _____ Address_____ Date
- Name of Witness_____ Signature _____ Address_____ Date
- Name of Data Collector _____ Signature _____ Address_____ Date

Annex 3. English version questionnaire

Mekelle University, College of Health Sciences, Department of Midwifery questionnaire on prevalence and associated factors of unintended pregnancy among pregnant women attending ANC in Mekelle city public health facility, Tigray region, Ethiopia ,2024.

Instruction: Circle the answer provided and where applicable writes the required Responses in the spaces provided.

Respondents Identification			
S/no	**Questions**	**Response**	
001	Questionnaire Code		
002	Name of Health facility		

Part 1: Socio-demographic factors

No.	**Question**	**possible response**	**Skip**
101.	Age in years	_____ years	
102.	What is your marital status?	1.Single 2. Married 3.Divorced 4. Widowed	If not married skip to Q≠ 103.
103.	If you are married, at what age were you married for the first time?	_____years	
104.	What is your educational status?	1. Not formal education 2. Primary education (1-8) 3. Secondary education (9-12) 4. College and above	
105.	What is your husband's educational status?	1.Not formal education 2. Primary education (1-8) 3. Secondary education (9-12) 4. College and above	
106.	What is your religion?	1.Orthodox 2. Muslim 3.Protestant 4. Catholic 5. Other, specify _____	
107.	What is your ethnicity?	1.Amara 2. Tigray 3.Eirob 4. Afar 5. Other, specify _____	
108.	Residence	1. Rural 2. Urban	
109.	Occupation	1.Housewife 2. Student 3.Governmental employee 4. Private employee 5.Farmer 6.Other, specify_____	

110	Family size?	_____Number	
111.	Who do you live with now?	1. Alone 2. Parents 3. Sister /Brother 4. Husband 5. Others, specify_____	

Part 2: Obstetric and reproductive history of factors

201.	Have you ever been pregnant before the current pregnancy?	1.Yes 2. No	If no skip Q#203,205,206,209, 210,307.
202.	Total how many times have you been pregnant (including this one, abortion, stillbirth, Neonatal death).	_____in number	
203.	Total how many births do you give until now? (including alive birth, birth of dead fetus after seven months, Neonatal death).	_____ in number	
204.	How old are you at your first pregnancy?	_____ in years	
205.	Do you have children?	1.yes 2. No	
206.	If your response for Q#205 is yes, how many live children do you have?	_____ in number	
207.	How many children do you want to have?	_____ in number	
208.	when is last date menstrual period seen?	date/month /year	
209.	when did you give birth the smallest age baby?	date/month /year	
210.	Do you have history of abortion?	1.yes 2. No	If no skip Q≠211,212,213.
211.	If the response Q≠210 is yes, how many you had abortion?	_____ numbers	
212.	At the last what abortion do you have occurred?	1.Induced 2. Spontaneous	
213.	If Induced is in hospital by health profession?	1.yes 2. No	
	Unintended pregnancy related factors		

301.	Is your pregnancy planned?	1.yes 2. no	If yes skip Q#302,303,304,306.
302.	If your response for Q#301 is no, What type of unintended pregnancy occurred?	1.mistimed 2.Unwanted	
303.	Know do you like the current pregnancy?	1.yes 2. no	
304.	What is the reason you could not avoid becoming pregnant? (Circle if need over 1)	1.Don't have enough money to take care of the baby 2.Raped 3. Not married 4.Shortgap on between previous pregnancy 5.No partner 6.I don't like pregnancy at all 7. Other, specify…….	
305.	Do you have use of contraceptive method before the current pregnancy?	1.Yes 2. No	
306.	What is the reason you could becoming pregnant the unintended pregnancy?	1.not use contraceptive method 2.failedcontraceptive method 3.Other, specify...	
307.	Do you have history of unintended pregnancy before pregnancy?	1.Yes 2. No	If no skip Q#308,309,310.
308.	If the response Q≠307 is yes, how many times you had untended pregnancy before pregnancy?	_____ numbers	
309.	When did the last unintended pregnancy?	1.Withinlastthree years 2.Beforethreeyears ago	

310.	What did you do for the unintended pregnancy had?	1.Nothing the UP continue 2. Attempt to stop but failed 3. Other, specify……	

Part 3: family planning related factors

	knowledge based question				**Skip**
401.	Do you know about contraceptive method?	1.yes 2. No			
402.	If the response Q≠401 is yes, which modern contraceptive method they know? (Circle all that you know)		Yes	No	
		1.Oral pill 2. Emergency pill 3. Condom 4. IUCD 5. Implant 6.Sterilization/Permanent 7.Injectable			
403.	Do you know that a contraceptive method is important?	1.yes 2. No			
404.	If the response Q≠403 is yes, what are the general advantage of contraceptive method do you know? (Circle all that you know)	1.To avoid unwanted pregnancy 2.Prevent maternal death 3. Limiting number of children 4. child spacing 5. Other specify…….			
405.	Where is the main placing that you able to get modern contraception methods? (Circle all that you get)	1.Hospital 2. Health center 3. Health post 4. Pharmacy 5.I don't know 6. Shop 7. Other, specify…….			

Utilization of family planning-based question			
501.	Do you have history of contraceptive method uses?	1.yes 2. No	
502.	Do they have future intention to use contraceptive method?	1.yes 2. No	

503.	If your response Q#501 is yes, which types of modern contraceptive method used? (Circle all that you used)	1. Oral pill 2. Emergency pill 3. Condom 4. IUCD 5. Implant 6.Sterilization/Permanent 7.Injectable 8. Other, specify….

504.	If your response for Q#501 is no, why don't you use modern contraceptive method?	1.Not aware of contraceptive methods 2. Use traditional methods 3. Unacceptable in my religion 4. Fear of side effects 5. Contraceptives not available 6. fear of infertility 7. Other specify-------	
Family planning related question			
601..	What is your Source information on contraceptive methods? (Circle all that you know)	1.Radio 2. TV 3. Friends 4. Health care provider 5.HEW 6. Other, specify…….	

Part 4: Women's autonomy related factors

701.	Do you discuss about contraceptive method with your husband?	1.Yes 2. No	
702.	Generally, who is primary decision maker for contraceptive method?	1.Me only 2.Me and my husband 3.My husband only	
703.	Do you discuss about current pregnancy when to conceive with your husband?	1.Yes 2. No	

Part 5. Health System Related Factor

801.	Is available functional health facility around the sites?	1.yes 2. No	
802.	How many Minutes will it take to reach the nearest health facility?	----------(in minutes)	
803.	Do you visit by health extension workers before current pregnancy?	1.yes 2. No	
804.	Dose the health worker talk to you about un intended pregnancy?	1.yes 2. No	
805.	Do you have radio or Television?	1.yes 2. No	

Thank you for voluntarily participate in the study!

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