MEKELLE UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF NURSING

DEPARTMENT OF MATERNITY AND REPRODUCTIVE HEALTH NURSING

DETERMINANTS OF PRECANCEROUS CERVICAL LESIONS AMONG WOMEN SCREENED FOR CERVICAL CANCER IN PUBLIC HOSPITALS OF TIGRAY, ETHIOPIA, 2024; CASE-CONTROL STUDY

BY: HAFTOM BIRHANE (BSC NURSE)

A THESIS SUBMITTED TO SCHOOL OF NURSING, COLLEGE OF HEALTH SCIENCES, MEKELLE UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN MATERNITY AND REPRODUCTIVE HEALTH NURSING

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Advisor Approval Sheet

This is to certify that the research thesis entitled “determinants of precancerous cervical lesions among women screened for cervical cancer in public hospitals of Tigray, Ethiopia 2024.” Case control study design. This research thesis is submitted in partial fulfillment of the requirements for the degree of master of science in maternity and reproductive health to the Mekelle University, college of health sciences school of nursing postgraduate program coordinator and this research thesis has been carried out by: Haftom Birhane Weldeyesus ID No: CHS/NMRH/008/13 under my supervision. Therefore, I recommend that the student has fulfilled the requirements and hence hereby can submit his research thesis to the department.

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Examiners' Approval Sheet

We, the undersigned, members of the Board of Examiners of the final open Défense by Haftom Birhane have read and evaluated his/her thesis determinants of precancerous cervical lesions among women screened for cervical cancer in public hospitals of Tigray Ethiopia 2024 and evaluated the candidate. This is therefore to certify that the thesis has been accepted in partial fulfilment of the requirements for the Master's Degree in maternity and reproductive health nursing.

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Name of Chairperson	Signature	Date
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Final approval and 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

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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 determinants of precancerous cervical lesions among women screened for cervical cancer in public hospitals of Tigray Ethiopia 2024 by Haftom Birhane.

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Abbreviations and Acronyms

AA	Addis Ababa
AIDS	Acquired Immunity Deficiency Syndrome
AOR	Adjusted Odds Ratio
CC	Cervical Cancer
CI	Confidence Interval
CIN	Cervical Intraepithelial Neoplasia
COR	Curds Odds Ratio
EDHS	Ethiopian Demography Health Survey
ETB	Ethiopian Birr
FMOH	Federal Ministry of Heath
GC	Grigorian Calander
HIV	Human Immune Decency Virus
HPV	Human Papilloma Virus
IUCD	Intra Uterine Contraceptive Device
KM	Kilo Meter
LIC	Low-Income-Contrary
SCJ	Squamous Columellar Junction
SPSS	Statistical Package for Social Sciences
STI	Sexual Transmitted Infection
VIA	Visual Inspection with Acetic Acid
WHO	World Health Organization

Abstract

Back ground: - Cervical cancer is a common health problem in sub-Saharan countries, mainly in Ethiopia, where a significant number of women are diagnosed, and pre-cancerous lesions are being detected at a late stage, leading to high mortality. The prevalence of precancerous cervical lesions has increased dramatically in Ethiopia (from 7% to 28%), with some regions showing even higher rates. However, the determinants contributing to this rise remain unstudied in Tigray, especially in a case-control study design.

Objective: To assess determinants of precancerous cervical lesions among women screened for cervical cancer in public hospitals of Tigray, Ethiopia, 2024.

Methods: This study employed a case-control design among (112 cases and 336controls) from August 1 to October 30/2024. Cases and controls were selected by systematic random sampling method and data was collected via a structured questionnaire then data were entered to Epi Data version 4.7 then exported to statistical package for social sciences, p value less than 0.2 in bivariate analysis were included multivariable logistic regression with 95% confidence interval. Finaly p value <0.05 were decided as determinates of precancerous cervical lesions.

Result: - Women with a secondary school (AOR=0.044; 95% CI: 0.018-0.107), diploma and above of the women (AOR=0.008; 95% CI: 0.002-0.028), women with two or more life time sexual partners (AOR=9.001, 95% CI: 4.221-19.193), history of STIs, (AOR=3.433, 95% CI: 1.600-7.364) and ever use of hormonal contraceptives (AOR=2.340, 95% CI: 1.220-4.487) were found to be determinates of precancerous cervical lesions.

Conclusion and Recommendation: Having two or more lifetime sexual partners, education status of women secondary, diploma, and above, ever use of hormonal contraceptives, and having history of sexual transmission infections were identified as determinants of precancerous cervical lesions. Therefore, efforts should be made to reduce the risk of sexual transmission infections, provide health education and strengthening education for those no formal education women, educate about faithful, one to one relationship, and promote early screening for cervical cancer in women who have ever use hormonal contraceptives.

Key words; Determinants, precancerous cervical lesions, Tigray

1. Introduction

1.1. Background

The World Health Organization (WHO) define as pre-cervical lesion as precancerous alterations in the cervical cells within an area known as the transformation zone. Additionally, these changes can occur at one of three pre-cancerous stages: cervical intraepithelial neoplasia stage 1 (CIN1), stage 2 (CIN2), or stage 3 (CIN3). If not addressed, CIN2 or CIN3, which are combined and referred to as cervical intraepithelial neoplasia stage 2 plus (CIN2+), may advance to cervical cancer (1).The main risk factors for cervical cancer is human papillomavirus (HPV), particularly types 16 and 18 (2). Cervical cancer is a vaccine-preventable disease, as well as preventable through behavioral changes (3). While women with early pre-cancerous stages most experience no symptoms, advanced disease can cause watery, blood-tinged vaginal discharge and intermittent bleeding after sex. As the cancer grows, bleeding often worsens, and in rare cases, women may experience uncontrolled bleeding from the tumor setting (4).

Visual Inspection with Acetic Acid (VIA) is an evidence-based and affordable alternative approach for cervical cancer screening in low-income countries (LICs). VIA requires fewer resources and is feasible to carry out in low-level health institutions(5). The equipment is simple and relatively inexpensive. It can be performed by trained and competent health professionals like nurses. Cryotherapy is an outpatient procedure and can be performed in a primary care setting. Anesthesia is not required, and electricity is not required, although it needs a supply of carbon dioxide. In the context of a screen-and-treat approach, a screen-positive result can be followed by an offer of treatment at the same visit, maximizing treatment coverage and reducing loss to follow-up(6).

Visual inspection with acetic acid (VIA), followed by cryotherapy, is the preferred treatment. VIA screening combined with cryotherapy, a single-visit approach established in 2009 through collaboration between the federal ministry of health (FMOH) and Pathfinder international, remains a leading strategy in Ethiopia's fight against cervical cancer. This program targets Ethiopia's significant female population, where nearly half (49.5%) are women, with approximately one-quarter (23.4%) of them of reproductive age (15-49 years old) (3). According to the EDHS 2016, 24% of women have first sexual intercourse before the age of 15 and 62% before the age of 18 years (7).

1.2. Statement of the problem

Cervical cancer is a global concern, as it progresses from pre-cancerous to cancerous stages. The prevalence of precancerous cervical lesions varies from country to country, with rates such as 13.3% in Thailand, 18% in Bangladesh, 49.5% in Greece, 15.2% in Botswana, 76% in Zambia, 16% in Nigeria, 3.6% in Uganda, 26.7% in Kenya, and 16% in Sudan(8). The prevalence of precancerous cervical lesions in Ethiopia ranges from 7% to 28%, with the Tigray region reaching 9%(9, 10)

Globally, one woman dies every two minutes, with 660,000 new cases reported and 350,000 fatalities in 2022. Cervical cancer is the most common malignancy among women worldwide. However, it is largely avoidable when detected in the pre-cancerous stage(11, 12). This burden also falls disproportionately on low-income nations, where women are much more likely to die from the disease due to financial constraints and limited access to healthcare(12). Untreated precancerous cervical lesions have the potential to regress or progress into cervical cancer, a leading cause of disease and mortality for women in underdeveloped nations, particularly in Africa. This challenge is exacerbated by the high cost and limited availability of treatments for many women in low-income settings (6). Furthermore, cervical cancer is the most commonly diagnosed cancer in most African countries and the leading cause of cancer death in 36 countries, with the vast majority located in sub-Saharan Africa (1, 13).

In most sub-Saharan African countries, a lack of awareness about cervical cancer, limited access to prevention services, and various determinants lead to over 80% of pre-cancerous lesions being detected at a late stage. This significantly contributes to cervical cancer, which is preventable compared to other reproductive cancers. In Ethiopia, cervical cancer is the second most common cancer among women, with over 6,200 new cases reported every year and close to 5,000 mortalities (14). Ethiopia faces a particularly high burden of cervical cancer, where it ranks as the leading cause of cancer death among women, second to breast cancer (13).

If precancerous cervical lesions are not detected and treated on time, they may develop into cervical cancer, which can have major social and economic effects on women's families and communities. Women's quality of life and their years of greatest economic productivity may also be affected. Financial and psychological hardship may be experienced by family members and caregivers, especially if care is unavailable or unaffordable. Family members and caregivers

frequently provide unpaid care, which can result in poor physical and mental health and job loss. Children whose parents have cancer also have lower health outcomes. The burden of cancer affects a country's economy because of missed work, early mortality, and lost production(12) , (15).

Major factors increase the risk of pre-cancerous cervical lesions. These include early sexual activity, having multiple sexual partners, exposure to sexually transmitted infections (STIs), cigarette smoking, immune suppression (including HIV/AIDS), younger age at first pregnancy, and a higher number of live births (6, 16). The World Health Organization's (WHO) 90-70-90 strategy leads the fight against cervical cancer, aiming for elimination by 2030. This comprehensive approach prioritizes early diagnosis and treatment by ensuring that 90% of adolescents receive HPV vaccination, 70% of women are screened for cervical cancer, and 90% of women with pre-cancerous lesions receive treatment (12). Ethiopia's Federal Ministry of Health and regional health bureaus lead the country's cervical cancer prevention and control program. This program includes a nationwide cervical cancer screening program that expands access to healthcare institutions .The government utilizes VIA screening, a diagnostic approach, combined with cryotherapy, a procedure that freezes and destroys precancerous lesions(17).

Despite research on the determinants of precancerous cervical lesions in Ethiopia, where the disease has been on the rise, the determinants of precancerous cervical lesions in the Tigray region have not been examined through a case-control study design. Further research is necessary in this area because only cross-sectional studies have been conducted. Women between the ages of 21 and 49 were included in this study, although rare Ethiopian published research focused on women within this age range, most study focused in the age group 30-49 years. The purpose of this study is to assess the determinates associated with precancerous cervical lesions in women who have undergone cervical cancer screening in Tigray's public hospitals.

1.3. Significance of the study

This study, conducted in Tigray's public hospitals to assess the determinants of precancerous cervical lesions, benefits the community by creating awareness of the determinants. Program managers and policymakers can use it as input for policymaking, and researchers can use it to conduct further research. By strengthening existing prevention programs, it aims to significantly lower maternal deaths and illnesses and assist other stakeholders in developing evidence-based policies and guidelines. Healthcare providers can also utilize these findings for determinant identification.

2. Literature review

2.1. Socio-demographic related factors

A cross-sectional study in Cameroon showed that age was significantly associated with precancerous cervical lesions. Furthermore, women aged between 25 and 38 years were 3.4 times more likely to have these lesions than those aged between 39 and 52 years (18). A cross-sectional study conducted in Rwanda revealed a decreased risk of precancerous cervical lesions among women older than 40 years, with an Adjusted Odds Ratio (AOR) of 0.52 compared to women younger than 20 years (19). A case-control study conducted in Woliso town, Southwest Shoa, showed that women under 20 years old were five times more likely to have positive pre-cervical lesions compared to those over 20 years old (20). Another case-control study conducted in South Ethiopia showed that women aged 30 to 39 years had a greater likelihood of having precancerous lesions, with an Adjusted Odds Ratio of 2.51 compared to women aged 21 to 29 years (10).

Another case-control study conducted in Dessie town, Northeast Ethiopia showed that being a private employee was associated with pre-cervical cancer, with an Adjusted Odds Ratio (AOR) 4.67 compared to being a housewife (21). A case-control study conducted at a referral hospital in the Amhara region showed an association between urban residents and pre-cervical cancer, with urban residents having 2.6 times higher odds of developing the condition compared to non-urban residents (22).A case-control study conducted in a hilly state, in India, showed that women with low educational status had a 1.39 times higher risk of cervical cancer than those with a good educational status (23). A study conducted in Tanzania showed that non formal education 4.3 times risk for VIA positive than counter partes(24). A study done in Tigray Ethiopia merchant 4.8 times higher risk for pre-cancerous cervical lesions has no formal work Marital status being divorced or widowed 2.5 and 4.7 more likely for via positive (9).

2.2. Sexual and reproductive related factors

A case-control study conducted in a hilly state, in India, showed that spacing between pregnancies was a significant factor associated with cervical cancer, with an AOR of 2.8 than counterparts (23). A case-control study conducted in Ambo Town showed that women with five or more pregnancies were associated with pre-cervical cancer lesions, with an AOR of 4.5 compared to women with fewer than five pregnancies (5). Another case-control study conducted

in Woliso town, Southwest Shoa, showed that women who had five or more deliveries were twice as likely to have a positive VIA test compared to those with no delivery experience (20). A cross-sectional study conducted at Dessie Referral Hospital showed that abortion was associated with a 1.6 times increased risk of precancerous cervical lesions compared to women without a history of abortion (25).

Another case-control study conducted in North Shoa Zone, Amhara, revealed that women with HIV were 3.4 times more likely to have pre-cervical lesions, and those with a history of sexually transmitted diseases were 2.5 times more likely, compared to their respective counterparts (26). A case-control study conducted in Wolaita Sodo showed that HIV-positive women were five times more likely to develop precancerous cervical lesions compared to HIV-negative women.

Additionally, participants with a previous history of STDs were four times more likely to develop precancerous cervical lesions than those without a history of STDs (2). A case-control study conducted in Adama Town, Ethiopia, showed a significant association between STIs and the development of precancerous lesions. Women with a history of STIs were twice as likely to develop precancerous cervical lesions compared to those without, with an AOR of 2.485 (27). A case-control study conducted in Woldia showed that a history of sexually transmitted infections was a significant risk factor for pre-cervical lesions, with an odds ratio of 4.97 compared to women without a history of STIs (28).Another case-control study done in Adis Abeba showed that women having STI 3.3 higher odds of for pre-cancerous cervical lesions than have not STI (29). A case-control study done in Oromia showed that women having STI 1.9 had higher odds of pre-cancerous cervical lesions than women having no STI (30). Aase control study done in Mari stop Adama town hospital showed that women having STIs 2 times more likely to develop pre-cancerous cervical lesions than counterparties (27). A case-control study done in South Wollo North East Ethiopia Amhara region showed that women having STIs had 3.69 times higher odds of developing pre-cancerous cervical lesions than those having not STI (31). A case-control study done in Woliso town Southwest shoa hospital showed that women having STI 4.05 higher odd for pre-cancerous cervical lesions than women have not STI (20). A case-control study done in western Kenya showed that women having STI 1.03 had higher odds of association for pre-cancerous cervical lesions than have not STI (32). A

case-control study done in Iran showed that women having STI 2.612 had higher odds of pre-cancerous cervical lesions than counterparties (33).

A case-control study conducted in south Ethiopia showed that women who initiated their first sexual intercourse at or before the age of 20 had higher odds of developing precancerous cervical lesions compared to those who initiated sexual intercourse after the age of 20, with an odds ratio of 2.39 (10). Another case-control study conducted at Marie Stopes International Hospital in Adama, Ethiopia, showed that women who initiated sexual intercourse before the age of 15 years were 5.6 times more likely to develop precancerous cervical lesions compared to those who initiated sexual intercourse between the ages of 21 and 25years (27). Moreover, a case-control study conducted in South Ethiopia showed that women who initiated their first sexual intercourse at or before the age of 20 years had a greater likelihood of developing precancerous cervical lesions compared to those who initiated their first sexual intercourse after the age of 20 years, with an odds ratio of 2.39 (10). A case-control study conducted in Woliso showed that participants who initiated sexual intercourse before age 18 were four times more likely to have a positive VIA test compared to those who initiated sexual intercourse after age 18, with an odds ratio of 4.73 (20). A case-control study conducted in Woldia showed that women who initiated sexual intercourse at an early age (less than 18 years) had a higher odds ratio of 4.35 for developing precancerous cervical lesions compared to those who initiated sexual intercourse at or after 18 years (28).

Another case-control study conducted in southern Ethiopia showed that women whose partners or husbands had two or more other lifetime sexual partners were associated with higher odds of having precancerous cervical lesions, with an odds ratio of 2.98 compared to women whose partners or husbands had no or one sexual partner (10). Women who had two or more lifetime sexual partners had a higher risk of precancerous cervical lesions, with an odds ratio of 3.21 compared to women with no or one sexual partner (28).

A case-control study conducted in Addis Ababa showed that women with two or more lifetime sexual partners were more likely to develop precancerous cervical lesions, with an odds ratio of 2.17 compared to women with one sexual partner (29). Another case-control study done in Oromia showed that women having multiple sexual partners were3.2 times more likely to develop pre-cancerous than women with less than one sexual partner (30). A case-control study

done in south Ethiopia showed that women who had more than one sexual partner had a 4.7 times higher odds of developing pre-cancerous cervical lesions than women who had less than one sexual partner (10). A case-control study done in Jumia showed that women with more than one sexual partner had 2.0 times higher odds of developing precancerous lesions than women with less than one sexual partner (34). A case-control study conducted at Woliso Hospital showed that women who had more than one sexual partner had 4.81 times higher odds of developing precancerous cervical lesions than women who had less than one sexual partner (20).

A case control study in hospital Oromia region showed that women history of post coital bleeding had three times higher odds developing precancerous cervical lesions than counterparts (35). A case-control study conducted in Dessie Town, Northeast Ethiopia, showed that having symptoms of postcoital bleeding was associated with pre-cervical lesions, with an odds ratio of 3.08 compared to women without such symptoms (21). A case-control study conducted in North Shewa, Amhara Region, showed that women using hormonal contraceptives (oral contraceptives) were 5 times more likely to develop precancerous cervical lesions than non-hormonal contraceptive users (26). A case-control study conducted in Ambo town showed that contraceptive use was associated with pre-cervical lesions, with an odds ratio of 5.4 compared to non-users (5). A case-control study conducted at Marie Stopes showed that women using oral contraception were twice as likely to develop precancerous cervical lesions compared to women who were not using oral contraceptives, with an AOR of 2.342 (27). A case control conducted in Iran showed that women taking hormonal contraceptives with 1.579 times associated with cervical cancer (33). A case-control study conducted in Indonesia showed that hormonal contraceptive users were nine times at risk for cervical cancer than non-hormonal contraceptive users (36).

2.3. Family history and Life style related factors

A case-control study conducted in Pakistan showed that a family history of cervical cancer was associated with a 4.7 times higher risk of developing cervical cancer (37). Another case-control study conducted in Indonesia showed a significant relationship between pre-cervical lesions and family history. Women with a family history were 0.116 times as likely to develop pre-cervical lesions compared to women without a family history of cervical cancer (38). A case-control

study in New South Wales, showed that smoking among women aged 30-44 years was significantly associated with pre-cervical cancer, with a 1.43 times greater risk compared to women younger than 30 years (39). Another case-control study conducted in the Oromia Region, Ethiopia, showed that women with a history of smoking were nine times more likely to have a positive VIA test compared to non-smokers (40).

2.5. Conceptual framework

The framework assumes that precancerous cervical lesions are affected by several determinates directly associated with them. These determinants are categorized as socio-demographic, sexual and reproductive, family history and lifestyle-related, factors, represented diagrammatically. (Figure 1)

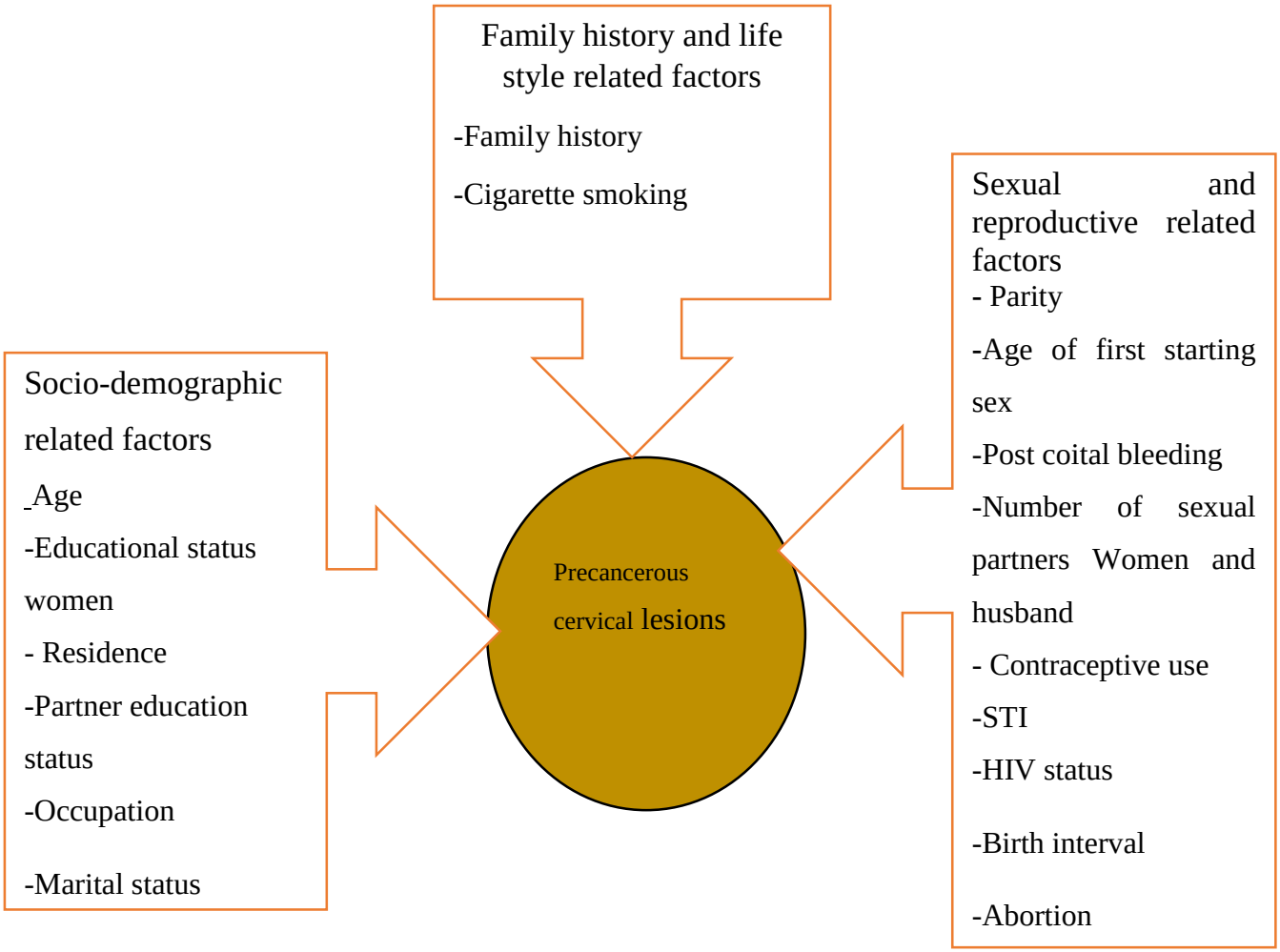

Figure 1: Conceptual framework of determinants affecting precancerous cervical lesions developed based on different literatures Tigray, Ethiopia, 2024 (2, 9, 10, 20, 29).

3. Objective

- To assess determinants of precancerous cervical lesions among women screened for cervical cancer in public hospitals of Tigray, Ethiopia, 2024.

4. Methods and Materials

4.1. Study Area

The study was conducted in hospitals under the interim government of the Tigray region, located in northern Ethiopia, 783 kilometers from Addis Ababa. The region is administratively divided into seven zones and 94 districts (woredas). Based on the federal population projection of 2022, there are approximately 5,738,996 people in the Tigray region, of whom 2,903,931 are female. Using a conversion factor of 23.48%, approximately 681,842 are of reproductive age. Women constitute 50.6% of the total population (41). There are two tertiary hospitals, ten general hospitals, and eleven primary hospitals providing routine cervical cancer screening using the VIA test in the Tigray region: Ayder Comprehensive Specialized Hospital, Axum Comprehensive Specialized Hospital, Lemlem Karl General Hospital, Mayani General Hospital, Mekelle General Hospital, Quiha General Hospital, Edigrat General Hospital, Wekro General Hospital, Shul General Hospital, Axum St. Mary General Hospital, Adwa General Hospital, Abi Adi General Hospital, Enticho Primary Hospital, Brshewa Primary Hospital, Yekatit 11 Primary Hospital, H/Selam Primary Hospital, Yechila Primary Hospital, Mekoni Primary Hospital, Adigudom Primary Hospital, Samre Primary Hospital, Atsbi Primary Hospital, Hawezine Primary Hospital, and Doctor Tsegay Primary Hospital. From these hospitals, 11 hospitals (48%) were selected from the 23 public hospitals to conduct cervical cancer screening with VIA (42).

4.2. Study design and Period

Institutional-based unmatched case-control study was implemented from August 1 – to October 30, 2024.

4.3. Population

4.3.1. Source population

All women aged 21-49 who came to public hospitals in Tigray in 2024 for cervical cancer screening.

4.3.2 Study population

Cases: Women aged 21-49 who tested positive for pre-cancerous cervical lesions in selected public hospitals during the data collection period.

Controls: Women aged 21-49 who tested negative for pre-cancerous cervical lesions in selected public hospitals during the data collection period.

4.4. Inclusion and exclusion criteria

4.4.1. Inclusion criteria

Cases - study participants aged from 21 – 49 years who had a positive test for VIA.

Controls - study participants aged from 21 – 49 years who had a negative test for VIA.

4.4.2. Exclusion criteria

For Cases: Suspicious of Cancer.

4.5. Sample size determination

The sample size was calculated using a double population formula with Epi Info software, based on the following assumptions: a 95% confidence level, 80% power, case-to-control ratio of 1:3 was used and the maximum sample size for age at first sexual intercourse less than or equal to 20 years, as determined in a 2021 study in South Ethiopia. The proportion of individuals with age at first sexual intercourse less than or equal to 20 years was 14.3% for cases and 24.4% for controls, with an adjusted odds ratio of 2.39 (10). By adding a 10% non-response rate and applying a design effect of 1.5 the final sample size was 448 (112 cases and 336 controls). (Table 1)

Table 1Simple Size calculating is done for the following determinates associated with pre-cancerous cervical lesion among women screened for cervical cancer Tigray, Ethiopia, 2024.

S.no	Significant determinants with citation	Power %	Control : case ratio	Cases %	Controls %	AOR	Case Sample size	Control Sample size	Total Sample size
1	Parity >5(20)	80	3	61.6	42.4	2.78	47	140	187
2	Age at first sexual intercourse less than ≤20 years(10)	80	3	14.4	24.4	2.39	68	204	272
3.	History of STDs(20)	80	3	50.0	16.3	4.05	31	92	123
4	>1,lifetime sexual, partner(10)	80	3	33.7	8.1	4.70	37	111	148

Key: STD=sexual transmitted disease AOR= adjusted odds ratio CI= confidence interval.

4.6. Sampling procedure or technique

In the Tigray region, twenty-three public hospitals providing routine cervical cancer screening using VIA, from those eleven public hospitals were selected namely, Ayder comprehensive specialized hospital, Axum comprehensive specialized hospital, Mekelle general hospital, and Adigrat general hospital, Suhal general hospital, Axum St. Mary general hospital, Abiadi general hospital, Lemlem Karl general hospital, Aferom primary hospital, Yekatit 11 primary hospital, Adi-gdom primary hospital, were selected using a lottery method.

The total sample size was allocated proportionally based on the monthly client flow reported by each hospital. Study participants were selected using systematic random sampling for both cases and controls, K for cases and controls were calculated by dividing the total cases and controls (N) by the total sample size (n) of cases and controls. While the first study subject was selected by lottery method, the rest study subjects was selected using the calculated K value in which the patients were selected every K interval of the cases and controls (K)=N/n for cases, every 2 participants were selected, and for controls, every 7 participants were selected. The study subjects were identified after being screened with VIA test, performed by trained midwives and nurses, and testing positive or negative for VIA excluding those with suspicious cases. Women with positive and negative VIA test presented to the same health facility for cervical cancer screening within during data collection period. (Figure 2**)**

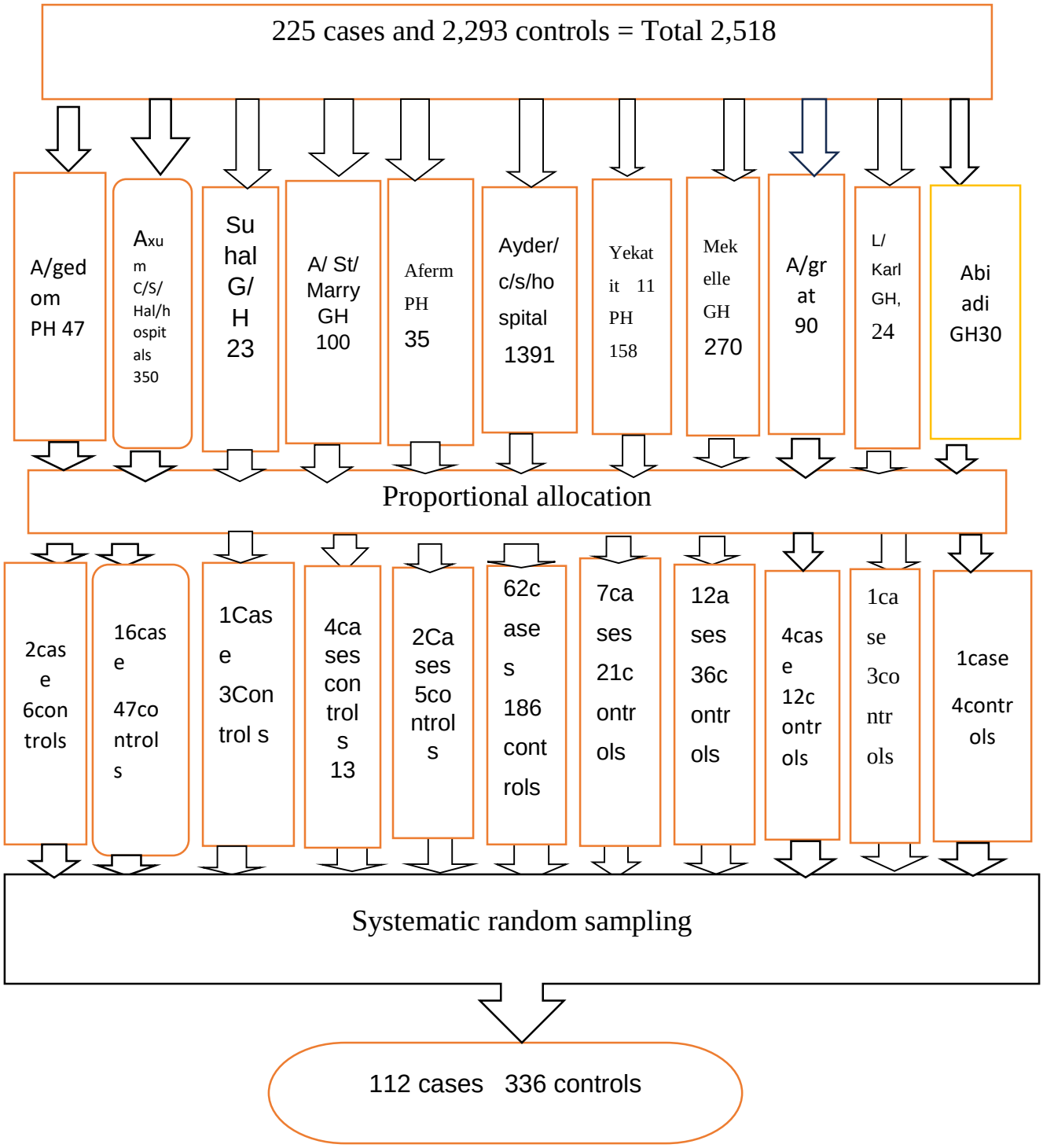

Figure 2. Schematic presentation of sampling procedure determinants of precancerous cervical lesions among women screened for cervical cancer in public hospitals of Tigray, Ethiopia, 2024.

4.7. Data collection tools and procedures

- Data were collected using a structured, pre-tested questionnaire adapted from various literature sources related to precancerous cervical lesions(2, 9, 10, 20, 29). The questionnaire encompassed sociodemographic-related factors, sexual and reproductive-related factors, family history of cervical cancer, and lifestyle-related factors. Data were collected from study participants using interviewer-administered questionnaires by eleven trained data collectors (BSc nurses and midwives) who worked in the eleven selected hospitals providing cervical screening services for one day before one week data collection and who also had experience in data collection. Four supervisors oversaw the data collection process.

4.8. Variables

4.8.1. Dependent variable

- VIA test result for pre-cancerous cervical lesions

4.8.2. Independent variable

- Socio-demographic related factors: age, residence, educational status, occupation, marital status.
- Sexual and reproductive related factors: age of first starting sex, post-coital bleeding, number of sexual partners of women and husband, STI, HIV status, hormonal contraceptive, birth intervals, parity, abortion.
- Family history of cervical cancer and Lifestyle-related factors, family history of cervical cancer, cigarette smoking.

4.9. Operational definitions

Case- participants who had confirmed VIA-positive raised and thickened white plaques of aceto-white lesions, usually near the SCJ of the cervix (6).

Control- participants who had confirmed VIA-negative smooth, pink, uniform and featureless cervix (6).

VIA-visual inspection with acetic acid VIA is a direct visual assessment of the cervix using a 3–5% acetic acid solution to visibly whiten cervical lesions, which temporarily produces what is known as an acetowhite lesion (1).

4.10. Data processing and Analysis

The data were entered into Epi-Data version 4.7 and exported to Statistical Package for the Social Sciences (SPSS) version 27 for analysis. Before analysis, the data were cleaned and coded, cross-tabulations was done. Descriptive analysis of the data was performed by frequency and proportion. Bi-variate logistic regression analysis for each independent variable was employed and those with a P-value less than 0.2 were entered into a multivariable logistic regression analysis to identify independent predictors of pre-cancerous cervical lesion at p-value < 0.05. Adjusted odds ratios (AOR) and their 95% CI were used to look into the association between the dependent and independent variables. Multicollinearity was checked using a variance inflation factor (VIF) of less than 5%. The goodness-of-fit of the final logistic model was tested using the Hosmer-Lemeshow test. Finally, the results were summarized and presented using text, graphs, frequency tables.

4.11. Data quality assurance techniques.

The questionnaires were prepared in English and translated into Tigrigna and back to English by independent language experts for consistency. Data cross cheaked with source document(medical records),data entry was double checked and cleaned ` to maintain data quality primary data were collected from participants prospectively. A pretest was conducted by taking 5% of the total sample size, pre-tested questionnaires was done at wukro hospital a week before the actual study and necessary modifications were made for the questionnaire according to the gap identified, like educational status unable to read and write was modified to non-formal education. Data collectors and supervisors received a one-day training on study objectives, data collection procedures, and relevance. A 5% sample size, or twenty-two participants 5 cases and 17 controls, was pretested at Wukro hospital before the actual data collection period. The principal investigator along with other four supervisors monitor the overall data collection process eleven nurses with experience of similar data collection were involved. The completeness of the questionnaires was cross checked for accuracy and consistency.

4.12. Ethical consideration

The eleven hospitals chosen by lottery— Ayder comprehensive specialized hospital, Axum comprehensive specialized hospital, Shul General hospital, Mekelle general hospital, and Adigrat general hospital— Axum St. Mary general hospital, Abi Adi general hospital, Lemlem Karl general hospital Adi-gdom primary hospital, , Aferom primary hospital, Yekatit 11 primary hospital, were sent official support letters after receiving ethical clearance from Mekelle University's college of health sciences institutional review committee (ethical clearance number CHS/144/NS/16). All participants and the leaders of these sites were fully informed about the study's goals, to maintain confidentiality, questionnaires were anonymous, and written consent was obtained from each participant prior to the interview.

4.13. Dissemination of the result

Upon completion, the study findings will be submitted and presented to Mekelle University's college of health sciences, school of nursing, the Tigray regional health bureau, and all participating public hospitals. We will further disseminate the results through presentations at various scientific forums and try for publication in reputable international journals.

5. Results

5.1. Socio demographic character of the participants

A total of 112 cases and 336 controls were participated in the study with a response rate of 100%. The age range of the study participants were 21 to 49 years. The mean age of the respondents was 36.26(±6.16 stander deviation SD) and 36.78 (±6.16 SD) for cases and controls respectively. Secondary school of the women (Grades9-12th) were 14 (12.5%) cases, and135 (40.2%) controls and Table 2).

Table 2 Distribution of socio demography characteristics of participants in Tigray Ethiopia 2024(N=448).

Variables	Categories	Cases (%)	Controls (%)	Totals (%)
Age	21-29	21(18.8)	48(14.3)	69(15.4)
	30-39	61(54.5)	196(58.3)	257(57.4)
	40-49	30(26.8)	92(27.4)	122(27.2)
Educational status of women	Non-formal education	51(45.5)	44(13.1)	95(21.2)
	Primary	42(37.5)	26(7.7)	68(15.2)
	Secondary	14(12.5)	135(40.2)	149(33.3)
	Diploma and above	5(5.0)	131(39.0)	136(30.4)
Occupation	House wife	19(17.0)	52(15.5)	71(15.8)
	Government employee	6(5.4)	19(5.7)	25(5.6)
	Private	23(20.5)	93(27.7)	116(25.9)
	Others	64(57.1)	172(51.2)	236(52.7)
Place	Rural	23(20.5)	86(25.6)	109(24.3)
	Urban	89(79.5)	250(74.4)	339(75.7)
Marital status	Single	8(7.1)	10(3.0)	18(5)
	Married	76(67.9)	244(72.6)	320(71.4)
	Widow	8(7.1)	52(15.5)	60(13.4)
	Divorced	20(17.9)	30(8.9)	50(11.2)
Partner's educational(husband)	Non- formal	4(3.8)	15(4.6)	19(4.4)
	primary school (Grades 1-8th)	62(59.6)	129(39.6)	191(44.4)

	Secondary (Grade 9-12th)	27(26.0)	125(38.3)	152(35.3)
	Diploma and above	11(10.6)	57(17.5)	68(15.8)

Others (merchant, daily labour, student)

5.2 Family history of cervical cancer, chronic disease and life styles of respondents

Family history of cervical cancer, 55 (49.1%) were cases and147 (43.8%) controls had a family history of cervical cancer and 35 (31.3%) cases and 44(13.1%) controls were with chronic diseases and 12 (10.7%) cases and 27 (8.0%) controls were cigarette smokers**. (**Table 3**)**

Table 3: Family history, chronic disease and life styles of respondents of precancerous cervical lesions status among women screened for cervical cancer in public hospital Tigray Ethiopia 2024(N=448).

Variables	Categories	Cases (%)	Controls (%)	Total (%)
Relatives' cervical cancer	Yes	55 (49.1)	147 (43.8)	202(45.1)
	No	57(50.9)	189 (56.3)	246 (54.9)
Chronic disease	Yes	35 (31.3)	44(13.1)	79(17.6)
	No	77 (68.8)	292(86.9)	369(82.4)
Cigarette smokers	Yes	12(10.7)	27(8)	39(8.7)
	No	100(89.3)	309(92.0)	409 (91.3)

5.3 Sexual and reproductive history of participants

Women who have been <18yrs age during first sexual intercourse were 32 (28.6%) cases and 77(22.9%) controls respectively. Of the total participants who have used hormonal contraceptives were 77 (68.8%) cases and 187 (55.7%) of controls. 51 (45.5%) cases and 106(31.5%) controls had a history of sexually transmitted infections.73 (65.2%) cases and 59 (17.6%) controls women had two or more sexual partners and 19 (17.0%) cases and 48 (14.3%) controls had husbands with two or more sexual partners**. (**Table 4)

Table 4 Sexual and reproductive factors of precancerous cervical lesions status among women screened for cervical cancer in public hospitals Tigray, Ethiopia 2024(N=448).

Others* means (always irregular and no menstruation)

From the total HIV screened participants six (5.4%) cases and nineteen (5.7%) controls were HIV positive. (Figure 3)

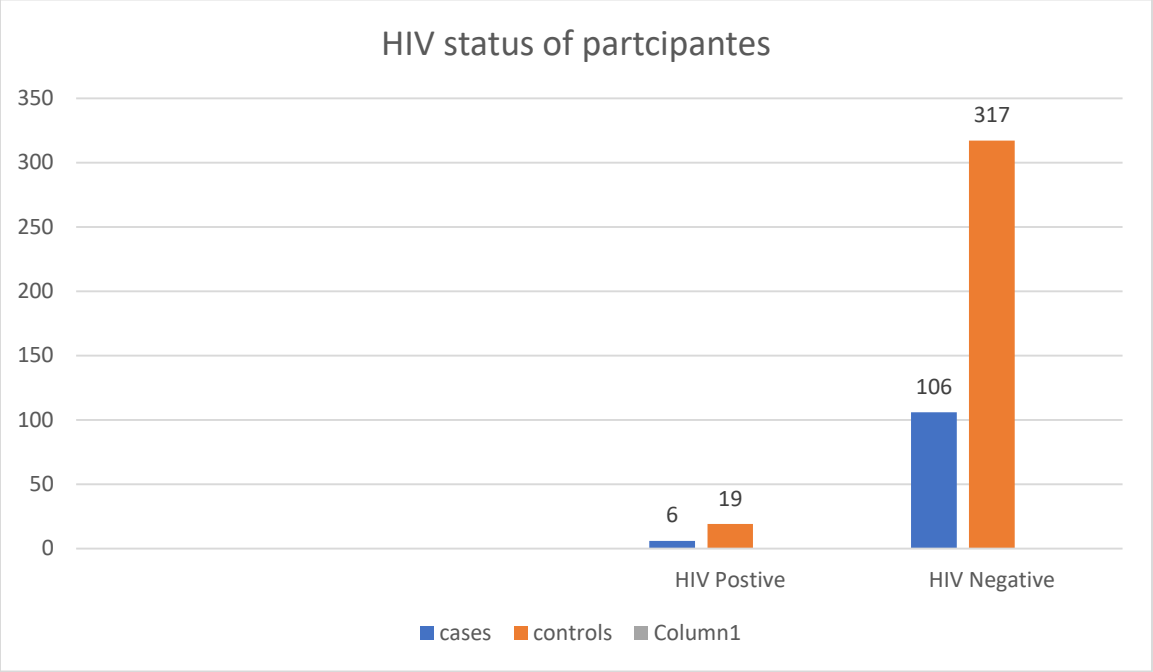

Figure 3 Distribution of HIV status of precancerous cervical lesions status among women screened for cervical cancer in public hospitals Tigray Ethiopia 2024(N=448).

Hormonal contraceptive users of the participant's oral contraceptives cases 60 and controls 157 and injectable cases 18 and controls 108, implant 10 cases and 51 controls, Intra Uterine Contraceptive Device 4 cases and 5controls**.**

Variables	Categories	Cases (%)	Controls (%)	Total (%)
Age of first menses	≤12 13-15 >15	16(14.3) 38(33.9) 58(51.8)	48(14.3) 169(50.3) 119(35.4)	64(14.3) 207(46.2) 177(39.5)
Age of sexual intercourse	<18 ≥18	32(28.6) 80(71.4)	77(22.9) 259(77.1)	109(24.3) 339(75.7)
Age of first pregnancy	<18 ≥18	5(5.0) 101(95.3)	9(2.8) 312(97.2)	14(3.3) 413(96.7)
Regularity of menstruation	regular sometimes irregular others *	66(58.9) 39(34.8) 7(6.3)	218(64.9) 103(30.7) 15(5.0)	284(63.4) 142(31.7) 22(5.0)
Hormonal Contraceptives user	Yes No	77(68.8) 35(31.3)	187(55.7) 149(44.3)	264(58.9) 184(41.1)
Length of contraceptive	<5years ≥5years	66(85.7) 11 (14.3)	150 (80.6) 36 (19.4)	216 (82.1) 47 (17.9)
Postcoital bleeding	Yes No	28(25.0) 84(75.0)	59(17.6) 277(82.4)	87(19.4) 361(80.6)
Give birth	Yes No	106(94.6) 6(5.4)	319(94.9) 17(5.1)	425(94.9) 23(5.1)
Parity	1-2 3-4 ≥5	40(37.4) 44(41.5) 22(20.8)	100(31.3) 124(38.9) 95(29.8)	140(32.9) 168(39.5) 117(27.5)
Regularity of birth interval	<2years ≥2 years	67(63.2) 39 (36.8)	200 (62.7) 119 (37.3)	267(62) 158 (37.2)
Abortion	Yes No	31(27.7) 81(72.3)	62(18.5) 274(81.5)	93(20.8) 355(79.2)
Number of abortions	1 ≥2	24(80.0) 6(20.0)	44(69.8) 19(30.2)	68(73.1) 25(26.9)
STI	Yes No	51(45.5) 61(54.5)	106(31.5) 230(68.5)	157(35.0) 291(65)
Number of sexual partner of women	1 ≥2	54(48.2) 58(51.8)	267(79.5) 69(20.5)	321(71.7) 127(28.3)
Sexual partner of husband	1 ≥2	85(81.7) 19(18.3)	280(85.9) 46(14.1)	365(84.9) 65(15.1)

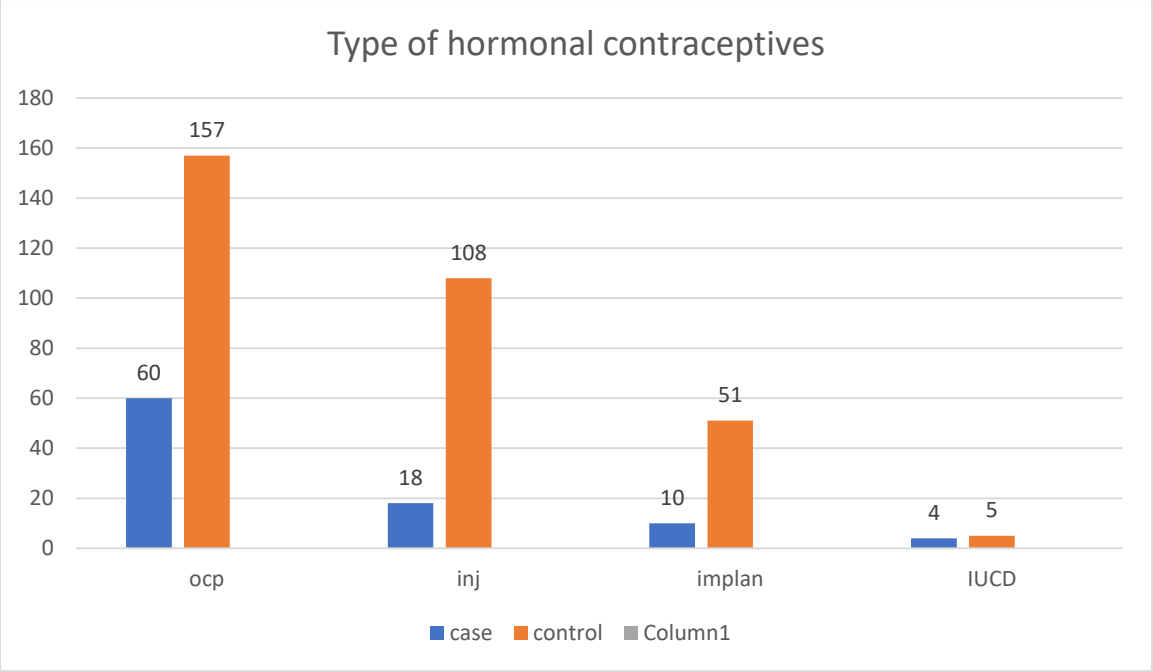

Figure 4 Type of contraceptives use of precancerous cervical lesions status among women screened for cervical cancer in public hospitals Tigray Ethiopia 2024(N=448).

5.4 Determinant factors associated with pre-cancerous Cervical Lesions among Study Percipients

In the bivariate analysis, marital status, history of postictal bleeding, number of lifetime sexual partners of women, history of chronic disease, women's educational status, history of STIs, ever use of hormonal contraceptives, history of abortion were variables with a p-value less than 0.2 and were included in the multivariable logistic regression model. When the multivariable analysis was computed, the following variables were statistically significant with a p-value less than 0.05: and these were number of lifetime sexual partners of women, women's educational status, ever use of hormonal contraceptives, and history of STIs hosmer-Lemeshow test value it was p= 0.143.

Women who had two or more lifetime sexual partners had 9 times higher odds (AOR, 9.001 95% CI :(4.221-19.193), p value=0.000) for pre-cancerous cervical lesions than those women who had ≤1 lifetime sexual partner.

Women who had secondary school (Grades 9-12th) were (0.044, 95% CI:(0.018-0.107), p value=.000) less likely to developing pre-cancerous cervical lesion as compared to those women who no formal education, and diplomas and above of the women were (0.008; 95%CI:(0 .002-0.028), p-value .000) less likely odd of developing pre-cancerous cervical lesion as compared to women who no formal education.

Participants who had a history of STI had 3.4 times higher odds (AOR, 3.433, 95% CI:(1.600-7.364) p value=0.002), for pre-cancerous cervical lesions than women who have no history of STI. Women who had ever used hormonal contraceptives had 2.3 times higher odds (AOR, 2.340, 95% CI:(1.220-4.487), p value=.010), for pre-cancerous cervical lesions than those women who had never used hormonal contraceptives**. (Table 5)**

Table 5 Bivariate and multivariable logistic regression analysis of independent variables with precancerous cervical lesions status among women screened for cervical cancer in Tigray Ethiopia 2024(N=448).

Note. 1 = reference categories

Variables	Categories	VIA status		COR (95%CI)	AOR (95%CI)
		Cases (%)	Controls (%)		
History Post coital bleeding	Yes	28(25.0)	59(17.6)	1.565 (.938-2.611)	1.592 (.686-3.692)
	No	84(75)	277(82.4)	1	1
Life time sexual partner of Women	1	54(48.2)	267(79.5)	1	1
	≥2	58(51.8.)	69(20.5)	4.156(2.636-6.554)	9.001(4.221-19.193)
History of Chronic disease	Yes	35(31.3)	44(13.1)	3.017 (1.811-5.023)	1.852 (.847-4.046)
	No	77(68.8)	292(86.9)	1	1
Women's educational status	No formal	51(45.5)	44 (13.1)	1	1
	Primary school	42(37.5)	26 (7.7)	1.394 (.739-2.627)	1.352 (.611-2.990)
	Secondary school	14(12.5)	135 (40.2)	.089 (.045-.177)	.044 (.018-.107)
	Diploma and above	5 (5.0)	131 (39.0)	.033 (.012-.088)	.008 (.002-.028)
History of STI	Yes	51(45.5)	106 (31.5)	1.814 (1.171-2809)	3.433 (1.600-7.364)
	No	61(54.5)	230 (68.5)	1	1
Ever use of hormonal Contraceptive	Yes	77(68.8)	187 (55.7)	1.753 (1.113-2.760)	2.340 (1.220-4.487)
	No	35(31.3)	149 (44.3)	1	1
History of Abortion	Yes	31(27.7)	62(18.5)	1.691 (1.029-2.781)	.806 (.374-1.737)
	No	81(72.3)	274(81.5)	1	1
Marital status	Single	8(7.1)	10(3.0)	1	1
	Married	76(67.9)	244(72.6)	0.389 (0.148-1.022)	.487 (.115-2.058)
	Widow	8(7.1)	52(15.5)	0.192 (0.058-0.633)	.257 (.046-1.442)
	Divorced	20(17.9)	30(8.9)	0.833 (0.281-2.474)	.859 (.168-4.393)

6. Discussion

This study investigated the determinants of precancerous cervical lesions among women screened for cervical cancer in Tigray, Ethiopia 2024. Determinant factors identified were the

number of lifetime sexual partners of women, the woman's education status, ever use of hormonal contraceptive use, and history of STIs.

Women with two or more lifetime sexual partners were found higher odds to develop precancerous cervical lesions compare to those with one partner. This result is in line with findings Woliso town, South Ethiopia, Addis Ababa, Oromia, Southwest Ethiopia (10, 20, 29, 30, 34). This similarity might be due to the same population.This increased risk could be due to a higher likelihood of HPV exposure in these women who practice sex for more than two times in their life time, which is the major cause of precancerous cervical lesions. Multiple-type and high-risk HPV infections are generally more closely associated with the number of lifetime sexual partners than single-type or low-risk infections (43).

Participants with a history of STIs were 3.4 times higher odds to develop pre-cancerous cervical lesions than those counterparts. The result of the current study is similar with studies conducted in Addis Ababa, Oromia, (Marie Stopes Adama), South Wollo zone, Woliso south shoa, Iran, and Kenya (20, 27, 29-33). This similarity might be due to the same sampling technique and population. This due fact that women who had a history of sexually transmitted diseases were more likely to acquire HPV as a result of co-infection with other STDs. After invading the epithelium, sexually transmitted HPV, an epitheliotropic virus, can either integrate into the host genome or stay in the cytoplasm. When HPV remains in an episomal, non-integrated state, a low-grade lesion develops. If the virus integrates into human deoxyribonucleic acid (DNA), it may cause high-grade lesions and cancer. The cancer-causing HPV strains are more likely to infect cells lining the lower vaginal tract, including the cervix especially in less immune (6, 44). due to be Participants who had ever used hormonal contraceptives had 2.3 times higher odds to developing pre-cancerous cervical lesions than those who had not used. This finding is consistent with studies conducted in the North Shewa Zone of the Amhara Region, Maristop Ethiopian Adama town, Iran, and Indonesia(26),(33),(27),(36). This similarity might be duet to similar setting . The increased eversion of the columnar epithelium to the ectocervix, which increases its susceptibility to HPV infection, might be result from continued use of hormonal contraceptives. Implants, vaginal rings, and combination oral contraceptives that exclusively contain progesterone may also raise the risk of precancerous cervical cancer. Because estrogen and progesterone receptors are widely distributed, particularly in reproductive organs, these

steroid agonists have a wide range of physiological effects. The International Agency for Research on Cancer (IARC) has designated combination oral contraceptives as Group 1 carcinogens.(45),(46).

Women with a secondary school (Grades 9-12) education or a diploma or higher degree were 95.6%, 99.2 % respectively less likely to develop pre-cancerous cervical lesions compared to those who no formal education. This finding is supported by studies conducted Tanzania, India (24) ,(23). This similarity collude be similar awareness between those different population group. This might be due to the increasing awareness, that as educational level increases it ultimately influence individuals to prevent themselves from any risk factors of pre cervical cancer. Being no formal education of women and lacking knowledge about pre-cancerous cervical lesions can lead to a lack of awareness about the disease progression from pre-cancerous to cancerous stages ((based on Tigray reginal health bureau report which was 29.1%).

7. Strengths and Limitations

7.1 Strengths: The study materials were pretesting before use and primary data collection methods were used.

7.2 Limitations: Those private health institutions which works cervical cancer screening using VIA were not included and qualitative data, was not done, some variables were not included like, income and cultural and social norms.

8. Conclusion and Recommendation**:**

8.1 Conclusion

In this study, women with two or more life time sexual partners, woman's educational status, ever use of hormonal contraceptives, and a history of STIs were found to be significant determinants for pre-cancerous cervical lesions. which was different from study done cross sectional study done previously in Tigray.

8.2 Recommendation

Depending on the finding the following recommendation are forwarded.

For health professionals and hospitals

- Strengthen health education for women about safe sex practices, particularly for those with no formal education, and facilitate positive behavioral change. Prioritize early cervical cancer screening, especially for women who use hormonal contraceptives. Additionally, emphasize the risks associated with changing sexual partners.

For community leaders and stakeholders

- It would be beneficial if stakeholders support or strengthen the distribution of condoms to participants to prevent STIs. It would also be beneficial if community leaders work with health professionals to provide health education and awareness creation for women in the community regarding condom use for STI prevention, the importance of one-to-one relationships, and early screening for cervical cancer, especially among women using hormonal contraceptives.

For Federal ministry of health and regional health bureau

- Efforts would be made to increase early screening for cervical cancer in women through collaborative health information regarding risk reduction for STIs. This would be include promoting one-on-one relationships, especially for women with no formal education. Early screening should be strongly encouraged for women using hormonal contraceptives. Dissemination of information should be through TV, radio, and other social media platforms.

For researchers

- Encourage further research on the determinates for pre-cancerous cervical lesions using qualitative research methods. Additionally, conduct longitudinal studies to investigate the effect of each type of hormonal contraceptive on cervical cells.

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Annex: English version

Annex 1

Information sheet

Mekelle University College of Health Science School of Nursing Department of Maternity & Reproductive Health Nursing

My name is _____. I am working with Haftom Birhane who is doing research for the partial fulfillment of a Master's Degree in Maternity and RH nursing at Mekelle University. I am here to study determinants of precancerous cervical lesions among women screened for cervical cancer screening in public hospitals of Tigray, Ethiopia. The result of the study will help identify and the findings of the study also help as a significant input for policymakers, program managers and other stakeholders to design programs and strategies to prevent morbidity and maternal mortality It will also serve as a principal investigator as a partial fulfillment for a Master's degree in maternal and rh nursing. I am going to ask you questions to be responded to by you. Some of the questions are very personal questions that some people find difficult to answer. Your answers are completely confidential. Your name will not be written on this form, and will never be used in connection with any of the information you tell me. Participation by answering the questions that I am going to provide you is strictly on a voluntary base. However, your honest answer to the question will help me to better understand the determinants of pre-cancerous cervical lesions. Being a study participant in this study will not get you any direct benefit and your involvement in the study will not give you any risk. Your right not to be involved in the first place or to withdraw at any time is respected. I would greatly appreciate your cooperation and help in response to this study. The interview will take about 20-30 minutes. If you have any questions Mrs. Haftom Birhane is the contact person. Haftom can be reached through this phoneNo.0919034674, e-mail.hhaftombirhane@gmail.com

Are you willing to participate in the interview and stay with us for a few minutes (15-20) now?

[ ] Yes, Go to the next page [ ] No, Thanks! Proceed to the next eligible participant

Annex 2

Written Consent form

I the undersigned, am told that the researcher is going to conduct the study, on determinants of precancerous cervical lesions among women screened for cervical cancer in public hospitals of Tigray, Ethiopia. I have been told that the research will benefit the community in general including me, the respondent, and that the research will not inflict any harm to me. I have been told that I have full rights I have enough time to understand and then take part in the study based on my interest besides; I am briefed that I will be interviewed for not more than 30 minutes. Moreover, am notified that my participation in the study is entirely voluntary and that I can quit the study any time I want. I will not be subject to any form of punishment following my failure to participate in the study. In the same way am told that the information collected will not be disclosed by any means to any people other than those participating in the study unless obtain permission from me. Equally, am told that I can ask them questions I find difficult or any type.

I agree to participate in the research voluntarily

Signature _____ Date_____ interviewee number_____

Interviewer signature certifying that consent has been given written consent by the respondent.

Note: No need to force the clients to be included in the study.

Thank you!

Annex: Questionnaire in the English version

General information

For each question, make a circle around the spelling that corresponds to the answer; fill in the blanks with the answer or mark

1. Participant's code number: _____

CASE ☐ CONTROL ☐

Part I. Socio-demographic related factors

No.	Question	Response	Remark
101	How old are you?	_____	
102	What is your educational status?	_____	
103	What is your occupation?	1. Housewife 2.Government employee 3. Private employee	

		4. Merchant 5. Daily laborer 6.student 7.other(specify)	
104	Where do you live?	1.Rural 2.Urban	
105	What is your marital status?	1. Single 2. Married 3. Widow 4. Divorced	Skip if,1,3,4 to 201
106	What is your partner's educational level?	_____	

Part 2: Family history of cervical cancer of respondents and chronic disease Life style related factor

201	Have any of your relatives ever been diagnosed with cervical cancer? (If yes, what relationship with the patient? Mother Sister, Daughter)	1.Yes 2.No	
202	Do you have any history of chronic disease?	1.Yes 2.No	
203	Have you ever smoked cigarettes?	1.Yes 2.No	

Part 3: Sexual and reproductive related factors

301	Have you ever had sexual intercourse?	1.Yes 2.No	if No skip No.305
302	If yes, how old were you when you had sexual intercourse for the first time?	_____	
303	Have you ever pregnant?	1.Yes 2.No	if No skip No.305
304	If yes, how old were you when you first pregnancy?	_____	
305	How old were you when you had your first menstruation period?	_____	
306	What does your menstrual history look like?	1. regular 2. sometimes irregular 3. always irregular 4.no menstruation	
307	Have you ever used hormonal contraceptives?	1.Yes 2.No	if No.Q 310

308	If yes, what type(s) of contraceptives have you used? (more than one answer is possible)	1. oral contraceptives pills 2. Injectable 3. Implants 4. (IUCD) 5.other, hormonal contraceptive(specify)	
309	For how long?	_____	
310	Do you have a history of postcoital bleeding?	1.Yes 2.No	
311	Have you ever given birth before?	1.Yes 2.No	if No.314
312	If yes, how many times?	_____	
313	How long the Birth interval	_____	
314	Have you ever had an abortion?	1.Yes 2.No	If No.316
315	If yes, how many times have you practiced?	_____	
316	Do you have a history of sexually transmitted infections (STIs)?	1.Yes 2.No	
317	Have you been tested for HIV?	1.Yes 2.No	
318	If yes, what is the result of the test?	1.Positive 2.negative	
319	With how many people have you ever had sexual intercourse?	_____	
320	How many sexual partners have you had your husband?	_____	

ልጋብ 1 : (ብትግርኛ -ክፍሊ) ቃለ መጠይቅ

ዩንቨርሲቲ መቐለ ኮሌጅ ጥዕና ሳይንስ ነርሲንግ ቤት ትምህርቲ

ጥዕና ይሃበለይ አነ ይባሃል አነ ዝሰርሕ ዘለኩ አብ መቀለ ዩኒቨርስቲ ክፍሊ ት/ቲ ነርሲንግ ናይ ካልኣይ ዲግሪ መፅንዓታዊ ፁሑፍ ዘካይድ ዘልኩ ተመሃራይ ሃፍቶም ብርሃነ እንትከውን ዕላማ ናይ ዚ መፅናዕቲ ኣብ ናይ ማህፀን በሪ ቅድመ መንሽሮ ምክንያታት ፈሊካ ንምፍላጥ ወይ ንምምሕሺ ተዕልሙ ዝተዘጋጀወ ፅንዕትኣዩ። እቲ ዝእከብ ሓበሬታ ንሕብረተሰብ ንምምሃርን ካሎኦት ስራሓቲ ንምስራሕን ብተወሳኺ ነቲ ዋና ኣፅናዓይ ንካልኣይ ዲግሪ መማልኢ ፅሑፍ ከገልግሎ እዩ። ነዚ መፅናዕቲ ንምክያድ ዝተፈላለዩ ሕቶታት ክህልዉና እዮም። ትክክለኛ ሓበሬታ ክትህብኒ ድማ ብትሕትና ይሓትት። እተን ሕቶታት ካብ 20 ክሳብ 30 ደቒቓ እየን ዝወስዳ። ኣብዚ መፅናዕቲ ብምስታፍኪ ቀጥታዊ ዝኾነ ጥቅሚ ዘይክትረኽቢ

ትኽእሊ እኪ ። ኮይኑ ግና እቲ ዝእከብ ሐበሬታ ነዚ ፀገም ንምፍታሓ ኣብ ዝሕንፀፅ ትልሚ ግደ ክህልዮ እዩ። ኣብዚ መፅናዕቲ ብምስታፍኪ ምንም ዓይነት ሳዕቤን ኣባኺ ኣይበፅሕን።ናይ ውልቀ ሰባት መልሲ ዝትሓዝ ብዝወሃብ ኮድ ቁፅሪ ክኸውን ከሎ ናይ ውልቀ ሰብ ሽም ይኹን አድራሻ አይተሓዝን። ብዘይካ ናይቲ መፅናዕቲ ኣባላት ካሊእ ማንም ሰብ ኣይረኣን። ውፅኢት እውን ዝግለፅ ብጥቅሉል እምበር ናይ ውልቀ ሰባት ዝግለፅ አይኮነን፡ ንዞም ሕቶታት ምሉእ ብ ምሉእ ወይ ድማ ብኽፋል ናይ ዘይምምላስ መሰልኪ ሕልዉ እዩ። እዚ ድማ አብዘድልየኪ ግልጋሎት ዝፈጥሮ ምንም ዓይነት ፅዕንቶ የለን።

ተወሳኺ ሓበሬታ እንተድልይኪ ብዝስዕብ ኣድራሻ ምጥያቕ ትኽእሊ ኢኺ።

ሃፍቶም ብርሃነ ስልኪ ቁፃሪ 0919034674 email hhaftombirhane@gmail.com

ልጋብ 2 ፅሕፍ ስምምዓነት ኣንቀፃ (ብትግርኛ- ክፍሊ)

አነ ከም ዝተነገረኒ እቲ መፅናዕቲ ብዛዕባ ናይ ኣብ ትግራይ ዝርከባ መንግስታዊ ሆስፕታላት ናይ ማህፀን በሪ ቅድመ መንሽሮ ተዛምድቲ ምክንያታት ንምፅንዕ እዩ። እዚ መፃንዓቲ ኣብ ጥዕና ተቆምን ቅድመ መንሽሮ ምርምራ ዝመፃ ደቂ ኣንስትዮ ብምጥይቅ ከም ዝኮነን ብተወሳኺ እዉን ካብቲ መፅናዕቲ ዝተረኸበ ዉፂኢት ንመንግስቲ፣ ብጠቅላላ ንሕብረተሰብ ንዓይ ሓዊሱ፣ ንኹሉ ተሳታፊ እዚ መፅናዕትን ከምዝጠቅም ተነጊሩኒ ኣሎ። ካሊእ ድማ እዚ መፅናዕቲ እዙይ ብዝኾን ይኹን መንገዲ ንዓይ ከም ዘይጎድእ ተነጊሩኒን ፈሊጡ ኣለኹ። ብተወሳኺ ዕላማ እዚ መፅናዕቲ ንምግንዛብ እኹል ግዜ ከም ዝተዋሃበኒ ከምኡ እዉን ንምስታፍ ወይ እዉን ንዘይምስታፍ ምሉእ መሰል ከም ዘለኒ ተረዲአ ኣለኹ። ቃለ መጠይቅ ኣብ ዝግበረለይ ግዜ ኣብ ቃለ መሕትት ዝፀንሓሉ ግዜ ካብ 20 ክሳብ 30 ደቒቓ ዘይበልፅ ምኺኑ ፈሊጡ እየ። ካሊእ ድማ ኣብዚ መፅናዕቲ ወይ ቃለ መሕትት ንምስታፍ ኣብ ድሌት ዝተመስረተ ምኺኑ ኣብ ዝኾነ ይኹን ግዜ ካብቲ መፅናዕቲ ወይ ቃለ-መሕተት ናይ ምዉፃእ ምሉእ መሰል ከም ዘለኒ ተነጊሩኒ ፈሊጡ ኣለኹ። ብተወሳኺ ኣብዚ ቃለ-መሕተት ብዘይ ምስታፈይ ዝኾነ ይኹን ተፅዕኖ ከም ዘይበፅሓኒ ኣረጋጊፀ ኣለኹ። ብካሊእ ወገን ድማ እቲ ዝተኣከበ ሓበሬታ ብዘይ ናተይ ፍቓድ ናብ ካሊእ ከም ዘይወፅእ ተነጊሩኒ እዩ። ብተወሳኺ ዝኾነ ይኹን ዘይበረሀለይ ነገርን ኽሓትት ምሉእ መሰልከም ዘለኒ ተነጊሩኒ ኣሎ።

እዚ መፅንዓቲ ዓላማ ብዝግባእ ግልፂ ብዝኾነ ቋንቋ ኣረዲኣኢ ኒ ቦዚ መሰረት ናይ መፃንዓቲ ዓላማ ስለ ዝተረደኣኒ ንምስታፍ ውሳነይ በዚ መሰረት የራጋግፃ።

ፊርማ _____ ዕለት _____

ታራ.ቁፅሪ ቃለ መጠየቅ ዝተገበረላ_____

አስትውዑሉ፤ ተሳታፊ በግደታ ኣብዚ መፅናዕቲ ክሳተፉ አይግደዳን።

ሽም ሓታቲ _____ ዕለት_____ ፌርማ _____

ሽም ትካል_____

ማህፀን በሪ ቅድመ መንሽሮ ዘልዎ [ ] ማህፀን በሪ ቅድመ መንሽሮ ዘይብላ [ ]

ክፋል 1. ማሕበራዊን ኢኮኖሚያዊን ኩነታት

ተ.ቁ	ሕቶታት	መልሲ	መብርሂ
101	ዕድሚኣን ክንደይ እዩ?	_____	
102	ደረጃ ትምህርቲ?	_____	
103	እንታይ ዓይነት ስራሓ ትሰርሓ?	ሀ. ቤት እመቤት ለ. መንግስቲ ሰራሕተኛ ሐ. ናይግሊ መ. ነጋዴ ረ. መዕልታዊ ሰራሕተኛ ሰ ካልእ (ይገለፅ)	
104	ትነብርሉ ቦታ?	ሀ. ገጠር ለ. ከተማ	
105	ኩነታት ሓዳር?	ሀ. ዘይተ መርዓወት ለ. ዘተ መርዓወት ሐ. ሰብኣያ ዝሞታ መ. ዝተፋተሐት	ሀ,ሐ,መ ኣይፈልጥን ተይለን 201 ተ.ቁ ይቀፃላ
106	ናይ ሰብኣይክን ደረጃ ትምህርቲ?	_____	

ክፍል 2. ኩነታት ቤተሰብ ና ሑድር ሕማም ,ልምድታት እና ግላዊ ባህርያት

201	ኣብ ቤተሰብኪ መንሽሮ በሪ ማህፀን ዝነበረን ኣለዋ ዶ? (ኣዶ ወይ ሓፍቲ ወይ ጋለን)	ሀ.አወ ለ.የላን	
202	ሑድር ሕማም ኣለኪ ዶ?	ሀ.አወ ለ.የብለይን	
203	ሽጋራ ይትክካ ዶ?	ሀ. አወ ለ. አይትክክን	

ክፋል 3. ኩነታት ስነ -ተዋልዶ ጥዕና

301	ግብረ ስጋ ርክብ ግይረን ዶ ይፈልጣ?	ሀ ኣወ ለ. ኣይፈልጥን	ኣይፈልጥን ተይለን ተ.ቁ 305 ይቀፃላ
302	እው እተይለን ንመጀመሪያ ግዜ ኣብ ክንደይ ዕድሜእን ግብረ ስጋ ርክብ ገይረን?	_____	
303	ጠኒስኪ ዶ ትፈልጥይ?	ሀ ኣወ ለ. ኣይፈልጥን	ኣይፈልጥን ተይለን ተ.ቁ 305 ይቀፃላ
304	ኣብ ክንደይ ዓመትኪ ንመጀመሪያ ግዚ ጠኒስኪ	_____	
305	ኣብ ክንደይ ዓመትኪ ንመጀመሪያ ወርሓዊ ፅግያት ርእኪ?	_____	

306	በቢ ክንደይ ግዚ ወርሓዊ ፅግያት ይምፃን	ሀ. ስርዕ ይመፅእ ለ. ሓሓሊፉ ዘይስርዕ ሐ. ክሉ ግዚ ዘይስርዕ መ የብለይን	
307	ናይ ወሊድ መከላከሊ ተጠቂመን ዶ ይፈልጣ(ሆርሞናል)?	ሀ. አወ ለ. አይፈልጥን	አይፈልጥን ተይለን ተ.ቁ 310 ይቀፃላ
308	እው እተይለን እንታይ ዓይነት?	ሀ. ዝውሓጥ ኪኒን ለ. ብመርፍእ ዝውጋእ ሐ. ኣብ ኢድ ዝቅበር መ..ኣብ ማህጸን ውሽጢ ዝቅመጥ ረ. ኮንደም ሰ ካልእ(ሆርሞናል) (ይገለፅ)	
309	ንክደይ ግዜ?	_____	
310	ድሕሪ ፅታዊ ርክብ ደም ይፍሰኪ ዶ ?	ሀ. አወ ለ. አይፈሰንን	
311	ወሊድኪ ዶ ትፈልጥይ ?	ሀ. አወ ለ. አይፈልጥን	አይፈልጥን ተይለን ተ.ቁ314 ይቀፃላ
312	እው እትአይለን ክንደይ ግዜ?	_____	
313	አብ ክንደይ ዓመት አፈላላይ እኪ ወልድኪ?	_____	
314	ጥንሲ ከይድወን ዶ ይፈልጥ?	ሀ. አወ ለ. አይፈልጥን	አይፈልጥን ተይለን ተ.ቁ 316 ይቀፃላ
315	እው እትአይለን ክንደይ ግዜ?	_____	
316	ናይ ማህፀን ረክሲ አለዎን ተባሂለን ወይ ታሓኪመን ዶ ይፈልጣ ?	ሀ. አወ ለ. አይፈልጥን	
317	ናይ ኤችአይቪ ምርመራ ገይረንዶ ይፈልጣ ?	ሀ. አወ ለ. አይፈልጥን	
318	እው እትአይለን ውፅኢት ምርመራ እንታይ ነይሩ?	ሀ. አለወን ለ. የብለነን	
319	ምስ ክንደይ ኣወዳት ግብረ-ስጋ ርክብ ገይረን ይፈልጣ?	_____	
320	ሰብኣየኪ ካባኪ ውፅእ ኣንስቲ ክንደይ ኣለዎኦ ?	_____	