COLLEGE OF MEDICINE &HEALTH SCIENCE

DEPARTMENT OF PUBLIC HEALTH

ACCEPTANCE OF INDEX CASE HIV TESTING AND ITS ASSOCIATED FACTORS AMONG HIV/AIDS CLIENTS ON ART FOLLOW-UP IN MULTI CENTERED PUBLIC HEALTH FACILITY IN DEBRE MARKOS CITY ADMINISTRATION NORTH WEST ETHIOPIA, 2025

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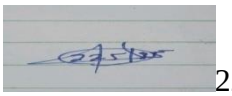
Samuael Dagnaw-----  22/05/2025

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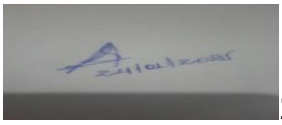
Awraris Wolde-------  22/05/2025

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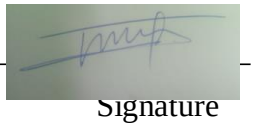
Elyas Melaku _____  _ 23/05/2025

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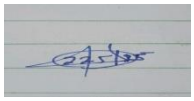
Name: Samuael Dagnaw Enyew (BSc) Signature…  May /2025

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ABBRIVATION AND ACRONYMES

ART ……Anti Retro Viral Treatment

AOR ……Adjusted odd ratio

C/I……Confidence Interval

COREQ ……..Consolidated Criteria for Reporting Qualitative Research

COR ……crude odd ration

D/M/C/S/H……..Debre Markos Comprehensive Specialized Hospital

D/M/H/C……..Debre Markos Health Center

HIV/AIDS……Human Immune Virus /Acquire Immune Deficiencies Syndrome

HTS……..HIV Testing Service

H/H/C……...Hidase Health Center

ICC……..Index Case Contact

ICHT……Index Case HIV Testing

ICT……..….Index Case Testing

PLHIV……..People Living with Human deficiency Immune Virus

PI……..Principal Investigator

SPSS…….Statistical Package for Social Science

W/H/C…….Wuseta Health Center

WHO…….....World Health Organization

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Abstract

Back ground: Index case HIV testing is novel strategy for sexual partners or family members of individuals living with HIV/AIDS, aiming to increase case detection in high-risk groups. However, acceptance of index client among patients receiving Anti-Retroviral Therapy (ART) remains low. This study examined acceptance levels and factors influencing index case HIV testing among ART clients in public health facilities in Debre Marcos City.

Objective: To assess acceptance of Index Case HIV testing and associated factor among HIV/AIDS client on ART follow up in Debre Marcos public health facilities, Northwest Ethiopia, 2025

Methods: A facility-based concurrent mixed study was conducted from March 15 to April 30, 2025. From total of 402 sample size, with 398 ART clients included in the quantitative survey using systematic random sampling collected by kobo collect with document review, and 13 participants (9 ART clients and 4 healthcare providers) were selected and interviewed. Data were analyzed in SPSS v26.0, and manual thematic analysis. Variable in bivariate analysis p-value <0.25 in were included in multivariate logistic regression, with significance set at $p<0.05$.

Results: The acceptance rate for index case HIV testing was 60.3%. Good ART adherence [AOR = 4.85,95%CI[2.42-9.71], Discussion[AOR=2.10,95%CI[1.02-3.93], Disclosure status [AOR=3.40, 95% CI [1.74-6.62], faced discrimination [AOR=.25, 95% CI [.13-.48], Good HIV knowledge [AOR 2.6295%CI [1.21-5.72}, Perceived benefit ICT[AOR=2.83, 95% CI [1.46-5.47] and ICT counseling [AOR=3.54, 95% CI [1.87-6.69] were significantly associated.

Conclusion and Recommendations: acceptance of index case HIV testing was low. Associated with Good ART adherence, Discussion with contacts, Disclosed, Experience of discrimination, Good HIV knowledge, and Perceived benefit ICT and ICT counseling and were significantly associated. Improving ART adherence, HIV knowledge, promoting open discussion, counseling on ICT is crucial. Health professionals and stakeholders give focus on reducing stigma and supporting clients in disclosing their status to improve family and partner testing rates.

Key words: Index case; acceptance Index case HIV testing, Debre Markos, Ethiopia,,

1. INTRODUCTION

1.1. Background

The HIV/AIDS epidemic represents one of the major global health challenges, particularly in sub-Saharan Africa, where the burden of this disease remains alarmingly high. (1-3). Since the onset of the HIV epidemic, around 85.6 million people have been infected with the virus, resulting in about 40.4 million deaths worldwide, with approximately 25.6 million living in Africa. (4).

In 2023, there were 39.9 million individuals living with HIV worldwide, 1.3 million new cases of HIV infection and 630,000 deaths related to AIDS. However, there has been progress in receiving antiretroviral therapy (ART) increased from 17 million at the end of 2015 to 30.7 million and new HIV infections decreased from 2.1 million to 1.3 million, but half people those living with HIV are still in advanced stages of the disease(5).

Like other countries in the sub-Saharan region, Ethiopia has a prevalence of 0.93% and both an epidemic and self-sustaining transmission. Projects from the Ethiopian Public Health Institute (EPHI) indicate that in 2023, there will be 605,238 HIV-positive individuals, 7428 new infections, and 11.8% of deaths from AIDS(2, 6).Ethiopia's HIV outbreak is noticeably diverse and concentrated within particular demographic groups with Somali region has the lowest rates, falling below 0.1%, while Gambella and Addis Ababa have the highest incidence rates, 3.7% and 3.47, respectively. The Amhara region has shown a decline in HIV test positivity since 2015, peaking at 0.76% in 2015 and reducing to 0.60% in 2020 with prevalence rate of 1.2% which is above the national prevalence rate (4, 6, 7).

To reduce HIV/AIDS as a public health concern by 2030, there are three 95 targets for each demographic in the country which is 95% of people living with HIV should be aware of their status, 95% of people with HIV should receive life-sustaining antiretroviral therapy (ART), and 95% of people on ART should achieve viral suppression(3, 4).The three 95 targets were achieved globally in 2022 with 86%, 89%, and 93% for adults and 63%, 91%, and 81% for children, respectively(8).

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Acceptance of Index case HIV testing HIV testing, also known as supported partner notification services, is a high-yield, targeted, voluntary practice in which the service provider offer that index clients list all of their sexual partners, inject able drug users, and biological children. ICT is offered and carried out to promote HIV prevention services, improve linkage to care and treatment, and facilitate earlier diagnosis (3, 4, 6, 9).

1.2. Statement of the Problem

Acceptance of index case HIV testing was very low and varied by region, with increased risk of HIV infection among the families of index clients, partners, and biological children. in Ukraine acceptance of index case HIV testing was 51.9%(10). In different Africa country had revealed that index case testing is not widely used among important groups and poses serious difficulties(4, 6). Acceptance of index case HIV testing for their family or sexual partner remarkably different in African nations indicated that the acceptance rates for index case HIV testing for their family member or sexual partner show that in Lesotho (71% to 86%), Kenya (42.4% to 74.9%) and Nigeria (91.9%)respectively (11-13).

In Ethiopia the acceptance rates of index case HIV testing revealed notable differences across the region from 38.7% to 85.2%, in different areas (3, 4, 6, 9, 14).Nearly 19% of PLHIV did not know their HIV status, HTS was not sufficiently targeted in many areas and 4,000 people worldwide are at risk of acquiring HIV every day. Study showed that in Ethiopia, 3.5% of people who tested positive for HIV were classified as index cases, increasing the risk of HIV transmission to their partners, family members, and biological offspring.

Antiretroviral therapy has advanced, in managing HIV, enhancing quality of life, and suppressing the virus to stop it from spreading. However, the effects of HIV/AIDS have multifaceted and devastating families and society as a whole in social, economic, health, and psychological ways (4, 6, 15).Stigma impacts physical, social, and spiritual well-being as well as overall quality of life, and it is a significant barrier to achieving the global HIV goal set by 2030. It also results in inadequate disclosure of HIV status, poor adherence to antiretroviral therapy, violations of fundamental human rights, and a lack of social support(16, 17).

Many factors, including gender, marital status ,education level, HIV disclosure status , months on ART, referral method, stigma and discrimination , perceived benefit on ICT and HIV testing location, were found to influence acceptance of index case HIV testing(3, 4, 6, 9).Low index case HIV testing uptake in resource-constrained environments, such as Ethiopia, has been linked to a number of reasons, including restricted accessibility to HIV testing locations, inconvenient testing hours, worries about confidentiality loss, and a lack of trust in the skill of medical staff(18, 19).

The implementation of the Index case HIV testing technique is one way to get around these obstacles particularly important for those people facing barriers to accessing existing services to HIV testing(11, 13, 20, 21).

literature, showed that acceptance of index case HIV testing varied greatly, and it was below the national bench mark for reaching three 95 in 20230, which is associated with a high risk of HIV infection among contacts at risk for a high rate of HIV/AIDS morbidity and mortality. There is gap in describing barriers and facilitators for acceptance of index case HIV testing for sexual partner or family members, and there is no data in the study area that shows in acceptance of index case HIV testing among family member or sexual partners. This research will address the acceptance of index case HIV testing, associated factors and hidden motive ,barriers ,facilitators and experience of index cases and key informants previously not addressed by quantitative study alone Debre Markos public health facilities Northwest Ethiopia.

1.3. Literature Review

1.3.*1* Acceptance of index case testing

Research conducted in several African nations indicated that the acceptance rates for index case HIV testing different across county as Lesotho (71% to 86%), Kenya (42.4% to 74.9%) and Nigeria (91.9%) respectively (11-13).

Mixed study on the acceptance of index partner HIV self-testing conducted in Malawi revealed that index cases felt more at ease when HIVST was distrusted for their spouse since it was more convenient, private, and maintained a positive relationship for their partner than giving partner referral slip (22). Participants in a qualitative study on assisted index case testing conducted in Malawi stated that limited time for assisted index case testing, high workloads, poor quality contact information, privacy concerns, and logistical challenges to tracing are all obstacles to the viability of implementing assisted index case testing(23).

Different studies in Ethiopian on the acceptance of index case HIV testing revealed notable differences across the region , including University of Gondar Comprehensive Specialized Hospital(38.7%), Kule Refugee Camp in Southwest Ethiopia (49%), Nekemt town (60.6%), Gedeo zone (80.2%), and Ilu Ababor Zone(85.2%) with the acceptance rates of index case HIV testing (3, 4, 6, 9, 14).

1.3.2 Factors associated with index case HIV testing (ICHT) acceptance

Stud done in Zambia Healthcare providers' perspective on barriers to optimal HIV index testing showed that Provider related challenges of inadequate elicitation skills, low number of volunteers trained in index testing; inadequate index testing knowledge among staff; age and sex differences; limited elicitation of index partners to only wife and husband and limited transport for contact tracing and index relate challenge of mobile communities across boarder trades, sex work and farming; do not have contact details for their casual relationships; stigma and discrimination; limited for contact elicitation , privacy/confidentiality and intimate partner violence, Lack of awareness of risk for HIV infection/misconceptions; structural, psychological, and financial were barriers to being tested(24).

1.3.2.1. Socio-demographic variables

A study conducted in South Africa revealed that index case tracing was more effective in females(25).According to a Nigerian study, younger people (18–24 years old) and married people were more inclined to accept ICT(13) .other study carried out in Kenya revealed a significant correlation between the acceptance of index case testing , female sex, urban residency and age of index client (12) .

According to a study done in southern Borno, Nigeria, being married and being younger were strongly linked to acceptability index case HIV testing(13).

According to a Côte d'Ivoire study on partner referral strategies, healthcare professionals prefer passive and provider referrals; stigma, marital issues, infrastructure issues, insufficient training, long distances, and a lack of HIV knowledge are the main implementation barriers(26).

A study done at University of Gondar Comprehensive Specialized Hospital, Gedeo, and the Kule Refugee Camp in Southwest Ethiopia revealed that acceptance of index cases HIV testing was significantly correlated with higher education level, being married and urban residence (4, 9, 14).

1.3.2.2. HIV/AIDS-related characteristics of the participants

Research carried undertaken in the Kule Refugee Camp in Southwest Ethiopia, Nekemte town, IluAbabor Zone in the Oromia region, and Gedeo shown that acceptance of index case HIV testing was significantly correlated with ART duration of more than 12 months and good adherence level (3, 4, 6, 14).

1.3.2.3. Perceived risk and trust

According to a study done in Nekemt Town and the Ilu Ababor Zone, acceptance of index case HIV testing was substantially correlated with privacy maintained (3, 6) .

1.3.2.4. Behavior-related characteristics of the patients

The University of Gondar Comprehensive Specialized Hospital was the site of the study Participating in work sex as source of income was favorably connected with acceptance of index case HIV testing(9) .

1.3.2.5. Awareness and knowledge of ICC testing

According to a Côte d'Ivoire study on partner referral strategies, healthcare professionals prefer passive and provider referrals; infrastructure issues, insufficient training, long distances, and a lack of HIV knowledge are the main implementation barriers **(26).**

The study was conducted in the Oromia region's Nekemte town and Ilu Ababor Zone good counseling, getting tested for VCT, having good awareness of ICHT, and believing that HIV index case testing provides advantages were all substantially linked factors(3, 6).

1.3.2.6. Disclosure status

According to a Côte d'Ivoire study on partner referral strategies, healthcare professionals prefer passive and provider referrals stigma are the one of implementation barriers (26)**.**

Discussions regarding HIV testing and disclosure status were shown to be substantially correlated in a study carried out at the Kule Refugee Camp in Southwest Ethiopia, INILU ABABOR Zone, Gedeo and Nekemte town (3, 4, 6, 14).

1.3.2.7. Fear of violence

Research conducted in Zambia According to medical professional's perspective, intimate partner violence, psychological issues, and financial constraints were obstacles to getting tested for HIV(24).

Conceptual framework

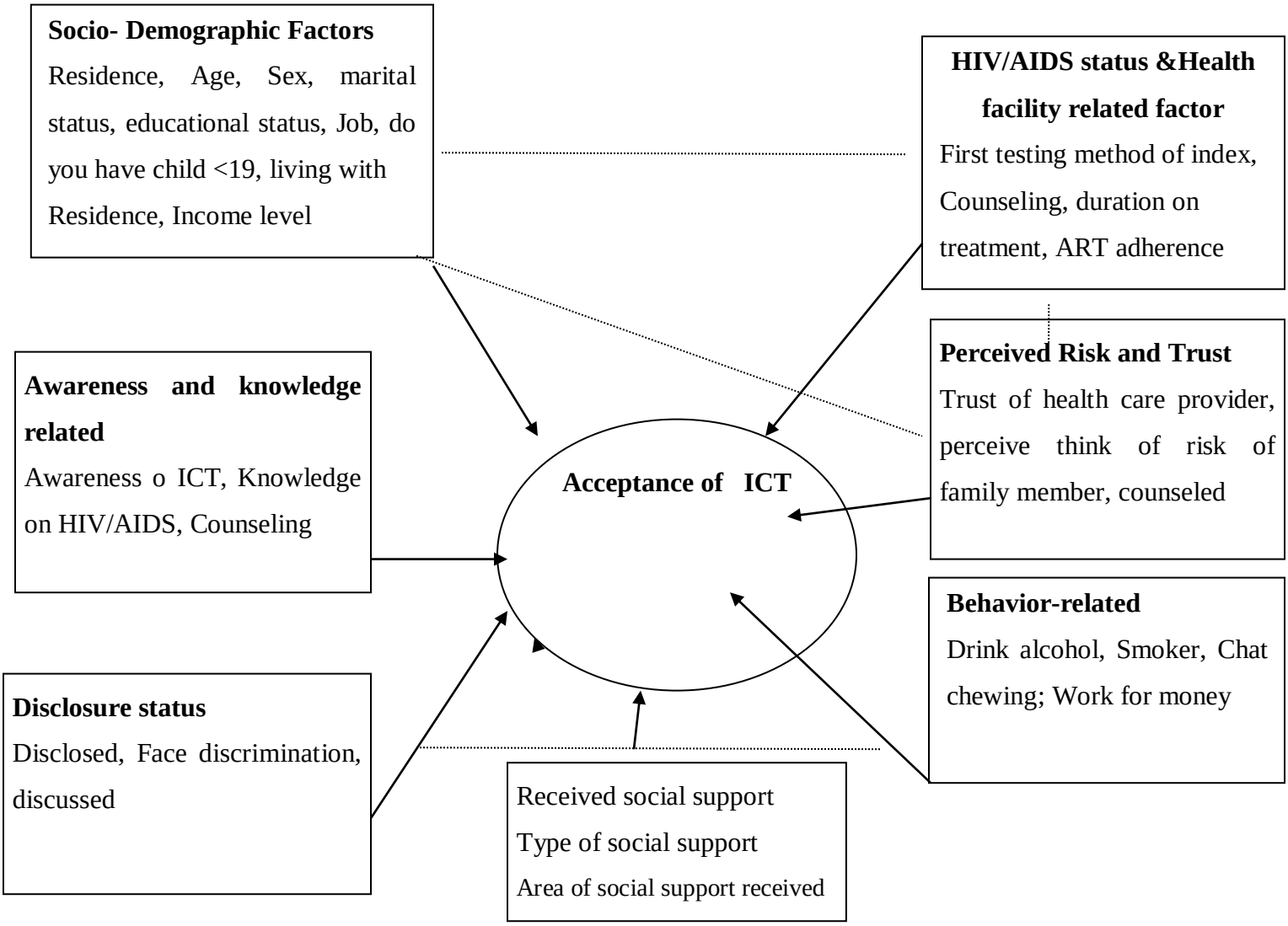

Figure 1: Conceptual frame work on assessment acceptance of index case contact HIV testing and its associated factors among HIV/AIDS clients on art follow-up in multi centered public health facility in Debre Markos city administration mixed study, Northwest Ethiopia ***(3, 4, 6, 9, 23, 24).***

1.4. Justification of the Study

Index case HIV testing is a very effective way to manage the national HIV/AIDS response because it focuses on high-risk individuals who are more likely to test positive for HIV. According to the Health Department, despite its potential, this testing approach is still not well accepted in the research area, especially when it comes to client participation for contact elicitation and testing.

The first of the global 95-95-95 objectives, which focuses on identifying people living with HIV, is significantly hampered by this poor uptake. Therefore, increasing the acceptance of index case testing is crucial for finding undiagnosed cases and early initiation of ART service.

To increase the acceptance of index case contact testing, it is essential to understand the underlying attitudes, facilitators, and obstacles that influence it. The purpose of this study is to investigate various elements, particularly those that are not detectable by quantitative approaches, like fears, hidden intentions, and social factors that influence personal choices. By alleviating these problems, it will be feasible to improve resource use, increase effort in HIV Interventions at Debre Markos town and more successfully support national and international goal of AIDS pandemic control by 2030.

1.5. Significance of the Study

Identifying the contributing factors and barriers to the acceptance of index case HIV testing will enable healthcare providers, planners, NGOs, and local health authorities in Debre Markos town to develop targeted and context-specific interventions. These interventions can promote early detection of HIV among contacts, reduce transmission rates, and support timely initiation of antiretroviral therapy (ART), ultimately leading to improved health outcomes and better management of the HIV epidemic at the community level. This study holds significant value across public health, programmatic, and academic domains. It contributes to achieving national HIV control goals and supports efforts to meet global targets for ending AIDS by 2030. By generating evidence on the social and behavioral factors affecting testing acceptance, the findings can guide policy adjustments, enhance program implementation, and serve as a foundation for further research in similar settings.

2. OBJECTIVES OF THE STUDY

2.1. General Objective

To assess acceptance of index case HIV testing and associated factor among HIV/AIDS client on ART follow up in Debre Markos public health facilities, Northwest Ethiopia ,2025.

2.2 Specific Objectives

- To determine magnitude of acceptance of index case HIV testing among HIV/AIDS client on ART follow up in Debre Markos public health facilities, Northwest Ethiopia, 2025.
- To identify associated factor of acceptance of index case HIV testing among HIV/AIDS client on ART follow up in Debre Markos public health facilities, Northwest Ethiopia ,2025.
- To explore enablers and barriers for acceptance of index case HIV testing among HIV/AIDS client on ART follow up in Debre Markos City Administration public health facilities, North west Ethiopia ,2025.

3. METHODS AND MATERIALS

3.1 Study Area and Period

The study was done at Debre Markos city administration public health facility. Debre Markos city administration located which is 300 KM Northwest from Addis Ababa, the capital city of Ethiopia and 265 kilo meter southwest from Bahir Dar, the Capital city of Amhara National Regional State(27). The city administration has four sub city and 20 kebeles with total population of 146,153(town health department office). In the city administration there are 4 ART and 1 PMTCT providing health facilities being served for 5170 patients taking ART service provider which are one governmental compressive specialized hospital, three health centers and one non-governmental/NGO/ clinic that give ICT service. The study was conducted from March 15/2025 – April 30/ 2025.

3.2 Study Design

Institution based concurrent mixed study design with a document review were conducted.

3.3 Population

3.3.1 Source Population

For quantitative approach: is all people living with HIV/AIDS who are on ART follow-up at public health facilities of Debre Markos city administration.

For the qualitative approach: All Healthcare providers (clinical nurses, HO, other health professions and case manager who are working in ART clinic) and all people living with HIV/AIDS who are on ART follow-up at the public health facilities of Debre Markos city administration.

3.3.2 Study Population

For quantitative approach: All selected HIV-positive individuals aged 18 years or above and getting clinical, care and support services at Debre Markos specialized hospital, Debre Markos health center, Wuseta health center and Hidase health center at the time of the study.

For qualitative approach: All selected Healthcare providers (clinical nurses, HO, other health professions and case manager who are working in ART clinic) on working at time of study period and HIV-positive individuals aged 18 years or above and getting clinical, care, and

support services in Debre Markos specialized hospital, Debre Markos health center, Wuseta health center and Hidase health center at the time of the study.

3.4. Inclusion / Exclusion Criteria

3.4.1 Inclusion criteria

For quantitative approach: All HIV patients whose ages were 18 years or above were included in the study.

For qualitative approach: All HIV patients whose ages were 18 years or above, all health care provider and case manager working ART clinic were included in the study.

3.4. 2. Exclusion criteria

For quantitative approach: HIV positive critical ill Patients with mental illness and severe medical illness who are unable to respond will be excluding from the study.

For qualitative: health care provider working out of ART clinic and HIV positive critical ill Patients with mental illness and severe medical illness who are unable to respond will be excluding from the study.

3.5. Sample Size Determination and Sampling Procedure

3.5.1 Sample size determination

Several factors that are strongly related to the dependent variable had been taken into consideration in order to calculate the sample size for a quantitative study. As a result, the sample size is determined for the first and second objective for quantitative approach and the bigger sample size were used in this study.

There is no precise rule for determining the sample size for a qualitative design but as a thumb rule sample size were 15 participants were selected ; however, nine participants and four key informants had been interviewed and data were saturated which were indicated by the availability of no new information beyond what has been gathered from the study participants.

The sample size was determined using a single population proportion formula by taking a proportion of 38.7% from a cross-sectional study done on uptake of index case HIV testing at Study conducted in University of Gondar Comprehensive Specialized Hospital was 38.7%(9).

$$n=\frac{(Za/2)^2 p(1-p)}{(d)^2}$$

n = Sample size

Z α/2 = Confidence interval = 95%

d =is a tolerable margin of error = 5%;

P = proportion of magnitude of index case HIV testing in Gondar hospital =38.7%(9)

Non-response rate of (10%)

$$n=\frac{(1.96)^2 0.387(1-.0.387)=3.8416*.387*.613=.91134=364.5=365}{(0.05)2 \qquad .0025 \qquad .0025}$$

n=365 by adding 10% non-response rate the total sample size is 402.

3.5.2. Sample size calculation for the second objective

A two-sided confidence level of 95%, a margin of error of 5%, a power of 80%, and significant factors related to outcome variables had been taken into account when determining the sample size for evaluating factors associated with index case HIV testing among client on ART follows up by Epi Info version 7 used for this computation.

The possible calculated sample sizes for selected factors were depicted below

Table 1 Sample size determination for second objective

Factor	CI	Power	Outcome exposed %	Outcome none exposed %	Sample size	AOR	Reference
Married	95	80	23.03	53.5	218	2.30	LakewAsmare (9)
College & above	95	80	46.4	23.6	154	0.21	LakewAsmare (9)
Disclosed	95	80	87.7	44.0	62	5.48	MustefaAdem Hussen(6)
Good adherence	95	80	93.0	6.9	38	14.52	EliyasAssefa(4)
Discussed	95	80	88.6	56	134	2.302	EliyasAssefa(4)

With the above mentioned data the larger sample size of second objective 218 and 10% non-response rate is taken into account, the overall sample size is 239, which is smaller than the sample size determined by the single population formula, which is 402. In order to determine the maximum sample size, the first sample size calculation was regarded as the study sample size; this means that the final total sample size was 402.

3.5.3. Sampling procedure

For quantitative approach: systematic random samplings with document review of index case from health institution were selected . For qualitative approach: Purposive sampling had been used to select targeted participants and key informants from four health facility. The number of ART patients who received ART from the four health facilities at study period was 1056, 384, 62, and 54 at DMCSH, DMHC, H HC, and WHC respectively. This study included index clients on ART follow-up in study period from four health institutions with totaling index case 1,440 clients receiving ART services. The sampling fraction was calculated by dividing the total number of clients on follow-up at time of stud by the sample size (1556/402), resulting 3.8 in an approximately (k=4) Starting with the second client as the initial point by lottery method among client on each health facility every 5th client were selected by using systematic random sampling taking as K value with total number of 398 clients were interviewed in private rooms during the data collection period from four health facility proportionally allocated participants.

Sample size proportional allocation as follow

ni =(n/N)*Ni,

Where n=total sample size to be selected,

N=total clients on ART in study period from whole health institution,

Ni = total clients that got ART service of each health institution at study period,

ni =sample size from each health institution.

Based on this formula sample size from each health institution calculated as follow

Form DMCSH=402x1056/1440=273, from DMHC 402x384/1440=99, from WHC 402x54/1440=14, and from HHC 402x62/1440=16 with total of = 402

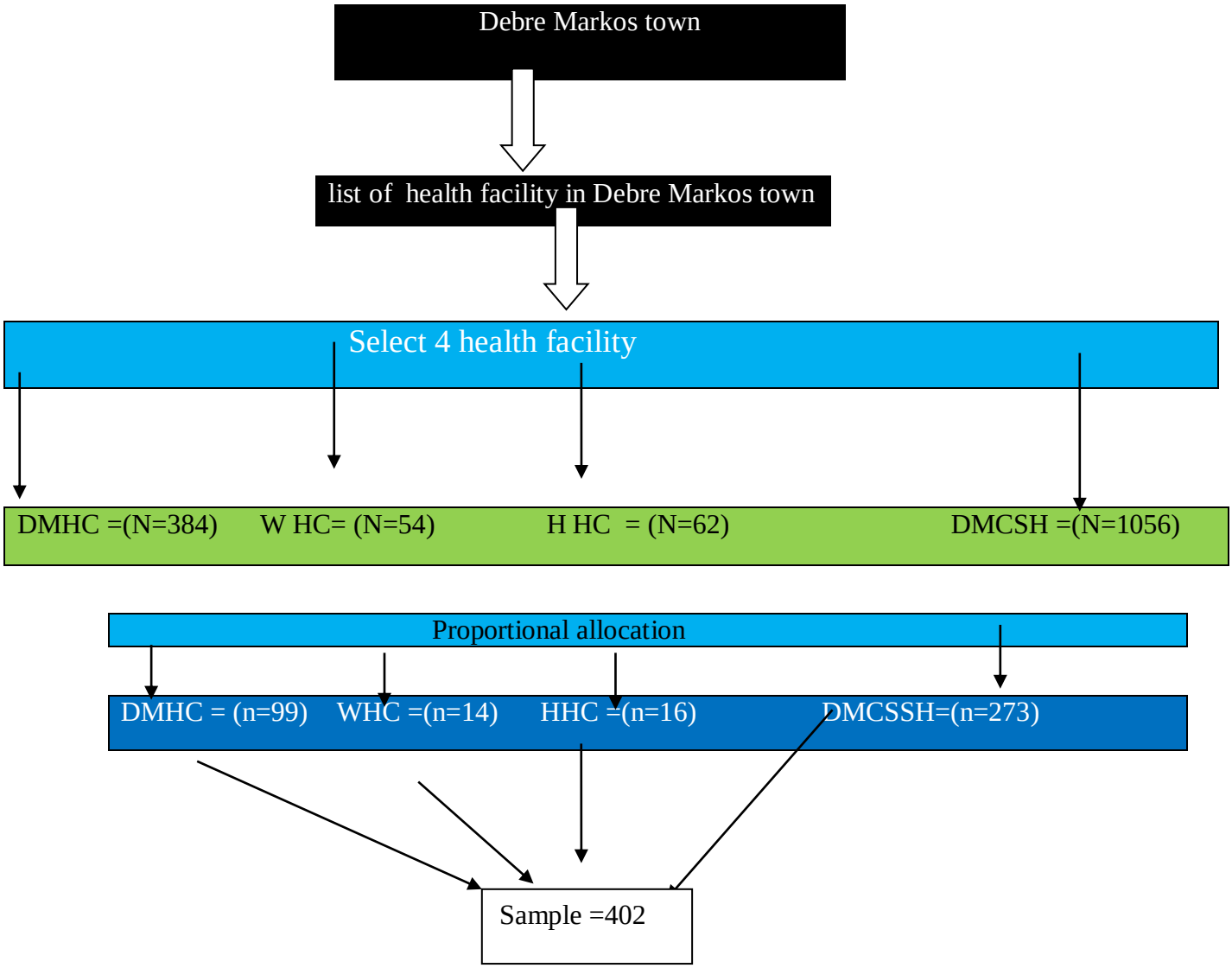

Figure 2 Diagram of sampling allocation for acceptance of index case HIV testing and its associated factors among HIV/AIDS clients on ART follow-up in multi centered public health facility in Debre Markos city administration mixed study, North West Ethiopia

3.6. Study Variables

3.6.1 Dependent variables

Acceptance of the index case HIV testing /Yes/No

3.6.2. Independent variables

Socio-demographic variables: -Residence, Age, Sex, marital status, educational status, Job, have child < 1 9 years, currently living with , occupation

Clinical and HIV/AIDS status related characteristics of the participants: - First testing method of index, Counseling, duration on ART treatment, ART adherence

Behavior-related characteristics of the patients: -Drink alcohol, Smoker, Chat chewing; Work sex as source of money, multiple sexual practice

Perceived Risk and Trust, Trust of health care provider, perceive think of risk of family member,

Awareness and Knowledge of index case Testing: -Awareness o ICT, Knowledge on HIV/AIDS, perceived benefit ICT, Counseling

Disclosure disclosed, Face discrimination, discussed

Social support: -Received social, support type of social support, place of social support

3.7. Operational Definition

Acceptance*:* index case is defined as when an indexing client agrees to the testing of their family members and consent from the index client is obtained, indicating approval for sharing the test results of their partner and/or children, which are then documented in the individual's folder(14).

The knowledge status of study respondents on index case testing was computed from the eight knowledge-related questions. Accordingly, it was categorized as good knowledge if correctly responding to ≥7 or more questions, moderate knowledge if correctly answered 5–6 questions, and poor knowledge if correctly answered <5 (28).

Alcohol use: People who consumed 6 or more alcoholic units per week for men and 5 or more alcoholic units per week for women were considered alcoholics in this study(29).

Smoker: is Participants who smoke currently, regardless of the number or frequency of smoking days, were considered smokers (29).

Chat chewing: is Individuals who claimed to chew Chat currently, regardless of the frequency and amount of Chat, were considered Chat chewers(29).

Perceived confidentiality:- refers to the extent to which an individual believes that their HIV testing process and results will be kept private and protected from unauthorized disclosure(30).

Perceived risk:- refers to an individual's subjective perception of transferring HIV to their parents and acquiring from others (31).

multiple sexual partners: having one or more of the sexual practices during the past three months prior to date of data collection sex without or inconsistent use of condom (32).

Perceived benefit of ICHT : index case who heard about of index case testing and responded "Yes" to the question "Do you think ICHT is important to partner for family living with indexes?" will be considered as a client having a perceived benefit of ICHT.(3)

Adherence Status: If the participant misses ≥9 doses during the month (<85% of the prescribed doses) she/he has poor adherence, if the client misses 4–8 doses during the month (85–95% of the prescribed doses) she/he has fair adherence and if the patient has taken >95% of the prescribed (<2 doses missed) doses correctly she/he has good adherence (33).

3.8. Data Collection Tool and Methods

3.8.1. Data collection tools for quantitative

A structured questionnaire was used to collect quantitative data. The questionnaire was initially developed in English and later translated into Amharic. It was designed based on a review of relevant literature and included questions aligned with the objectives of the study(3, 4, 6, 14). Questionnaire was consists of socio-demographic variables (residence, age, sex, marital status, educational status, job, do you have child <19, currently living with), clinical and HIV/AIDS status related characteristics of the participants (first testing method of index, counseling, duration on treatment, ART adherence), behavior-related characteristics of the patients (drink alcohol, smoker, chat chewing; work for money), Perceived Risk and Trust (trust of health care provider, perceive think of risk of family member), awareness and knowledge of index case testing (awareness on ICT, perceived benefit ICT, knowledge on HIV/AIDS, counseling), disclosure disclosed, face discrimination, discussed) and social support (received social support, type of social support, area of social support received)

3.8.2. Data collection procedures for qualitative

For the qualitative component, data were collected using a phenomenological interview guide through Semi-structured open-ended in-depth interviews (IDIs) and key informant interviews (KIIs) were used to collect data from index case and health care workers respectively(34). Collected data included detailed providers and client's socio demographic, perceptions, opinions, beliefs, and attitudes about acceptance of HIV index testing. The principal investigator conducted all interview by using digital devices, and detailed field notes.

3.9. Data Quality Assurance Control

Questionnaire was pre-tested in Machakel Woreda health facility. The pretest was included 5% of the sample required to the study and it was conducted 7 days before the actual data collection. After that, the data collection process was carried out following amendments incorporated within the final questionnaire. The data collectors and 2 supervisors (nurses, HO) were trained for 2 days by the principal investigator on how to interview the participants and how to fill the questionnaire based on prepared instruction/guidelines and questionnaire was filled by six ART providers by kobo collect interviewing technique.

The qualitative component of the study Semi-structured interview guides were used to support in-depth interview and note had taken during interview for method triangulation during data collection. To ensure consistency and quality, audio recorded IDIs and KIIs were listened to 3 times before transcription. At the same time as listening to the audios, the PI translated the content from Amharic in to English and then transcribed the data verbatim. Participant selection followed based on experience and having exposure to conditions describe important reliability information.

Detailed field notes and research records were maintained throughout interview; member checking was conducted by sharing transcripts and preliminary findings with participants to validate interpretations and discussing with colleague in process, findings, and interpretations to insure rigor and thrust worthiness. Data collection methods, study setting, and participant selection processes were thoroughly documented to support reproducibility. Stakeholder feedback was used to refine the methodology during the study, enhancing responsiveness. Triangulation of data sources and consistent application of methods were used helped minimize bias and ensured the findings accurately reflected participant experiences.

3.10. Data Processing and Analysis

Kobo collect were used for data entry, data was cleaned, and edited before being imported to SPSS version 26.0 for analysis. Finally, the outcomes of each variable were dichotomized into yes or no. The acceptances of index case testing were estimated using binary logistic regression for every explanatory variable were fitted. Variables with a bivariable logistic regression analysis p-value ≤ 0.25 were candidate for multivariable logistic regression. The degree of relationship and the identification of statistically significant results were assessed using the odds ratio, along with its 95% CI and p-values. Associations were deemed statistically significant if the P-value is less than 0.05.The model's goodness-of-fit were evaluated using the Hosmer and Lemishow test and multi-co linearity had been evaluated by Variance Inflation Factor (VIF).

For qualitative data processing and analyzing approach: data were processed and analyzed to develop parallel themes focused on individual perspectives on the acceptance of index case HIV testing. Each in-depth interview (IDI) was transcribed verbatim in Amharic immediately after completion and transcripts were later translated into English by the principal investigator and a second MPH student to ensure consistency and reduce potential bias. Audio recordings were listened multiple times alongside field notes to fully capture participant responses. Manually each transcript was carefully reviewed, coded, codes grouped into broader categories, sub themes and themes for inductively thematic analysis. To enhance rigor, transcripts were coded independently before finalizing themes and illustrative quotes were used in place of full data excerpts to highlight key findings. The study adhered to the Consolidated Criteria for Reporting Qualitative Research (COREQ) to ensure methodological transparency and quality.(35).

3.11. Ethical Consideration

Ethical clearance for the proposed research was obtained from research committee of Debre Markos University. Letters of support was also received from the Amhara public health institute. After explanation about the whole purpose of the study, further permission letter was obtained from the town health office and each health facility. Verbal consent was also obtained from study participants. Confidentiality of the information was respected throughout the data collection process. Participation in this study was voluntary and their identities were protected using unique codes instead of name. They also had a right to choose not to answer any individual question or all of the questions. Identifying information was recorded with care to ensure participant confidentiality.

Additionally, participants were informed that their participation is entirely voluntary and they had freedom to discontinue at any moment if they feel uncomfortable answering the questionnaire; those were not have an impact on the client's ability to get any type of medical care. The data gathering process were anonymous, and study participants were interviewed alone to protect their privacy and confidentiality of any information they want to share .If a participant did not meet the eligibility criteria, the next eligible individual was approached. Those unable to complete the interview were categorized as non-respondents.

To foster authentic responses; interviews were conducted in a respectful, open manner, encouraging participants to share their experiences and perspectives on index case HIV testing.

Translated transcripts and audio recorded data were stored in researcher's file and computer protected by password while back-up data was stored in a second computer of the PI.

Furthermore, this study was conducted according to the principles of the Declaration of Helsinki.

4. RESULTS

4.1 Socio-demographic characteristics

From sample size of four hundred one Three hundred ninety eight (97.8%) clients were participate in the study. Among the study participants 244, (61.3%) were females. From the respondent 149, (37.4%) were in the 30-39 age group, mean age of respondents was 40.27years (SD = +-11.024) and minimum and maximum age were 19 and 76 respectively.

Regarding marital status, participants 170, (42.7%) were married. In terms of religious status majority of participants 363, (91.2%) were Orthodox Christians. Additionally, two-thirds of the participants 318; (79.9%) live in urban areas, and most of them were 382 ;(98%) identified as Amhara by their ethnicity (Table2).

Table 2 : Socio demographic characteristics of adult index cases in Debre Markos city administrative town multi centered health facility, Northwest Ethiopia, 2025 (n=398)

		Acceptance		Not acceptance		Total	
Age categorized		Count	%	Count	%	Count	Total
	Age 18-29	31	47.7%	34	52.3%	65	100.0%
	Age 30-39	96	64.4%	53	35.6%	149	100.0%
	Age 40 -49	69	62.7%	41	37.3%	110	100.0%
	Age >50	44	59.5%	30	40.5%	74	100.0%
Sex	Male	91	59.1%	63	40.9%	154	100.0%
	Female	149	61.1%	95	38.9%	244	100.0%
Religion of client	Orthodox	219	60.3%	144	39.7%	363	100.0%
	Muslim	6	60.0%	4	40.0%	10	100.0%
	Protestant	13	59.1	9	40.9	22	100%
	Catholic	1	25%	2	75%	3	100%
Marital status	Single	24	44.4%	30	55.6%	54	100.0%
	Married	126	74.1%	44	25.9%	170	100.0%
	Divorce	69	53.5%	60	46.5%	129	100.0%
	Widowed	21	46.7%	24	53.3%	45	100.0%
Residence	Urban	201	63.2%	117	36.8%	318	100.0%
	Rural	39	48.8%	41	51.2%	80	100.0%
Ethnicity	Amhara	233	61.0%	149	39.0%	382	100.0%
	Other	7	43.8%	9	56.3%	16	100.0%
Have child< 19 years old	No	120	48.0%	130	52.0%	250	100.0%
	Yes	120	81.1%	28	18.9%	148	100.0%
living with spouse	Alone	99	47.6%	109	52.4%	208	100.0%
	None spouse	9	33.3%	18	66.7%	27	100.0%
	Spouse	132	81.0%	31	19.0%	163	100.0%
Level of education	No formal education	41	62.1%	25	37.9%	66	100.0%
	Primary	99	66.9%	49	33.1%	148	100.0%
	Secondary	67	54.5%	56	45.5%	123	100.0%
	Diploma& above	33	54.1%	28	45.9%	61	100.0%
Index occupation	Employed	108	74.0%	38	26.0%	146	100.0%
	House wife	39	54.2%	33	45.8%	72	100.0%
	Student	5	27.8%	13	72.2%	18	100.0%
	Farmer	20	43.5%	26	56.5%	46	100.0%
	Merchant	24	57.1%	18	42.9%	42	100.0%
	daily labor	44	59.5%	30	40.5%	74	100.0%

4.2. Index case clinical and ART related factor

The majority of index client participants, 367 (93.5%), had been on ART for more than 12 months. Regarding to their ART adherence, more than two-thirds, and 237, (59.5%), clients had good adherence for their medication (Table3).

Table 3 : Index case clinical and ART related factor in Debre Markos city administrative town multi centered health facility, Northwest Ethiopia, 2025 (n=398)

Acceptance of index case HIV testing

		Accept		Not accept		total	
		Count	%	Count	%	count	%
Duration on ART	Less than 12 month	19	61.3%	12	38.7%	**31**	**100%**
	More than 12 month	221	60.2%	146	39.8%	**367**	**100%**
Index HIV testing modality	VCT	74	53.2%	65	46.8%	139	100%
	PICT	117	61.9%	72	38.1%	189	100%
	ICT	49	70%	21	30%	70	100%

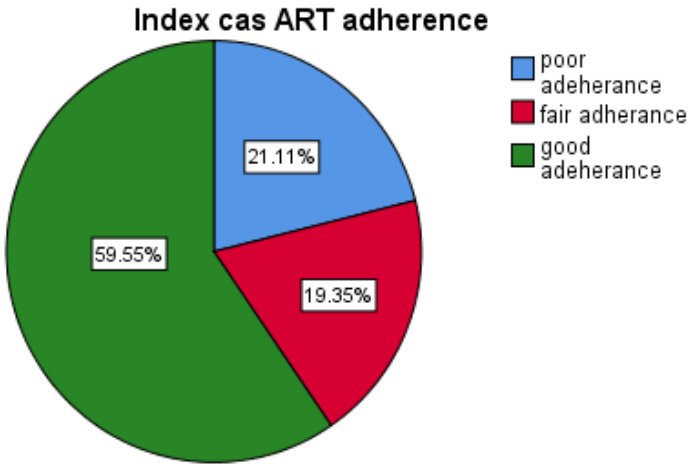

Figure 3: Index case clinical and ART adherence in Debre Markos city administrative town multi centered health facility, Northwest Ethiopia, 2025 (n=398)

4.3 Behavioural related characteristics of index case

Among eighteen respondents who engaged in sex work as a source of income, 21.1% had participated in index case HIV testing for their sexual partner or family members (Table 4).

Table 4: Behavioral characteristics of the index case in Debre Markos city administrative town multi centered health facility, Northwest Ethiopia, 2025 (n=398)

		Accept	%	Not accept	%	Total	%
Smoke cigarettes	Yes	1	33.4%	2	66.6%	3	100.0%
	No	239	60.5%	156	39.5%	395	100.0%
Chewing chat	Yes	4	57.2%	3	42.8%	7	100.0%
	No	236	60.4%	155	39.6%	391	100.0%
Sex work as source of	Yes	6	33.4%	12	66.6%	18	100.0%
income	No	234	61.6%	146	38.4%	380	100.0%
Multiple sexual	Yes	14	70%	6	30%	20	100.0%
practice	No	226	59.8	152	40.2%	378	100.0%

4.4. Disclosure related factors

From the participants more than half of index 231 (58.9%) was disclosed their HIV result to their sexual partner or family members. Among the study participants 271 (68.1%) index had no faced discrimination as result of their HIV status and one twenty seven (31.9%) clients received social support (Table5).

Table 5: disclosure related factor of index cases in Debre Markos city administrative town Multi -centered health facility, Northwest Ethiopia, 2025 (n=398)

		accept		Non accept	
Discussed with family	Yes	193	80.4%	74	46.8%
	No	47	19.6%	84	53.2%
disclosed	Total	240	100.0%	158	100.0%
	Yes	178	74.2%	53	33.5%
	No	62	25.8%	105	66.5%
	Total	240	100.0%	158	100.0%
methods use for disclose	Self	136	76.0%	41	77.4%
	Health worker	18	10.1%	6	11.3%
	Assisted disclosed	25	14.0%	6	11.3%
	Total	179	100.0%	53	100.0%
faced discrimination	Yes	47	19.6%	80	50.6%
	No	193	80.4%	78	49.4%
	Total	240	100.0%	158	100.0%

4.5. Awareness and Knowledge of index case Testing

Among the study participants 71.4 % and 14.8% had good and moderate knowledge on HIV/AID respectively. Three hundred forty five (71.9%) participants had counseled on ICT for their partner. Most of index cases from study participants (79.1%) were aware on Index HIV testing for family members from health care provider and some index case also receive information from support group and media (Table 6).

Table 6:Awareness and knowledge of index cases in Debre Markos city administrative town multi centered health facility, Northwest Ethiopia, 2025 (n=398)

		Count	%
aware of Index Case Contact HIV testing	Yes	315	79.1%
	No	83	20.9%
	Total	398	100.0%
Counseled on ICT	yes	286	71.9%
	no	112	28.1%
Perceived benefit of ICT	Yes	299	75.1%
	No	99	24.9%
	Total	398	100%
From Health care provider	Yes	315	79.1%
	No	83	20.9%
	Total	398	100.0%
From support group	Yes	98	24.6%
	No	300	75.4%
	Total	398	100.0%
from Media	Yes	32	8.0%
	No	366	92.0%
	Total	398	100.0%
benefit To know sero status	Yes	211	53.0%
	No	187	47.0%
	Total	398	100.0%
Benefit to interrupt HIV transmission	Yes	259	65.1%
	No	139	34.9%
	Total	398	100.0%
benefit To bring to care and support	Yes	114	28.6%
	No	284	71.4%
	Total	398	100.0%

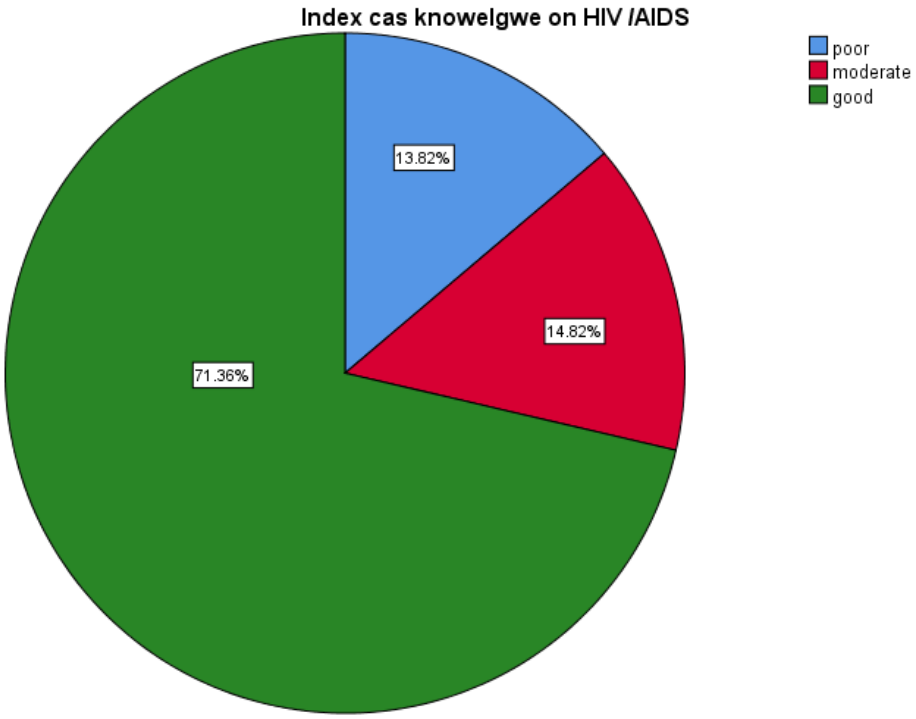

Figure 4: knowledge of index client on HIV/AIDS in Debre Markos city administrative town multi centered health facility, Northwest Ethiopia, 2025 (n=398)

4.6. Social support Related factors of index case

Among the study participant approximately 32.2% reported receiving social support from various sources, encompassing different types of assistance. Notably, one-quarter (25%) of the participants received support from community organizations (Table 7).

Table 7: level of social support for index cases in Debre Markos city administrative town multi centered health facility, Northwest Ethiopia, 2025 (n=398)

		Accept	%	Not accept	%
received social support	Yes	82	34.2%	46	29.1%
	No	158	65.8%	112	70.9%
	Total	240	100.0%	158	100.0%
type social support you received	economic /birr/	27	32.9%	13	28.3%
	Food and money	37	45.1%	18	39.1%
	psychological	13	15.9%	10	21.7%
	spiritual support	5	6.1%	5	10.9%
	Total	82	100.0%	46	100.0%
Where social support received	Keble	7	8.5%	4	8.7%
	Church	7	8.5%	9	19.6%
	Community	20	24.4%	9	19.6%
	community organization/NGO	25	30.5%	7	15.2%
	Health care provider	7	8.5%	2	4.3%
	PLHIV association	16	19.5%	15	32.6%
	Total	82	100.0%	46	100.0%

4.7. Trust, confidentiality and Perceived risk related factor

Most of participants were confidence in trusting health professionals in keeping privacy and confidentiality on their HIV status (Table8).

Table 8: Perceived risk and trust related factor of index cases in Debre Markos city administrative town Multi -centered health facility, Northwest Ethiopia, 2025 (n=398)

Variable		Count	%
trust healthcare provider	Yes	321	80.7%
	No	77	19.3%
	Total	398	100.0%
Perceived risk	Yes	69	17.3%
	no	329	82.7%
	Total	398	100.0%
Partner did not want to discuss to disclose	Yes	57	14.3%
	No	341	85.7%
	Total	398	100.0%
Fear of stigma and discrimination	Yes	22	5.5%
	No	376	94.5%
	Total	398	100.0%
Fear of divorce and separation	Yes	22	5.5%
	No	376	94.5%
	Total	398	100.0%
Fear of physical violence for disclose	Yes	24	6.0%
	No	374	94.0%
	Total	398	100.0%
Lack of information for disclose	Yes	17	4.3%
	No	381	95.7%
	Total	398	100.0%
Children ask me source of infection	Yes	34	8.5%
	No	364	91.5%
	Total	398	100.0%
Children will disclose for other	Yes	32	8.0%
	No	366	92.0%
	Total	398	100.0%
Children will not under stand	Yes	15	3.8%

Variable		Count	%
	No	383	96.2%
	Total	398	100.0%
upset Children	Yes	19	4.8%
	No	379	95.2%
	Total	398	100.0%
Increased awareness and education	Yes	210	52.8%
	No	188	47.2%
	Total	398	100.0%
assurance of confidentiality encouraged	Yes	87	21.9%
	No	311	78.1%
	Total	398	100.0%
support from health care d	Yes	128	32.2%
	No	270	67.8%
	Total	398	100.0%
Fear of stigma and discrimination ICT	Yes	60	15.1%
	No	338	84.9%
	Total	398	100.0%
Fear of divorce and separation hinder ICT	Yes	80	20.1%
	No	318	79.9%
	Total	398	100.0%
Fear of physical violence hinder ICT	Yes	34	8.5%
	No	364	91.5%
	Total	398	100.0%
Lack of information Hinder for ICT	Yes	60	15.1%
	No	338	84.9%
	Total	398	100.0%

4.8. Health facility and testing modality related factor

Among the study participants, 84.2% of index cases preferred regular testing schedules for their family members. Regarding to referral methods, 43.3% were client and 43.8% contractual referrals. Additionally, 84.6% of participants preferred health facilities as the testing locations for their family members. Most of index clients preferred health facility convectional HIV testing modality for their sexual partner or family members (Table 9).

Table 9: health facility and tasting type related factor for index cases in Debre Markos city administrative town multi centered health facility, Northwest Ethiopia, 2025 (n=398)

Variable	Category	Count (%)	%
partner notification method	provider referral	9(3.8)	3.8%
	dual referral	22(9.2)	9.2%
	contractual referral	105	43.8%
	client referral	104	43.3%
	Total	240	100.0%
Preferred time for testing of family	Regular	202	84.2%
	Irregular	38	15.8%
	Total	240	100.0%
Preferred place for you to get an HIV test	home based	30	12.5%
	health facility	203	84.6%
	Community	7	2.9%
	Total	240	100.0%

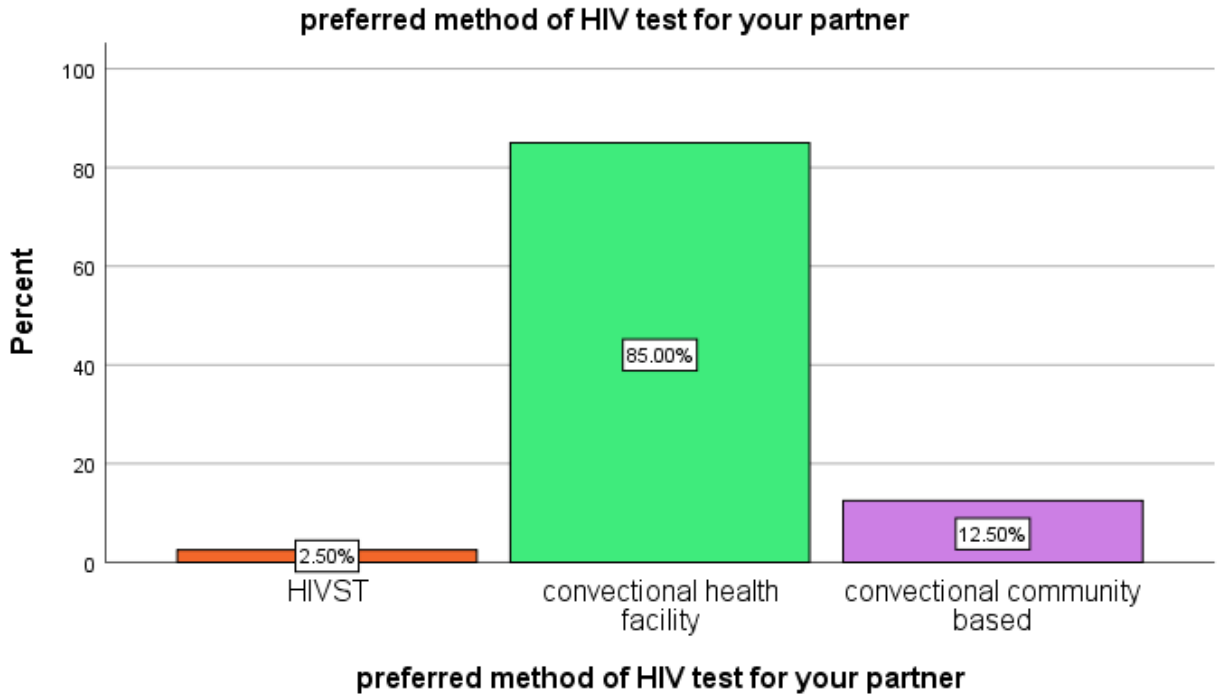

Figure 5: preferred testing method for partners index cases in Debre Markos city administrative town multi centered health facility, Northwest Ethiopia, 2025 (n=398)

4.9. Acceptance of index case HIV testing

Acceptance of index case HIV testing among family members of adult index cases on chronic HIV care was 240 (60.3%) with 95% CI (55.5-65.1) individual were accepting HIV testing for their contact.

4.10. Factors associated with acceptance of index case HIV testing

In the binary logistic regression analysis of this study variables such as: categorized age, marital status ,occupation, ,having child <19 years, ethnicity, currently living status, ART duration , ART adherence of index, index first HIV testing modality, work sex as source of income, HIV discussion status with family, disclosure status, index discrimination status , knowledge on HIV ,awareness on ICT service , partner not discussed for HIV, perceived benefit of ICT , support from health care provider and counseling on ICT on Bi-variable analysis with P-value ≤ 0.25 cut point were candidates for multivariable logistic regression analysis. Using the back ward RL method with Hosmer-Lame show goodness of fit test, the P-value was greater than 0.05. For p –value less than 0.05, those were good ART adherence

of index client, presence of HIV discussion with family, disclosed of HIV, index discrimination status, good knowledge on HIV/AIDS, index client received counseling on ICT and index client Perceived benefit of ICT for their family were identified significantly associated factors for acceptance of index case HIV testing for family members in multivariable logistic regression analysis.

Index clients with good ART adherence had 4.85 times higher odds of accepting index case HIV testing for their contacts compared to those with poor ART adherence [AOR = 4.85, 95%[CI: 2.42–9.71, *p* = .000]].

Those index client who had discussion with their family member on HIV/AIDS were 2.10 time more likely accept index case HIV testing for their contacts compared to index client who had not discussed on HIV/AIDS with their family members [AOR=2.10, 95%CI [1.02-3.94 , p=.004].

Index client who had disclosure their HIV status were 3.40 times more likely accepting HIV testing for their family members than those who had not disclosed their HIV status[AOR=3.40, 95% CI [1.75-6.62 P=.000]].

Index cases who had face discrimination as result of their HIV status were 74.4% [AOR=.256, 95% CI[.14-.48 ,P=.000]] less likely accepting HIV testing for their family members than those who had not faced discrimination . Index cases who had good knowledge on HIV/AIDS were 2.62 times [AOR 2.6295%CI [1.21-5.73, P= .017]] more likely accepting HIV testing for their family members than those with poor knowledge on HIV/AIDS. Index client who had perceived benefit of ICT acquiring HIV to their family member were 2.83times [AOR=2.83, 95% CI [1.47-5.48, P=.002]] more likely accepting HIV testing for their family members than those who had not perceived benefit of ICT for their family members.

Index client who had received counseling on ICT were 3.54 times [AOR=3.54, 95% CI [1.87-6.69, P=.000]] more likely accepting HIV testing for their family members than those who had not received counseling on ICT.

Table 10: Factors associated with acceptance of index case HIV in the bi-variable and multivariable logistic regression analysis among index case in Debre Markos city

Variables	Categories	Acceptance ICT		COR((95%CI)	AOR(95%CI)/P-value
		Yes	No		
Marital status	Married	126	44	3.57[1.89-6.76]	1.49[.59-3.75].391
	Divorced	69	60	1.43[.75-2.72]	1.31[.52-3.30].554
	Widowed	21	24	1.09[.49-2.42]	.35[.11-1.06].065
	Single	24	30	1	1
Index testing method	PICT	117	72	1.42[.91-2.22]	.66[.34-1.28].221
	ICT	49	21	2.05[1.11-3.77]	1.80[.77-4.19].171
	VCT	74	65	1	1
Adherence	Good	178	59	4.66[2.75-7.90]	4.85[2.42-9.71].000**
	Fair	29	48	.93[.49-1.76]	1.62[.45-2.48].890
	Poor	33	51	1	1
Discussed	Yes	193	74	4.66[2.98-7.28]	2.01[1.023.93].0042**
	No	47	84	1	1
disclosed status	Yes	178	53	5.68[3.66-8.82]	3.40[1.74-6.62].000**
	No	62	105	1	1
Faced discrimination	Yes	47	80	.23[.15-.37]	.25[.13-.48].000**
	No	193	78	1	1
Living with	None spouse	9	18	.55[.23-1.28]	.59[.15-2.25].449
	Spouse	132	31	4.68[2.91-7.55]	2.44[.71-8.28].152
	Alone	99	109	1	1
Knowledge	Moderate	22	37	.89[.41-1.89]	.61[.22-1.63].326
	Good	196	88	3.34[1.84-6.05]	2.62[1.205.72].0168**
	Poor	22	33	1	1
Perceived benefit	Yes	209	90	5.09[3.11-8.32]	2.83[1.46-5.47].002**
	No	31	68	1	1
counseled	Yes	193	93	2.87[1.83-4.49]	3.54[1.87-6.69].000**
	No	47	65	1	1

Key ** show p- value less than 0.05

Result of Qualitative study

In the qualitative part, data saturation was reached after in-depth interviews with total of thirteen individuals were participated , including nine urban, orthodox, HIV positive index clients, and four healthcare providers (one female and three males). The interviews focused on facilitator and barriers of acceptance of index case HIV testing for sexual partner or family members at public health institutions within the Debre Markos town city administration. All index clients reported that they had ever participated in index case HIV testing for their family members.

Table 11: Socio demographic and ART status characteristics of index client for qualitative interview

Variable		Count
Sex	Male	3
	Female	6
Age	30-39	6
	40-49	3
Marital status	Married	3
	Divorced	5
	Widowed	1
Occupation	Employed	2
	House wife	2
	Daily laborer	5
Educational status	Unable write and read	3
	Primary	1
	Secondary	5

Qualitative Result sub themes and Themes summery

Theme	Sub-theme	Summary of findings
Facilitators for acceptance of index case HIV testing	Awareness on ICT	Had taken training. Now Partner notification system ,Aware on ICT, Acquire skill and knowledge
	Perceived benefit of index case HIV testing	it helps to know sero status , for early initiation of ART drugs it reduce spread of ,

Theme	Sub-theme	Summary of findings
		Prevention transmit ion, for growth, condom utilization , for load suppression ,for health life and wellness
	Presence of social support	Community volunteer engagement ,PLHIV , home to home service, economic support ,medical care support,
	Communication and counseling	Create good rapport ,reduce stress , collaboration notification, counsel partner ,
	Trust and confidentiality	Create family relation ,develop confidence ,share burden of index case ,
	Presence of discloser and discussion	Reduce worry ,create free discussion, take care for family ,
Barriers for acceptance of index case HIV testing	Fear of stigma and discrimination.	Isolation from community, work place stigma, fear in take their pill properly, hidden their HIV status to protect stigma
	Fear of divorce and separation	Lose of love, fear of economic dependency, verbal insult from partner ,physical violence from partners ,fear of displace family member ,fear in distrust from partners
	Religious factor	Prefer holly water as cure site, drop their drug and go to religious site,
	Cultural influence	Considering practice out of norm, assume
	Partner refusal	Think of I am health , not believing test result is not true ,prefer testing after develop disease

Theme	Sub-theme	Summary of findings
	Guide line and sop inconsistence utilization	Negligence in cue card utilization, assume I know it and no need use it, working as usual

1. Facilitators for acceptance of index case HIV testing

Participants said that awareness of Index Case Testing, availability of counseling, and open communication about HIV status, belief in the benefits of family member testing are key enablers. Trust, confidentiality, and support from healthcare providers, community organizations, volunteers and PLHIV associations significantly ease index stress and fear when informing sexual partners and family members about HIV testing. Together, these factors foster greater acceptance of HIV testing among partners and family members, ultimately enhancing mental well-being and reducing anxiety related to family health outcomes.

1.1. Awareness on ICT

All health care provider included in interview said that they had received training on index case HIV testing and partner notification methods/ICTPNS/ and all index client aware on index case HIV testing and partner notification methods which helps in accepting for their family HIV testing. They stated that from the training acquired skills and knowledge for contact elicitation and notification to support index cases in participating their sexual partners and children to undergo HIV testing.

"*I had received index case HIV testing and partner notification service and I received and learned how to support index cases in accepting contact elicitation and testing for their family members. The training also included guidance on partner testing using HIV self-testing (HIVST) kits."" (Health care provider, age26,)*

"I had heard about family testing for HIV/AIDS for my family member from nearby hospital at time of when I had tested and heard my positive HIV result from health providers told to me to bring my child, or husband to test for HIV."(Female index client, age 34)

1.2. Perceived Benefit of index case HIV testing

The study Participants reported that testing family helps for them self and family members in early detection and knowing HIV status, enabling timely initiation of treatment before developing complication, prevent HIV transmission from index to their family, and finally improving health outcomes for index individuals, their families help them to live healthy for future growth and development.

"Yes, it has significant benefits despite the challenges. When we look at the benefits of Index Case Testing (ICT), we can see them in two main areas. First it helps to reduce HIV transmission from the index case to their family members. Secondly, it helps identify HIV status of children and other family members. Additionally, it promotes for early initiation of ART before complications arise in early viral load suppression for healthy lives. ICT is also important for civil servants and the general workforce, maintaining good health improves productivity and supports national for building healthier communities." (Male health care provider, age 33)

"*Yes, it has benefits, It allows to know our self if there is HIV to start pill early, before they becoming seriously ill, helps protect the community from further HIV transmission, and enables people to decrease stress on their HIV status in alleviating worry on become bedridden or face life-threatening complications.''(Female index client, age 40)*

1.3. Presence of social support

Nearly all participants underlined that support of community organizations and PLHIV associations through economic, nutritional, psychological, medical, and related assistance were significantly improving the lives of clients on ART and their family member. This support enables clients to carry out daily tasks effectively, live healthier lives, build self-confidence, and develop a sense of responsibility to protect their families from severe illness by encouraging HIV testing for their partners and children early.

According to interviewees, PLHIV associations and community organizations also conduct home-to-home service through their staff and community volunteers whose active engagement support in identifying and counseling clients and their contacts. This activity plays a crucial role in influencing index client willingness to participate in index case HIV testing for their family.

"support from the PLHIV association and community organization like food support, medical cost coverage, birr support for asset which are not support from our family members, and inform to test family member were pushing factor to notify my husband to be test but currently reduced at the side of economic support but encourage for family testing by their volunteer at home to home HIV testing." (Female, index client age37)

"Presence of PLHIV volunteer in the community in sharing their experience for tracing and counseling clients in telling on their HIV for index and their contacts at home to home and Effort of case manage and adherence supporter helps us to notify and disclose my status for my family to test for HIV" (female index client age33)

1.4. Communication and counseling

All participants told that Counseling and communication between health care provider and client helps for open discussions with health professionals to express their feeling, concerns and fears about testing, reducing anxiety, and educating partners on the benefits of HIV testing to promoting greater acceptance on index case HIV testing. They described the interactions between ART clients and healthcare providers as friendly and family-like, which helped build strong rapport and alleviate clients' fears about disclosing their HIV status to family members.

"Oh health professionals had critical role and major responsibility starting from maintaining confidentiality, building good rapport, and ensuring effective communication. This helps reduce the client's stress, improves disclosure, strengthens the trust and relationship to encourage acceptance of HIV testing."(Health care provider age 35)

"Counseling and communication of health professional provide for me helps to reduce anxiety and worry on my HIV result and to take my pill correctly for return my health and help to notify my family with health care providers to be test for HIV and I am confident and happy from the service" female (index client age 30)

1.5. Trust and confidentiality

Almost all participants stated that the presence of confidentiality and maintaining their secret e in service provision, communication, and counseling offered by healthcare providers were more than adequate and delivered in a friendly, family-like manner. This approach helped build strong

confidence, in their HIV status for eased many clients' fears about disclosing their HIV status to family members throughout the process.

"If confidentiality is not upheld, the client may not only refuse Index Case Testing (ICT) but also away from ART services. Health professionals provide service confidentially putting themselves in their shoes and sharing in their emotional burden of index clients in notifying their partners. Health care provider serves as family member with confidentiality and honesty for index case and their partner in participating HIV testing."(Health care provider age26)

"In my opinion, there should be no gaps or limitations on maintaining confidentiality, during service provision always informs index clients their results may be shared with healthcare professionals involved in their care with shared confidentiality and maintaining strict confidentiality is a core professional ethic. Keeping clients' information private is essential to building trust in ensuring clients listen to our counseling and education for willing to participate in Index Case Testing services".(Health care, provide ,age 33)

"Health care provider provides service in privacy and keeps confidentiality way, I am very happy service of them they provide and I thrust more than my family members and I had share my felling and relived from stress."(Male index client age 43)

1.6. Presence of discloser and discussion

As stated from all participants' presence of open communication and disclosing HIV within the family member build trust and confidence in alleviating anxiety and worry, helps to emotional support for index client which facilitates to promote thrust between partners to reach in decision and negotiation to participating HIV testing for their family. Free discussion with in family member create Open and honest S within a family helps to minimize myths and misinformation on HIV/AIDS

"Ok practice of discussion and disclosing about HIV status between index and their family members reduce mental stress, fear and worry of index clients in line list of family member and participating for HIV testing benefit of their family and himself from complicated health and social life.'' (Health care provider age, 35)

"first I had go to health center and tested for HIV return to home I had said my result immediately which create conflict within our self as result my husband said why but after two

three-day discussions and talking we had agreed and go with me for testing at health facility." (Male index age38)

"*After knowing my result a had worry for long time on how and when to inform her about my result,…but after long time worry I had discussion and clear notifying my HIV status give rest and reduce worry to on getting HIV testing for my wife*" *(male index client age45)*

2. Barriers

Participants said that fear of stigma and discrimination, fear of divorce and separation, religious factor, cultural influence and partner refusal were major barriers for family member HIV testing.

As mention by the interviewees almost all index client participants of index client were faced stigma and discrimination, verbal violent and some participants faced lose their love and trust with in the family for divorce and separation which causes for to take family.

2.1. Fear of stigma and discrimination

Participants noted that, despite some progress in reducing stigma and discrimination, many index clients had experienced psychological, economic and social discriminate from the community which were major challenge in disclosing their HIV status as result they often choose to hidden their status in an effort to protect themselves from stigma and exclusion within their communities. Concerns about being judged, hated, or facing negative consequences in work place, school, or neighborhood remain significant barriers to disclosure, discussed and acceptance on family member HIV testing.

"Previously there are many impacts of HIV AIDS and impact of social and cultural factors change over time there is progress in stigma and discrimination on HIV. But still some client faces stigma and discrimination from different place including work place, due to influence of burden from community most indexes say I have no family and UN able to line list sexual partner especially none spouse one." (Health care provider age 33)

"*many clients' afraid stigma and discrimination from community, work place and other place take their drugs from their family member in hidden way to seem like health one not think for their family as fear of stigma and no free discussion with in family member whatpeople say …what say …. worry on family as whole discriminate from family" (male index client age 38)*

2.2. Fear of divorce and separation

Participants expressed that concerns about relationship instability, fear of economic dependence, physical or verbal abuse from their partnersoften make them to conceal their status. As a result, some choose to hide their condition and take their medication in secret, even from close family members, and may avoid participating in HIV testing altogether.

Many feared that revealing their status could lead to the breakdown of their relationships, risk of separation or divorce, fear on loose in income are major concern for a loss of love, and a breakdown in trust within the relationship for discouraged open discussions about HIV testing to their partners.

"Secondly as result of depending their husband economy /income if I disclose or inform my result he may be, loosen my love or distrust me and divorced or pushing out from home and face economic crises even I will hunger, my family may be displaced/separated."

(Healthcare provider male, age35)

"some women afraid of in discussed or disclose their HIV status for their husband due to fear of physical and verbal violence, fear of loose love or thrust, economical dependency from her husband and final Fear of divorced and separation family member and refer hidden their self." (Female index age30)

2.3. Religious factor

Study participants told that within religious groups sexual practice out of marriage was not supported Stigmatization was seen as a significant barrier in line listing HIV testing as fear of violating my religion rule and considering doing a sin and certain index clients prefer holly water as their cure site for their HIV status and push their family member for that area rather than HIV testing.

"s*ome clients prefer to go holly water after drop out their pill with their family for healing and they said I am cure from HIV and believing no need of testing my family" (female index age 33)*

"*Some clients believed I could be cured of HIV by visiting holy water sites and preferred to this for healing over taking their antiretroviral (ART) medication. They would stop taking their pills, convinced they were healed after visiting holy water and even encouraged their family members to go there for better health. Some client's return develops OI complication after they missed their medication and follow up. " (health care provider male , age,33)*

2.4. Cultural influence

Some participants highlighted that fear of blaming from community on moral and sexual health often conflict with the idea of HIV testing, leading individuals to avoid conversations due to fear of judgment from their faith communities.

"Some index clients fear of influence of culture to inform for none spouse sexual partners, which is shame practice sex out on married."/health care provider age 33/

" Many clients who had taken their pill hidden their self as result of Fear of in assuming perceiving I am out of my Cultural and norms and considering I had practice out of community practice." (Female index age 37)

"Community assume he/she practice multiple sexual practice in breaking from his/ faith fullness out of our Cultural and they assume I am in eye of people and afraid in line listing sexual partner."(Health care provider age 35)

2.5. Partner refusal

The participant stated that some individuals refuse HIV testing due to fear of receiving a positive result before showing any symptoms and others are afraid of knowing their children's HIV status. This raises concerns about how to inform them and provide necessary treatment, as they may also refuse to take the medication.

"Some people fear in receiving child result fear of being positive of their child result may be positive, stress especially in my one child there is something in her face and it may be positive is very stress and refusal of from her my husband for testing" (female age 40)

"After index accepting in contact elicitation some sexual contacts refuse for fear of being positive and now I am health I will test if there is any illness is occurring no I am not read to receiving HIV testing and result" (health care provider age 35)

2.6. Guide line and sop inconsistence utilization

From interview health personal report show that in the context of index case HIV testing, one critical factor contributing acceptance of index case HIV testing were cuecard ad national guidelines**,** which undermines the effectiveness and reliability of trust, lack of confidence, poor

counseling skill and communication for timely family matrix update and contact elicitation of index client partner's notification services. This factor affects and discouraged index clients in line listing their partners, freely discussing on their HIV status, and fear on their service they provide in participating to HIV testing for their sexual or needle-sharing partners.

"In the utilization of cue cared and guide line different from provider to provider such as Some health care provider not utilize due to careless and some not use due to assume I know and understand cue card or sop conclude no need to utilize cue cared, but they delivered inconsistence and poor counseling and contact elicitation for acceptance of index case HIV testing as compared to health professionals who use cue card and sop properly provide comprehensive ICT service"(health care provider age 26)

5. DISCUSSION

This study aimed to assess the magnitude of acceptance of index case HIV testing, along with its associated factors, facilitators, and barriers among individuals receiving chronic HIV care and treatment in multi center public health facilities in Debre Markos town.

According to the findings, the acceptance rate of index case HIV testing for family members were 240 (60.3%), indicating low acceptance rate with 95% bootstrap confidence interval [55.5% – 64.8%].Acceptance rate was lower than that studies conducted in Nekemt town (85.2%)(3) , oromia 80.2% (6) and Nigeria 91.9% (36).The observed differences may be due to variations in study settings, socio-demographic characteristics of participants, awareness and knowledge , studies period, methodological approaches, and the level of stakeholder engagement and participation in promoting index case HIV testing for index client. However , the acceptance rate in this study was higher than those study done in Gondar Specialized Hospital (37.8%)(9) and Kule refugee camp(49%)(14).These differences may reflect variations in the study period area /one health facility for Kule and Gondar S. hospital/, training and health professional commitment, methodological approaches, and stakeholder involvement in supporting index case testing services. But, the findings of this study are consistent with those from a study conducted in Gedeo, which reported a similar acceptance rate of (60.6%)(4)and stud conducted in shashemene (63.7%)(37) .

The odds of index cases with good ART adherence accepting HIV testing for their contacts were 4.85 times higher compared to those with poor ART adherence (AOR = 4.85, 95% CI: 2.42–9.71).This finding is consistent with studies conducted in Gedeo, South Ethiopia (4) and Kule refugee camp(14).This may be because adherence to treatment is crucial for maintaining the health of the index client, as it helps address challenges related to disclosure, stigma, confidentiality, and deeply rooted beliefs. This ongoing support can enhance clients' awareness and overall health; as a result, individuals who adhere well to ART are more likely to disclose their HIV-positive status, which increases the likelihood of their partners and children getting tested.

Those index cases who had discussion with family on HIV/AIDS were 2.01time more likely accept index case HIV testing for their contacts compared to family members who had not discussed on HIV/AIDS with family member [AOR=2.10, 95%CI [1.03-3.94, p=.004]. This finding was supported by related study done in Oromia region (6)and qualitative findings from interviewed revealed that most index cases who had discussed with family members were accepting index case HIV testing for family members HIV testing. A possible reason for this similarity is that discussing HIV testing helps create a supportive environment for the index client to bring their family members for testing, and it is also a necessary step for effectively tracing and testing family members.

Index cases disclosure their HIV status were 3.40 times [AOR=3.40, 95% CI [1.75-6.62] more likely accepting HIV testing for their family members than those who had not disclosed. This finding was supported by study conducted in Kule refugee camp (14), study done in Oromia region(6), shashemene (37),Nekemt town(3), study conducted in Gedeo(4), study done in Indonesia (38)and Qualitative findings from the interviews revealed that individuals who disclosed their HIV status relief from stigma and discrimination, which in turn created a supportive environment for open and free discussion within their families.

This because disclosing one's HIV-positive status plays a crucial role not only for the individual but for the entire family. It helps manage the emotional, social, and practical challenges of the disease within the household. This step is key in encouraging spouses to get tested and in building a supportive, stigma-reducing environment based on trust. Consequently, families of index clients are more likely to participate in testing and become informed about their HIV status.

Index cases who had faced discrimination as result of their HIV status were 74% times [AOR=.26, 95% CI [.14-.48] less likely accepting HIV testing for their family members than those who had not faced discrimination. The finding was supported by stud done in Shandong Province, China(39),sub-Saharan Africa(40)and Zambia(41)and qualitative finding show that people hidden them self as fear of stigma and discrimination in participating HIV testing for their partners .The possible reasons for this outcome may include fear of isolation, social ignorance, concern over a fear of potential positive result in their children, and the stigma and discrimination present in the community all of which can discourage HIV-positive clients from disclosing their status or discussing testing with family members.

Index cases who had good knowledge on HIV/AIDS were 2.62 times [AOR 2.6295%CI [1.21-5.72} more likely accepting HIV testing for their family members than those with poor knowledge on HIV/AIDS. This finding was supported by stud done in Nekemt town (3). Index cases who had perceived benefit of ICT index to their family member were 2.83 times [AOR=2.83, 95% CI [1.47-5.48] more likely accepting HIV testing for their family members than those who had not perceived benefit of ICT for their family members. This finding was supported by study conducted in Oromia region(6)and qualitative finding showed that index had get awareness and intensive counseling on benefit of know HIV status for prevention of HIV transmission from index to their partners helps in early elicitation of their partners and family members for HIV testing.

Index cases who had received counseling on ICT were 3.54 times [AOR=3.54, 95% CI [1.87-6.69] more likely accepting HIV testing for their family members than those who had not received counseling on ICT. This finding was supported by study conducted in Oromia region(6)and qualitative finding showed that presence of good counseling and communication facilitates in creating friendly rapport in discussing freely .This could be due to the ongoing counseling, which helps the client manage the emotional impact of the test results, understanding the potential risk of transmission to family members, and encourages family testing.

Qualitative finding revealed that those with index client who received good counseling and discussion on index case HIV testing decrease index client fear and worry which facilitates partner notification for HIV testing which is supported by quantities finding and other study conducted in Oromia region (6). Disclosure and discussion with in family members alleviate concern of index clients in participating index case HIV testing for their partners and family members as supported from study done in Kule refuge (14), study done in Oromia region(6), Nekemt town(3) and study conducted in Gedeo(4) and quantitative findings showed that more likely accepting index case HIV testing for family members or sexual partners.

Index client fear in participating index case HIV testing for their partner and family member as result of Fear of stigma and discrimination, fear of divorce and separation as supported by study done Shandong Province, China(39) ,sub Saharan Africa(40) , Zambia(41)and

quantitative findings of index client who faced discrimination as result of their HIV status less likely participating in Index case HIV testing for family members .

6. Conclusion and Recommendation

6.1. Conclusion

The quantitative finding revealed that 60.3% of index cases were accept to participate in HIV testing for their sexual partners or family member which is low as set by national bench marks. Key factors positively influencing this acceptance included good adherence to antiretroviral therapy (ART), open disclosure and discussion within the family, a perceived benefit of ICT, comprehensive counseling on index case testing (ICT) and good knowledge of HIV/AID. However, individuals who experienced discrimination due to their HIV status were less likely to accept testing for their family members.

Qualitative findings showed that several facilitators and barriers to acceptance HIV testing of family member or sexual partners. Facilitators included effective counseling, open communication about HIV status, trust and confidentiality, social support for the index case. Whereas fear of stigma and discrimination, fear of divorce or separation, religious and cultural influences, and partner refusal emerged as significant barriers.

Supportive counseling, education, awareness creation, emphasized that trust and social support and efforts to reduce stigma and discrimination were shown to further enhance willingness to engage acceptance of index case HIV testing, underscoring the importance of a holistic approach in promoting testing uptake. Future efforts should focus on identifying and addressing specific facilitators and barriers to enhance the acceptance of index case HIV testing among family members and partners.

6.2. Recommendation

For Health care providre:

To improve the acceptance of HIV testing among index client on ART follow up index client needs actively support from healthcare providers in addressing barriers through tailored counseling, SOP and cue card properly utilization. This includes emphasizing the awareness creation on importance of index case HIV testing, the importance of disclosing and open communication within the family, and regular follow-up to ensure adherence to antiretroviral therapy (ART). Providers also encourage and facilitate the disclosure of HIV status to family members to minimize fear and anxiety on their HIV status.

It is essential to establish a reliable mechanism to regularly update the list of sexual or biological contacts in the ICT logbook (family matrix update format). This will help identify index clients who are not elicit contacts timely and initiate line listing later for HIV testing.

Provision of option in partner notification modality for index clients in notifying HIV for their partner for open discussion to minimize fear of divorce and separation.

For health department

Working with religious council in Collaborate to improve and minimize lost clients from their treatment in improving their ART adherence. Monitoring in proper utilization of SOP and guide line in the provision of ICT service

For religious leader

Educate and counsel their followers in client's drug adherence with their believing of holly water treatment

For community organization

Effort in participation and support for index client in economic and medical follow up

For researchers:

Researchers and the broader scientific community will conduct both retrospective and prospective follow-up studies at a multicenter level. Such studies are crucial to accurately estimate the true burden of this often underestimated public health issue. Specifically, aim to assess the incidence of HIV testing among elicited contacts following their identification. These

studies would also provide an opportunity to include variables not captured in the current research, which may be significant predictors of HIV testing acceptance.

7. LIMITATION OF THE STUDY

This study aimed to assess the prevalence and associated facilitator and barriers influencing the acceptance of index case HIV testing for family members. However, as the data were based on self-reported information, there is a possibility of reporting errors and social desirability bias, which may lead to overestimation or underestimation of the findings. Additionally, due to the cross-sectional design of the study, it is not possible to establish a causal relationship between the identified factors and the acceptance of index case HIV testing.

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9. ANNEXES

9.1. English Version Information Sheet

Hello. My name is _____ and I am here to collect health related data for the purpose of research for a study being conducted by samuaelDagnaw for post graduate student on MPH at Debre Markos University. And now I am conducting a research assessment of clients' acceptance of index case HIV testing. No personal identifier will be collected from you. On average an interview lasts 20 to 25 minutes to complete. All the information that you give will be kept confidential and private. Only the principal investigator and interviewer will have access to the information, and you are not mentioned (indicated) by name and won't accessible to third party. Your name won't register on the question sheet so that you will not be identified.

I declare my voluntary consent to participate in this study with my initials (signature) as indicated below. Are you voluntarily participating in the study?

Yes ☐ No ☐

If no document the reason for their abstention in the space provided below.

Participant's signature _____date_____/_____/2025

Date of Interview ---------- Time Started----------Time Finished----------

Interviewer's Name ----------

Interviewer's Signature _____date_____/_____/2025

Name of the principal Investigator: SamuaelDagnaw

MBILE +251913408472 E. mail; samuaeldagnew@gmail.com

Thank you very much!\

9.2. English Version Questionnaire

Questionnaire to assess acceptance of index case contact HIV testing service in selected public health facility

Instruction: - Circle the responses for questions with alternatives and write for open ended Questions on the space provided.

Study Participant code/ART number / _____ ----data collection date ----------

Section one: - socio-demographic of respondent

No	Questions	Response	Skip
101	Age	_____years	
102	Sex	1. Male 2.Female	
103	Religion	1. Orthodox 2. Muslim 3. protestant 4. Catholic 5. Other specify ----------	
104	Marital status	1. Single 2. Married 3. Divorce 4. Widowed	
105	Residence	1 Urban 2 Rural	
106	Ethnicity	1.Amhara 2 Oromo 3Tigray 4.Other specify ----------	
107	Do you have children who are under 19 years old?	1 Yes 2 No	
408	Currently Living with	1 spouse 2.none spouse 3 Alone	
109	What is your Level of education?	1.No formal education 2.primary 3.secondary 4.Diploma and above	
110	What is your occupation?	1. Employed (government/private2. House wife 3. Student 4. Farmer 5.Merchant 6.Dailylaborer 7other (Specify)_____	

111	What is your house hold monthly income in ETB?	----------Birr per month(estimate of respondent)	

Section two HIV/AIDS Status and ART Information questions ……

201	How long have you been on ART?	1.Less than 12 month 2.More than 12 month	
202	How did you know your HIV status?	1. VCT 2. PICT 3. ICT	
203	How many pill you missed in month	1. more than 9 /poor 2. 4-8 pill/moderate 3. less than 2 pill/good	

Section three Behavioral related

301	Do you have multiple sexual partners?	1.Yes 2.No	
302	Have you worked in sex work as a source of money?	1.Yes 2.No	
303	Do you Have smoke cigarette?	1. Yes 2. No	
304	Do you Have you chewing Chat?	1.Yes 2.No	

305	Have you drink alcohol in the last 3 month	Yes/ No	0	1	2	3	4	If no skip to 402
306	How often do you have a drink containing Alcohol?		Never	Monthly or less	2-4 time a month	2-3 times a week	4 or more times a week	
307	How many drinks containing alcohol do you have on a typical day when you are drinking?		1 or2	3 or 4	5 or 6	7 or 9	10 or more	
308	How often do you have six or more standard Drinks on one occasion?		Never	Less than a month	Monthly	Weekly	Daily /almost daily	
309	How often during the last year have you found that you were not able to stop drinking once you had started?		Never	Less than a month	Monthly	Weekly	Daily /almost daily	
310	How often during the last year have you failed to do what was normally expected of you because of drinking?		Never	Less than a month	Monthly	Weekly	Daily /almost daily	
311	How often during the last year have you needed a drink first thing in the		Never	Less than a	Monthly	Weekly	Daily /almost daily	

	morning to get yourself going after a heavy drinking session?			month				
312	How often during the last year have you had a feeling of guilt or remorse after drinking?		Never	Less than a month	Monthly	Weekly	Daily /almost daily	
313	How often during the last year have you been Unable to remember what happened the night before because of your drinking?		Never	Less than a month	Monthly	Weekly	Daily /almost daily	
314	Have you or someone else been injured because of your drinking?		No		Yes but not in last year		Yes during in last year	
315	Has a relative, friend, doctor or other healthcare Worker been concerned about you're drinking or suggested you cut down?		No		Yes but not in last year		Yes during in last year	

Section four disclosure status and social support Factors

402	Have you discussed on HIV with your family members?	1Yes 2 No	
402	Have you disclosed your result to your partners or children?	1.Yes 2.No	
403	If yes, what methods do you use to disclose this information?	1.Self disclosed 2.Assisted disclosed 3. Health worker4. Other specify -----------	
404	Reason for not disclosing for sexual partner	Fear of stigma and discrimination fear of divorce and separation fear of physical violence lack of information	
405	What is the Reason for non-disclosure to own children?	1 Children will ask me source of infection 2 Children will disclose my status to other 3 I do not want to worry/upset my children 4 Children may not understand it Other--------	
406	Have you ever experienced discrimination because of your HIV status?	1.Yes 2.No	
407	If yes what type of discrimination you faced	----------	
408	Have you receive social support	1.Yes 2.No	
409	What type of social support received	----------	
410	From where you get social support	----------	

Section five Awareness and Knowledge of ICC Testing related questions …….

	Knowledge on route of transmission		
501	Can a person get HIV infection from mosquito bites?	1.Yes 2. No	
502	Can a person get HIV infection by sharing a meal with someone who is infected?	1.Yes 2. No	
	Knowledge on prevention and control		
503	Can the risk of HIV transmission be reduced by having sex with only one faithful uninfected partner?	1.Yes 2. No	
504	Can a healthy-looking person have HIV infection?	1.Yes 2. No	
505	Does condom use reduce risk of HIV transmission?	1.Yes 2. No	
506	Can the risk of HIV transmission be reduced by abstaining from sexual intercourse?	1.Yes 2. No	
507	Can an HIV-infected male be cured of HIV if he has sex with a young girl who is a virgin (a girl who has never had sex before	1.Yes 2. No	
508	Is there a cure for HIV/AIDS?	1.Yes 2. No	
509	Are you aware of Index Case Contact HIV testing?	1. Yes 2. No	If no skip511
510	If yes, how did you learn about Index case HIV testing?	1.Health provider 2.Support group 3.Media4. Other specify ----------	
511	Is index case HIV testing benefit ,for what	1 yes 2 no	
512	If yes for what	1.To know sero status 2.To interrupt HIV transmission 3.To bring to care and support	

Section six Perceived Risk and Trust related question ……

601	Do you think your partner or children are at risk of acquiring HIV from you?	1. Yes 2. No	
602	Do you trust your healthcare provider to keep your	1Yes 2. No	

	information regarding ICC testing confidential?		
603	Have you receive counseling to bring families for HIV testing?	1. Yes 2. No	

Section seven Acceptance of index case contact HIV Testing

701	Would you be willing to refer your partner(s)/family for ICC testing?	Yes No	If no skip 155
702	If yes Which partner notification prefer to you?	Client referral Contractual referring Provider referring Dual referring	
703	What is your convenient time for HIV test for your partner and family?	Regular Irregular	
704	What is your convenient place for HIV test?	Health facility Home based Community based Other -------	
705	What is your convenient method for HIV test for your partner ?	Conventional at HF Conventional Community based HIVST	
706	What factors would encourage you to refer your partner(s) for ICC testing? (Select all that apply)	Increased awareness and education Support from healthcare providers Assurance of confidentiality Other-----	
707	What factors hinder you accepting ICC testing?	Fear of stigma and discrimination Fear of divorce and separation Partner did not want to discuss Fear of physical violence Lack of information Others----------	

Section 8: Additional Comments----------

Would you appreciate any additional comments or thoughts regarding ICC testing?

Section nine interview guides for client on acceptance of Index Case Contact (ICC) Testing

Information sheet

Hello. My name is _____ and I am here to collect health related data for the purpose of research for a study being conducted by samuaelDagnaw for post graduate student on MPH at Debre Markos University. And now I am conducting a research assessment of clients' acceptance of index case HIV testing. No personal identifier will be collected from you. On

average an interview lasts 25 to 30 minutes to complete. All the information that you give will be kept confidential and private. Only the principal investigator and interviewer will have access to the information, and you are not mentioned (indicated) by name and won't accessible to third party. Your name won't register on the question sheet so that you will not be identified.

I declare my voluntary consent to participate in this study with my initials (signature) as indicated below. Are you voluntarily participating in the study?

Yes ☐

No ☐

If no document the reason for their abstention in the space provided below.

☐Participant's signature _____date_____/_____/2025

☐ Date of Interview ---------- Time Started----------Time Finished----------

☐ Interviewer's Name ----------

☐ Interviewer's Signature _____date_____/_____/2025

- ☐ Name of the principal Investigator: SamuaelDagnaw
- ☐ MBILE +251913408472 E. mail; samuaeldagnew@gmail.com

Thank you very much!

Hello. My name is _____ and I am here to collect health related data for the purpose of research for a study being conducted by samuaelDagnaw for post graduate student on MPH at Debre Markos University. And now I am conducting a research assessment of clients' acceptance of index case HIV testing. No personal identifier will be collected from you. On average an interview lasts 25 to 30 minutes to complete. All the information that you give will be kept confidential and private. Only the principal investigator and interviewer will have access to the information, and you are not mentioned (indicated) by name and won't accessible to third party. Your name won't register on the question sheet so that you will not be identified.

I declare my voluntary consent to participate in this study with my initials (signature) as indicated below. Are you voluntarily participating in the study?

Yes ☐

No ☐

If no document the reason for their abstention in the space provided below.

_____

_____

Participant's signature _____date_____/_____/2025

Date of Interview ---------- Time Started----------Time Finished----------

Interviewer's Name ----------

Interviewer's Signature _____date_____/_____/2025

- Name of the principal Investigator: SamuaelDagnaw
- MBILE +251913408472 E. mail; samuaeldagnew@gmail.com

Thank you very much!

Interview guide for acceptance of index case HIV testing for clients

Socio-demographic variables

1. Age----------
2. Sex----------
3. Marital status----------
4. Children under 19 years ----------
5. Religion----------
6. Residency ----------
7. Educational status----------
8. Monthly income ----------
9. Duration on ART ----------
10. Disclosure status ----------
11. Adherence level ----------

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1. Have you ever heard about index case HIV testing?
2. If yes, how have you heard of it? Probe(when, where, who) (Health professionals, media, volunteers, NGO staffs or community organizations)
3. In your opinion, what is index case HIV testing?(Eligible family members)

4. Do you believe index case HIV testing is important? How?
5. From your experience, could you tell me the positive and negative impacts of disclosing HIV status?(personal and others experience)
6. Have you ever had index case HIV testing? Why?
7. If yes, which partner notification method, time of testing and place where you used?
8. If yes, what were the opportunities or facilitators?
9. If yes, what were the challenges (when and how, measures taken)?
10. If no, what were the potential barriers (how)?
11. Could you tell me about the effect of health care providers approach on acceptance of index case HIV testing (empathy, communication, confidentiality, counseling skill)?
12. What could be the influence of social and cultural aspects on the acceptance of index case HIV testing?
13. Do you think community organizations can support acceptance of index case HIV testing?(how)
14. What is your recommendation to improve acceptance of index case HIV testing (Client, Healthy facility, Health professional, other community organizations)?
15. Would you like to add anything? Or if you have any question, please ask me.

In-depth interview guide for health professionals

Socio-demographic variables

1. Age
2. Sex
3. Marital status
4. Religion
5. Residency
6. Educational status
7. Work experience in HIV clinic
8. Index case HIV testing training /ICT/PNS/

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1. Have you ever taken index case HIV testing training?(when, by who)
2. Do you believe index case HIV testing is important? How?
3. From your experience, which partner notification system do you use (why)?
4. Could you tell me opportunities or facilitators to acceptance of index case HIV testing (client, professional, institution, policy and guideline and culture)?

5. Could you tell me barriers to acceptance of index case HIV testing (client, professional, institution, policy and guideline and culture)?
6. Could you tell me about the role of health care providers approach on acceptance of index case HIV testing (communication, confidentiality, counseling skill and aid)?
7. Could you share your experience regarding the role of continuously implementing contact listing and family updating? personal and others experience and attitude)
8. What could be the influence of social and cultural aspects on the acceptance of index case HIV testing?
9. Do you think community organizations can support acceptance of index case HIV testing?(how)
10. What is your recommendation to improve acceptance of index case HIV testing (Client, Healthy facility, Health professional, other community organizations)?
11. Would you like to add anything? Or if you have any question, please ask me.

Thank you

Annex 9.3 Amharic Version, Information Sheet and consent form

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