



**ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCES SCHOOL
OF PUBLIC HEALTH
ASSESSMENT OF THE MAGNITUDE AND DETERMINANTS OF PSYCHOLOGICAL
DISTRESS AMONG WOMEN WHO TESTED POSITIVE FOR HPV DURING
CERVICAL CANCER SCREENING IN ADDIS ABABA, ETHIOPIA, 2025**

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ASSESSMENT OF THE MAGNITUDE AND DETERMINANTS OF PSYCHOLOGICAL DISTRESS AMONG WOMEN WHO TESTED POSITIVE FOR HPV DURING CERVICAL CANCER SCREENING IN ADDIS ABABA, ETHIOPIA, 2025

I undersigned agree to accept all responsibilities for the scientific and ethical conduct of this research project and declare that this thesis is my original work in partial fulfillment of the requirement for the Master of Public Health in Epidemiology and Biostatistics

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Abbreviations and Acronym

AIDS	Acquired Immune Deficiency Syndrome
GLOBOCAN	Global Cancer Observatory
HPV	Human Papilloma Virus
FMOH	Federal Ministry of Health
PLWHIV	People Living With Human Immunodeficiency Virus
VIA	Visual Inspection with Acetic Acid
WLHIV	Women Living With Human Immunodeficiency Virus
WHO	World Health Organization

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Abstract

Background: Cervical cancer is a major public health concern and remains the leading cause of cancer-related deaths among women in developing countries. In Ethiopia, HPV testing was first introduced in 2021 for women living with HIV and is expected to become the primary screening method for all women in future national guidelines. While HPV testing is highly sensitive, it has a low positive predictive value. Consequently, the test often identifies many women as HPV-positive even in the absence of precancerous lesions. Being informed of an HPV infection can cause significant psychological distress, as many women may associate the diagnosis directly with cervical cancer.

Objective: To assess the magnitude of psychological distress and its associated factors among women who tested positive for HPV, including both women living with HIV (WLHIV) and those in the general population in Addis Ababa.

Method: An explanatory sequential mixed-methods study was conducted from February to May 2025 in selected HPV screening facilities in Addis Ababa, Ethiopia. For the quantitative component, a facility-based cross-sectional study design was employed. Psychological distress was assessed using the Kessler Psychological Distress Scale (K10), with scores calculated by summing the values of 10 individual responses, yielding a total score ranging from 10 to 50. Cut-off points of <20 , 20–24, 25–29, and ≥ 30 were used to categorize psychological distress as likely to be well, mild, moderate, and severe, respectively. Descriptive statistics and logistic regression analyses were performed to identify factors associated with psychological distress. Thematic analysis was used for qualitative data analysis.

Result : From a total of 423 participants, 146(34.5%) were found to have severe mental distress while 63 (14.9%) had moderate mental distress, 40 (9.4%) had mild mental distress and 174 (41.1%) were likely to be well. The respondents who had poor knowledge about HPV (AOR = 5.26, 95% CI: 2.82-9.80), negative social and cultural perception associated with HPV (AOR = 1.91, 95% CI: 1.0–3.6), lack of support from their partners (AOR = 4.59, 95% CI: 2.43-8.71) and negative experience during screening and follow up services experience (AOR = 2.63, 95% CI: 1.43-4.83) were found to be significantly associated with mental distress among HPV positive women. The qualitative findings revealed that some of the emotional reactions to an HPV

positive screening included fear of stigma, blame and abandonment which in turn resulted in fear of reporting the result to partners or family. Follow-up care difficulty was also reported, such as access barriers, vague information, and emotional resistance to return for reassessment.

Conclusion and Recommendation : The study reveals that a significant proportion of HPV-positive women experienced mild to severe psychological distress following their screening results. Knowledge gaps, sociocultural stigma, limited partner support, and negative experiences with screening and follow-up services have been negatively associated with the psychological conditions after the screening. Addressing these factors through improved health education, strengthened social support systems, and the integration of mental health care into screening programs is essential to mitigate the psychological impact associated with HPV positive results after screening.

Key Words: HPV testing, HPV positive, Psychological Distress, Cervical cancer, Counselling

Introduction

1.1 Background

Human papillomavirus (HPV) infection is a common sexually transmitted infection that is linked to the development of cervical cancer. Cervical cancer is one of the most common cancers among women (1). In 2022 globally, around 660,000 new cervical cancer cases were diagnosed and approximately 350,000 deaths in the same year. In Ethiopia, cervical cancer is the second most commonly diagnosed cancer and a leading cause of cancer-related death among women (2).

The frequency of HPV in women with normal cytology varies by area worldwide. With 57.7% in Eastern and Central Asia and 44.4% in Southern Asia, the highest prevalence was seen in Asian regions. Sub-Saharan Africa comes next, with a prevalence of 32.3% in Eastern Africa and 42.2% in Southern Africa. The prevalence of HPV was lower in European nations, at less than 30% (3). A systematic review study found that only 38.74% of the HPV positive women had abnormal cervical cytology (4). In Ethiopia, the prevalence of high-risk HPV ranged between 20% and 30% in the general population and among women living with HIV (5).

Psychological distress (PD) is broadly defined as a state of emotional suffering characterized by symptoms of depression (e.g., loss of interest, unhappiness, hopelessness) and anxiety (e.g., restlessness, feeling tense) (6). Studies have reported that psychological distress is associated with cancer screening (7), (8). A positive HPV test result can cause fear and anxiety in women due to the association between HPV and cervical cancer (9), (10).

A study conducted in the United Kingdom found that women who tested positive for high-risk HPV with normal cytology exhibited higher anxiety scores than those who received negative results, with nearly 25% experiencing clinically significant anxiety despite having no immediate risk of cancer (11). Similarly, in Australia, reported that HPV-positive women had significantly higher emotional distress and cancer-related worry compared to those who tested negative, even when no lesions were present (12).

1.2 Statement of the problem

Cervical cancer is one of the most preventable cancers, but it continues to impose a significant health burden on women in the world(13). The link between Human papillomavirus (HPV) and cervical cancer is well known(4) HPV screening programs allow for the early detection of high-risk genotypes, thereby reducing cervical cancer development and mortality (14).

Although the majority of HPV infections are transient and clear spontaneously, a small portion can persist and increase the risk of developing cervical abnormalities, especially high-risk types such as HPV16, HPV18, and HPV52. Evidence from a Zimbabwean study showed that HPV persistence and clearance occurred in 34.6% and 65.4% of cases, respectively(15). The study also revealed that clearance rates of Hr-HPV among younger women below the age of 30 years and older women aged 30 years and older were comparable (53% vs. 47%,), implying that age in itself might not be a reliable predictor for HPV persistence are associated with the higher rate of persistence (15). However, some genotypes, including 16, 18 and 52 are associated with the higher rate of persistence compared to other high-risk groups(15).

Psychological distress can lead to avoidance of follow-up care and decreased screening, which may prevent the early detection of the cancer. This indicates the importance of knowing the psychological distress as a major component of HPV screening programs(16). In many developing countries like Ethiopia awareness about HPV and cervical cancer remains low and healthcare infrastructure is often insufficient to provide psychosocial support to women who got a positive test result for HPV(17). Psychological distress in HPV-positive women can stem from several factors, including, lack of knowledge on the implication of the HPV result which result in the fear of having cancer (18).

Currently, In Ethiopia over 70 healthcare facilities provide HPV testing for women for general public and specifically women living with HIV (WLHIV) in which the risk of progression to cervical cancer is higher(19). Additionally The Else Kröner Center for Cancer Care (EKCC) project in Ethiopia is a comprehensive initiative aimed to enhancing and decentralizing cancer care in the country to reduce morbidity and mortality rates associated with breast and cervical cancer, The project focuses on improving cancer screening and care

for breast and cervical cancer in 15 rural health points and 8 selected hospitals, Also referred to as the Churchill Center. Although HPV testing is highly sensitive and effective in identifying infections it has low positive predictive value which means that many women test positive for the virus even in the absence of cervical lesions(20). This situation often leads to considerable psychological distress as many women interpret a positive HPV result as a direct indication of cervical cancer(16). In addition, the fear of disclosing their status to a partner because of its nature of sexual transmission can cause anxiety about judgment or mistrust(21).The resulting fear, anxiety, and emotional burden highlight the pressing need to understand the psychological and social implications of HPV testing(21). Despite the heavy HPV burden and the psychological distress of a positive test, there is surprisingly scant research in the Ethiopian context particularly on the emotional and psychological implications of an HPV-positive test on women. Most studies have been conducted in high-income or culturally dissimilar settings, which may fail to capture realities, beliefs, access to care, and social dynamics in Ethiopia. Therefore, this study is designed to investigate the prevalence of psychosocial distress and identify the factors associated with it among women who tested positive for HPV in Addis Ababa, Ethiopia.

1.1 Significance of the study

This study aims to examine the psychosocial distress experienced by women who tested positive for HPV in Addis Ababa. The findings of this study will aid in improving communication strategies of health professionals to enhance women's understanding of the implications of positive results. More education about HPV and its health impacts can reduce fear and anxiety, potentially leading to higher follow-up screening and treatment compliance. The study can assist in formulating strategies for improving women's awareness and knowledge of HPV.

The findings of this study can be utilized as a basis for practice in terms of psychological support during HPV and cervical cancer screening since it is one of the leading causes of death among women in developing countries and needs to be addressed.

Although extensive research has been conducted in other regions of the world, there is a major scarcity of data focusing on the experience of women after their HPV screening result in Ethiopia. The study will have a significant help in filling the critical gap in the existing literature on the psychological impact of HPV positive diagnosis. Findings from this study can serve as a foundation for further research into the psychological implications of HPV screening

Literature review

2.1 Burden of HPV

Circular, non-enveloped, tiny double-stranded DNA viruses known as human papillomaviruses attack epithelium and can result in a variety of serious illnesses (22). According to study in 2019 HPV is the primary cause of cancer in women and the second most prevalent virus causing gynecological diseases. Anal, vulvar, penile, vaginal, and upper aerodigestive cancers are the next most common diseases caused by infection with the 17 known HR-HPVs, which are 16, 18, 31, 35, 39, 45, 51, 52, 53, 56, 58, 59, 66, 68, 73, and 82. Anogenital and cutaneous warts are among the other conditions linked to HPV (10). Cervical cancer is primarily caused by HPV, and oncogenic HPV strains are thought to be responsible for about 98% of cases of this disease, Its infection leads to an estimated 266,000 cervical cancer deaths annually (23).

The prevalence of HPV-related disorders is predicted to rise by 2% by 2030, while the global repartition pattern of HPV infection has increased by 1% in just three years and is predicted to reach 5% by 2025. Oncogenic forms of HPV are thought to be responsible for about 98% of this illness (22). According to a study, women had a 6.1% and 1.1% prevalence of high-risk HPV16 and HPV18, respectively other high-risk HPV strains were also common. Only 6.4% of women who were evaluated were positive for HPV16 and 18 strains (10).

Worldwide, 12% of women with normal cytology have HPV, whereas Sub-Saharan Africa has significantly higher rates (24%). Asia has the greatest HPV prevalence among all females (57.7% in Eastern and Central Asia and 44.4% in Southern Asia), followed by Sub-Saharan Africa (42.2% in Southern Africa and 32.3% in Eastern Africa). The prevalence of HPV was low (less than 30%) in European nations (3).

A woman's lifetime chance of contracting HPV is over 80%, and the majority of infections happen within three to four years of sexual interaction. Approximately three out of four persons will have HPV at some point in their lives. HPV infections are present in more than 99% of cervical cancer patients (24).

It has been discovered that the burden of HPV prevalence varies by country, it is 52.9% in South Africa, 55.5% in Botswana, 31.3% in the Democratic Republic of the Congo, and 43.6% in Zimbabwe. These variations may be caused by a variety of factors, such as the type of specimen used, the age of the study population, the presence of HIV co-infection, the study population's characteristics, and various HPV detection assays (19).

A systematic review and meta-analysis of the prevalence of cervical lesions among tested women in Ethiopia was carried out in 2019. The results showed that the prevalence was 15.1% in Addis Ababa, 19.65% in the Southern nation and nationalities region, 14.35% in Amhara, 12.9% in others, and 15.27%, especially among HIV-positive women (24, 25, 26). With a noteworthy incidence rate of 11.7 cases per 100,000 women every year, cervical cancer in Ethiopia among women aged 15 to 44 years became the second most prevalent cause of cancer deaths after breast cancer as a result of HPV infection (24).

According to a study conducted in Addis Ababa, 24 (9.72%) people had the nonspecific HPV test with MY09/11 PCR. Ages 36 and older than 21 had the highest HPV prevalence (8.5%), whereas the age range of 16 to 25 had no HPV prevalence (27).

Another study conducted in Addis Ababa found that the prevalence of high-risk HPV was 23.9% in specimens collected by clinicians and 29.4% in specimens self-sampled. The test result's overall concordance was 87.3%. Other than HPV16 and 18, oncogenic HPV types were more common in both sampling methods, accounting for 19.9% of vaginal specimens collected by the patient and 16.7% of cervical specimens obtained by the clinicians (28). The sensitivity and specificity of self-sampled HPV test was 84.0% and 88.4%, respectively (29).

2.2 Measuring psychological distress

A prevalent mental health issue in society, psychological distress is a condition of emotional suffering that is usually typified by signs of stress, anxiety, and depressions (30). Though there are many contributing factors for people to develop psychological distress.

According to study “Magnitude of paternal postpartum psychological distress and associated factors in Addis Ababa, Ethiopia: a facility-based cross-sectional study”, The Kessler 10-item Psychological Distress Scale (K10), which has been widely used and validated in Ethiopian contexts, was used to measure psychological distress. By asking about symptoms that have occurred throughout the previous month, the tool determines whether general distress is present. The overall score ranges from 0 to 50, with each item being assessed on a 5-point Likert scale from 0 (never) to 5 (always) (31). Ethiopian urban and rural contexts, the Amharic variant has shown strong psychometric qualities. At the ideal cut-off point of ≥ 7 , a validation study conducted in Addis Ababa on postpartum women produced sensitivity and specificity of 84.2% and 77.8%, respectively, and had strong internal consistency (Cronbach's $\alpha=0.90$) (31).

According to study done in Ethiopian Amhara regions Psychosocial distress refers to a specific co-morbid and clinically significant condition that is experienced by cancer patients. It is identified and measured by using the Questionnaire on Distress in Cancer Patients (QSC-R10), which is a validated measurement scale with psychometric properties specific to cancer. An individual with a score of >14 is recognized as having psychosocial distress, and a score of ≤ 14 is recognized as not experiencing psychosocial distress (32).

We employed the Kessler-10 instrument for measuring, while the Kessler 6-item Psychological Distress Scale was used in the Korean and Australian research to gauge parental psychological distress, and the General Health Questionnaire-28 (GHQ-28) was used in the Norwegian and Iranian investigations. The Depression Anxiety Stress Scale 21 was utilized in the Malaysian investigation to evaluate distress (33).

The DASS-21 was used in a study conducted at the University of Gonder to measure stress, anxiety, and depression, is a psychological screening tool that may distinguish between stress, anxiety, and depression symptoms. With 21 items divided into three domains each with seven items it is a validated and trustworthy tool for evaluating stress, anxiety, and depression symptoms (34).

A 2017 study found that the DQ5 performed best at identifying people who fit the DSM-5 criteria and had a good fit to a unidimensional construct. In determining caseness, the HSCL-25 and SRQ-20 also performed adequately, albeit with lower specificity and sensitivity than the DQ5(35).

2.3 Magnitude of psychological distress in HPV positive women

A study conducted in Australia claims that Participants testing HPV+ reported greater mean anxiety (41.67 vs. 37.08) and emotional distress (11.88 vs. 7.71) scores than those testing HPV-. Additionally, HPV+ participants were more concerned about their test results (34.3% vs. 1.3%), perceived risk in comparison to ordinary women (55.4% vs. 14.1%, $p < 0.001$), and cancer anxiety (27.8% vs. 5.9%) than HPV-participants (36). Compared to those testing HPV-, those testing HPV+ were less confident in their screening results (16% vs. 75.1%). Compared to those who reported testing HPV-, those who tested HPV+ knew more about HPV (11.96 vs. 10.36 out of 16) and HPV testing (3.94 vs. 3.28 out of 5) (25).

According to studies, Psychological considerations are central to the successful implementation of HPV primary screening. Under the primary screening protocol, all women who attend will be told whether they test positive or negative for high-risk HPV. Testing positive for HPV can lead to increased anxiety, fear and concern related to the possible development of cervical cancer(37).

When HPV testing is used to triage women with borderline or mildly abnormal cytology, anxiety and distress have been found to be higher in women testing positive for HPV than those who test negative or do not have an HPV test, although the difference seems relatively short-lived(38). HPV can also carry a negative label due to its sexually transmitted nature, sometimes resulting in shame, stigma and concerns about fidelity and relationships. As well as testing far greater numbers of women for HPV, the primary screening protocol also creates a new group of women who have normal cytology, but test positive for high-risk HPV. These women are at very low immediate risk of cervical cancer but are recalled at 12 months for repeat HPV testing. The prevalence of this result was 8.5% in the English HPV primary screening pilot⁷ which would mean around 270,000 women receiving it in England every year. Women's psychological response to this result in routine cervical screening is

unknown (39).

Research has consistently shown that women who test positive for high-risk HPV often report elevated levels of psychological distress. For instance, a study by McBride et al highlights that receiving a positive HPV test result, especially when accompanied by abnormal cytology, is associated with increased anxiety and distress shortly after diagnosis (39).

Similarly, Dodd et al. found that women in Australia who tested HPV positive experienced heightened anxiety compared to those with negative results, indicating that the psychological impact of HPV diagnosis is a common phenomenon across different cultural contexts (39). This suggests that the emotional response to an HPV diagnosis is not only prevalent but also significant enough to warrant attention in clinical settings.

The psychosexual impact of an HPV diagnosis has also been explored in various studies. Bennett conducted a systematic review that revealed a notable psychosexual impact among women diagnosed with high-risk HPV, with some reporting significant distress at the time of diagnosis and during follow-up assessments (40). This aligns with findings from McBride which indicate that psychosexual distress can persist for up to 12 months post-diagnosis, suggesting that the emotional ramifications of HPV are long-lasting (41). Such prolonged distress can affect women's sexual health and relationships, further complicating their psychological well-being.

The psychological evaluation of HPV primary screening in England found that women testing HPV+/normal displayed higher short-term anxiety than those with normal screening results, as well as elevated psychosexual distress for up to 12 months (42). Despite low cancer risk, nearly a quarter experienced clinically significant anxiety (41).

According to a cross-sectional between-groups study in UK findings are consistent with previous studies showing that testing positive for HPV with abnormal cytology is associated with raised anxiety and distress. However, unique to HPV primary screening and unique to the literature, we also found evidence of raised anxiety, concern about the screening result and worry about developing cervical cancer in women who tested positive for HPV with normal cytology. These women were more anxious than the control group (normal cytology; no HPV test) and displayed a mean anxiety score slightly above the upper threshold expected in the general population (mean score of 38.3 compared to the normal range of 34–

36) (18,43). They were also 1.9 times more likely to exhibit very high anxiety compared to the control group (indicated by a STAI score $> 49/80$), scoring similarly to individuals with clinically important.

In study conducted in England the latent illness representation profiles identified in this study provide support for the role of negative beliefs contributing to anxiety in women testing HPV-positive with normal cytology(44).

Latent profile analysis identified three distinct profiles of illness representations (termed “adaptive,” “negative,” and “negative somatic”) which differed significantly in their patterns of illness perceptions, revealed that these latent illness representation profiles accounted for 21.8% of the variance in anxiety, after adjusting for demographic and clinical characteristics. When compared with adaptive representations, women with negative representations and negative somatic representations had significantly higher anxiety, with clinically meaningful between-group differences (10).

Random-effects meta-analyses showed that there were no long-term differences in the short-term anxiety levels of HPV+ women with abnormal or normal cytology compared to those with normal findings (MD on State-Trait Anxiety Inventory = 7.6, 95% CI: 4.59–10.60 and MD = 6.33, CI: 1.31–11.35, respectively). In both the short and long term, HPV+ women with aberrant cytology experienced higher levels of psychological discomfort. HPV+ testing was also linked to feelings of embarrassment, surprise, and anxiety about cancer (45).

At baseline, women with abnormal cytology and HPV had the greatest anxiety scores (mean = 42.2, SD = 15.0). However, after 12 months, these scores had decreased to mean 37.0, SD = 11.7, which was closer to being in the “normal” range (scores between 34 and 36 are deemed “normal”). Additionally, this group had the lowest distress at 12 months (mean=1.9, SD: 3.8), but the highest distress at baseline (mean=3.3, SD: 3.8; 3.1 scores of 3+ indicate case-level distress)(46).

In study done in Iran initial reactions to positive HPV results were shock, unrealistic fear, confusion, distress, and financial concerns. Stigma was manifested in form of self-blame, fear of HPV-disclosure, negative body image, being stigmatized by healthcare providers, and receiving health care anonymously. Refusal to use insurance services showed how evident

and powerful the stigma was. Few women, who all have received positive HPV results within the last month, had psychological conditions such as thinking of death and suicide (47)

2.4 Risk factors for psychological distress among women screened for HPV

Routine screening for HPV has become a corner stone of cervical cancer prevention. However, psychological distress is a frequent but underexplored consequence of the screening process, arising from the stigma surrounding sexually transmitted infections, the anxiety of cancer diagnosis, and the uncertainty about the implications of positive test results(22).This review discusses the associated risk factors contributing to psychological distress in women undergoing HPV screening.

2.4.1 Knowledge and Awareness About HPV

Knowledge about Human Papillomavirus (HPV) encompasses understanding its nature, transmission which predominantly occurs through sexual contact associated health risks, and preventive measures which is , highlighting the necessity for safe practices to minimize risk particularly through vaccination(48).

In study done in Iran Almost all participants reported that they had little or no knowledge of HPV on the day of the test,After receiving positive results, they had tried to find out more about HPV on the Internet. They described the Internet as a private accessible source of comprehensive knowledge, but confusing and stressful as well. Some women assumed that a positive hr HPV result means they definitely develop cervical cancer in the future. Women with more hr HPV genotypes, including 16/18 and abnormal cytology (CIN) expressed intense fear and distress(49).

A cross-sectional survey was carried out at the Armed Forces Hospital in Saudi Arabia as part of the study. Although 43% of women in this area are aware of cervical cancer, they are unaware of its principal cause, which is the human papillomavirus (HPV), its risk factors, or its timing. Approximately 64% of the respondents were not aware that the test could identify asymptomatic lesions, and 32% of them had received health and wellness advice from female medical experts. In terms of test-taking attitudes, only 38% of respondents were adequately informed(18).

As per a study conducted in Sudan, 500 married women between the ages of 14 and 58 were gathered from Khartoum's obstetric clinics, hospitals, and universities. The survey revealed that knowledge of cervical cancer and its risk factors was also examined; 87.8% of the women had heard of the disease, 46.6% had heard of HPV as a causative agent, and 39.2% had heard of the HPV vaccine, but only 11.4% (57/500) had received it (43).

In studies in Ethiopia awareness about HPV and its relationship to cervical cancer among the Ethiopian populace is alarmingly low, most surveys indicate that only about 61% of parents were aware of the HPV vaccine's existence, and misconceptions about cervical cancer and HPV are common. In many cases, parents do not identify HPV as a contributing factor to cervical cancer; studies reveal that parents often recognize factors like advancing age and opinions from health education materials, but few associate HPV with cervical cancer. Notably, 81.9% of respondents knew HPV is commonly found in women under 30 years of age. However, detailed knowledge about HPV's risks and preventive measures remains significantly lacking(50).

When we come to our country, A research conducted in Addis Ababa claims Of the parents, just 38 (9.0%) are aware that HPV may spread through sexual contact. Of the study participants, only 47 (11.0%) think that cervical cancer is caused by HPV infection. Overall, only 119 study participants (28%) knew enough about HPV (51).

There were 583 research participants who were actual respondents during the data collection period in another study conducted in Hosanna town. As a result, 98% was determined to be the study's response rate. The participants were between the ages of 18 and 48. Additionally, 270 (46.3%) of the respondents scored below the mean ($7.57 \pm SD 6.61$), indicating weak knowledge. However, 313 (53.7%) of the respondents scored higher than or equal to the mean, indicating that they possessed good knowledge (52).

In a study conducted at Zewditu Memorial Hospital in Addis Ababa 75% of the 237 respondents said they had heard of cervical cancer, and of those, 47.5% said they had heard it via the media. The other respondents said they had heard about it from friends, family, medical professionals, books, and periodicals. Based on their accurate answers to over 60% of the questions, 59% of the participants in our survey demonstrated an excellent understanding of cervical cancer and how to prevent it. Additionally, the respondents' overall mean knowledge score is 7.3, with a standard deviation of 4.4(53).

Lack of knowledge can lead to negative psychological reactions to an HPV-positive result; early research in the context of cervical screening revealed that many women were taken aback by the connection between a STI and cancer(54). Other adverse psychological reactions have been reported, Many of these are related to known reactions to other STIs and are caused by the fact that HPV is sexually transmitted. Women usually concentrate on HPV's sexually transmitted nature, which might affect their relationships and sexual partners, even when there are no cytological abnormalities presents(55).

2.4.2 Socio-Cultural Perceptions and Stigma

Cultural and social views regarding sexually transmitted infections have a significant effect of the psychology of women who undergo HPV screening. Studies have found women who live in more traditional societies are more likely to stigmatize which exacerbate their distress (56). In addition these women may face judgment from their families and friends which may lead them to isolate themselves and increased psychological distress.

2.4.3 Relationship Dynamics and Partner Reactions

The emotional impact of finding out that you or your partner has STI can sometimes be worse than the actual infection. As most HPV is invisible, partners will inevitably share it, and there is no way to know which partner it came from or when they got it. In most people, HPV is harmless and causes no symptoms and will not develop into warts, pre-cancer or cancer. In a few people, HPV can cause genital warts or abnormal cells. It's possible for HPV to remain dormant for many years, sometimes decades without causing any symptoms or being detected by tests(57). This can be difficult to believe, especially for partners in long-term relationships who feel that some recent infidelity must be to blame. However, research continues to show that even patients who have not been sexually active for many years can suddenly develop warts (58).

2.4.4 Sociodemographic profile

According to a recent study, women with abnormal cytology may not always follow up as advised. In particular, women who were younger, had lower-grade lesions, or were currently smokers were more likely to experience psychological distress and not adhere to the required follow-up following referral for abnormal cytology during HPV screening (58).

2.5 HPV screening process

Primary HPV testing and triage of HPV-positive women is an effective cervical cancer screening strategy. In industrialized nations, HPV testing is becoming more and more advised as a screening method. It is also taken into consideration for basic resource settings (59).

Cervical intraepithelial lesions can be detected with good sensitivity with HPV testing, but the specificity is not ideal, particularly for women under 30. There are a number of triage tests available to prevent overtreatment, including as cytology, molecular (biomarker) testing, and visual assessment of lesions (colposcopy, VIA). Specifically, p16/Ki-67 dual stain cytology (CINtec PLUS®, Roche Diagnostics) HPV-DNA testing and triage was recently demonstrated to be the best cervical cancer screening algorithm in a first-world context (60). Human immunodeficiency virus (HIV)-positive women in hospital settings were the primary focus of the few research on cervical cancer screening uptake in Ethiopia (62). Self-reported prior screening experience served as the basis for other uptake studies conducted in Ethiopia. However it was noted that self-reported screening measures can have drawbacks including overreporting (62).

Research from 2022 indicates that laboratory techniques for high-risk (HR) HPV identification are more accurate and sensitive than traditional cytology for cervical cancer and preneoplastic lesions (63). The high negative predictive value (NPV) of a negative HR-HPV test may lead to longer intervals between screening visits and decreased incidence and mortality from Cervical cancer (64). As a primary screening test, the HR-HPV test had a sensitivity of 98.66% and a specificity of 87.15%. Including the findings from exocervical and endocervical PAP stains and biopsies, the unadjusted prevalence rate of HPV-related lesions was 3.6%. Using the Cobas® test, all of these patients had positive HR-HPV results. 88.47% was the positive predictive value, while 98.48% was the negative predictive value (65).

When we come to our country study done in Amhara region Among women with and without cervical lesions, the prevalence of HR-HPV 16/18 infections was 2.4% and 38.6%, respectively. Additionally, VIA's sensitivity was 70.8%, identifying 17 out of 24 HPV-positive women while missing 7. While VIA sensitivity is 91.3%, 286 out of 293 participant women were accurately diagnosed as negative, despite its positive predictive value of 61.4% (27 out of 44). HIV-positive women had a 3.0% prevalence of HR-HPV 16/18 infections, while HIV-negative women had an 8.1% prevalence (66).

2.6 Conceptual framework

The conceptual framework for this study is developed to assess the psychosocial distress and its associated factors in women screened positive for HPV, adopted from the different literature. This study focuses on the psychological impact and emotional distress experienced by the participants following their positive HPV testing. The relationship between psychological distress and its influencing factors is multifaceted it includes Socio-demographic Factors, , Knowledge and Awareness about HPV, Screening and Follow up Experience, Socio-Cultural Perceptions and Stigma, Relationship dynamics and partner reactions(57).

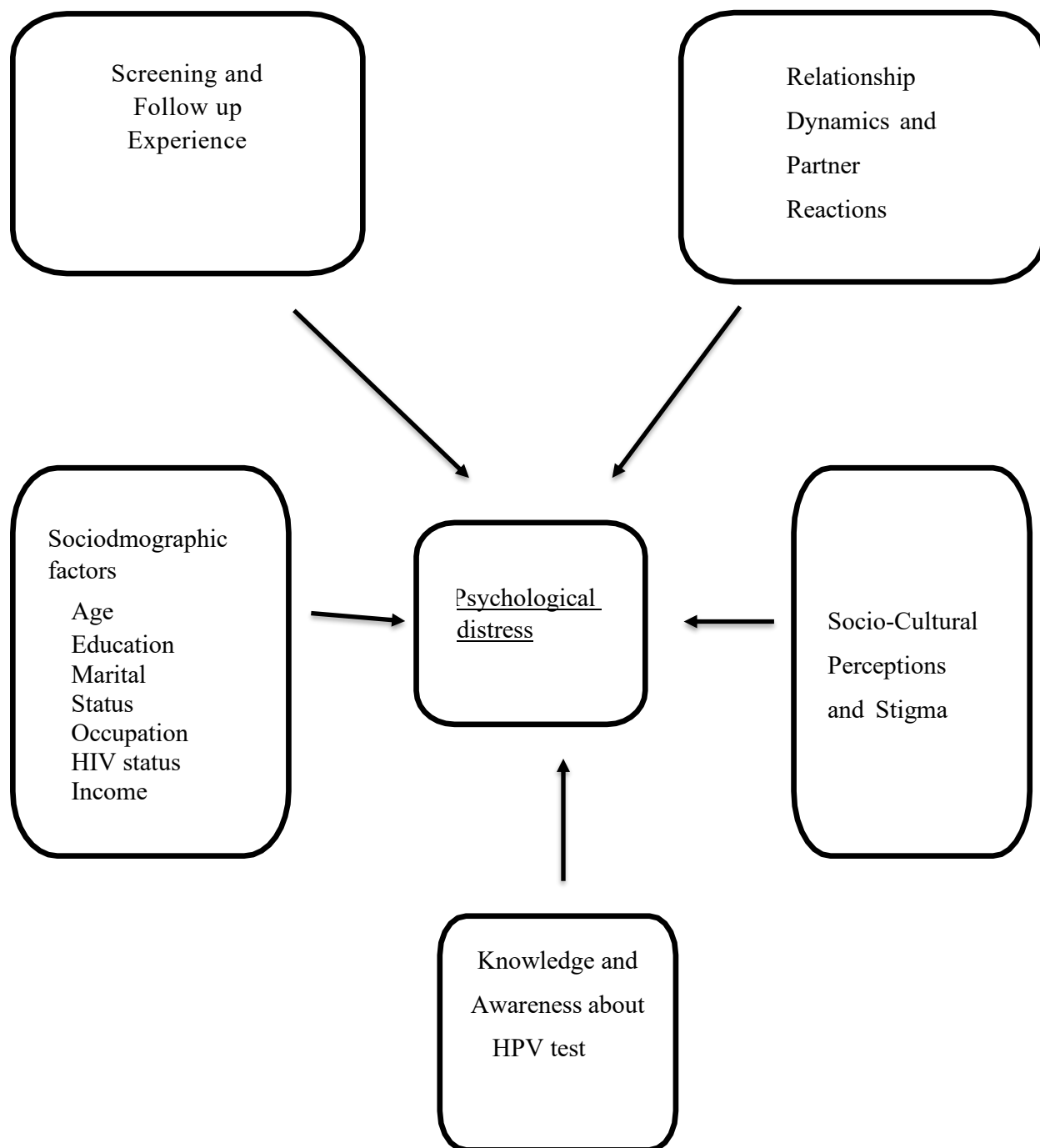


Figure 1 Conceptual frame work on HPV-Positive Screening and Its Psychological Impact on Women Screened for Cervical Cancer in Addis Ababa,Ethiopia.

Objective

3.1 General objective

To assess the magnitude of psychological distress and its associated factors among women who tested positive for HPV, including both women living with HIV (WLHIV) and those in the general population in Addis Ababa

3.2 Specific objectives:

1. To determine magnitude of Psychological Distress among women who tested positive for HPV during cervical cancer screening in Addis Ababa.
2. To assess the associated factors with Psychological Distress of women who tested positive for HPV during cervical cancer screening in Addis Ababa.
3. To understand the emotional and psychological impact among women who tested positive for HPV during cervical cancer screening in Addis Ababa.
4. To explore healthcare providers' perceptions of psychological distress among women who tested positive for HPV during cervical cancer screening in Addis Ababa.

Methods

4.1 Study setting

The study was conducted in the Ethiopian capital city, Addis Ababa, where over 70 of the country's health facilities offer HPV test services. Specifically, 26 government health facilities in Addis Ababa offer HPV screening services for women living with HIV (WLHIV), a high-risk group for complications from HPV. Among the 26 facilities, 11 health centers were selected purposively based on their service volume and availability of HPV screening services. In addition to these 11 centers, Churchill Center also known as the Else Kröner Cancer Center (EKCC) was included in this study. EKCC is a one-stop clinic offering HPV screening services to the general female population as well as being involved in a national program aimed at increasing the screening and treatment of cervical and breast cancer in Ethiopia. Collectively, these 12 locations provided the framework for data gathering and participant enrollment in this research.

4.2 Study design and period

An Explanatory sequential mixed study design that combines both quantitative and qualitative methods in a sequential manner was carried out. The study began with the collection and analysis of quantitative data and based on the quantitative findings a qualitative study was conducted to gain deeper insights.

The study was conducted from February 1 to May 20, 2025. The study facilities were the following; Kirkos Hc, Churchill Hc-Else Kroner Cancer Center(EKCC), Yeka Hc, Kotebe Hc, NSLworeda 09 Hc, Addis Ketema Hc, Kolfeworeda 9 Hc, Yekatit Hospital, Minilik Hospital, Zewditu Hospital, Alert Hospital, Ghandi Hospital.

4.3 Source population

Women who were in age group of 25-49 and tested Positive for HPV screening test in Addis Ababa.

4.4 Study population

The study population was women from both the general population and WLWHIV within the age group of 25-49 and who tested positive for HPV in selected health facilities of Addis Ababa and had their positive HPV result in the last three months. (According to WHO guideline the recommended age of cervical cancer screening for WLHIV is the age group of 25-49)(67).

4.5 Eligibility criteria

4.5.1 Inclusion criteria

Women within the age group of 25-49 and tested positive for HPV in the last 03 months.

4.5.2 Exclusion criteria

Women who were screened positive by Visual Inspection with Acetic Acid(VIA) and who were treated, women with cervical cancer, pregnancy and hysterectomy done for them previously, Women who were critically ill and individuals with significant pre-existing mental health disorders were excluded from the study.

4.6 Sample size determination

Quantitative

The sample of the study was determined considering two objectives. For the two objectives, sample size was determined by using the single population proportion formula.

$$n = \frac{Z^2(1 - P)P}{(D)^2}$$

Where n_i =initial estimated sample size

Z =confidence level

P =prevalence of psychological distress

d =marginal error

Specific Objective 1 the magnitude of Psychological Distress among women who screened positive for HPV in Addis Ababa.

The sample size was determined using single population proportion formula by considering that there is no previous research done on Psychological Distress among women who screened positive for HPV in Addis Ababa.

(p) = 50 % , z=standard score corresponding 95% confidence interval 1.96 and d =marginal error corresponding (d) 4%. n= sample size required is calculated as:

$$n = (1.96)^2(1-0.5)0.5/(0.05)^2$$

$$n = 384.16$$

After adding a 10% non-response rate the final sample size became 423.

Specific objective 2: Age

Age is one of the socio-demographic predictors for psychological distress among women who screened positive for HPV the age above 45 years has been proposed to be associated with the age above 45 years had been proposed to be associated with psychological distress proportion of psychological distress among a women above 45 years of age were 48% (69)sample size is calculated as follows.

$$n = (1.96)^2(1-0.48)0.48/(0.05)^2$$

$$n = 383.55$$

After adding 10% non-response rate the final sample size became 423.

sociocultural factors predictors for psychological distress among women who screened positive for HPV with a proportion of 39%(70). sample size is calculated as follows.

$$n = (1.96)^2(1-0.39)0.39/ (0.05)^2$$

$$n = 365.57$$

After adding 10% non-response rate the final sample size became 402..

Table 1 Sample size determination

Factor	Proportion	Calculated sample size	Final sample size(+10%)
psychological distress	50%	$n = (1.96)^2(1-0.5)0.5/(0.05)^2$ $n = 384.16$	$N = 368.79 + (368.79 * 0.1) = 423$
Sociocultural factor	39%(70)	$n = (1.96)^2(1-0.39)0.39/(0.05)^2$ $n = 365.57$	$N = 365.57 + (365.57 * 0.1) = 402.$
Age	48% (69)	$n = (1.96)^2(1-0.48)0.48/(0.05)^2$ $n = 383.55$	$N = 383.55 + (383.55 * 0.1) = 423.$

The final sample size was taken based on feasibility and the maximum sample size from the list of variables for both objectives is 423.

Qualitative

Purposive sampling approach was employed to select participants. In-depth interview was conducted. In-depth interview was held by purposively selecting women from selected health facilities to the saturation level.

4.7 Sampling Procedures

Quantitative

First 12 health facilities were selected from total 27 health facilities which give HPV screening in Addis Ababa by using purposive sampling technique. Based on prior three-month data from reputable health institutions, the proportion to size allocation technique was used to calculate the number of women from the chosen health institutions who were included in the study.

Calculation for sample size determination of participants from each health institution based on the previous month client flow from registration book.

$$\frac{\text{Each health centers average sample size} \times \text{total sample size (423)}}{\text{Total average population of the ten health institutions}}$$

$$\begin{aligned} \text{Sample Size for yeka Hc} &= (\text{Total Population P1}) \times \text{Total Sample Size} = (37/628) \times 423 = \\ &= 0.05892 \times 423 \approx 24.91 \sim 25 \text{ participants} \end{aligned}$$

Facility	Population	Allocated Sample Size
Yeka HC	37	25
Kirkos HC	34	23
Yekatit hospital	36	24
Minilik hospital	55	37
Churchill HC	150	101
Aler hospital	57	38
Zewditu hospital	58	39
Kolfe HC	30	20
St peter hospital	62	42
NSL HC	35	24
Addis ketema HC	42	28
Kotebe HC	32	22
Total	628	423

Systematic random sampling was used to select women included in the study . To identify the interval ,the average number of women who screened positive in the last 3 month divided by the total sample size

which is Calculate the Sampling Interval

$$k = N/n = 628/423$$

$$k = 1.48$$

$$k \sim 2$$

From each selected health facilities by using systematic random sampling every 2nd chart to

select individual clients from registry who tested positive for HPV in the last 3 month to ensure representation from different sub-groups.

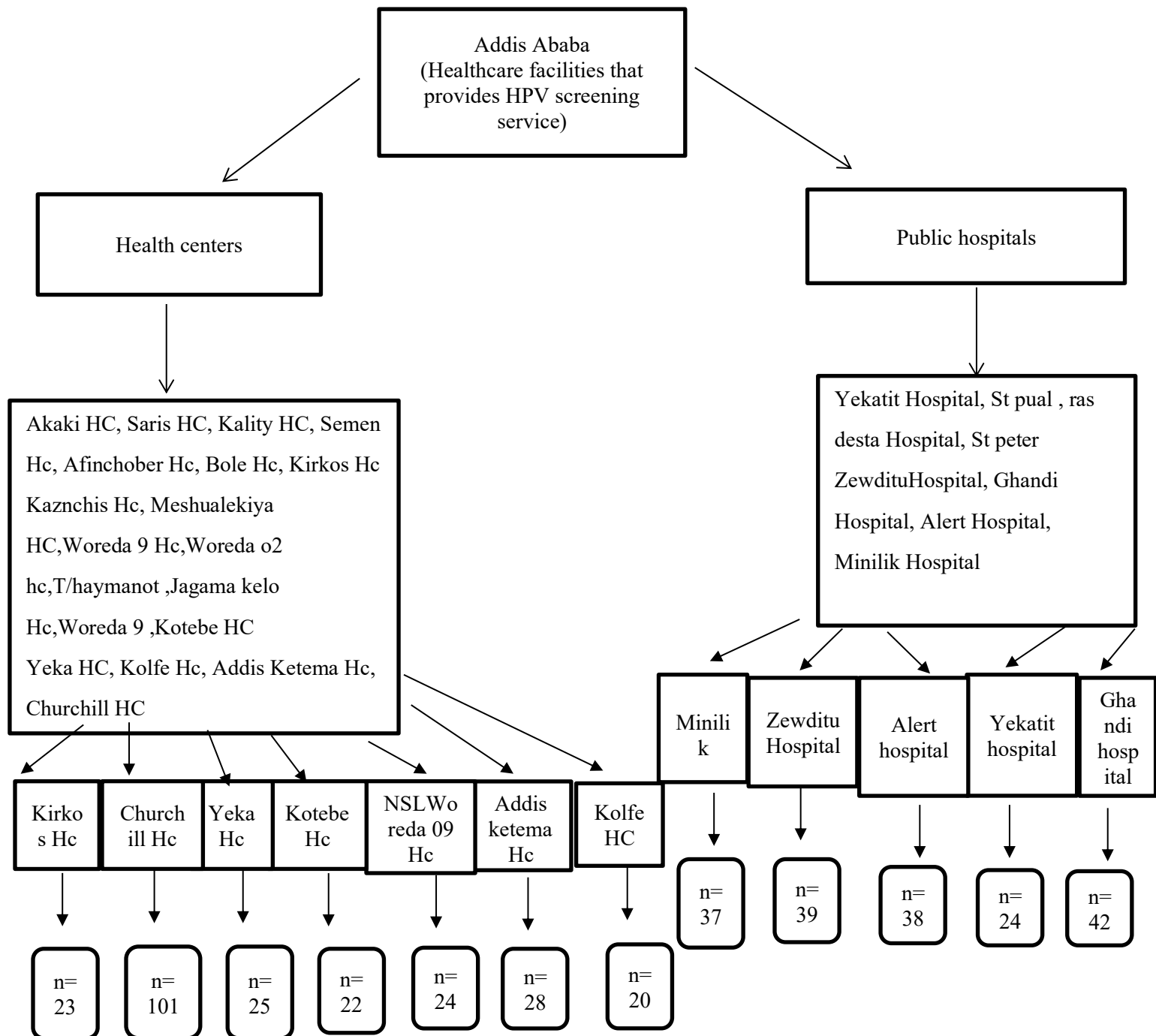


Figure 2 Sampling procedure

4.8 Data collection procedure

Quantitative

The data collection included a face-to-face interview. Ten data collectors and two supervisors were involved in the data collection, and two-day training program was given to familiarize themselves with the study objectives, data collection tools, and ethical considerations. Pre-test was conducted before starting the data collection. The Data collection was conducted using Kobbo tool.

A structured questionnaire was the primary tool for quantitative data collection. This questionnaire was designed to capture a wide range of information, including demographic information in age, marital status, education, occupation, and income was adopted from data abstraction form for quantitative survey and In order to quantitatively measure levels of psychological distress among participants the Kessler Psychological Distress Scale (K10) tool was used . Kessler Psychological Distress Scale is a 10-item questionnaire intended to yield a global measure of distress based on questions about anxiety and depressive symptoms that a person has experienced in the most recent 4 week period(71).

Trained data collectors administered the questionnaire through face-to-face interview with participants. Data collection took place in a private setting within the hospital or health center ensure confidentiality. The data collection process was followed by one supervisor during the collection.

Qualitative

For the qualitative study, two separate interview guides were prepared for IDIs with patients and health care professionals. The interview guide for the patients has three main and Open-end questions were used to explore about psychological problems encountered, disclosure for their partner and families , types of information received, and counselling and other psychological supports received at the health facilities. Similarly, the interview guide for the health professionals has seven open-ended questions focusing on psychological distress observed among women who test positive for HPV, available psychological support services at their facility, how they are delivered, and their perception of psychological support and why it is not being provided. The principal investigator and One well experienced data collector was involved in the data collection and one supervisor was involved. Training was given for 2 days. To monitor saturation interviews are transcribed and analyzed concurrently with data collection using

thematic analysis. The interviews were continued until saturation is observed with Sequential Analysis.

4.9 Operational definitions

Psychological distress: Undifferentiated group of symptoms ranging from anxiety and depression symptoms to functional impairment, personality traits (confusing, troubling), and behavioural problems(6).

Kessler Psychological Distress Scale (K10) is a measure of psychological distress. The numbers attached to the patients' 10 responses are added up and the total score is the score on the Kessler Psychological Distress Scale (K10). Scores will range from 10 to 50. People seen in primary care who

Score under 20 are likely to be well

Score 20-24 are likely to have a mild mental disorder Score 25-29 are likely to have moderate mental distress.

Score 30 and over are likely to have severe mental distress.

Human Papilloma Virus (HPV): refers to a group of DNA viruses that infect epithelial cells, leading to conditions ranging from benign warts to cancers, such as cervical cancer (72).

HPV Screening: refers to the systematic process of detecting the presence of high-risk human papillomavirus(HPV) strains associated with cervical cancer and other HPV-related conditions. This is typically achieved through laboratory-based methods, such as HPV DNA testing or HPV genotyping, which identify the genetic material of the virus in cervical cell samples (9).

HPV Negative: is failure to detect human papillomavirus (HPV) DNA in a clinical sample using tests such as polymerase chain reaction (PCR) or hybrid capture technology regardless of the clinical symptoms(27).

HPV Positive: is the presence of human papillomavirus (HPV) DNA in a clinical sample using tests such as polymerase chain reaction (PCR) or hybrid capture technology regardless of the presence or absence of visible clinical symptoms such as warts or lesions(27).

Knowledge and Awareness : Defined as the participants' ability to answer multiple questions which includes the knowledge about HPV, aware that HPV is a common virus that can naturally be cleared by the immune system, know that not all HPV infections lead to cervical cancer

Knowledge about HPV: respondents scoring below the mean were categorized as having poor knowledge, while those at or above the mean were considered to have good knowledge about HPV.

Supportive relationship dynamics: Subjects who surpassed the mean were categorized as having supportive relationship dynamics.

Un supportive relationship dynamics: subjects those scoring at or below the mean were categorized to have un supportive relationship dynamics

Socio-Cultural Perceptions and Stigma on HPV: Participants scoring at or above the mean score were considered to perceive high stigma, while those scoring below the mean were considered to perceive low stigma related to HPV.

Screening Context and Follow-Up experience :Participants who scored above the mean were categorized as having good screening experiences, while those scoring at or below the mean were considered to have bad screening experiences

4.10 Variables

Dependent variable

Psychological distress in women tested positive for HPV.

Independent variable

- Socio-demographic factor like age, marital status, educational status, occupation, and economic factors.
- Knowledge and awareness about HPV
- Socio-Cultural Perceptions and Stigma
- Screening and follow-up experience
- Relationship Dynamics and Partner Reactions

4.11 Data management

The data was collected by trained data collectors through face-to-face interviews with structured questionnaire and in-depth interviews. The completeness of each questionnaire was verified every day, and the data collection procedure was rigorously monitored. A logical checking technique was used to find errors during the data cleaning process. Ensure that the data collected through the Kessler Psychological Distress Scale (K10) and other instruments are complete and consistent. Identify and handle missing values and outliers. Finally, a double data entry was performed to check the consistency of the data. and exported to STATA version 17 for analysis.

4.12 Data analysis procedure

First, the data was checked for completeness and consistency prior to data entry and cleaning and exported to STATA version 17 for further analysis. Descriptive statistics was used to summarize proportion and frequency for patient socio-demographics and cross tabulation was used to present the information for categorical data. Means and standard deviations were used for continuous variables.

Kessler Psychological Distress Scale (K10) is a measure of psychological distress. The numbers attached to the patients 10 responses are added up and the total score is the score on the Kessler Psychological Distress Scale (K10). Scores were ranged from 10 to 50. People seen in primary care. Ordinal logistic regression was conducted to assess association between independent and dependent variables. Enter method was used during regression analysis. The odds ratio for logistic regression along with a 95% confidence interval was

estimated. A P-value of less than 0.05 was considered as a level of statistical significance. Before actual data analysis, missing values and outliers were checked by drawing histograms.

Data analysis plan for specific objective 1:magnitude of psychological distress

Determine the prevalence of psychological distress by calculating the proportion of women within each distress category (e.g., percentage of women with mild, moderate, and severe psychological distress).Present results in tables and graphs for clear visualization.

The Kessler Psychological Distress Scale (K10) scores were calculated by summing the values of the 10 individual responses, with each response scored from 1 to 5. This yielded a total score ranging from 10 (indicating no distress) to 50 (indicating severe distress). Based on established cut-off points, individuals scoring below 20 were categorized as likely to be well. Those scoring between 20 and 24 were considered to have mild mental distress, scores between 25 and 29 suggested moderate mental distress, while scores of 30 and above indicated severe psychological distress (31).

Cross-tabulations were used to explore the relationships between variables such as socio-demographic factors (e.g., age, gender, and education level). Chi-square tests were used to assess the association between categorical demographic variables and levels of psychological distress then conducted ANOVA to compare mean K10 scores across different groups (e.g., age groups, educational levels) to identify statistically significant differences.

Data analysis plan for specific objective 2: Associated factors with Psychological Distress

Descriptive Statistics was used to summarize the data by calculating frequencies for categorical variables (e.g., marital status, education level) and means, standard deviations for continuous variables (e.g., age). Multiple regression analysis was employed to assess the impact of various demographic, social, and healthcare-related factors on psychological distress levels, adjusting for potential confounders.

HPV knowledge Scoring

In knowledge of hpv scoring each correct response to the six HPV knowledge questions was assigned a score of 1, while incorrect or "not sure" responses received a score of 0. The

individual scores were summed to generate a total knowledge score ranging from 0 to 6. The mean knowledge score among respondents was 3.05 (SD = 2.69). Based on this, respondents scoring below the mean were categorized as having poor knowledge, while those at or above the mean were considered to have good knowledge about HPV.

Sociocultural Perception Scoring

Each “Yes” response was given a score of 0, while “No” was given 1 and “I am not sure” responses were scored as 0.5. The scores from all five questions were summed to form a total score ranging from 0 to 5. Participants scoring at or above the mean score (2.91 and SD 1.78) were considered to perceive high stigma, while those scoring below the mean were considered to perceive low stigma related to HPV.

Screening Context and Follow-Up Procedures

Each response was scored based on whether it reflected a positive or negative screening and follow-up experience. A score of 1 was assigned to responses indicating a positive experience, 0 to negative experiences, and scaled values (0–4) were used for rating-based responses. Individual scores were summed for each participant, resulting in a total score ranging from 0 to 11. The mean score was calculated (6.31, SD = 2.46). Participants who scored above the mean were categorized as having good screening experiences, while those scoring at or below the mean were considered to have bad screening experiences. The majority (54.61%) were categorized as having a good experience with the screening context and follow-up procedures while 45.39% of participants were categorized as having a bad experience.

Qualitative Analysis

Perceptions of Psychological Distress:

A qualitative approach was used to analyze the data. After the qualitative data collection, All transcribed documents, field notes, and reflexive memos were entered into MAXQDA software. Each statement and word were coded line by line based on the stated objectives.

Inductive thematic analysis was applied in order to summarise and explain the emerging categories and themes under each objective. Finally, the findings were described by thematic areas and complimented to the quantitative findings.

4.13 Data quality assurance

Before the data collection the English version questionnaire were translated to Amharic (local language) and then back to English for analysis. Frequencies of each variable were ran in order to clean up the data and ensure that it was consistent, clear, and complete. And pretest was done on (5% of the study participants in St peter hospital). Before data collection started, In the pre-test, participants were asked whether they found any of the questions confusing,difficult to answeror understand,upsetting or offensive.

The data collection process was supervised,and the completeness was checked daily, Logical checking technique was employed to identify errors during data cleaning and double data entry was performed to check the consistency of the data. And exported to STATA version 17 for analysis. The primary investigator provided two days of training to the supervisor and data collectors, along with further instruction for the supervisor on data quality management.

4.14 Ethical concideration

After receiving ethical approval from Addis Ababa University's School of Public Health, Research and Ethical Committee (REC),), with IRB No SPH/452/2025 this investigation was conducted, Permission to conduct this study was secured Addis Ababa health bureaus informed consent was obtained through a clear and comprehensive way with outlines of the purpose, procedures, potential risks, and benefits of the study with IRB NoAA/HB//2/101/17.

All participants were given written informed consent to participate in the study. Participants fully understood their rights and they can voluntarily decide whether to participate. Equitable selection of participants, preventing the exploitation of vulnerable populations. The confidentiality was maintained by training to make dta collectors aware not to record any identification information.

Data collectors conducted interviews in private, secure locations to ensure that sensitive information cannot be overheard or accessed by unauthorized individuals. All data collection materials were stored securely, in encrypted folders during and after the collection phase. Data collectors received training on how to recognize emotional distress and appropriated techniques for responding. The principle of beneficence guided the study design by implementing educational components that enhance awareness of HPV and screening benefits, while

minimizing any potential harms through psychological support and careful management of Sensitive topics relate to women's health.

4.15 Dissemination

The findings of this study will be presented to a colleague of the health sciences school of public health at Addis Ababa University. The Addis Ababa Regional Health Bureau and other relevant organizations will receive it. In addition to being submitted to regional and/or worldwide peer-reviewed journals for publication, the findings will be presented at the thesis defense.

5 Results

5.1 Quantitative results

5.1.1 Socio-Demographic Characteristics

The study involved 423 women in the age group of 25–49 years with a mean age of 39.4 years (± 6.66). The majority of the participants (36.4%) were in the age group of 45–49, followed by 22.9% in the age group of 40–44). Regarding marital status, a majority of the respondents (48.5%) were married while the others were divorced (20.1%), single (17%), and widowed (14.4%) women. Regarding educational status, 35.5% had primary education, 25.3% secondary education, and 22.2% had a college degree. 30.7% of the respondents own private business, 27.9% were housewives, and 24.1% were government workers. 35.93% of the respondents had low income and 48.23% had high income.

Table 2 Socio Demographic characteristics of participants

Characteristic	Category	Frequency (n)	Percentage (%)
Age	Mean (SD)	39.4 (± 6.66)	
	Median	40	
	IQR	10	
	25-29	54	12.8
	30–34	37	8.8
	35-39	87	19.2
	40-44	97	22.9
	45-49	154	36.4
Marital Status	Single	72	17.0
	Married	205	48.5
	Widowed	61	14.4
	Divorced	85	20.1
Educational Status	Illiterate	72	17.0
	Primary education	150	35.5

	Secondary education	107	25.3
	Graduated from college	94	22.2
Occupation	Housewife	118	27.9
	Government employee	102	24.1
	Private business	130	30.7
	Student	14	3.3
	Merchant	29	6.9
	Other (specify)	30	7.1
Monthly Income	Mean(SD)	5290.19((±4176.09)	
	Median	4300	
	IQR	3500	
	Very Low Income(<1000ETB)	11	2.7
	Low Income(1000-3000ETB)	152	35.9
	Middle Income(3001-4999ETB)	56	13.2
	High Income(>5000ETB)	204	48.2
HIV status	Positive	302	79.4
	Negative	121	28.6

Source: Own survey, 2025.

5.1.2 Knowledge and awareness about HPV

Table 3 Knowledge and awareness about HPV

Question	Responses	Frequency	Percent
HPV is a common virus often cleared by the immune system.	Yes	231	54.6
	No	180	42.6
	I am not sure	12	2.8
Not all HPV infections cause cervical cancer.	Yes	222	52.5
	No	192	45.4
	I am not sure	9	2.1
Informed about what HPV positive result means	Yes	244	57.7

	No	176	41.6
	I am not sure	3	0.7
Having HPV automatically means developing cervical cancer	Yes	153	36.2
	No	253	59.8
	I am not sure	17	4.0
HPV test can be positive without having cervical lesions?	Yes	210	49.7
	No	204	48.2
	I am not sure	9	2.1
Confidence in understanding of HPV and its health implications	Yes	229	54.1
	No	181	42.8
	I am not sure	13	3.1
Overall knowledge about HPV	Good Knowledge	214	50.1
	Poor Knowledge	209	49.4

Source: own survey,2025

More than half of the participants (54.6%) were aware that HPV is a common virus that can naturally be cleared by the immune system, while significant percentage (42.6%) were not aware. Similarly, 52.5% knew that not all HPV infections lead to cervical cancer, whereas 45.4% believed otherwise. 57.7% of the respondents were informed what HPV positive result means and 41.6% were not informed. 36.2% believed that HPV infection always leads to cervical cancer. 49.7% of the respondents understand that there is a possibility of HPV positive testing without cervical lesion. 54.1% were confident that they knew what HPV was and its implications for health, and 42.8% were not. The mean knowledge score among respondents was 3.1 (SD = 2.7). More than half of the participants (50.6%) were classified as having Poor Knowledge, scoring below the mean and 49.4% demonstrated Good Knowledge, scoring at or above the average.

5.1.3 Socio-Cultural Perceptions and Stigma

Table 4 Socio-Cultural Perceptions and Stigma

Question	Response	Frequency	Percent
Being diagnosed with HPV brings shame to	Yes	164	38.7

your family	No	246	58.0
	I am not sure	13	3.3
Feel judged or blamed by others for being diagnosed with HPV	Yes	153	36.2
	No	257	60.8
	I am not sure	13	3.1
Belief that HPV is linked to promiscuity in the community	Yes	188	44.4
	No	172	40.7
	I am not sure	63	14.9
Avoided discussing your diagnosis with others due to fear of stigma or discrimination	Yes	182	43.0
	No	232	54.9
	I am not sure	9	2.1
Feel that cultural or religious beliefs in the community make it harder to cope with HPV	Yes	173	40.8
	No	218	51.4
	I am not sure	33	7.8
Overall sociocultural perception about HPV	Negative Perception	159	37.4
	Positive Perception	264	62.6

Source:own survey, 2025

Over one-third (38.7%) of participants believe that diagnosis of HPV shames their family, and 36.2% feel like they are judged or blamed by others due to their diagnosis. 44.4% of the study participants believe that their community associates HPV with promiscuity. Fear of discrimination is even noted since 43.0% of the respondents avoided talking about their diagnosis due to fear of stigma. Moreover, 40.8% of them thought that cultural or religious beliefs in their community made it harder to cope with the diagnosis. Participants scoring at or above The mean score of the respondents was 2.9 (SD 1.78). Out of the total 423 participants, 37.4% were categorized as having a negative sociocultural perception toward HPV and 62.6% had a positive perception by coring at or above the mean score.

5.1.4 Relationship Dynamics and Partner Reactions

Table 5 Relationship Dynamics and Partner Reactions

Question	Response	Frequency	Percent
Felt anxious about disclosing HPV status diagnosis to your partner?	Yes	105	51.2
	No	100	48.8
Partner was supportive upon hearing about HPV diagnosis	Yes	132	64.4
	No	64	31.2
	I am not sure	9	4.4
Partner encouraged you to seek medical advice or emotional support for your diagnosis	Yes	136	66.4
	No	64	31.2
	I am not sure	5	2.4
Felt that your HPV diagnosis has negatively affected the trust in your relationship	Yes	68	33.2
	No	115	56.1
	I am not sure	22	10.7
Partner blamed you for the HPV diagnosis	Yes	61	29.8
	No	144	70.2
Overall relationship dynamic	Unsupportive	89	43.4
	Supportive	116	56.6

Source: own survey,2025

Over half (51.2%) of the respondents indicated concern in telling their partners about their HPV diagnosis. Yet, most (64.4%) said their partners reacted in a supportive way when told. 66.4% of the participants' partners encouraged them to get medical or emotional help. Nevertheless, one-third (33.2%) reported that the diagnosis had a negative effect on trust in the relationship, and 29.8% reported being blamed by their partners for the diagnosis. The mean score was calculated (3.14 and SD 1.78). 56.59% had supportive relationship dynamics with their partners and 43.41% had unsupportive partner scoring below the mean score.

5.1.5 Screening Context and Follow-Up Procedures

Table 6 Screening Context and Follow-Up Procedures

Question	Response	Frequency	Percent
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Provided with sufficient information about HPV and the implications of a positive test	Yes	357	84.4
	No	53	12.5
	I am not sure	13	3.1
Offered counseling or mental health support after your HPV diagnosis by health care provider	Yes	391	92.4
	No	32	7.6
Feel that your emotional or psychological concerns were addressed by healthcare provider	Yes	363	85.8
	No	60	14.2
Rate the communication style of healthcare providers during the screening	Very poor	172	40.7
	Poor	13	3.1
	Neutral	36	8.5
	Good	115	27.2
	Excellent	87	20.6
The health care providers explained the follow-up procedures clearly	Yes	409	96.7
	No	14	3.3
If yes, were follow-up procedures sufficiently explained to alleviate your concerns?	Yes	200	48.9
	No	209	51.1
Referred for follow-up procedures (e.g., colposcopy) promptly	Yes	368	87.0
	No	55	13.0
Left overwhelmed or confused about health status because of the screening process	Yes	247	58.4
	No	176	41.6
Overall screening and follow up experience	Good Experience	231	54.6
	Bad Experience	192	45.4

Source: own survey, 2025

A vast majority of the respondents (84.4%) indicated that they were provided with sufficient information about HPV and what it means, although 12.5% were not. Most of the respondents

(92.4%) indicated that their healthcare provider offered counseling or mental health services after their diagnosis. 85.8% of the participants reported that their healthcare provider communicated with them regarding psychological concerns, while 14.2% did not. A large percentage of the respondents rate communication as "very poor" (40.7%) while 27.2% rated it "good" and 20.6% "excellent." Follow-up procedures were well defined for the most part, with 96.7% of participants reporting description clarity. Most (87%) said they were sent straight to follow-up treatments like colposcopy. Lastly, the screening process left a significant proportion of participants (58.4%) confused or overwhelmed regarding their health status. The mean score was 6.3 (SD = 2.5). The majority (54.6%) were categorized as having a good experience with the screening context and follow-up procedures while 45.4% of participants were categorized as having a bad experience.

5.1.6 Kessler Psychological Distress Scale

The 423 respondents had an average total T score of 24.2 (SD = 11.1), , their scores on the K10 were employed to categorize their level of mental distress. 41.1%, were labeled as "Well" and also possessed very low levels of psychological distress. Mild mental distress was experienced by 9.5% of participants, while moderate distress was registered in 14.9% of them. The result constituted a significant portion of 34.5% with indicators of severe mental distress.

Table 4 Psychological Distress Category

Psychological Distress Category	Frequency	Percent
Well	174	41.1%
Mild Mental Distress	40	9.5%
Moderate Mental Distress	63	14.9%
Severe Mental Distress	146	34.5%
Total	423	100%

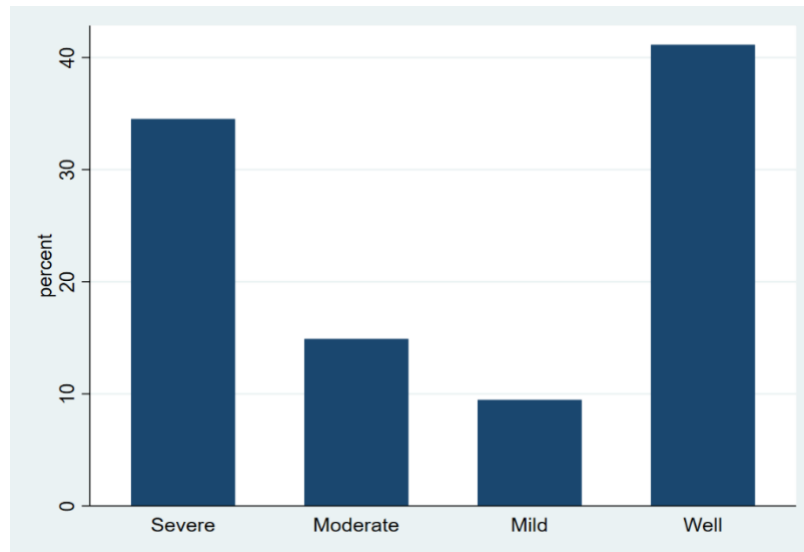


Figure 3 psychological Distress Category

5.1.7 Bivariate and Multivariable Regression Analysis

Respondents who had poor knowledge had a five times higher likelihood of having a higher level of psychological distress than those who possessed good knowledge (AOR = 5.26, 95% CI: 2.82-9.80, $p < 0.001$). Similarly, respondents who have negative sociocultural perception were nearly twice as likely to suffer greater psychological distress compared to respondents who have positive sociocultural perception (AOR = 1.93, 95% CI: 1.02-3.67, $p = 0.044$). In addition, women have unsupportive partner relationships had more than fourfold higher odds of psychological distress compared to counterparts with supportive partners (AOR = 4.59, 95% CI: 2.43-8.71, $p < 0.001$). Lastly, those who had a negative experience of screening and follow-up were over two times more likely to have psychological distress compared to those who had positive experience (AOR = 2.63, 95% CI: 1.43-4.83), $p = 0.02$).

Margins analysis was performed after an ordinal logistic regression to estimate the predicted probabilities of mental distress based on significant variables. Respondents who have good knowledge are much more likely to be psychologically well (58%) compared with those who have poor knowledge (27%), a difference of 31% ($p < 0.001$). Poor knowledge respondents have a significantly higher chance of severe mental distress (47% vs. 19%, $p < 0.001$), while mild distress rates are similar across groups ($p = 0.29$). Moderate distress is slightly more common in the poor knowledge group (16% compared with 12%, $p = 0.001$).

Respondents with a positive sociocultural perception are significantly more likely to be mentally well (54%) compared to those with a negative perception (19%), with a 34% difference ($p < 0.001$). Those with a negative perception have a much higher probability of severe mental distress (57% vs. 21%, $p < 0.001$), while mild distress is slightly lower (8% vs. 10%, $p = 0.002$). Differences in moderate distress between groups are not statistically significant ($p = 0.11$).

Supportive relationship dynamics have a significantly higher probability of being mentally well (52%) compared to those with unsupportive partners (17%), with a difference of 35% ($p < 0.001$). Those with unsupportive partners are more likely to experience severe mental distress (60% vs. 22%, $p < 0.001$), while mild distress is slightly less common in the unsupportive group (8% vs. 12%, $p = 0.008$). Differences in moderate distress between groups are not statistically significant ($p = 0.52$).

Respondents who reported a good health screening and follow-up service experience were significantly more likely to be mentally well (47.5%) compared to those with a bad experience (31.9%), with a 16% difference ($p < 0.001$). Severe mental distress was more prevalent among those with bad experiences (43%) than those with good ones (28%), which is a statistically significant difference of about 15% ($p < 0.001$). Moderate distress was slightly more common in the bad experience group (15.9% vs. 14.5%, $p = 0.012$), though the difference is small. Mild distress showed no statistically significant difference ($p = 0.066$).

Table 5 Bivariate and multivariate Analysis

Variable	Category	Well	Mild	Moderate	Severe	CO R(95% CI)	AOR (95% CI)	P-value
Knowledge Level	Good Knowledge (Reference)	130 (74.7%)	10 (25%)	14 (22.2%)	55 (37.7%)	-	-	-
	Poor Knowledge	44 (25.3%)	30 (75%)	49 (77.8%)	91 (62.3%)	3.77 (2.60, 5.40)	5.26 (2.82, 9.80)	***

						5.48)	)	
Sociocultural Level	Positive (Reference)	141 (81.03%)	30 (75%)	38 (60.3%)	55 (37.7%)	-	-	-
	Negative	33 (18.97%)	10 (25%)	25 (39.7%)	91 (62.3%)	4.84 (3.28, 7.14)	1.93(1.02, 3.67)	*
Partner Dynamics Level	Supportive (Reference)	60 (79%)	16 (76.2%)	14 (48.3%)	26 (32.9%)	-	-	-
	Unsupportive	16 (21%)	5 (23.8%)	15 (51.7%)	53 (67.1%)	5.26 (3.03, 9.13)	4.59 (2.43, 8.71)	***
Experience Category	Good Experience (Reference)	100 (57.5%)	33 (82.5%)	45 (71.4%)	53 (36.3%)	-	-	-
	Bad Experience	74 (42.5%)	7 (17.5%)	18 (28.6%)	93 (63.7%)	1.93 (1.35, 2.77)	2.63 (1.43, 4.83)	**

*Source: own survey, 2025 * p < 0.05 ** p < 0.01 *** p < 0.001 The model included the variables, age group, educational status, occupation and HIV status, Knowledge level, sociocultural perception, relationship dynamics and screening and follow up service experience; however, only variables with statistically significant associations are displayed in the table*

Marginal analysis of mental distress based on significant variables.

		Well	Mild Distress	Moderate Distress	Severe Distress	Significant Findings (p-value)
Knowledge Level	Good Knowledge	58%	11%	12%	19%	Well ($\uparrow$, $p < 0.001$), Severe ($\downarrow$, $p < 0.001$)
	Poor Knowledge	27%	10%	16%	47%	Moderate ($\uparrow$, $p = 0.001$), Mild (NS, $p = 0.29$)
Sociocultural Perception	Positive Perception	54%	10%	15%	21%	Well ($\uparrow$, $p < 0.001$), Severe ($\downarrow$, $p < 0.001$)
	Negative Perception	19%	8%	16%	57%	Mild ($\downarrow$, $p = 0.002$), Moderate (NS, $p = 0.11$)
Partner Dynamics	Supportive Partner	52%	12%	14%	22%	Well ($\uparrow$, $p < 0.001$), Severe ($\downarrow$, $p < 0.001$)
	Unsupportive Partner	17%	8%	15%	60%	Mild ($\downarrow$, $p = 0.008$), Moderate (NS, $p = 0.52$)
Health Service Experience	Good Experience	47.5%	10.1%	14.5%	28%	Well ($\uparrow$, $p < 0.001$), Severe ($\downarrow$, $p < 0.001$)
	Bad Experience	31.9%	10.3%	15.9%	43%	Moderate ($\uparrow$, $p = 0.012$), Mild (NS, $p = 0.066$)

$\uparrow$ = higher probability, $\downarrow$ = lower probability

5.2 Qualitative results

Socio-demographic characteristics of the study participants

In this study, 10 women who tested positive for Human Papillomavirus (HPV) were recruited. Their mean age was 34 years, ranging from 25 to 49 years. Among them, 10% were divorced, and the remaining participants were single, married, or widowed, each comprising 30% of the total. A majority (90%) had attained at least a primary level of education, and 70% were employed in private businesses.

Additionally, six health professionals working in cervical cancer screening rooms participated in the study. Their mean age was 33 years (range: 28–50 years), with a mean of 10 years of work experience. Regarding educational status, 10% held a diploma, while 90% had a bachelor's degree from a college.

Theme 1: Psychological feelings

This major theme includes three sub-themes such as positive feelings, negative feelings, and being able to reduce negative feelings.

Sub-theme 1: Positive feelings

Some participants shared their views as they were not afraid when the result was informed because they were aware that the virus can clear on its own.

“I didn’t feel anything because I was already informed that it wasn’t high-risk. The virus can clear on its own, especially for those over 30, whose immune systems can handle it. I wasn’t worried then, and I’m still not. There’s no risk, and I was told to return for another test in three years” (pt, age 30).

Some participants noted that they did not feel afraid when the health professional asked them to undergo cervical screening, as they were already aware of the procedure and understood its benefits.

“I was already aware of it. I knew it’s particularly important for women because it can help detect precancerous changes early, so I understood the importance” (pt age 30).

Another respondent also shared their view as follows:

“I was aware of it. I came for the test based on the information provided near my

workplace. They encouraged us to get tested, and the test was conducted. We were told the results would be available after about three weeks and that if the virus was not high-risk, it would likely resolve on its own” (pt,age 28)

Sub-theme 2: Negative feelings

The majority of participants reported experiencing deep emotional reactions, often resulting in tears, when they received their results through a phone call. Health workers reported that the emotional state of the patients changes significantly after receiving an HPV-positive test. While patients are generally compliant for initial screening, diagnosis has a tendency to induce fear, panic, and distress largely due to misconceptions about HPV and its link with cancer. Distrust of medical equipment and unfamiliar procedures hindered outreach described women's fear of speculum and refusal for screening also another challenge for the engagement of follow-up after positive HPV result.

“I was completely devastated. I cried the whole day at work. I was overwhelmed, running to the bathroom constantly—maybe 30 times that day. I couldn’t control my panic. It felt like something very serious” (pt,age32).

One participant shared that she was overcome with fear, certain it must be cancer. The emotional distress engulfed her she withdrew from others, isolated herself from her community, and, in that moment, was overwhelmed by a profound sense of hopelessness and depression.

“I was truly terrified. I thought it was cancer for sure. I became emotionally distressed. I isolated myself from others, avoided my community, and began to hate everything about life at that moment. I felt very depressed” (pt,age 47).

“There’s a significant difference between the first visit and the post-diagnosis phase. Initially, when we explain the importance of screening based on symptoms, they are cooperative. But once they find out they are HPV-positive, they often panic. They tend to forget the counseling we provided earlier and become very distressed. Accepting the diagnosis is difficult for them.” (Hp , BSC nurse)

Participants described how receiving an HPV-positive result often triggered significant

emotional and psychological distress among patients. Even though the health professionals clarify that it indicates a pre-cancerous condition rather than a cancer diagnosis, they often misunderstood as cancer itself. This distress not only from fear of illness but also from misunderstanding the diagnosis confusion about transmission, concerns about stigma, and relationship tension.

“Absolutely. Many women become anxious upon hearing they’ve tested positive. Although we explain that it’s a pre-cancerous finding—not a diagnosis of cancer—they often interpret it as cancer. This misunderstanding generates fear and, in some cases, outright refusal to proceed with further testing or treatment.” (Hp , BSC nurse)

Sub-theme 3: Able to reduce their negative feeling

One participant stated that the possibility of a more thorough diagnostic assessment brought reassurance, as it promised a clearer understanding of the infection’s extent and the stage at which it was detected. Rather than instilling fear, the knowledge that early intervention could begin was a source of motivation. Consequently, she perceived the recommendation for further testing as an opportunity rather than a cause for concern.

“The prospect of a more detailed diagnostic assessment was reassuring because it meant I would gain a clearer understanding of the extent of the infection and the stage at which it was detected. Knowing that early intervention could be initiated motivated me rather than frightened me. Therefore, I viewed the recommendation for further testing as an opportunity rather than a threat” (pt,age 30).

One participant expressed deep appreciation for the healthcare providers, describing them as excellent, empathetic, informative, and reassuring. They provided clear explanations about the virus, available treatment options, and what to expect moving forward. Their guidance helped alleviate anxiety, emphasizing that the condition is common, treatable, and nothing to be feared or stigmatized.

“The healthcare providers have been excellent. They were very empathetic and informative. They explained everything clearly from the nature of the virus to the treatment options and what to expect moving forward. Their reassurance helped me manage my anxiety. They made it clear that this condition is common, treatable, and not something to be ashamed of or terrified by” (pt,age 30).

Some participants shared that after speaking with the health professionals and gaining a clearer understanding of their results, their fears were alleviated. The doctor provided thorough explanations, reassuring them that the tests were essential for monitoring their health. Over time, as they observed improvements in their condition, they felt increasingly at ease.

“After speaking with the doctor and understanding the results more clearly, my fears were eased. The doctor explained everything thoroughly, and I was reassured that the tests were important for monitoring my health. Over time, I felt much more at ease as I saw improvements in my condition” (pt ,age 31).

Participants emphasized that pre-test counseling is critical to preparing patients and preventing panic and Empathy and confidentiality were identified as essential to effective communication they shared that their smooth relation with the patients create them good communication style.

“During pre-counseling, we explain: ‘You are undergoing a brush test (HPV screening), which can detect pre-cancerous changes in a laboratory setting.’ We stress that this does not mean they have cancer, but that early detection allows for timely prevention.” (Hp , Midwife)

“The counseling process plays a crucial role, but its effectiveness depends on both the quality of counseling and the patient’s ability to understand. Some grasp the information quickly; others need more time and Building rapport with patients is crucial. Being friendly and transparent helps them feel at ease. Maintaining confidentiality is also key in building trust.” (Hp , Midwife)

Theme 2: Sharing the result with their family

Under this major theme, two sub-themes are included: "Shared the result" and "Did not share the result" with their family.

Sub-theme 1: shared the result

Some participants shared that their husbands accompanied them during the consultation. As healthcare professionals, their husbands understood the results and remained unconcerned, knowing the appropriate next steps. Their families, including their husbands, were informed, and their husbands’ medical expertise proved valuable in providing clear explanations.

“My husband was with me during the consultation. Since he’s a health care professional, he understood the results and wasn’t concerned. He knows what steps to take next. My family, including my husband, is aware. His medical background is helpful because he

can explain things clearly” (pt ,age 32).

Another participant also stated that:

“I live with my sister, and I informed her. I don’t have my parents anymore. When I told her, she was very supportive. She simply encouraged me to go and receive the treatment and reminded me it was in my best interest. Her support helped me remain calm” (pt ,age 45).

Sub them 2: Not shared the result

The majority of participants shared their perspectives, explaining that they initially chose not to discuss the result with their family. Uncertain about how to articulate everything, they wanted to avoid causing unnecessary worry and felt it was a personal issue they could manage on their own also Healthcare workers reported a high rate of loss to follow-up after a positive diagnosis. Fear, stigma, and a poor understanding of the test results were key barriers Regarding this, one participant stated as follows:

“I decided not to talk about it with my family at first because I wasn’t sure how to explain everything. I didn’t want to worry anyone, and I felt it was something personal that I could handle on my own. I only shared the news with my sister, but even then, she was in shock and denial. It wasn’t easy, but I chose to deal with it privately. I wanted to understand the situation fully before involving others”(pt ,age 35).

I am still in the process of coming to terms with the diagnosis myself. Since I have not fully accepted the reality of being HPV positive, I have preferred to keep it private for the time being” (pt ,age49).

“Many patients don’t come back after testing positive—they think it means they’re already sick or that nothing can be done. Some even doubt the results. The bigger issue is perception, not the test process.” (Hp , Bsc Nurse).

Theme 3: Challenges in screening and Patient Follow-Up

Under this major theme, four sub-themes are included: Misconceptions and Disengagement, Infrastructure and Facility Limitations, Challenges on counselling and Laboratory delays

Sub-theme 1: Misconceptions and Disengagement

Healthcare workers reported a high rate of loss to follow-up after a positive diagnosis. Fear, stigma, and a poor understanding of the test results were key barriers. Also, they described how efforts to follow up by phone were often unsuccessful to get women for their follow up

“Many patients don’t come back after testing positive—they think it means they’re already sick or that nothing can be done. Some even doubt the results. The bigger issue is perception, not the test process.” (Hp, Bsc Nurse)

“The hardest part is reaching them. Many won’t answer or hang up, and even after repeated calls, some don’t return. But when we explain things thoroughly—especially in person—they usually understand better and are more willing to come back.” (Hp, Midwife)

Sub-theme 2: Challenges on counselling

Some participants explained that Language and Accessibility Barriers are one of the challenges in communication with the patients, it was also affected by language differences and special needs

“Some patients, like those from Oromia, don’t speak Amharic. In those cases, we rely on interpreters. I recall one who was also hearing-impaired—we had someone help her through writing, but it wasn’t fully effective.” (Hp, Diploma Midwife)

Participants emphasized that pre-test counseling is critical to preparing patients and preventing panic and Empathy and confidentiality were identified as essential to effective communication they shared that their smooth relation with the patients create them good communication style.

“During pre-counseling, we explain: ‘You are undergoing a brush test (HPV screening), which can detect pre-cancerous changes in a laboratory setting.’ We stress that this does not mean they have cancer, but that early detection allows for timely prevention.” (Hp, Midwife)

“The reassurance and clear explanations from the medical staff were the most helpful. They took the time to address my fears and clarify what the results meant. Beyond that, my faith played a huge role in keeping me calm” (Pt, age 25)

“The counseling process plays a crucial role, but its effectiveness depends on both the quality of counseling and the patient’s ability to understand. Some grasp the information quickly; others need more time and Building rapport with patients is crucial. Being friendly and transparent helps them feel at ease. Maintaining confidentiality is also key in building trust.” (Hp, Midwife)

The majority of participants shared their perspectives explaining that high patient loads sometimes force providers to use group counseling, which limits personalization of one-on-one

sessions and cannot address coping mechanisms for their patients' distress. While it allows them to reach more patients quickly, additionally they explained that time limitation workload and limited appointment slots as barriers to quality care.

"When we have many clients, we provide group counseling, which can be less personal. One-on-one sessions are more effective, but we can't always do them due to time and volume." (Hp ,Nurse)

"Yes, when the workflow is consistent, it's manageable. Occasionally, if only one or two cases come in, you can explain things well and even complete treatment. But time constraints definitely impact the quality of care. It limits how thoroughly we can counsel and support each woman. Limited appointment slots and heavy workloads make it difficult to provide thorough post-test counseling. Psychosocial and emotional support is often compromised." (Hp ,Midwife)

Sub-theme 3: Infrastructure and Facility Limitations

The majority of participants shared that Lack of private counseling spaces and shifting locations disrupted the care experience. the health care providers explained that the narrow room for the screening is one of barriers for counseling and they can not give appropriate service due to lack of wide room for both counseling and screening. And also, they described the screening room placement within the hospital made it difficult for some patients to find or reach without assistance.

"Counseling usually happens in the same area as screening. It's not ideal. We face frequent interruptions, and patients feel uncomfortable." (Hp ,Midwife)

"Counseling and screening are done in separate locations. Our facility setup changes frequently. This causes confusion during follow-ups." (Hp ,Nurse)

"The screening room is not easily accessible. Some patients have said they couldn't find it, which may cause missed appointments." (Hp ,Midwife)

Another challenges that Many health care providers raise is laboratory delays for the results after sample collected and send to the laboratory. They explained that the result delays from the laboratory can also affect the screening and follow up process by decreasing patient engagement for the second test or screening after the result this Long turnaround times and missing results from regional labs were major barriers.

"Delays from the regional laboratory are a major challenge. Samples are sent out and sometimes never return. We're now considering using our in-house lab." (Hp ,Midwife)

“Sometimes it takes 2 to 3 months to get results. In some cases, results get lost during the transmission process.” (Hp ,Nurse)

6 Discussion

The findings of this study revealed that 34.5% of HPV positive women were severely distressed, 14.9% had moderate psychological distress, 9.5% mild psychological distress while 41.1% of the women were psychologically well. Variables such as knowledge about HPV, sociocultural perception about HPV, relationship dynamics with partner and screening and follow-up service experience were found to be significant. Qualitative study revealed that participants reported experiencing distress largely due to misconceptions about HPV and its link with cervical cancer and the result often triggered significant emotional and psychological distress among women.

The findings of this research identify significant psychological distress as it pertains to HPV positivity that is similar to and builds upon prior literature in this domain. This study assessed the psychological distress in women who tested positive for human papillomavirus (HPV) in Addis Ababa, Ethiopia the results showed a high burden of distress, with 34.5% of the study participants categorized as having severe psychological distress, These results demonstrate the significant psychological effect on women who are given an HPV-positive test result and require mental health to be addressed as part of cervical cancer prevention programs. The psychological distress identified in the present study also receives support from A cross sectional survey conducted in the UK (73)who demonstrated relatively high levels of anxiety and distress among women tested HPV-positive with normal cytology. In the study, women with HPV+/normal results exhibited greater anxiety than in the general population mean and high degrees of psychosexual distress up to 12 months(11). Similarly, in our study, women exhibited intense emotional reactions following the diagnosis, typically due to stigma, misinformation, and relationship problems.

A cross sectional study conducted in Australia (74)found that women who were positive for HPV scored greater mean anxiety (41.67 vs. 37.08) and emotional distress scores (11.88 vs. 7.71) compared to the HPV-negative women ($p < 0.001$). The same research indicated that HPV-positive women were more concerned with their test results (34.3% compared to 1.3%), felt more at risk of cervical cancer (55.4% compared to 14.1%), and reported higher rates of worry

about cancer (27.8% compared to 5.9%). These worldwide findings, which are consistent with the current study, A recurrent theme throughout participant accounts was fear of cervical cancer and not knowing what an HPV diagnosis implied. Most of the women gave a quick link between HPV and cancer, and this led to panic and hopelessness. This resonates with the quantitative results where 36.2% of the participants indicated that HPV always resulted in cancer, and 30.7% indicated depression. The words of the women bring true meaning to these figures. That suggests the emotional pain is not merely numerical but is highly individualized, even on the basis of misinformation and nor reassure contend that an HPV-positive test result always brings emotional hurt although in Ethiopia, both lack of infrastructural support and high stigma undoubtedly enhance these effects.

Poor knowledge regarding HPV was a significant predictor of distress. In this study, poor knowledge was reported by 50.6% of the participants, and low-knowledge participants had more than fivefold higher odds of developing psychological distress and 36.17% of the participants of our study had the perception that HPV always leads to cancer, creating fear and ignorance.

Women with low understanding of HPV's transmission, natural history, and link to cervical cancer were over five times more likely to experience distress than those with good knowledge. This aligns with Iranian and Sudanese research, where limited awareness led women to overestimate their cancer risk, misinterpret results, and experience heightened anxiety (49, 43). Such gaps in understanding are particularly concerning in Ethiopia, where awareness about HPV remains low (51, 52, 53).

A study done in Iran indicated that women would perceive a positive HPV test result as a promise of an immediate evolution into cervical cancer, prompting severe anxiety and distress (55,75).

Interestingly, A comparative cross-sectional study conducted in Addis Ababa (28) found that HPV-infected HIV-positive women were more aware than HPV-negative women but still showed low reassurance (16%) despite their relatively higher knowledge. This suggests that knowledge does not always translate into psychological preparedness ,this implies that merely offering knowledge may not be sufficient, and it must be followed by psychological support and open communication to mitigate emotional impacts. This matches provider feedback in the present study, where even educated or urban women were described as emotionally distressed after a positive result.

A study done in Iran indicated that women would perceive a positive HPV test result as a promise of an immediate evolution into cervical cancer, prompting severe anxiety and distress (55,75). Sociocultural beliefs in this study were strongly related to distress. The survey result showed that respondents with negative sociocultural perceptions about HPV were more likely to experience psychological distress. About 44.4% believed their community associates HPV with promiscuity, and 38.7% believed their diagnosis brought shame to their family. This supports, Women who held negative sociocultural beliefs like beliefs that HPV diagnosis is shameful or related to promiscuity. Participants indicated that they felt ashamed, morally judged, or blamed for having contracted a sexually transmitted disease. A woman commented, "I did not tell anyone, not even my sister". They will believe that I have slept with many men." These stigmatizing attitudes reflect findings (55)who reported that HPV-positive women feel shame and spoiled sexual identity, even in high-income nations. In Ethiopia, though, deeply held social norms and moral judgments may worsen distress. Further, the majority of women avoided disclosing their diagnosis (43.0%) out of fear of blame or judgment indicating how stigma not only increases mental distress but also socially isolates women.

In this study, unsupportive relationships were associated with a fourfold increase in psychological distress (AOR = 4.59, 95% CI: 2.43-8.71). About 29.8% of women reported being blamed by their partner, and 33.2 % believed their diagnosis reduced trust in the relationship. These findings are consistent with the systematic review in England (55)which found that HPV diagnoses can lead to strained relationships, reduced sexual intimacy, and emotional isolation.

The quantitative finding that 58.4% felt overwhelmed or confused and 40.7% rated provider communication as "very poor." This reflects the qualitative accounts show that women often left the clinic with more fear than clarity, underscoring the urgent need for more empathetic and patient-centered counseling. This shows the screening experience itself had a profound effect. Despite most women reporting they received some form of counseling, many found it inadequate. A participant shared, *"They just told me I was positive but didn't explain what that means... I was too shocked to ask questions."* In this study, health care providers described how women often reacted with panic, crying, or silence upon learning their HPV status. Many providers linked this distress to misunderstandings about HPV, such as assuming it automatically leads to cervical cancer or indicates sexual promiscuity. These perceptions mirror patient reports in the quantitative results, where 36.17% believed HPV always causes cancer and 44.44%

believed their community associates HPV with promiscuity. The alignment between provider observations and patient experiences underscores a shared understanding of the stigma and emotional burden attached to HPV in the Ethiopian context. This pattern is consistent with the findings in the UK (PIPS study,(76)where even in a well-resourced setting, healthcare providers observed heightened anxiety among HPV-positive women, particularly those unfamiliar with HPV screening. However, unlike the UK, Ethiopian providers in this study reported limited training, no mental health integration, and minimal time to address women's emotional needs. One provider remarked, *"We try to counsel, but we have many patients and not enough time."* This reflects the broader literature showing that in low-income countries, psychological care is often deprioritized in busy, under-resourced health systems (28)Moreover, some providers in the current study minimized patients' emotional responses, assuming women would "get over it." This perception contrasts with global literature, such as (55)who emphasize the lasting psychosexual and emotional impact of HPV diagnoses and recommend proactive support even in early stages of screening.

7.S Strength and limitation

7.1 Strength

One of the strength of this study is Addresses psychological distress in HPV-positive women a growing screening program in Ethiopia with clear public health implications have not done before yet in our country and the use of mixed method design this allow more comprehensive understanding in deeper explanation. In-depth interviews with health-care providers complement women's self-reports, enriching the analysis with both patient experiences and clinical insights to inform practical recommendations for counseling and support. The other is the data was collected using KoboToolbox which minimizes missing data.

7.2Limitation

One of the limitation of this study is it is cross sectional study and it doesn't show temporal relationships. The other is source of bias for this study may be differential non-response and missing data women who decline to participate or whose case history is incomplete may systematically differ from others on level of psychological distress, and may lead to an underestimate or overestimate of the true prevalence. Further, our employment of retrospective self-report asking participants to report symptoms and psychosocial functioning over the last

three months creates the possibility for recall bias that may vitiate the validity of such data. Finally, as in-person interviews will inquire sensitive questions about sexually transmitted trauma and stigma, social desirability might lead certain women to misreport distress or connected problems, again diminishing our ability to detect the full spectrum of effect following a positive HPV result.

8. Conclusion

In summary, the study findings reveal a significant percentage of HPV positive women to be severely distressed after their diagnosis. The study confirms that psychological distress is a prevalent and complex consequence of HPV-positive diagnoses in Addis Ababa. The distress is amplified by poor knowledge, sociocultural stigma, unsupportive partners, and inadequate communication. These findings are consistent with both local and international studies referenced within this thesis and highlight an urgent need for an integrated response that combines medical care with psychosocial support, public education, stigma reduction, and partner involvement. and incorporating mental health care into screening programs are crucial to alleviate this distress.

9. Recommendation

The study's suggestions take direct aim at its core findings: to correct knowledge gaps, develop and disseminate culturally tailored educational materials (brochures, videos, radio spots in Amharic and other local languages) clearly explaining HPV transmission, natural history, and treatment to correct negative sociocultural perceptions, introduce stigma-reduction training for health workers complete with role-plays in empathetic communication and start community discussion and peer-support groups mediated by trained counselors. In order to minimize the

impact of unsupportive partners, provide couple-focused counseling sessions at screening visits and partner specific take home materials on shared responsibility and to improve women's screening and follow up experience, encourage private, compassionate result delivery by incorporating brief mental-health screening and clear referral mechanisms into cervical-cancer services.

Future research should evaluate the effect of tailored educational interventions on HPV knowledge and anxiety levels among women using randomized trials. Qualitative study should the sources of sociocultural stigma, examining beliefs among families, community leaders, and men. Longitudinal cohort studies should track the impact of partner engagement on psychological outcomes over time and identify which counseling strategies most lastingly establish spousal support.

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Annex

Annex I: Participant information sheet

My name is _____. I am working as a data collector for the study conducted among women aged between 25-49 by TIGEST TERFE who is studying for her Master's degree at Addis Ababa University, Collage of Health Science, and School of Public Health. I kindly request you to give me your attention to explain you about the study and study participant. This is a study to be conduct with the objective of assessing psychological distress and identify factors contributing to Psychological Distress among women in Addis Ababa who screened positive for HPV. Therefore, you're Honest and real response is vital for the success of this study. You are going respond to Psychological Distress and its contributing factor questionnaires and you have a full right not to participate and withdraw in the meantime.

There is no any risk weather participating or not to answer the prepared questionnaire. The privacy of your information is also guarantied and it is only used for study purpose.

The study title: Assessment of Psychological distress among women tested positive for HumanPapilloma Virus test in Addis Ababa, Ethiopia.

Procedure and duration: I will be assessing of Psychological distress among women tested positive for HumanPapilloma Virus test in using Questionnaires. and this may take 25 to 30 minute.

Risks and benefits: Risk of participating in this study is none since the study does not have invasive procedure and need collecting any samples. There would have no any direct benefits for being study participant. But indirectly the findings from this research will be important for increasing cervical screening rate and for scientific knowledge.

Confidentiality: All information collected kept confidential and names will not be written.

Rights: Giving permission for this study is voluntary. You have the right to permit or not for this study. If you decide to permit the study, you have the right to terminate the study at any time if you consider something related to the study is wrong.

Contact address: If you have any question, which is not clear, you can contact the investigator. Investigator; Tigest Terefe Arage

Email Address: tgterefe04@gmail.com Advisor :Dr Muluken Gizaw. 0966809345

Annex II. Informed consent

Detail information about the study is explained to me. I have understood that the objective of this study is to assess psychological distress and identify factors contributing to Psychological Distress among women in Addis Ababa who screened positive for HPV in Addis Ababa Ethiopia.

In addition, I understand about how the data collection is proceeding and the time it takes to complete the data collection. I also understand that the research imposes no risk on me. I assured that there would be confidentiality of my response and collected data used only for the study. It also explained to me that I have the right to stop participation at any time.

Furthermore, I understood that participating in this study is important for scientific knowledge and base for further study. Therefore, I have now consented to participate in the study by signing this form.

Signature of participants _____ date _____

Name and signature of data collector _____ date _____

Annex III:Questionnaire

Data abstraction form/Quantitative survey and qualitative in-depth question

Purpose of the Study: To Asses Psychological distress among women tested positive for HumanPapilloma Virus test in Addis Ababa, Ethiopia.

Part 1 Socio demographic status

S.No	Questions	Responses	Code
1	Age in years	_____	
2	Marital status	1. Single 2. Married 3.Widowed 4.Divorced	
3	Educational status	1. Illiterate 2.Primary education 3.Secondary education 4. Graduated from college	
4	Occupation of respondents	1. Housewife 2.Government employee 3. Private Business 4.Student 5. Merchant 7.other	
5	Monthly income in birr	_____	

Section 2: Psychological Distress

K10 Test

These questions concern how you have been feeling over the past 03 month after you tested positive for HPV positive . Tick a box beloweach question that best represents how you have been.

During the last 3 months, about how often did you feel tired out for no good reason after you tested HPV positive?	None of the time	A little of the time	Some of the time	Most of the time	All of the time
During the last 3 months, about how often did you feel nervous after you tested positive?	1	2	3	4	5
During the last 3months, about how often did you feel so nervous that nothing could calm you down after you tested positive?	1	2	3	4	5
During the last 3months, about how often did you feel hopeless after you tested positive?	1	2	3	4	5
During the last 3months, about how often did you feel restless or fidgety after you tested positive?	1	2	3	4	5
During the last 3 months, about howoften did you feel so restless you could not sit still after you tested positive?	1	2	3	4	5
During the last 3months, about how often did you feel depressed after you tested positive?	1	2	3	4	5
During the last 3months, about how often did you feel that everything was an effort after you tested positive?	1	2	3	4	5
During the last 3 months, about how often did you feel so sad that nothing could cheer you up after you tested	1	2	3	4	5

positive?					
During the last 3months, about how often did you feel worthless after you tested positive?	1	2	3	4	5

Section 3: Contributing Factors

Knowledge and awareness about HPV		
1	Are you aware that HPV is a common virus that can be cleared naturally by the immune system?	1.Yes
		2.No
		3.I am not sure
2	Did you know that not all HPV infections lead to cervical cancer?	1.Yes
		2.No
		3.I am not sure
3	Were you informed about what a positive HPV test result means before you received your results?	1.Yes
		2.No
		3.I am not sure
4	Do you believe having HPV automatically means you will develop cervical cancer?	1.Yes
		2.No
		3.I am not sure
5	Were you aware of the possibility of testing positive for HPV without having cervical lesions?	1.Yes
		2.No
		3.I am not sure
6	Do you feel confident in your understanding of HPV and its health implications?	1.Yes
		2.No
		3.I am not sure
Socio-Cultural Perceptions and Stigma		
7	Do you believe that being diagnosed with HPV brings shame to your family	1.Yes
		2.No
		3.I am not sure
8	Do you feel judged by others for being diagnosed with HPV?	1.Yes
		2.No
		3.I am not sure
9	In your community, is there a belief that HPV	1.Yes

	is linked to having more than one sexual partner?	2.No 3.I am not sure
10	Have you avoided discussing your diagnosis with others due to fear of stigma or discrimination?	1.Yes 2.No 3.I am not sure
11	Do you feel that cultural or religious beliefs in your community make it harder to cope with an HPV diagnosis?	1.Yes 2.No 3.I am not sure
Relationship Dynamics and Partner Reactions		
12	Did you feel anxious about disclosing your HPV diagnosis to your partner?	1.Yes 2.No

13	Did your partner react supportively when you informed them about your HPV diagnosis?	1.Yes
		2.No
		3.I am not sure
14	Has your partner encouraged you to seek medical advice or emotional support for your diagnosis?	1.Yes
		2.No
		3.I am not sure
15	Do you feel that your HPV diagnosis has negatively affected the trust in your relationship?	1.Yes
		2.No
		3.I am not sure
16	Has your partner blamed you for the HPV diagnosis?	1.Yes
		2.No
17	Has your HPV diagnosis caused strain or conflict in your relationship?	1.Yes
		2.No
Screening Context and Follow-Up Procedures		
18	Were you provided with sufficient information about HPV and the implications of a positive test?	1.Yes
		2.No
		3.I am not sure
19	Did your healthcare provider offer counseling or mental health support after your HPV diagnosis?	1.Yes
		2.No
20	Do you feel that your healthcare provider addressed your emotional or psychological concerns regarding HPV	1.Yes
		2.No
21	How would you rate the communication style of healthcare providers during the screening?	1.Very poor
		2.Poor
		3.Neutral
		4.Good
		5.Excellent
22	Did the healthcare provider explain the follow-up procedures in a way that you could easily understand?	1.Yes
		2.No
23	Were you referred for follow-up procedures promptly after your positive HPV result?	1.Yes
		2.No

24	If yes' Do you feel that the follow-up procedures were sufficiently explained to alleviate your concerns?	1.Yes
		2.No
25	Did the screening process leave you feeling overwhelmed or confused about your health status?	1.Yes 2 no

Annex IV Qualitative Interview Questions

To explore psychological distress among women who tested positive for the Human Papillomavirus in Addis Ababa, Ethiopia

Socio-demographic characteristics of the participants

	Characteristics	The number of participants
Marital status	Single	3
	Married	2
	Widowed	3
	Divorced	2
Education	Illiterate	2
	Primary education	3
	Secondary education	2
	Graduated from college	3
Occupation	Housewife	2
	Government employee	2
	Private business	6
Income	Low	2
	Middle	4
	High	4

Interview Questions for the HPV diagnosed women

1. What was your initial emotional reaction during your HPV screening?
2. How did your partner, family, or friends react when you shared (or did not share) your results?
3. In your opinion what specific information or support would have reduced your level of anxiety or distress during the HPV screening and follow-up process?

Interview Questions for Healthcare professionals

1. What has been your experience regarding the psychological distress experienced by women who test positive for HPV?
2. Does a lack of time affect their ability to provide support?
3. Does the client's knowledge play a role?
4. Are there issues related to infrastructure, language barriers, or any other logistical challenges

5. What difficulties do you face with sample collection, result disclosure, and follow-up
6. What was your approach to the HPV screening process, and where did you identify gaps in your counseling?
7. How do you support women who test positive for HPV to help them avoid psychological distress?

Annex V Amharic version participant Information sheet

ውድ ተጠሪ:-

የኔ ስም _____ ። በአዲስ አበባ ዩኒቨርሲቲ ሁለተኛ ዲግሪዎን በጤና ሳይንስ ኮሌጅ እና በህብረተሰብ ጤና ትምህርት ቤት በመማር ላይ የምትገኘው ትእግስት ተረፈ ከ25-49 መካከል ባሉ ሴቶች መካከል ለሚካሄደው ጥናት መረጃ ሰብሳቢ ሆኜ እየሰራሁ ነው። ስለ ጥናቱ እና የጥናቱ ተሳታፊ ለእርስዎ ለማስረዳት ትኩረትዎን እንዲሰጡኝ በአክብሮት እጠይቃለሁ።

ይህ ጥናት የሚካሄደው የስነ ልቦና ጭንቀትን ለመገምገም እና በአዲስ አበባ ውስጥ ለ HPV አዎንታዊ ምርመራ ባደረጉ ሴቶች ላይ የስነ ልቦና ችግርን የሚያስከትሉ ምክንያቶችን በመለየት ነው። ስለዚህ፣ እርስዎ ታማኝ ነዎት እና እውነተኛ ምላሽ ለዚህ ጥናት ስኬት አስፈላጊ ነው። ለሳይኮሎጂካል ጭንቀት እና ለሚያበረክቱት መጠይቆች ምላሽ እየሰጡ ነው እና እስከዚያ ድረስ ላለመሳተፍ እና ላለመውጣት ሙሉ መብት አለዎት። የተዘጋጀውን መጠይቅ ለመመለስ ወይም ላለመሳተፍ ምንም አይነት አደጋ የአየር ሁኔታ የለም። የመረጃዎ ግላዊነት እንዲሁ የተረጋገጠ ነው እና ለጥናት ዓላማ ብቻ ጥቅም ላይ ይውላል። ለጥያቄው የሚያቀርቧቸው ምላሾች ለጥናቱ ስኬታማ ስኬት ብቻ ሳይሆን በጣም አስፈላጊ መሆናቸውን ማሳወቅ እወዳለሁ። ነገር ግን የማጣሪያ ሂደቱን ለማሻሻል በኋላ ላይ ጥቅሞች አሉት።

የጥናት ርዕስ፡ በሴቶች ላይ ያለው የስነ ልቦና ጭንቀት ግምገማ በአዲስ አበባ፣ ኢትዮጵያ የሂውማን ፓፒሎማ ቫይረስ ምርመራ መኖሩ ተረጋግጧል።

የሂደቱ ሂደት እና የቆይታ ጊዜ፡ መጠይቆችን በመጠቀም ሂውማን ፓፒሎማ ቫይረስ ምርመራ ባደረጉት ሴቶች መካከል ያለውን የስነ ልቦና ጭንቀት እንመግማለሁ። እና ይህ ከ 25 እስከ 30 ደቂቃዎች ሊወስድ ይችላል።

ስጋቶች እና ጥቅማ ጥቅሞች፡ ጥናቱ ወራሪ ሂደት ስለሌለው ናሙና መሰብሰብ ስለሚያስፈልገው በዚህ ጥናት ውስጥ የመሳተፍ ስጋት ምንም አይደለም። የጥናት ተሳታፊ ለመሆን ምንም አይነት ቀጥተኛ ጥቅሞች አይኖሩም። ነገር ግን በተዘዋዋሪ ከዚህ ምርመራ የተገኙት ግኝቶች የማኅጸን ነቀርሳ ምርመራ መጠንን ለመጨመር እና ለሳይንሳዊ እውቀት ጠቃሚ ይሆናሉ።

ምስጢራዊነት፡ ሁሉም የተሰበሰቡ መረጃዎች በሚስጥር ተጠብቀው እና ስሞች አይጻፉም።

መብቶች፡- ለዚህ ጥናት ፈቃድ መስጠት በፈቃደኝነት ነው። ለዚህ ጥናት ፈቃድ የመስጠት ወይም የመስጠት መብት አልዎት። ጥናቱን ለመፍቀድ ከወሰኑ, ከጥናቱ ጋር የተያያዘ ነገር ስህተት እንደሆነ ካሰቡ በማንኛውም ጊዜ ጥናቱን የማቋረጥ መብት አለዎት.

የአድራሻ አድራሻ፡ ምንም አይነት ጥያቄ ካሎት፣ ግልፅ ያልሆነ፣ መርማሪውን ማነጋገር ይችላሉ።

መርማሪ ትእግስት ተረፈ

ስልክ 0923845949

ኢሜል፡ tgterefe04@gmail.com

አማካሪ፡ ዶ/ር ሙሉቀን ፡0966809345

አዲስ አበባ ዩኒቨርሲቲ፣ የጤና ሳይንስ ኮሌጅ፣ የሕብረተሰብ ጤና ትምህርት ቤት

Annex VI. Amharic version Informed consent form

የስምምነት መዋዋያ ቅጽ

ስለ ጥናቱ ዝርዝር መረጃ ተብራርቶልኛል. የዚህ ጥናት አላማ የስነ ልቦና ጭንቀትን ለመገምገም እና በአዲስ አበባ ኢትዮጵያ የ HPV በሽታ መያዙን ባረጋገጡ በአዲስ አበባ ሴቶች ላይ የስነ ልቦና ችግርን የሚፈጥሩትን ምክንያቶች መለየት እንደሆነ ተረድቻለሁ።

በተጨማሪም፣ የመረጃ አሰባሰብ ሂደት እንዴት እንደሚካሄድ እና የመረጃ አሰባሰብን ለማጠናቀቅ ስለሚወስደው ጊዜ ተረድቻለሁ። ጥናቱ በእኔ ላይ ምንም አይነት ስጋት እንደማይፈጥርም ተረድቻለሁ። የእኔ ምላሽ እና የተሰበሰበ መረጃ ለጥናቱ ብቻ ጥቅም ላይ የሚውል ሚስጥራዊ እንደሚሆን አረጋግጣለሁ። በማንኛውም ጊዜ ተሳትፎን የማቆም መብት እንዳለኝም ገልጾልኛል።

በተጨማሪም፣ በዚህ ጥናት ውስጥ መሳተፍ ለሳይንሳዊ እውቀት እና ለቀጣይ ጥናት መሰረት አስፈላጊ መሆኑን ተረድቻለሁ። ስለዚህ፣ አሁን ይህንን ቅጽ በመፈረም በጥናቱ ለመሳተፍ ተስማምቻለሁ።

የተሳታፊዎች ፊርማ _____ ቀን _____

የመረጃ ሰብሳቢው ስም እና ፊርማ _____ ቀን _____

Annex VII: Amharic Version Questionnaire

አዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ፣ የህብረተሰብ ጤና ትምህርት ቤት መጠይቁ
መለያ ቁጥር _____

ክፍል 1 የሶሻል የስነ

ሕዝብ አወቃቀር ሁኔታ

ጥያቄዎች	ምላሾች	ከድ
1 ዕድሜ በዓመታት	_____	
2 የጋብቻ ሁኔታ	1. ያላገባ 2. ያገባ 3. ባልቴት 4. የተፋታ	
3 የትምህርት ደረጃ	1. ያልተማረ 2. የመጀመሪያ ደረጃ ትምህርት 3. ሁለተኛ ደረጃ ትምህርት 4. ከኮሌጅ የተመረቀች።	
4 ምላሽ ሰጪዎች ሥራ	1. የቤት እመቤት 2. የመንግስት ሰራተኛ 3. የግል ንግድ 4. ተማሪ 5. ነጋዴ 7. ሌላ	
5 ወርሃዊ ገቢ	1. _____ -	

ክፍል 2: የስነ-ልቦና ጭንቀት

የ K10 ሙከራ

እነዚህ ጥያቄዎች ባለፉት 30 ቀናት ውስጥ ምን እንደተሰማዎት ያሳስባሉ። ከእያንዳንዱ ጥያቄ በታች ባለው ሳጥን ላይ ምልክት ያድርጉ እና እርስዎ እንዴት እንደነበሩ በተሻለ ሁኔታ ይወክላል።

ባለፉት 3 ወራት ውስጥ፣ የ HPV ፖዘቲቭ ምርመራ ካደረግሽ በኋላ ያለ በቂ ምክንያት ለምን ያህል ጊዜ የድካም ስሜት ይሰማዎታል?	አንድም ጊዜ	ትንሽ የጊዜ	አንዳንዶች ጊዜ
ባለፉት 3 ወራት ውስጥ፣ የ HPV ፖዘቲቭ ምርመራ ካደረግሽ በኋላ ምን ያህል ጊዜ የመረበሽ ስሜት ተሰማዎት?	1	2	3
ባለፉት 3 ወራት ውስጥ፣ የ HPV ፖዘቲቭ ምርመራ ካደረግሽ በኋላምንም ነገር ሊያረጋጋህ የማይችል ምን ያህል ጊዜ ድንጋጤ ተሰምቶህ ነበር?	1	2	3
ባለፉት 3 ወራት ውስጥ፣ የ HPV ፖዘቲቭ ምርመራ ካደረግሽ በኋላ ምን ያህል ጊዜ ተስፋ የመቁረጥ ስሜት ተሰማዎት?	1	2	3
ባለፉት 3 ወራት ውስጥ፣ የ HPV ፖዘቲቭ ምርመራ ካደረግሽ በኋላ ፣ ምን ያህል ጊዜ እረፍት ማጣት ስሜት ተሰማሽ?	1	2	3

ባለፉት 3 ወራት ውስጥ፣ የ HPV ፖዘቲቭ ምርመራ ካደረግሽ በኋላ ፣ ለምን ያህል ጊዜ ያህል የእረፍት ማጣት ስሜት ተሰምቶሽ ዝም ብለሽ መቀመጥ አልቻልሽም?	1	2	3
ባለፉት 3 ወራት ውስጥ፣ የ HPV ፖዘቲቭ ምርመራ ካደረግሽ በኋላ ፣ ምን ያህል ጊዜ የመንፈስ ጭንቀት ተሰማሽ?	1	2	3
ባለፉት 3 ወራት ውስጥ፣ የ HPV ፖዘቲቭ ምርመራ ካደረግሽ በኋላ ምንም ነገር ሊያስደስትሽ የማይችል ሀዘን ምን ያህል ተሰማሽ?	1	2	3
ባለፉት 3 ወራት ውስጥ፣ የ HPV ፖዘቲቭ ምርመራ ካደረግሽ በኋላ ሁሉም ነገር አድካሚ እንደሆነ ምን ያህል ጊዜ ተሰማሽ?	1	2	3

ክፍል 3: አስተዋጽዖ ምክንያቶች

ስለ HPV እውቀት እና ግንዛቤ		
1	HPV በተፈጥሮ በሽታ የመከላከል ስርዓት ሊጸዳ የሚችል የተለመደ ሻይረስ መሆኑን ያውቃሉ?	አዎ
		አይ
		እርግጠኛ አይደለሁም
2	ሁሉም የ HPV ኢንፌክሽኖች ወደ የማህፀን በር ካንሰር እንደማይመሩ ያውቃሉ?	አዎ
		አይ
		እርግጠኛ አይደለሁም
3	ውጤቶቻችሁን ከማግኘታችሁ በፊት አዎንታዊ የ HPV ምርመራ ውጤት ምን ማለት እንደሆነ ተነግሯችኋል?	አዎ
		አይ
		እርግጠኛ አይደለሁም
4	የ HPV በሽታ የማህፀን በር ካንሰር ይያዛሉ ማለት	አዎ
		አይ

	ነው ብለው ያምናሉ?	እርግጠኛ አይደለሁም
5	የማኅጸን በር ጫፍ ላይ ጉዳት ሳይደርስበት ለ HPV አዎንታዊ	አዎ
	የመመርመር እድል ያውቁ ነበር?	አይ እርግጠኛ አይደለሁም
6	ስለ HPV እና ስለ ጤና አንድምታው ባለዎት ግንዛቤ በራስ	አዎ
	መተማመን ይሰማዎታል?	አይ እርግጠኛ አይደለሁም
ማህበራዊ-ባህላዊ ግንዛቤዎች እና መገለል		
7	የ HPV በሽታ መያዙ ለቤተሰብዎ ነውር ነው ብለው	አዎ
	ያምናሉ?	አይ እርግጠኛ አይደለሁም
8	በ HPV በሽታ ስለተመረመሩ በሌሎች እንደሚፈረድብሽ	አዎ
	ይሰማ ሻል?	አይ እርግጠኛ አይደለሁም
9	በእርስዎ ማህበረሰብ ውስጥ፣ HPV ከ ተለያዮ ወንዶች ጋር	አዎ
	ግንኙነት ከ ማድረግ ጋር የተገናኘ	አይ እርግጠኛ አይደለሁም
	ነው የሚል እምነት አለ?	

10	መገለል ወይም መድልዎ በመፍራት ከሌሎች ጋር ስለምርመራዎ ከመወያየት ተቆጥበዋል?	አዎ
		አይ
		እርግጠኛ አይደለሁም
11	በማህበረሰብዎ ውስጥ ያሉ ባህላዊ ወይም ሃይማኖታዊ እምነቶች የ HPV ምርመራን ለመቋቋም አስቸጋሪ እንደሚሆኑ ይስማማዎታል?	አዎ
		አይ
		እርግጠኛ አይደለሁም
የግንኙነት ተለዋዋጭነት እና የአጋር ምላሽ		
12	የ HPV ምርመራዎን ለ ባለቤትዎ ስለማሳወቅ ተጨንቀዋል?	አዎ
		አይ
13	ባለቤትዎ ስለ HPV ምርመራዎ ሲነግሩደጋፊ ምላሽ ሰጥቷል?	አዎ
		አይ
14	ለምርመራዎ የህክምና ምክር ወይም ስሜታዊ ድጋፍ እንዲፈልጉ ባለቤትዎ አበረታቸዎታል?	አዎ
		አይ
15	የ HPV ምርመራዎ በግንኙነትዎ ላይ ባለው እምነት ላይ አሉታዊ ተጽዕኖ እንዳሳደረ ይስማማዎታል?	አዎ
		አይ
		እርግጠኛ አይደለሁም
16	ባለቤትዎለ HPV ምርመራ ተወቃሽ ዎታል?	አዎ
		አይ
		እርግጠኛ አይደለሁም
17	የ HPV ምርመራዎ በግንኙነትዎ ውስጥ ውጥረት ወይም ግጭት አስከትሏል?	አዎ
		አይ
የማጣሪያ አውድ እና የመከታተያ ሂደቶች		
18	ስለ HPV እና ስለ አወንታዊ ምርመራ ምንነት በቂ መረጃ ተሰጥቶዎታል?	አዎ
		አይ
		እርግጠኛ አይደለሁም

19	ከ HPV ምርመራዎ በኋላ የጤና ባለሙያዎ	አዎ
	የምክር ወይም የአእምሮ ጤና ድጋፍ ሰጥቷል?	አይ
20	የጤና ባለሙያዎ HPVን በተመለከተ የእርስዎን	አዎ

	ስሜታዊ ወይም ስነ-ልቦናዊ ስጋቶች እንደፈታች ይሰማዎታል	አይ እርግጠኛ አይደለሁም
21	በምርመራው ወቅት የጤና ባለሙያዎችን የግንኙነት ዘይቤ እንዴት ይገመግማሉ?	በጣም መጥፎ
		መጥፎ
		ገለልተኛ
		ጥሩ
		በጣም ጥሩ
22	የጤና ባለሙያዎ የክትትል ሂደቶችን በቀላሉ ሊረዱት በሚችሉበት መንገድ አብራርተዋል?	አዎ
		አይ
		እርግጠኛ አይደለሁም
23	አዎንታዊ የ HPV ውጤት ከተገኘ በኋላ ለክትትል ሂደቶች ተመርተዋል?	አዎ
		አይ
24	አዎ ከሆነ ' ስጋቶችዎን ለማቃለል የክትትል ሂደቶች በበቂ ሁኔታ እንደተብራሩ ይሰማዎታል?	አዎ
		አይ
25	የማጣራቱ ሂደት ስለ ጤናዎ ሁኔታ ግራ መጋባት እንዲሰማዎት አድርጓል?	አዎ
		አይ

Annex VIII: Training Manual for Data Collectors

Introduction:

The present manual will help the data gatherer to obtain information in a correct way for the studyentitled, _____ of Assessment of Psychological distress among women tested positive for HumanPapilloma Virus test in _____ Addis Ababa 2025. In this training, the objectives of the study, data acquisition methods, ethical issues, and practical and standardized data collection procedures will all be discussed.

Objectives of the Study are:

1. To determine the magnitude of Psychological Distress among women who screened positive for HPV in Addis Ababa.
2. To assess associated factors with Psychological Distress of women screened positive for HPV in Addis Ababa.
3. To explore lived experience of women who screened positive for HPV in Addis Ababa.

Training Objectives

After this training, data collectors will:

- Interpretive understanding of the background, importance, and aims of the study.
- Be able to apply data collection techniques accurately using structured software-based questionnaire.
- Show evidence of understanding the ethical guidelines, specifically in relation to requesting informed consent.

Sections of Training

1. **Study Background and Setting:** The study focuses on assessing magnitude and associated factors of Psychological Distress among women who screened positive for HPV in Addis Ababa. Women diagnosed with HPV often face psychological and emotional challenges. The stigma associated with sexually transmitted infections, combined with fears regarding potential cancer risks, can lead to anxiety, depression, and emotional distress. Understanding these psychological impacts is crucial for providing comprehensive care.
2. **Importance of the Study:** Improving Patient Care By identifying the psychological needs of women diagnosed with HPV, health care providers can tailor their approaches to provide better emotional and psychological support. The findings from this study may help inform public health policies and initiatives aimed at improving awareness, screening, and treatment services for women affected by HPV in Ethiopia. Additionally By highlighting the psychological impact of HPV, this study aims to foster greater awareness and understanding, thereby reducing stigma associated with the diagnosis and encouraging more women to seek screening and treatment.

Impact of HPV on Women's Health

Women diagnosed with HPV often face psychological and emotional challenges. The stigma associated with sexually transmitted infections, combined with fears regarding potential cancer risks,

can lead to anxiety, depression, and emotional distress. Understanding these psychological impacts is crucial for providing comprehensive care.

Need for Assessment of Psychological Distress

Research has indicated that women who screen positive for HPV may experience heightened levels of stress and psychological distress, which can adversely affect their healthcare-seeking behaviors and overall well-being. Assessing psychological distress is essential to identify the support needs of these women and develop targeted interventions.

Annex IX:Emerging themes ,sub themes and code

Themes	Description of themes	Sub-themes	Codes
Psychological feeling	It emphasizes emotional responses that women experience when healthcare professionals inform the results. It explores the complexities of their feelings, ranging from anxiety and fear to relief and hope, during these pivotal moments in their healthcare journey.	Positive feelings	wasn't fear
			Informed
			voluntarily
			I have awareness
			I had heard
		Negative feelings	Cried
			can be cancer
			shock and fear
			I lost sleep
			anxious
			Distressed
			Fear
			no information
		Able to reduce their negative feeling	more detailed diagnostic assessment
			emotional support
			Advice to reduce the stress
			health professionals
			reassured me
			Education
			He was supportive
			Seeing other women

			Faith
Sharing the result with their family	Emphasize whether women who tested positive for HPV chose to share their results with their families or kept them private.	Shared the result	shared with family
		Not shared the result	to avoid unnecessary stress
			Not shared with my family
Challenges in screening and Patient Follow-Up	Emphasize what challenges they faith during they disclose the result for the patients and other challenges with the screening and follow up process	Misconceptions and Disengagement	Lost to follow up Poor understanding Phone follow up Reaching women
		Challenges on counselling	Limited time Language difference Pretest counseling Counseling process confidentiality one to one counseling group counseling quality care work load patient flow
		Infrastructure and Facility Limitations	Lack of private room Narrowing of rooms Laboratory delays Accessibility of the rooms

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