

Are the Things Told to Care Providers Kept Confidential?: Perceived Breaches of Confidentiality and Associated Factors Among HIV/AIDS Clients on ART at Nekemte Specialized Hospital, Western Ethiopia, 2021

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Introduction: HIV clients' mistrust in providers' handling of their medical information can be a reason for them not to utilize services. Compromised confidentiality of HIV clients can affect the entire community, as other people may become reluctant to seek HIV testing and counseling. In Ethiopia, there are few data on perceived breaches of confidentiality among HIV/AIDS clients. Thus, this study aimed to assess perceived breaches of confidentiality and associated factors among people living with HIV (PLHIV) on anti-retroviral therapy (ART) at Nekemte Specialized Hospital, Western Ethiopia.

Methods: A facility-based cross-sectional study was conducted among 423 HIV/AIDS clients at Nekemte Specialized Hospital from January 15 to February 20, 2021. Data were collected by an investigator-administered questionnaire. Collected data were entered into EpiData version 3.1, and Stata version 14.0 was used for analysis. Bivariable and multivariable logistic regression analyses were performed. Variables with a *P*-value of <0.2 in the bivariable analysis were exported to the multivariable analysis. Adjusted odds ratios (AORs) with 95% confidence intervals (CIs) and *P*-values of <0.05 were used to report significantly associated variables.

Results: A total of 423 PLHIV were included in the study. Nearly one-fourth of the respondents (23.60%) had perceived breaches of confidentiality (95% CI 19.8–27.9%). Delayed ART start [(AOR 1.97) 95% CI (1.05–3.71)], being female [(AOR 4.03) 95% CI (2.14–7.59)], being widowed [(AOR 4.11) 95% CI (1.50–11.20)], college education and above [(AOR 10.89) 95% CI (3.93–30.14)], normal BMI [(AOR 2.72) 95% CI (1.06–6.99)], substance use [(AOR 1.93) 95% CI (1.04–3.58)], not knowing other ART user(s) [(AOR 2.89) 95% CI (1.53–5.47)], and CD4 count ≤ 200 cells/mm³ [(AOR 2.63) 95% CI (1.22–5.68)] were significantly associated variables.

Conclusion: One in four HIV/AIDS clients reported experiencing perceived breaches of confidentiality. Thus, early ART initiation, further HIV serostatus disclosure, and encouraging patients to decide on the type of care and information they want need to be strengthened in order to reduce breaches of confidentiality.

Keywords: breaches of confidentiality, ART initiation, care providers, HIV/AIDS clients, PLHIV

Introduction

Despite the creation of awareness and public education about HIV/AIDS that has been undertaken for several decades, stigma and discrimination continue to shape

much of society's reactions toward people living with HIV (PLHIV).^{1,2} It is difficult to forecast how PLHIV will respond, or how their lives may change, if and when their HIV-related medical information becomes known by others.³ This is why all PLHIV have the right to decide and control where, when, how, and to whom their HIV-related medical information can be disclosed.⁴⁻⁶

However, some healthcare providers easily leak clients' medical information, overlooking that this may lead to stigma. Besides, when accessing counseling, testing, and treatment services, HIV/AIDS clients are often concerned about the possibility of a breach of their HIV serostatus and the negative impacts that may follow. In the same way, HIV-positive individuals may experience two psychological conflicts: first, against relatives and friends who must not know their HIV serostatus; and second, against healthcare providers entrusted with confidential information. These factors can all lead to HIV-infected individuals becoming suspicious of their medical information and being a vulnerable group.⁷⁻⁹

Lack of trust by HIV clients in the healthcare providers' handling of medical information related to their HIV serostatus can be a reason for them not to utilize HIV-related healthcare services. Thus, efforts to reduce HIV-related stigma need a significant change in the attitudes and practices of health facility staff, and the quality of care provided.¹⁰

The persistent stigma related to HIV infection makes it necessary for clients to devise strategies and secretly use counseling, testing, and treatment services.¹¹ This may enable them to conceal their HIV status from some relatives and friends to avoid potential stigmatization. Therefore, clients need to be actors who can make the decision to use services in healthcare facilities in safety.

The consequences of compromising the confidentiality of PLHIV go beyond the individual. The harmful effects can be felt by an entire community; for instance, other community members will be more reluctant to be tested for HIV. If fewer people find out that they are HIV positive, the risk of further community HIV transmission is increased. In addition, breaches of confidentiality can create reasons for not seeking medical treatment or other services by people who need them.

In this study, a breach of confidentiality is defined as any divulgence of information by a healthcare provider without the express consent of the patient.¹² To our best of the research knowledge, there are limited data regarding the perception of breaches of confidentiality among HIV-infected people on anti-retroviral therapy (ART) in

Ethiopia, particularly in our study setting. However, such evidence is very important, to fill the information gap that exists and to improve the care provided to HIV/AIDS clients. Thus, this study aimed to assess perceived breaches of confidentiality and associated factors among PLHIV on ART at Nekemte Specialized Hospital.

Methods

Study Setting and Design

A facility-based cross-sectional study was conducted among 423 PLHIV on ART at Nekemte Specialized Hospital from January 15 to February 20, 2021. Nekemte Specialized Hospital is located in Nekemte town, the capital city of East Wollega Zone, Ethiopia. Nekemte town is located 328 km to the west of Addis Ababa. The hospital was established in 1940, and it started to provide ART services in 2005. Currently, about 2925 adult HIV-positive individuals are receiving ART services at the hospital.

Population and Sampling

The sample size was determined using a single population proportion formula considering the assumption of 95% confidence interval (CI), a margin of error of 5% ($d=0.05$), and taking 50% magnitude of perceived breach of confidentiality ($P=0.5$). The final sample size was 423 after a non-response rate (10%) was added. The source population comprised all HIV/AIDS clients attending the ART clinics at Nekemte Specialized Hospital. HIV/AIDS clients older than 15 years of age were eligible for the study. The study participants were recruited consecutively during their visit for follow-up, and data were obtained in a private room after they had finished their routine services.

Study Variables

The dependent variable was perceived breach of confidentiality.

Independent variables were: 1) socio-demographic characteristics (including age, sex, religion, residence, marital status, educational level, and occupation); 2) clinical characteristics (including baseline CD4 count, WHO clinical stage, functional status, body mass index [BMI], tuberculosis [TB]/HIV co-infection, baseline opportunistic infections, and HIV testing approach); 3) behavioral and social factors (use of traditional treatment, having a regular sexual partner, number of times tested for HIV, HIV disclosure status, level of social support, and knowing other ART user(s)).

Data Collection Instrument and Procedure

Data were collected using an interviewer-administered questionnaire. The questionnaire was developed from the national ART guideline, ART intake forms, and the comprehensive HIV Testing and Counseling format. The questionnaire contains both closed-ended questions and open-ended questions. The questionnaire was prepared in English and translated into the local language, Afaan Oromoo, for data collection, and then translated back to English to maintain its consistency. Each patient's chart was retrieved by using their registration number from the database. Patients were interviewed to obtain their socio-demographic characteristics. Relevant medical history and laboratory parameters were taken from the ART intake form and follow-up care form. One supervisor (BSc Public Health) and two data collectors (Clinical Nurses) participated in the data collection program. Quality of data was ensured through training and supervising the data collectors.

Data Management and Analysis

Collected data were entered into EpiData version 3.1, cleaned, and exported to Stata version 14.0 for analysis. Patient characteristics were reported as counts or percentages for categorical factors. Bivariable and multivariable logistic regression analyses were conducted to identify associated factors with perceived breaches of confidentiality. Those variables with a *P*-value of <0.2 in the bivariable analysis were exported to multivariable analysis. Adjusted odds ratios (AORs) with 95% confidence intervals (CIs) and *P*-values of <0.05 were used to select and report the factors significantly associated with perceived breaches of confidentiality in the final results.

Ethical Considerations

Ethical clearance was obtained from the Institutional Review Board of the Institute of Health Sciences, Wollega University. A formal letter of permission was obtained from the Medical Director of Nekemte Specialized Hospital. Study participants were recruited only after informed consent had been obtained from all of them. All obtained data were preserved confidentially and this study was conducted in accordance with the Declaration of Helsinki.

Definition of Terms

A perceived breach of confidentiality was defined as any divulgence of information by a healthcare provider without the express consent of the patient.¹²

Delayed ART initiation was defined as starting ART after 7 days following a confirmed positive HIV diagnosis.¹³

Traditional healing refers to knowledge, approaches, and health practices, incorporating plant, animal, and mineral-based medicines, spiritual therapies, manual techniques, and exercises, applied singularly or in combination to treat, diagnose, and prevent illnesses or maintain well-being.¹⁴

Results

Socio-Demographic Characteristics of the Study Participants

This study was conducted on a total of 423 HIV/AIDS clients on ART. Of all respondents, the majority of them (81.85%) were in the category 18–40 years of age. More than half of the respondents were female (54.61%) and more than half were Protestant in their religion (53.9%). More than two-thirds of respondents were urban dwellers (69.74%) and almost half of the respondents (49.65%) were married. Regarding educational status, over one-fourth of the respondents (26.24%) had attended college and above, and regarding occupation, 32.15% of respondents were housewives (Table 1).

Clinical Characteristics of the Study Participants

Less than half of respondents (44.21%) had a baseline CD4 cell count of >500 cells/mm³. Nearly two out of five respondents (37.5%) were classified under WHO clinical stage I. The majority of respondents (80%) were diagnosed with a working level of functional status; almost all respondents (90%) did not report TB/HIV co-infections and very few respondents (<1%) were diagnosed with baseline opportunistic infections other than TB. More than half (57.92%) of respondents had been tested for HIV via provider-initiated HIV testing and counseling (PITC) and about one-third of them were delayed in starting ART (Table 2).

Behavioral and Social Characteristics of the Study Participants

Among all respondents, almost two in three (65.72%) reported having a regular sexual partner, and the majority of respondents (70.45%) had been tested for HIV only once. Nearly three out of four (73.76%) respondents had disclosed their HIV serostatus. About three out of five respondents (58.87%) reported a history of substance use and practiced traditional healing (60.28%). Less than half

Table 1 Socio-Demographic Characteristics of HIV/AIDS Clients on ART at Nekemte Specialized Hospital, Western Ethiopia, 2021

Variables	Category	Frequency	Percentage (%)
Age in years	18–25	113	26.71
	26–32	116	27.42
	33–40	113	26.71
	≥41	81	19.15
Sex	Male	192	45.39
	Female	231	54.61
Religion	Protestant	228	53.9
	Orthodox	151	35.7
	Muslim	39	9.22
	Other	5	1.29
Residence	Rural	128	30.26
	Urban	295	69.74
Marital status	Single	96	22.7
	Married	210	49.65
	Divorced	80	18.91
	Widowed	37	8.75
Educational level	Write and read only	97	22.93
	Primary school	142	33.57
	Secondary school	73	17.26
	College and above	111	26.24
Occupation	Unemployed	13	3.07
	Student	28	6.62
	Employed	77	18.20
	Daily laborer	40	9.46
	Farmer	47	11.11
	Merchant	47	11.11
	Housewife	136	32.15
	Other*	35	8.27

Note: *Drivers, house servants, cleaners.

(41.84%) of the respondents knew other ART user(s), and only a few of them had a strong level of social support (7.09%) and reported the presence of communication barriers during the HIV test (7.09%) (Table 3).

Magnitude of Perceived Breaches of Confidentiality

Nearly one out of four HIV/AIDS clients had perceived breaches of confidentiality concerning their HIV-related medical information in the study area. Of 100 respondents who perceived breaches of confidentiality, nearly half (48%) of them had a history of delayed ART initiation and the majority (72%) of them were female (Figure 1).

Table 2 Clinical Characteristics of HIV/AIDS Clients on ART at Nekemte Specialized Hospital, Western Ethiopia, 2021

Variables	Category	Frequency	Percentage (%)
Baseline CD4 cell count	≤200 cells/mm ³	79	18.68
	201–350 cells/mm ³	78	18.44
	351–500 cells/mm ³	79	18.68
	>500 cells/mm ³	187	44.21
Baseline WHO clinical stage	WHO stage I	158	37.35
	WHO stage II	111	26.24
	WHO stage III	125	29.55
	WHO stage IV	29	6.86
Functional status	Working	351	82.98
	Ambulatory	35	8.27
	Bedridden	37	8.75
TB/HIV co-infection	Yes	43	10.17
	No	380	89.83
Baseline OIs other than TB	Yes	4	0.95
	No	419	99.05
BMI	Normal	262	61.94
	Mild underweight	97	22.93
	Moderate/severe underweight	64	15.13
HIV test approach	PITC	245	57.92
	VCT	178	42.08
Delayed ART start	Yes	144	34.04
	No ART	279	65.96

Abbreviations: CD4, cluster of differentiation 4; WHO, World Health Organization; TB, tuberculosis; HIV, human immunodeficiency virus; OI, opportunistic infection; BMI, body mass index; PITC, provider-initiated testing and counseling; VCT, voluntary counseling and testing; ART, anti-retroviral therapy.

Perceived Breaches of Confidentiality: Brief Explanation

Those respondents who perceived breaches of confidentiality were given the chance to discuss or explain how and where they experienced the breaches of their HIV-related medical information. Accordingly, most of the respondents gave their reflection and these reflections were summarized into three main categories to answer the questions of “where” and “how” the breaches of confidentiality were experienced, and then applied to the way that they perceived the breaches of confidentiality (Table 4).

Regarding areas where the respondents experienced breaches of confidentiality in the Nekemte Specialized Hospital, six potential areas were identified. Respondents mentioned these breaches and explained them briefly from their

Table 3 Behavioral and Social Characteristics of HIV/AIDS Clients on ART at Nekemte Specialized Hospital, Western Ethiopia, 2021

Variables	Category	Frequency	Percentage (%)
Have regular sexual partner	Yes	278	65.72
	No	145	34.28
How often tested for HIV	Once	298	70.45
	Twice and above	125	20.55
Disclosed HIV status	Yes	312	73.76
	No	111	26.24
Ever used substance	Yes	249	58.87
	No	174	41.13
Practice traditional healing	Yes	255	60.28
	No	158	39.72
Know other ART user(s)	Yes	177	41.84
	No	246	58.16
Location of ART clinic	Within catchment	345	81.56
	Out of catchment	78	18.44
Communication barrier during HIV test	Yes	30	7.09
	No	393	92.91
Level of social support	Poor	203	47.99
	Medium	190	44.92
	Strong	30	7.09

Abbreviations: ART, anti-retroviral therapy; HIV, human immunodeficiency virus.

point of view. Consequently, the ART clinic's open location, inpatient/ward admission, provider approaches, medication refilling area, the way that clients transferred/linked, and the laboratory request form were issues raised by the respondents. In particular, a large number of respondents (88) complained about the ART clinic's open location, while many other respondents (63) complained about the care providers' approach (Figure 2).

Factors Associated with Perceived Breaches of Confidentiality

Bivariable Analysis

Binary logistic regression model analysis was computed to identify potential factors. Accordingly, 17 potential independent variables were found to be associated with the outcome variable at a *P*-value of <0.2 and were considered as

Perceived Breaches of Confidentiality

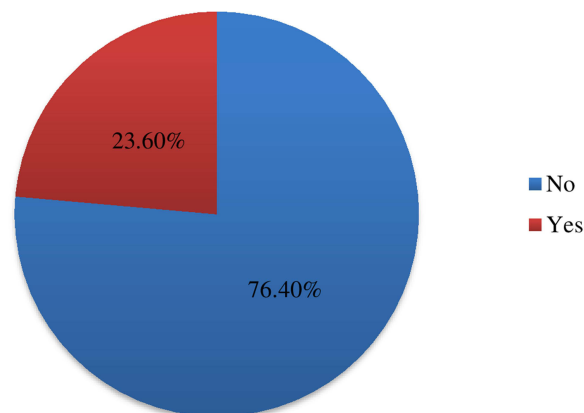


Figure 1 Perceived breaches of confidentiality among HIV/AIDS clients on ART at Nekemte Specialized Hospital, Western Ethiopia, 2021.

candidates for the multivariable logistic regression model (Table 5).

Multivariable Analysis

The multivariable logistic regression analysis was conducted on the 17 candidate variables. Eight variables (sex, marital status, educational level, delayed ART start, baseline CD4 count, nutritional status, and substance use) remained significantly and independently associated with perceived breaches of confidentiality among HIV/AIDS clients at a *P*-value of <0.05.

Accordingly, respondents with a delayed ART start had a two-fold higher perceived breach of confidentiality compared to their counterparts [(AOR 1.97) 95% CI (1.05–3.71)]. Female respondents were four times more likely to have perceived breaches of confidentiality compared to male respondents [(AOR 4.03) 95% CI (2.14–7.59)]. Widowed respondents were four times more likely to have perceived breaches of confidentiality compared to those who were married [(AOR 4.11) 95% CI (1.50–11.20)].

Respondents who had completed primary school, secondary school, and college and above were eight, 16, and 11 times more likely to have perceived breaches of confidentiality [(AOR 7.89) 95% CI (2.92–21.33), (AOR 16.37) 95% CI (5.57–48.08), and (AOR 10.89) 95% CI (3.93–30.14), respectively] compared to respondents with no formal education.

Respondents with normal BMI were three times more likely to have perceived breaches of confidentiality compared

Table 4 Concepts Raised by HIV/AIDS Clients at Different Working Units of the Hospital, With Explanation and Application to Perceived Breaches of Confidentiality

Areas Where PBC Experienced	Explanation	Application to Perceived Breaches of Confidentiality
ART clinic open location	The ART unit is positioned and located where everyone can see who enters or exits	The HIV/AIDS clients fear that their relatives, friends, and co-workers may see them entering or coming out of the clinic and suspect them of having the disease.
Client transfer/linkage	Telling the runners on the corridor to take clients to the ART clinic	Open discussion between the provider who conducted the HIV test and the runners heard and seen by other clients in the waiting section.
Providers' approaches	Some providers talk too much	Speaking providers can easily disclose the clients' status, forgetting that this may lead to stigmatization of the clients.
Ward admission	Putting the HIV clients at the side of the ward	Most of the time, nurses in the ward gave less nursing care to HIV clients than to other patients. Besides, some nurses isolated HIV clients to a corner of the ward in order to have less contact with them, so that clients were often exposed or known to other patients.
Follow-up/refill	Contact with new providers at different follow-up appointment	Clients having contact with new care providers at different follow-up appointments may fear for their privacy if they suspect that other non-medical staff may know their medical information.
Investigation	Investigation request form contains the client's address and status	The ART clinic unit and laboratory unit are located at different places in the hospital, and HIV/AIDS clients receive the investigation request form that includes their full address and health status, and cross a number of corridors in between the locations where they may meet other individuals. The laboratory technicians are also aware of their status based on the address on the request and treat them differently, to the extent that they are known by other patients sitting around waiting for their turn.

Abbreviations: HIV, human immunodeficiency virus; AIDS, acquired immune deficiency virus; PBC, perceived breach of confidentiality; ART, anti-retroviral therapy.

to underweight respondents [(AOR 2.72) 95% CI (1.06–6.99)]. Respondents who had ever used substances were two-fold more likely to have perceived breaches of confidentiality than non-users [(AOR 1.93) 95% CI (1.04–3.58)]. Respondents who did not know other ART user(s) were three times more likely to have perceived breaches of confidentiality compared to their counterparts [(AOR 2.89) 95% CI (1.53–5.47)]. The odds of a perceived breach of confidentiality were two-fold higher among participants with a baseline CD4 count of ≤ 200 cells/mm³ compared to those with >500 cells/mm³ [(AOR 2.63) 95% CI (1.22–5.68)] (Table 6).

Discussion

The right to privacy or confidentiality is a fundamental human right in every country in the world. It is also the fundamental determinant of healthcare-seeking behavior of patients/clients who have an illness leading to social isolation, discrimination, and stigma. In this regard, HIV/AIDS is among the medical illnesses known to cause

discrimination and stigma not only in the community but also in the healthcare setting.¹⁵ Basically, maintaining confidentiality can create an ethical dilemma between respecting the autonomy of the patient and endangering the life of the community at large. Research has shown that maintaining confidentiality is a cornerstone of successful ART through improving the adherence to ART of PLHIV.^{16,17} On the contrary, breach of confidentiality is the leading cause of low healthcare-seeking behavior among HIV-positive patients, low ART adherence, and traveling long distances to access ART.^{16,18} Moreover, it may also be the leading cause of an increased incidence of HIV infection and HIV-related mortality and morbidity in Ethiopia. This is the most cited reason for HIV patients receiving HIV-related care from a health facility which is located far from their place of residence.¹⁹ Therefore, this study aimed to determine the level of perceived breaches of confidentiality and their associated factors among HIV-positive patients attending the ART clinic of Nekemte Specialized Hospital.

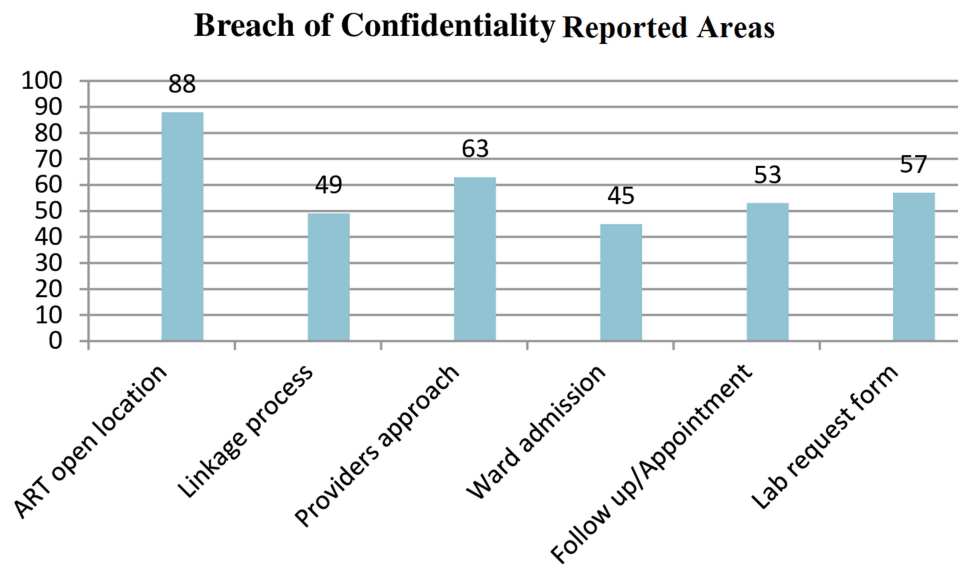


Figure 2 Areas where breaches of confidentiality were perceived among HIV/AIDS clients on ART at Nekemte Specialized Hospital, Western Ethiopia, 2021.

According to the present study, nearly one-fourth of the participants had perceived a breach of confidentiality. This result echoes the finding of a study from the Islamic Republic of Iran.²⁰ In addition, patients' medical information being breached by physicians or nurses was mentioned in HIV-related studies from Zambia, Malawi, and Senegal.^{3,21,22} Furthermore, congruent with the current study findings, a study from Indonesia showed that confidentiality is poorly taught and systematically breached in practice.²³ However, in contrast to the current study, a study from South Africa revealed that participants believed that their HIV status was kept confidential.²⁴ The observed discrepancy may be due to socio-cultural variations among the populations of interest, and bureaucratic differences in breaching confidentiality.

The present study also found important factors affecting perceived breaches of confidentiality among PLHIV. Accordingly, the likelihood of a perceived breach of confidentiality was two-fold higher among PLHIV who experienced delayed ART initiation compared to their counterparts. This may be attributed to a fear of stigma related to a confidentiality breach, which further leads to delayed ART initiation, low ART adherence, opportunistic infections, and poor clinical outcomes. This is a major health system challenge which must be resolved to prevent and control HIV infection in the community. In addition, the odds of a perceived breach of confidentiality were four times higher among female patients compared to their male counterparts. This may be explained by a biological difference between females and males in terms of their

psychological/emotional reaction to a given circumstance. Likewise, widowed women were four times more likely to have perceived a breach of confidentiality compared to married women. This may be due to widowed women being more worried about their future life, such as marrying, childbearing, and social relations. Besides, widowed women are already stigmatized and discriminated against in the community, so that their perception of confidentiality being breached is high.

Furthermore, patients with a baseline CD4 cell count ≤ 200 cells/mm³ were 2.63 times more likely to have perceived a breach of confidentiality compared to those with a baseline CD4 cell count >500 cells/mm³. A possible reason is that an abnormal CD4 cell count of 200 or fewer indicates an advanced stage of the disease (AIDS) and a high risk of life-threatening opportunistic infections.²⁵ These patients lose physical strength, with weight loss and decreased muscle mass, have repeated skin infections, are frequently absent from work, and may have an increased number of hospital visits. During their hospital visits, they may observe and notice the hospital environment more, as well as the providers' approach, including the care they provide. The current study also found that the literacy status of the HIV/AIDS clients had an influence on their level of perceiving breaches of confidentiality of HIV-related medical information. Accordingly, the more educated patients were more likely to perceive a breach of confidentiality compared to those who had a low educational level. This may be due to educated people being able to acquire or gather information from multiple

Table 5 Results of Bivariable Analysis and Factors Associated with Breaches of Confidentiality Among HIV/AIDS Clients on ART at Nekemte Specialized Hospital, Western Ethiopia, 2021

Variables	Category	PBC			P-Value	95% CI
		Yes	No	COR		
Delayed ART start	Yes	48	96	2.18	0.001	1.37–3.45
	No	52	227	1		
Sex	Male	28	164	1	0.000	1.62–4.32
	Female	72	159	2.65		
Marital status	Single	22	74	1.18	0.561	0.66–2.13
	Married	42	168	1	–	–
	Divorced	21	59	1.42	0.25	0.77–2.59
	Widowed	15	22	2.72	0.008	1.30–5.70
Educational level	Write and read only	10	87	1	–	–
	Primary school	31	111	2.42	0.023	1.12–5.22
	Secondary school	25	48	4.53	0.000	2.00–10.22
	College and above	34	77	3.84	0.001	1.78–8.28
Residence	Rural	18	110	1	0.003	1.34–4.11
	Urban	82	213	2.35		
Baseline OIs	Yes	97	322	9.95	0.048	1.02–96.83
	No	3	1	1		
Nutritional status	Normal	74	188	2.75	0.012	1.25–6.05
	Mild underweight	18	79	1.59	0.310	0.64–3.92
	Moderate/severe underweight	8	56	1	–	–
HIV test approach	PITC	68	177	1.75	0.02	1.09–2.81
	VCT	32	146	1	–	–
Have regular sex partner	Yes	53	225	1	0.002	1.28–3.22
	No	47	98	2.03		
How often tested for HIV	Once	64	234	1	0.107	0.91–2.37
	Twice and above	36	89	1.47		
Disclosed HIV status	Yes	67	245	1	0.08	0.94–2.52
	No	33	78	1.54		
Ever used substance	Yes	70	179	1.87	0.01	1.16–3.03
	No	30	144	1		
Ever used traditional healing	Yes	72	183	1.96	0.007	1.20–3.20
	No	28	140	1		
Know other user(s)	Yes	31	146	1	0.13	1.13–2.95
	No	69	177	1.83		
Location of ART clinic	Within catchment area	87	258	1.68	0.111	0.88–3.20
	Out of catchment area	13	65	1		
Baseline CD4 cell count	≤200 cells/mm ³	28	51	2.65	0.001	1.46–4.83
	201–350 cells/mm ³	19	59	1.55	0.175	0.82–2.96
	351–500 cells/mm ³	21	58	1.75	0.079	0.93–3.28
	>500 cells/mm ³	32	155	1	1	–
Level of social support	Poor	64	139	2.99	0.049	1.00–8.93
	Medium	32	158	1.31	0.63	0.42–4.03
	Strong	4	26	1	–	–

Abbreviations: PBC, perceived breach of confidentiality; ART, anti-retroviral therapy; OI, opportunistic infection; HIV, human immunodeficiency virus; PITC, provider-initiated testing and counseling; VCT, voluntary counseling and testing; CD4, cluster of differentiation 4; COR, crude odds ratio; CI, confidence interval.

Table 6 Results of Multivariable Analysis and Factors Associated with Breaches of Confidentiality Among HIV/AIDS Clients on ART at Nekemte Specialized Hospital, Western Ethiopia, 2021

Variables	Category	PBC		AOR	P-Value	95% CI
		Yes	No			
Delayed ART start	Yes	48	96	1.97	0.034	1.05–3.71
	No	52	227	1		
Sex	Male	28	164	1	0.000	2.14–7.59
	Female	72	159	4.03		
Marital status	Single	22	74	1.13	0.73	0.54–2.37
	Married	42	168	1		
	Divorced	21	59	1.17		
	Widowed	15	22	4.11		
Educational level	Write and read only	10	87	1	0.000	2.92–21.33
	Primary school	31	111	7.89		
	Secondary school	25	48	16.37		
	College and above	34	77	10.89		
Residence	Rural	18	110	1	0.058	0.97–3.65
	Urban	82	213	1.89		
Baseline OIs	Yes	97	322	9.11	0.091	0.70–118.33
	No	3	1	1		
Nutritional status	Normal	74	188	2.72	0.037	1.06–6.99
	Mild underweight	18	79	1.78		
	Moderate/severe underweight	8	56	1		
HIV test approach	PITC	68	177	1.51	0.170	0.83–2.74
	VCT	32	146	1		
Have regular sex partner	Yes	53	225	1	0.06	0.97–3.74
	No	47	98	1.78		
How often tested for HIV	Once	64	234	1	0.709	0.60–2.10
	Twice and above	36	89	1.12		
Disclosed HIV status	Yes	67	245	1	0.056	0.98–3.72
	No	33	78	1.91		
Ever used substance	Yes	70	179	1.93	0.036	1.04–3.58
	No	30	144	1		
Used traditional healing	Yes	72	183	1.60	0.176	0.80–3.19
	No	28	140	1		
Know other user(s)	Yes	31	146	1	0.001	1.53–5.47
	No	69	177	2.89		
Location of ART clinic	Within catchment	87	258	1.24	0.581	0.57–2.71
	Out of catchment	13	65	1		
Baseline CD4 cell count	≤200 cells/mm ³	28	51	2.63	0.013	1.22–5.68
	201–350 cells/mm ³	19	59	1.27		
	351–500 cells/mm ³	21	58	1.87		
	>500 cells/mm ³	32	155	1		
Level of social support	Poor	64	139	2.24	0.252	0.56–8.99
	Medium	32	158	1.04		
	Strong	4	26	1		

Abbreviations: PBC, perceived breach of confidentiality; ART, anti-retroviral therapy; OI, opportunistic infection; HIV, human immunodeficiency virus; PITC, provider-initiated testing and counseling; VCT, voluntary counseling and testing; CD4, cluster of differentiation 4; AOR, adjusted odds ratio; CI, confidence interval.

sources during their medication follow-up.^{26,27} They may hear different languages, and read leaflets, laboratory requests, radiology examination requests, medication prescriptions, medical registration charts, and information on open desktop computers. So, in cases where they hear or see HIV-related medical information on themselves and/or on other patients, they become more suspicious about the handling of the information.

This study also found that patients who use substances were two-fold more likely to have perceived a breach of confidentiality compared to non-users. This may imply that individuals who practice substance use (smoking, drinking alcohol, chewing chat, etc) from the beginning have low societal acceptance.²⁸ Though, when their underlying conditions are exacerbated or doubly burdened by HIV/AIDS, they may have doubts about the way in which services are provided and the providers' approaches. In addition, patients who did not know other ART user(s) were three times more likely to have perceived a breach of confidentiality compared to those who knew other ART user(s). The only possible way to know another ART user is through a patient disclosing their HIV-positive serostatus. Disclosing one's own HIV-positive serostatus can have positive consequences for the health and lives of PLHIV. They may receive strong social support, improve their adherence to medication, and increase the health-seeking behavior of other individuals and their trust in the services being provided.²⁹ Hence, patients who do not know other ART user(s) may lack information on how much their HIV-related medical information will be kept confidential and be apprehensive toward the providers' approach and services delivered. Moreover, the odds for a perceived breach of confidentiality were three-fold higher in patients with normal nutritional status (BMI 18.5–24.9 kg/m²) compared to underweight patients. Patients with normal nutritional status may have conserved their immunity and may not be clinically ill, which may be reflected by poor adherence to provided care and counseling.^{30,31} As they may feel healthy, since their body defenses are still competent and protecting them from invading pathogens, they may even doubt the effectiveness of ART drugs. So, they may not want to be seen or known as HIV-infected individuals, and to overcome these challenges they suspect that care providers may expose their HIV-related medical information.

Limitations

Although this is a prime area of interest, there is limited literature to compare and contrast with the present study findings. As this is a cross-sectional study, it is difficult to determine temporal relationships. It would have been better if the quantitative findings had been supplemented by qualitative findings.

Conclusion

In general, the magnitude of perceived breaches of confidentiality among PLHIV was high in the study area. The study found that delayed ART initiation, being female, being a widowed woman, and having a low CD4 count (≤ 200 cells/mm³) were independent determinants of perceived breaches of confidentiality. Therefore, there is a need to develop clear and comprehensive guidelines and policies that enhance the protection of privacy and confidentiality in order to reduce breaches of confidentiality. Moreover, there is a need for increased awareness in PLHIV on the procedures of keeping information secret and conditional circumstances demanding a breach of confidentiality. In addition, future researchers should undertake a mixed study design to underpin the quantitative study findings, and care providers' perspectives need to be incorporated.

Abbreviations

AIDS, acquired immune deficiency syndrome; AOR, adjusted odds ratio; ART, anti-retroviral therapy; BMI, body mass index; CD4, cluster of differentiation 4; CI, confidence interval; HIV, human immunodeficiency virus; OI, opportunistic infection; PITC, provider-initiated testing and counseling; PLHIV, people living with human immunodeficiency virus; TB, tuberculosis; VCT, voluntary counseling and testing; WHO, World Health Organization.

Data Sharing Statement

All datasets used and analyzed in the present study are included in this manuscript.

Ethical Approval and Consent to Participants

Ethical endorsement was gained from the Institutional Review Board of the Institute of Health Sciences, Wollega University. A formal permission letter was obtained from the administrative body of Nekemte Specialized Hospital.

Informed consent was taken from each study participant before the data collection started. All data were collected anonymously and maintained with confidentiality. All the procedures of data collection were conducted according to the principles of the Declaration of Helsinki.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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The authors declare that they have no competing interests.

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