International Journal of Scientific Reports
Yemane TT et al. Int J Sci Rep. 2026 Jun;12(6):233-240
https://www.sci-rep.com
pISSN 2454-2156 | eISSN 2454-2164
DOI: https://dx.doi.org/10.18203/issn.2454-2156.IntJSciRep20261489

Original Research Article

Substance abuse and its associated factors among HIV/AIDS patients at Dessie Comprehensive Specialized Hospital, Northeast Ethiopia, 2025

Tesfalem T. Yemane[1]* Telahun K. Tefera[2], Kedir A. Yesuf[2]

[1]Research and Community Service Unit, Dessie Health Science College, Dessie, Ethiopia
[2]Department of Nursing, Dessie Health Science College, Dessie, Ethiopia

Received: 24 April 2026
Accepted: 14 May 2026

***Correspondence:**
Dr. Tesfalem T. Yemane,
E-mail: tesfalemtilahun@gmail.com

ABSTRACT

Background: Substance use refers to the consumption of psychoactive substances such as alcohol, tobacco, illicit drugs. Substance use among individuals living with HIV AIDS is a significant public health issue. The World Health Organization (WHO) estimates that globally about 25- 90% of HIV AIDS patients engage in substance use. In Ethiopia, magnitude of HIV AIDS was 3.69% in 2022/2023. Therefore, this study was to identify the magnitude of substance use and associated factor among HIV/AIDS patients at Dessie Comprehensive Specialized Hospital, Ethiopia.
Methods: A cross-sectional study was conducted from November to December 2025, involving 422 participants selected through stratified random sampling. Data were collected via structured face-to-face interviews and analyzed using statistical package for the social sciences (SPSS). Logistic regression identified factors associated with substance use.
Result: this study showed that 20.8% of HIV-positive individuals reported substance use, with khat (64.2%) and alcohol (29.8%) being the most common substances. Males were four times more likely to use substances than females. Substance use history, peer substance use, and depression were significantly associated with increased substance use.
Conclusion: These findings emphasize the need for integrated care approaches that combine HIV treatment with substance use interventions. It recommends routine screening for substance use and mental health disorders, gender-sensitive and peer-based interventions, and policy changes to improve access to comprehensive care for individuals living with HIV.

Keywords: HIV, Substance use, Prevalence, Khat, Alcohol

INTRODUCTION

Substance use, including alcohol, tobacco, khat, and illicit drugs, has been a long-standing human practice dating back to ancient times.[1,2] Psychoactive substance use can lead to dependence syndrome cluster of behavioral, cognitive, and physiological phenomena that develop after repeated substance use. Substance use is a broad term that covers taking of all substances within which there are stages.[3] Globally, an estimated 37.9 million people were living with HIV in 2020.[4] In Ethiopia, the adult prevalence is approximately 1.2%, but among this population, substance use is disproportionately high, with studies suggesting that 20% to 50% of people living with HIV (PLHIV) engage in substance use.[5-7] This dual burden of HIV and substance use disorder (SUD) creates a cyclical problem: substance use exacerbates mental health conditions, increases risky behaviors, and drives social isolation through worsened stigma and discrimination.[8] Individuals living with HIV are often at increased risk for substance use disorders (SUDs) and it adversely affect their adherence to antiretroviral therapy (ART), lead to poor health outcomes and increase the potential for transmission to others.[9] Substance use can worsen health problems, complicate treatment regimens, and lead to co-infections and other chronic health issues.[3] Substance use among HIV/AIDS patient's increases healthcare costs, worsens health outcomes by impairing ART and

immunity, raises HIV transmission risk through risky behaviors, and intensifies stigma and social isolation. It also contributes to unemployment and reduced productivity.[10,11]

Adolescent substance abuse varies by substance type and region. Reported ranges are 11.3–60% for alcohol, 9.7–74% for khat, and 2–56.5% for tobacco. In eastern Africa, youth regular alcohol use was 52% and occasional use was 15%.[11] Substance use among people living with HIV/AIDS is increasing, and global estimates project growth from about 1.3 billion to 1.7 billion people by 2025.[4,30] Prevalence is 53% in developed countries and 6%–29.8% in Africa.[8,12] Across studies, prevalence ranges from 2% in Ethiopia to 56% in Nigeria.[13,14] Pooled lifetime prevalence across 53 studies was 21.0%, highest in Southern Africa (25.0%) and lowest in West Africa (17.0%); Zambia (40.0%) was highest and Sierra Leone (4.0%) lowest.[15-17] In sub-Saharan Africa, pooled adolescent prevalence is 41.6%, highest in Central Africa 55.5%, then East Africa 48.99%, and West Africa 38.3%.[18] In Ethiopia, 18.4% in Mezan Tepi, 31.8% alcohol use disorder in Hawassa, and an Addis Ababa study linking higher HIV rates with alcohol consumption among ages 15–24.[18-21]

Factors associated with substance use among people living with HIV/AIDS include socio-demographic characteristics such as age, sex, marital status, residence, educational status, and income, as well as individual factors like stress, depression, and ART adherence.[10,11,15,22-27] Social and environmental influences such as having poor social support, family and friends' substance use history, prevailing social norms, and availability of substances also contribute.[11,15,19,23,28-33] Substance use is a major public health issue, especially with stigma and limited healthcare access. The study aims to assess prevalence and factors at Dessie Comprehensive Specialized Hospital to guide integrated interventions and improve adherence, outcomes, and stigma reduction.

METHODS

Study design, setting and period

A facility based cross sectional study design was conducted at Dessie Comprehensive Specialized Hospital (DCSH) from November 25 to December 25, 2025. DCSH is a healthcare facility located in Dessie, a city in the Amhara region of Ethiopia. Dessie located about 400 km from Addis Ababa, the capital city of Ethiopia. DCSH provides service for more than five million people of South Wollo and neighboring zones and regions.

In addition to the general services, the hospital also provides ART follow-up care services since 2005. Currently, more than 10,000 patients are on active follow-up, of who over 7832 started highly active antiretroviral treatment (HAART).

Study participants

The source population included all HIV patients receiving care and treatment at DCSH. The study population consisted of HIV patients receiving care at DCSH who were available during the data collection period. Patients who were critically ill during data collection were excluded.

Sampling size determination and procedure

A sample size of 422 was determined using the single population proportion method, with 50% assumed prevalence, 95% confidence level, 5% margin of error, and 10% non-response. After considering all primary and secondary objectives and adding 10% incomplete data, the largest required sample was 422. Finally, 422 HIV/AIDS patients on follow-up were selected from ART clinic visitors using systematic random sampling. A sampling interval of 18 (k=18) was used to choose the study participants.

Data collection instrument and procedures

After reviewing various literatures, data collection tool was prepared.[7,10,19,21] Data were collected using interviewer-administered structured questionnaires. Two health science students conducted the interviews under supervision of the principal investigator. Before data collection, all data collectors received one day of training on study objectives, how to administer the questionnaire, obtaining verbal assent, participants' right not to join, and how to handle unclear questions.

Variables of the study

In this study, the dependent variable was substance use, categorized as yes or no. The independent variables included socio-demographic characteristics (age, sex, educational status, place of birth, income, and type of work), individual factors (perceived risk of substance use, perceived benefits, age at HIV diagnosis, ART adherence, stress, and depression), social influences (family support, family substance use history, friends' substance use history, and social norms), and environmental factors (availability and accessibility of substances).

Operational definitions

Substance use- substances are any non-medical chemicals (including Khat, cigarette, alcohol, shisha etc.) that affect brain activity artificially and induce temporary happiness.

Data processing and analysis

Data were entered and cleaned in statistical package for the social sciences (SPSS) version 26. Descriptive statistics (frequencies, proportions, percentages) summarized the variables. Associations between substance use and independent factors were assessed using logistic

regression. Variables with p<0.25 were selected for multivariable logistic regression at 95% confidence. Multivariable analysis identified statistically significant factors (p<0.05), and odds ratios were used to interpret associations. Model fit was evaluated using the Hosmer and Lemeshow goodness-of-fit test.

Data quality management and control

Data were collected by trained health science students. Questionnaires were translated from English to Amharic and back to English for consistency, and the Amharic version was used in interviews. The tools were pretested on 5% of HIV patients at Dessie Health Center ART clinic before the main study.

After collection, the principal investigator coded each questionnaire. Data were entered using double entry to reduce errors, and 5% of the entered data were rechecked against the original questionnaires. Frequency was used to check for missed values and outliers. The researcher reviewed completed questionnaires daily for completeness and consistency, taking corrective action when needed.

RESULTS

Socio-demographic characteristics

A total of 419 patients were included in the final analysis, yielding a response rate of 99.3%. The mean age of participants was 41.23 years, and 226 (53.9%) were female. The largest age group consisted of those over 45 years 193 (46.1%), followed by the 35–44 years 106 (25.3%).

Regarding monthly income, most participants 174 (41.5%) earned between 1,647 and 4,537 Birr, nearly half of the respondents 197 (47.0%) were married. In terms of education, the largest proportion had completed primary school 144 (34.4%), followed by secondary education 103 (24.6%). Finally, most participants 270 (64.4%) resided in urban areas (Table 1).

Social and other factors prevalence of substance uses among HIV/AIDS

This study indicated that significant portion of respondents were government employees 100 (23.9%). Regarding to educational status of partners, 222 (53.0%) participants did not specify or were missing information. Among those who responded, 33 (7.9%) indicated their partners couldn't read or write, 54 (12.9%) had partners who completed only primary school, 47 (11.2%) said their partners could read and write without formal schooling. More than half of the participants 232(55.4%) reported that substance use was a positive social norm. Regarding peer influence, 101 (24.1%) stated that their best friend used substances, whereas the majority, 318 (75.9%), reported their best friend did not. Similarly, sibling influence appeared relatively low, with 325 (77.6%) reported that their siblings did not use substances, implying only 94 (22.4%) had a sibling with a history of substance use (Table 2).

Individual level factors affect prevalence of substance uses among HIV/AIDS

Nearly all respondents (414, 98.8%) are on ART. Most have lived with HIV for over five years (324, 77.3%). About a quarter (101, 24.1%) have other chronic illnesses. Adherence to ART medication schedules varied: the majority, 281 (67.1%), reported always adhering to their ART schedule, followed by 105 (25.1%) who adhered most of the time, 22 (5.3%) who adhered sometimes, and 11 (2.6%) who adhered rarely (Table 3).

Table 1: Socio demographic factors affect prevalence of substance use and associated factors among HIV/AIDS patients at Dessie Comprehensive Specialized Hospital, North-east Ethiopia, 2025.

Variable	Category	Frequency	Percent
Sex	Female	226	53.9
	Male	193	46.1
Age of respondent (years)	18-24	36	8.6
	25-34	84	20.0
	35-44	106	25.3
	Above 45	193	46.1
Income	1647	86	20.5
	1647–4537	174	41.5
	>4537	141	33.7
Marital status	Divorced	83	19.8
	Married	197	47.0
	Single	79	18.9
	Widowed	60	14.3
Educational status	College and above	77	18.4
	No educational status	95	22.7
	Primary education	144	34.4

Continued.

Variable	Category	Frequency	Percent
	Secondary education	103	24.6
Residence	Rural	149	35.6
	Urban	270	64.4

Table 2: Social and other factors prevalence of substance uses among HIV/AIDS.

Variable	Category	Frequency	Percent
Occupation	Dail laborers'	81	19.3
	Farmer	99	23.6
	Government employee	100	23.9
	Other	53	12.6
	Private employee	81	19.3
	Street begging	5	1.2
Partner educational status	Did not specify	222	53.0
	Can't read and write	33	7.9
	Primary school only	54	12.9
	Read and write	47	11.2
	Secondary school and above	63	15.0
Social norm substance use history	No	187	44.6
	Yes	232	55.4
Did your best friend use substance	No	318	75.9
Did your siblings use substance	Yes	101	24.1
	No	325	77.6

Table 3: Individual level factors affect prevalence of substance uses among HIV/AIDS.

Variable	Category	Frequency	Percent
Are you currently on antiretroviral therapy (ART)?	No	5	1.2
	Yes	414	98.8
How long have you been living with HIV AIDS		1	0.2
	Less than one year	17	4.1
	More than five years	324	77.3
	One year up to five years	77	18.4
Have you been diagnosed with any other chronic illnesses?	No	318	75.9
	Yes	101	24.1
How often do you adhere to your ART medication schedule?	Always	281	67.1
	Most of the time	105	25.1
	Rarely	11	2.6
	Sometimes	22	5.3

Table 4: Psychosocial and environmental factors affect prevalence of substance uses among HIV/AIDS.

Variable	Category	Frequency	Percent
Have you experienced any form of stigma or discrimination related to your HIV status?	No	342	81.6
	Yes	77	18.4
Do you feel supported by your family or friends in managing your condition?	No	52	12.4
	Yes	367	87.6
How often do you feel stressed or anxious?	Never	102	24.3
	Often	92	22.0
	Rarely	98	23.4
	Sometimes	127	30.3
How often do you feel depression?	Never	103	24.6
	Often	89	21.2
	Rarely	116	27.7
	Sometimes	111	26.5

Psychosocial and environmental factors affect prevalence of substance uses among HIV/AIDS

Many participants, 342 (81.6%), reported no HIV-related stigma or discrimination. About 52 (12.4%) of the respondents stated they lacked support from family or friends. For stress/anxiety, responses were mixed: 30.3% sometimes, 23.4% rarely, 22.0% often, and 24.3% reported never feeling stressed or anxious. Regarding feelings of depression, 116 (27.7%) of respondents experienced it rarely, 111 (26.5%) reported sometimes (Table 4).

Prevalence and type of substance use among HIV/AIDS

Prevalence of substance use among HIV/AIDS

Overall, 20.8% of participants currently use substances (Figure 1). Khat was the most prevalent at 64.2%, followed by alcohol at 29.8%, while only 3.8% of participants reported using cigarettes and 1.9% used other drugs.

Factor associated with substance uses among HIV/AIDS

In bivariate analysis factor such as sex, marital status, educational status, partner's educational status, family history of substance use, sibling history of substance use, friend history of substance use, history of substance use, ART adherence, depression, and anxiety were selected for multivariable logistic regression because they had a p<0.2.

Statistical significance in the multivariable model was considered at p<0.05. Males were significantly more likely to use substances than females (AOR=4.075, 95% CI: 1.793–9.263).

Individuals with friends who had a history of substance use were also more likely to use substances (AOR=6.758, 95% CI: 2.946–15.504). The strongest association was observed in individuals with a personal history of substance use at AOR of 24.085 (95% CI: 9.207–63.003). Depression was also significantly associated with substance use; individuals who often experienced depression were 12.76 times more likely to engage in substance use (AOR=12.760, 95% CI: 1.674–97.253) (Table 5).

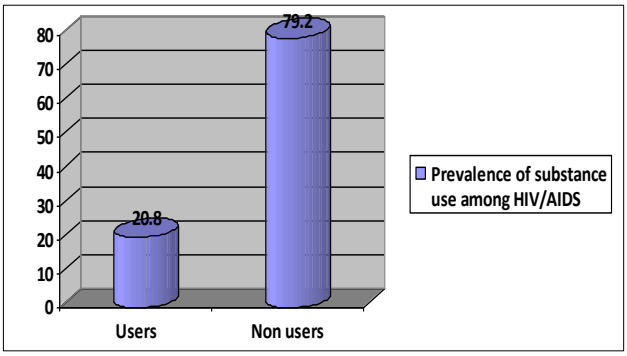

Figure 1: A graph showing prevalence of substance use among HIV/AIDS.

Table 5: Multivariable logistic regression of actor associated with substance uses among HIV/AIDS.

Variable	Category	AOR	95% CI
Sex	Female		1
	Male	4.075	[1.793 – 9.263]**
Marital status	Single		1
	Married	0.546	[0.124 – 2.410]
	Divorced	1.500	[0.431 – 5.226]
	Widowed	0.344	[0.074 – 1.601]
Educational status	Illiterate		1
	Primary education	0.328	[0.074 – 1.453]
	Secondary education	0.678	[0.201 – 2.293]
	Tertiary education	0.502	[0.154 – 1.634]
Partner's education status	Illiterate		1
	Primary education	1.940	[0.322 – 11.690]
	Secondary education	2.807	[0.589 – 13.383]
	Tertiary education	1.705	[0.288 – 10.102]
Family history of substance use	No		1
	Yes	1.669	[0.692 – 4.022]
Sibling history of substance use	No		1
	Yes	1.235	[0.537 – 2.841]
Friend history of substance use	No		1
	Yes	6.758	[2.946 – 15.504]***
History of substance use	No		1
	Yes	24.085	[9.207 – 63.003]***
Art adherence	Always		1

Continued.

Variable	Category	AOR	95% CI
	Usual	0.969	[0.403 – 2.328]
	Sometimes	2.494	[0.368 – 16.918]
	Rarely	1.877	[0.344 – 10.233]
Depression	Never		1
	Rarely	6.636	[0.970 – 45.409]
	Sometimes	2.793	[0.499 – 15.633]
	Often	12.760	[1.674 – 97.253] *
Anxiety	Never		1
	Rarely	0.594	[0.093 – 3.784]
	Sometimes	0.723	[0.126 – 4.138]
	Often	1.078	[0.141 – 8.239]

*p≤0.05, **p≤0.01, **p<0.0001

DISCUSSION

The study found a 20.8% prevalence of substance abuse among HIV patients, which can worsen ART adherence, treatment outcomes, and quality of life, and may be driven by factors like stress, stigma, lack of support, and coping behaviors. This finding aligns with findings from similar settings done in Mezan Tepi, Ethiopia, and Nigeria (22.8%).[19,34]

It recommends integrating substance screening, counseling, and treatment into HIV care. Khat was the most prevalent available substance (64.2%), followed by alcohol (29.8%). Despite cultural acceptance, both substances are linked to negative health and HIV-related outcomes, so integrated, culturally sensitive interventions are needed.

Males were about four times more likely than females to use substances. This suggests a gender-based disparity in risk and coping behaviors, emphasizing the need for gender-sensitive screening and interventions within HIV programs.[15,22,32,35] Individuals with friends who used substances had six times higher odds of substance use compared to those whose friends did not use substances among HIV patients. This finding highlights the strong role of peer influence and social networks, suggesting that interventions should also target friends/families and social environments.[23,32,33,35,36]

A history of substance use strongly predicts on-going use, suggesting substance use is relapsing and can hinder ART adherence and health outcomes. This aligns with research viewing addiction as a chronic, relapsing condition, with higher relapse risk under stress. Therefore, integrate substance use disorder care with HIV treatment.[18,33,37]

Depression was significantly associated with substance use. Depression may lead people to self-medicate, creating a cycle where substance use harms ART adherence and health, so integrated mental health support is essential in HIV care.[9,32] The significant association between depression and substance use emphasizes the need for integrated mental health support in HIV care settings, where addressing both mental health issues and substance use can improve treatment adherence and overall patient well-being.

CONCLUSION

In conclusion, this study shows high substance abuse among HIV patients, driven by availability, peer influence, gender differences, mental health (especially depression), and prior use. Male patients and those with substance-using friends or personal history face greater risk, affecting ART adherence and health. Integrated care combining HIV, mental health, and substance treatment is needed to improve outcomes, reduce transmission risk, and enhance quality of life. Health professionals should integrate routine screening and brief interventions for substance use and mental health (e.g., depression) into HIV care, with training for early referral. NGOs should strengthen community-based prevention, peer support, and harm-reduction services. Policymakers must fund integrated HIV–mental health–substance programs, reduce stigma, and expand access. Researchers should conduct longitudinal studies on these intersections.

ACKNOWLEDGEMENTS

Authors would like to thank study participants, data collectors, hospital staff and administrators, and Dessie Health Science College for their support.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. CDC. Epidemiology NCfHSDoAa. Substance use. 2023. Available at: /https://wwwcdcgov/nchs/hus /sources-definitions/substance-usehtm#print. Accessed on 10 February 2026.
2. Parthasarathy SMJ, Moore C, Weisner C. Utilization and cost impact of integrating substance abuse treatment and primary care. Med Care. 2003;41(3):357-67.

3. Roba HSBA, Irenso AA, Gebremichael B. Prevalence of lifetime substances use among students in Ethiopia: a systematic review and meta-analysis. System Rev. 2019;2019;8:1-16.
4. Duko B, Ayalew M, Ayano G. The prevalence of alcohol use disorders among people living with HIV/AIDS: a systematic review and meta-analysis. Subst Abuse Treat Prev Policy. 2019;14:52.
5. WHO GHP. HIV data and statistics. 2025. Available at: https://www.who.int/teams/global-hiv-hepatitis-and-stis-programmes/hiv/strategic-information/hiv-data-and-statistics. Accessed on 10 February 2026.
6. Degenhardt L, Stockings E, Patton G, Hall WD, Lynskey M. The increasing global health priority of substance use in young people. The Lancet Psychiatr. 2016;3(3):251-64.
7. Deren SCT, Dickson VV, Guilamo-Ramos V, Han BH, Karpiak S, Naegle M, et al. Substance Use Among Older People Living With HIV: Challenges for Health Care Providers. Front Public Health. 2019;7:94.
8. Chander G, Himelhoch S, Moore RD. Substance abuse and psychiatric disorders in HIV-positive patients: epidemiology and impact on antiretroviral therapy. Drugs. 2006;66:769-89.
9. Przybyla S, Ashare RL, Cioffi L, Plotnik I, Shuter J, Seng EK, et al. Substance Use and Adherence to Antiretroviral Therapy among People Living with HIV in the United States. Trop Med Infect Dis. 2022;7(11):349.
10. Morawej Z NA, Kinyaga A, Kirway V, Kagoye S, Turiho A, Nakasujja N. Prevalence and factors associated with substance use among HIV positive youth attending HIV care and treatment centers in Dodoma, Tanzania. AIDS Res Ther. 2022;19(1):65.
11. Kassew TTG, Alamneh TS, Kassa SF, Liyew B, Terefe B. The prevalence and determinant factors of substance use among the youth in Ethiopia: A multilevel analysis of Ethiopian Demographic and Health Survey. Front Psychiatry. 2023;14:1096863.
12. Galvan FH, Bing EG, Fleishman JA, London AS, Caetano R, Burnam MA, et al. The prevalence of alcohol consumption and heavy drinking among people with HIV in the United States: results from the HIV Cost and Services Utilization Study. J Stud Alcohol. 2002;63(2):179-86.
13. Hirpa SFA, Addissie A, Bauld L, Frese T, Unverzagt S, et al. An emerging problem of shisha smoking among high school students in Ethiopia. J Environ Res Public Health. 2021;18.
14. Johnson OAE, Okonna. E, Adeboye. S, Udoh. A. The Prevalence and Factors affecting Psychoactive Substance Use among Undergraduate Students in University of Uyo, Nigeria. J Community Med Prim Health Care. 2017;29:11-22.
15. Ebrahim JAJ, Demant D. Substance use among young people in sub-Saharan Africa: a systematic review and meta-analysis. Front Psychiatry. 2024;15:1328318.
16. Siziya SMA, Besa C, Babaniyi O, Songolo P, Kankiza N, et al. Cannabis use and its socio-demographic correlates among in-school adolescents in Zambia. Italy J Pediatr. 2013;39:13.
17. Osborne AAR, Olorunsaiye CZ, James PB, Bangura C, Seidu A-A, et al. Alcohol use among in-school adolescents in Sierra Leone. BMJ Open. 2024;14:e080222.
18. Olawole-Isaac AOO, Amoo EO, Adeloye D. Substance use among adolescents in sub-Saharan Africa: a systematic review and meta-analysis. South African J Child Health. 2018;12(SPE):s79-84.
19. Necho M, Belete A, Getachew Y. The prevalence and factors associated with alcohol use disorder among people living with HIV/AIDS in Africa: a systematic review and meta-analysis. Subst Abuse Treat Prev Policy. 2020;15:63.
20. Duko B, Toma A, Abraham Y. Alcohol use disorder and associated factors among individuals living with HIV in Hawassa City, Ethiopia: a facility based cross-sectional study. Substance Abuse Treat Prevent Policy. 2019;14:1-6.
21. Seme A, Mariam DH, Worku A. The association between substance abuse and HIV infection among people visiting HIV counselling and testing centres in Addis Ababa, Ethiopia. Ethiopia J Health Develop. 2005;19(2):116-25.
22. Goar SG, Audu MD, Agbir MT, Dochalson E. Prevalence and socio-demographic correlates of alcohol use disorders among HIV patients. African J Drug Alcohol Stud. 2011;10(1):41-7.
23. Kassaw AT, Sendekie AK, Wubetu GA, Adugna BY. Prevalence and Associated Factors of Substance Use Disorder in Bahir Dar City Residents, Northwest Ethiopia. Health Social Care Commun. 2026;5563946:12.
24. Goar SG, Audu MD, Agbir MT, Dochalson E. Prevalence and socio-demographic correlates of alcohol use disorders among HIV patients. Africa J Drug Alcohol Studies. 2011;10(1).
25. Lifson AR, Workneh S, Shenie T, Ayana DA, Melaku Z, Bezabih L, et al. Frequent use of khat, an amphetamine-like substance, as a risk factor for poor adherence and lost to follow-up among patients new to HIV Care in Ethiopia. Aids Res Human Retroviruses. 2017;33(10):995-8.
26. Onohuean H OF, Omara C, Saleem H. Prevalence and epidemiological distribution of substance use among people living with HIV in the East African region: a meta-analysis. Front Psychiatr. 2025;16:1494469.
27. Tsuyuki KPE, Levi-Minzi MA, Urada LA, Kurtz SP, Stockman JK, Surratt HL. Substance Use Disorders, Violence, Mental Health, and HIV: Differentiating a Syndemic Factor by Gender and Sexuality. AIDS Behav. 2017;21(8):2270-82.
28. Abate SM CY, Minaye SY. Prevalence and risk factors of psychoactive substance abuse among students in Ethiopia: A systematic review and meta-analysis. Ann Med Surg (Lond). 2021;70:102790.

29. Duko B, Toma A, Abraham Y. Alcohol use disorder and associated factors among individuals living with HIV in Hawassa City, Ethiopia: a facility based cross- sectional study. Subst Abuse Treat Prev Policy. 2019;14:22.
30. Pokhrel KNGPK, Neupane SR, Sharma VD. Harmful alcohol drinking among HIV-positive people in Nepal: an overlooked threat to anti-retroviral therapy adherence and health-related quality of life. Glob Health Act. 2018;11(1):1441783.
31. Whitesell MBA, Peel J, Brown M. Familial, social, and individual factors contributing to risk for adolescent substance use. J Addict. 2013;2013:579310.
32. Shifa JEAJ, Demant D. Substance use among young people in the West Arsi Zone, Ethiopia: A cross-sectional study. PLoS One. 2025;20(3):e0319432.
33. Brooke-Sumner C, Marchionatti LE, Mneimneh Z, Harker N, Egbe CO, Jenkins D, et al. Systematic Review and Meta-Analysis of the Prevalence of Substance Use Among Adolescents in South Africa. Drug Alcohol Rev. 2026;45(4):e70143.
34. Magidson JF, Skeer MR, Mayer KH, Safren SA. Prevalence of psychiatric and substance abuse symptomatology among HIV-infected gay and bisexual men in HIV primary care. Psychosomatics. 2015;56(5):470-8.
35. Deep PD, Ghosh N, Gaither C, Rahaman MS. The Factors Affecting Substance Use and the Most Effective Mental Health Interventions in Adolescents and Young Adults. Psychoactives. 2024;3(4):461-75.
36. Watts LL, Hamza EA, Bedewy D, Ahmed M. A meta-analysis study on peer influence and adolescent substance use. Curr Psychol. 2023;43:1-16.
37. Brennan MM, Doyle A, Millar SR, Cavallaro M, Zgaga L, Smyth BP, et al. Early and risky adolescent alcohol use independently predict alcohol, tobacco, cannabis and other drug use in early adulthood in Ireland: a longitudinal analysis of a nationally representative cohort. BMC Public Health. 2025;25(1):1129.

Cite this article as: Yemane TT, Tefera TK, Yesuf KA. Substance abuse and its associated factors among HIV/AIDS patients at Dessie Comprehensive Specialized Hospital, Northeast Ethiopia, 2025. Int J Sci Rep 2026;12(6):233-40.