What Factors Encourage Young People to Engage in Substance Use? Substance Use and Associated Factors Among Youth in Southwest Ethiopia: A Community-Based Study

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Background: Substance use indicated the use of psychoactive substances such as alcohol, cigarettes, khat, and illegal drugs. Substance use has varying impacts on the health and socio-economics of countries, and is a major public health concern globally. Currently, substance use is a common public health problem among Ethiopian youth mainly in the city of Jimma. Therefore, this study aimed to assess the magnitude of cigarette smoking, alcohol drinking, khat chewing, and associated factors among the youth of Jimma town in 2019.

Methods: A community-based cross-sectional study was conducted among youth of Jimma town from March 2019 to April 2019. A simple random sampling technique was used to select 423 study participants. Data were collected using a structured interviewer-administered questionnaire. The collected data were entered into EPI data manager version 4.4.1 and transported to SPSS version 23 for data cleaning and analyses. The disruptive study was carried out to determine the prevalence of cigarette smoking, alcohol consumption, and khat chewing. Binary and multivariable analyses were carried out to identify factors associated with cigarette smoking, alcohol consumption, and khat chewing. Finally, adjusted odds ratios (AOR) with 95% confidence intervals (CI) were used to determine the presence and strength of association.

Results: The current prevalence of cigarette use, alcohol use, and khat use was 16.0, 30.6, and 45.7%, respectively. Factors associated with current smoking use were substance use by siblings, subjective norm factors, and perceived benefits of substance use. Factors associated with current alcohol consumption were youth who highly perceived substance use as important. Factors associated with current khat use were male, substance use by siblings, out-of-school youth, and subjective norms.

Conclusions: The study findings indicated that the prevalence of khat, alcohol, and cigarettes was high among the youth of the city of Jimma. To reduce the prevalence of khat, alcohol, and cigarettes among youth, coordinated efforts from the youth, the government, health professionals, and the community at large are needed.

Keywords: substance use, substance and alcohol use, khat (Catha edulis), alcohol drinking, cigarette smoking
BACKGROUND

Substance use is termed the use of psychoactive substances such as cigarettes, khat, alcohol, and illegal drugs (1). Psychoactive substance use can lead to dependence on behavioral, cognitive, and physiological phenomena that develop after repeated substance use (1). Substance use is a comprehensive term that includes the taking of all substances within which there are stages such as substance-free, that is, non-user, experimental user, recreational user, and harmful user (2).

The surveys conducted on substance use among general worldwide populations show that the extent of substance use among young people remains higher than among older people, with some exceptions associated with the traditional use of drugs such as opium or khat (3). According to the literature, early (12–14 years old) to late (15–17 years old) adolescence is a critical risk period for substance use initiation, and substance use is highest among young people aged 18–25 years (4). According to a meta-analysis conducted in Ethiopia, the most commonly used substances in Ethiopia were khat, cigarettes, alcohol, and shisha (5).

According to the WHO global report on trends in the prevalence of tobacco use, among young people aged 15–24 globally, the prevalence rate of tobacco use has declined from 22.6% in the year 2000 to 17.0% in 2015. The prevalence rate in 2025 is projected to be 14.2% (6). Rendering to the 2018 WHO global alcohol status report, the prevalence of alcohol consumption among youth aged between 15-19 and 20–25 was 45.7 and 48.5, respectively (7).

The Ethiopian Demographic and Health Survey (EDHS) conducted in 2016 showed that women in the age group between15–19 and 20–24 who drank alcohol are 30.4 and 34.1% respectively. Male in the age group of 15–19 and 20–24 who drank alcohol is 39.1 and 46.4% respectively. It also reports that women in the age group 15–19 and 20–24 have ever chewed khat, 7.4%, and 10.0%, respectively. Male in the same age group who ever chewed chat are 13.8 and 23.8 respectively. Women in the age group between 20–24 who smoke tobacco are 1.0 % and men in the age group between 15–19 and 20–24 who smoking tobacco are 0.4 and 2.6 respectively (8).

Substance use and dependence are the most frequently occurring disorders in the young and general population. A significant proportion of the youth population uses substances and it has adversely affected their health, school performance, and interpersonal relationships (2). Additionally, substance use decreased academic performance, increased the risk of exposure to HIV/AIDS and other sexually transmitted diseases (STDs), and also causes psychiatric disorders (2).

This study was initiated on the basis of the following rationale. First, substance-related problems were not adequately addressed, and the problem is now growing alarmingly in our country. Furthermore, the Ethiopian minister of health identified it as a problem among young people and adolescents, and the Jimma zone health bureau identified it as the primary problem among young people, alongside HIV/AIDS. This study also attempted to address a new dimension in that it was a community-based study conducted among a more vulnerable group of youth aged 15 to 25. In Ethiopia, only a few articles on the substance's use on youth at the community level have been published. The finding of this study is useful for counseling and providing health education on the effect of substance use. Additionally, identifying factors associated with substance use among youth at the community level is essential to guide program planning, support youth to adhere to protective issues, and it is also important for the community to increase circumstances for the application of preventive factors and to decrease persuading factors, finally serving as input for policymakers.

METHODS

Study Design, Period, and Setting

A community-based cross-sectional study was used from March 2019 to April 2019. The study was carried out in Jimma Town. Jimma town is located in Jimma Zone, Oromia Regional, State, and southwest Ethiopia. Jimma was the capital city of the Jimma Zone, and it is found 345 km away from Addis Ababa, the capital city of Ethiopia. The Town has 17 Kebeles with a total population of 205,163 of whom women account for 102,007, male, 103,156, and a total household of 42,742 according to the 2019 Jimma zone health bureau projection population report. Of the total population, around 40,539 (21%) populations are youth (age found 15–24).

Population

All youth (15–25 years) who lived in the town of Jimma were the source population. All randomly selected youth who lived in the selected Kebeles were considered the study population. All youth (15–25 years old), who lived in Jimma city for more than 6 months and who were present at the house during the data collection period, were included in the study. Young people who were unable to respond due to a severe illness and were not willing to participate in the study were excluded.

Sample Size Determination and Techniques

The sample size was calculated using a single population proportion formula taking the prevalence rate of khat users from the previous study (9). With a 95% confidence level, 5% precision, and a non-response rate of 10 %. The total sample size is \( 345 \times 1.5 \) design effect \( * 10 \% \) nonresponse rate \( = 570 \). A multistage sampling technique was used to recruit study participants. Jimma town was selected purposefully by taking into account the magnitude of substance use (e.g., Khat) in this specific area. Simple random sampling methods were used to select five (30%) out of 17 Kebeles in the Jimma town, namely; Mendera-Kochi, Bacho Bore, Matina Markato, Ginjo Guduru, and Bosa Addis. The number of the household in each Kebele was obtained from the Jimma zone health bureau. The sample size was then assigned in proportion of households in each selected Kebeles (Figure 1). Finally, households were selected using a simple random sampling technique specifically

Abbreviations:
AOR, Adjusted Odd Ratio; COR, Crude Odd Ratio; CI, Confidence interval; EDHS, Ethiopian Demographic and Health Survey; HIV, Human Immune Deficiency Virus; WHO, World Health Organization.
computer-generated random number was used to obtain the required sample size. Household lists were taken from the selected kebele health post office. Their usual place of residence was identified in collaboration with Kebele leaders. For more than one youth present in the households, one youth was selected by using the lottery method, and also for no youth in the household the house was jumped to the next house.

**Data Collection Instruments and Procedure**

Data were collected using a structured questionnaire. The data collection tool is adapted after reviewing different kinds of literature (9–13). The data were collected through an interviewer-administered questionnaire on the weekends to include both in-school and out-of-school students. If the youth were not present due to class makeup or other issues during data collection, the data collectors returned to the house at least three times to contact youth who were not present during the first attempt. The data collection questionnaire was developed in English and translated into the locally spoken language (Afan Oromo and Amharic), and then back-translated into English by language experts to check its consistency. The questionnaire was contented with six sections 1, sociodemographic, 2, cigarettes use, alcohol use, Khat use assessing questions 3, factors related to social life 4, subjective norm 5, psychological factors, and 6, factors related to substances. Five health professionals (five diplomas) and one supervisor (one bachelor's degree) participated in data collection. To ensure the quality of data, a pre-test was done before the actual data collection period. About 28 youth (5%) of the sample size households were used for this purpose from nonselected Kebeles (Seto Semero), and some points found on the questionnaire are improved. Before starting a real data collection, supervisors and data collectors were trained for one day about the study's objective, purpose, the ethical issue of the study, and data collection technique.

**Study Variables**

**Dependent Variables**

Current khat use, current alcohol use, and current cigarette use.

**Independent Variables**

Individual-related factor, socio-demographic related factor, substance-related factor, psychological factor, and social-related factor.

**Operational and Term Definition**

**Substance**: The commonly used substances, such as alcohol, cigarettes, and khat, induce changes in thinking, feelings, and behavior that can cause dependence. **Substance Use**: substance uses referred that taking alcohol, cigarettes and khat to alter mood or behavior. **Current khat user**: a person who chewed...
### TABLE 1 | Sociodemographic characteristic of the study participants Jimma, south-west Ethiopia, 2019.

| Variable        | Category | Frequency | Percent (%) |
|-----------------|----------|-----------|-------------|
| Sex             | Male     | 397       | 70.0        |
|                 | Female   | 170       | 30.0        |
|                 | Total    | 567       | 100         |
| Age             | 15–17    | 184       | 32.5        |
|                 | 18–20    | 198       | 34.9        |
|                 | 21–24    | 185       | 32.6        |
|                 | Total    | 567       | 100         |
| Current youth status | In school | 321       | 56.6        |
|                 | Out of school | 246   | 43.4        |
|                 | Total    | 567       | 100         |
| Level of education | Illiterate | 71       | 12.5        |
|                 | Grade 1–8 | 210      | 37.0        |
|                 | Grade 9–10 | 156     | 27.5        |
|                 | Grade 11–12 | 65      | 11.5        |
|                 | Diploma and above | 65    | 11.5        |
|                 | Total    | 567       | 100.0       |
| Religion        | Muslim   | 309       | 54.5        |
|                 | Orthodox | 156       | 27.5        |
|                 | Protestant | 92      | 16.2        |
|                 | Other    | 10        | 1.8         |
|                 | Total    | 567       | 100.0       |
| Frequency of visiting worshiping | Never | 24       | 4.2         |
|                 | Few times a year | 13    | 2.3        |
|                 | Once a month | 18    | 3.2        |
|                 | Every week | 298   | 52.6        |
|                 | Every day | 214       | 37.7        |
|                 | Total    | 567       | 100.0       |
| Living arrangement | With family | 327   | 57.7        |
|                 | With relatives | 82    | 14.5        |
|                 | With friends | 114   | 20.1        |
|                 | Alone    | 44        | 7.7         |
|                 | Total    | 567       | 100.0       |

### TABLE 2 | Prevalence of cigarettes among youth in Jimma town, southwest Ethiopia, 2019.

| Variable                        | Category | Frequency | Percent (%) |
|---------------------------------|----------|-----------|-------------|
| Ever smoked a cigarette in the last 30 days | Yes     | 91        | 16.0        |
|                                 | No       | 10        | 1.8         |
| Age at first smoked cigarette  | 10–15    | 47        | 46.1        |
|                                 | 16–20    | 48        | 47.1        |
|                                 | 21–24    | 7         | 6.8         |
|                                 | Total    | 102       | 100.0       |
| Introduce to use of cigarettes | Friend   | 86        | 84.3        |
|                                 | Parents  | 4         | 3.9         |
|                                 | Relatives | 1        | 1.0         |
|                                 | Out of curiosity | 11    | 10.8        |
|                                 | Total    | 102       | 100.0       |
| Convinced into smoke Cigarette | Make one brilliant | 30    | 29.4        |
|                                 | Happier  | 43        | 42.2        |
|                                 | Stronger/healthier | 3     | 2.9         |
|                                 | Have confidence | 13    | 12.8        |
|                                 | Boost appetite | 13     | 12.7        |
|                                 | Total    | 102       | 100.0       |
| How many cigarettes smoked per day | 1–5 sticks | 72       | 70.6        |
|                                 | 6–10 sticks | 7       | 6.9         |
|                                 | 1 packet  | 23        | 22.5        |
|                                 | Total     | 102       | 100.0       |
| Where do you smoke the cigarette? | At home   | 12        | 11.8        |
|                                 | Bar      | 5         | 4.9         |
|                                 | At khat chewing | 85    | 83.3        |
|                                 | Total    | 102       | 100.0       |

### TABLE 3 | Results of the bivariate and multivariate logistic regression analysis showing the factor associated with cigarette smoking among the youth of Jimma, southwest Ethiopia, 2019.

| Variable                        | Ever smoking a cigarette in the last 30 days | COR 95% CI | P-value | AOR 95% CI | P-value |
|---------------------------------|-------------------------------------------|------------|---------|------------|---------|
| Sibling substance use           | Yes                                      | 120(21.2%) | 59(10.4%) | 5.439      | 0.001   | 2.529 (1.313–4.871) | 0.006   |
| Perceived benefit               | 3.45 (±SD) 1.8                           | 2.021      | 0.001   | 1.417      | 0.001   | 1.160–1.730        | 0.001   |
| Subjective norm                 | 4.21 (±SD) 2.24                          | 1.439      | 0.001   | 1.153      | 0.02    | (1.023–1.300)      |         |
TABLE 4 | Prevalence of alcohol among youth in Jimma town, southwest Ethiopia, 2019.

| Variable | Category | Frequency | Percent (%) |
|----------|----------|-----------|-------------|
| Ever drunk alcohol in the last 30 days | Yes | 170 | 30.0% |
| | No | 8 | 1.4 |
| Age first had drunk alcohol | 10–15 | 88 | 49.4 |
| | 16–20 | 84 | 47.2 |
| | 21–24 | 6 | 3.4 |
| | Total | 178 | 100.0 |
| Frequently drink alcohol | Beer/draft | 122 | 68.5 |
| | Wine | 8 | 4.5 |
| | Spirit | 8 | 4.5 |
| | Whisky | 1 | 0.6 |
| | Local drinks | 34 | 19.1 |
| | Mixed drinks | 5 | 2.8 |
| | Total | 178 | 100.0 |
| Who introduces you to using alcohol? | Friend | 118 | 66.3 |
| | Parents | 40 | 22.5 |
| | Relative | 7 | 3.9 |
| | Out of curiosity | 10 | 5.6 |
| | Sibling | 3 | 1.7 |
| | Total | 178 | 100.0 |
| Convinced into the drink | Happier | 118 | 66.3 |
| | Stronger/healthier | 21 | 11.8 |
| | Work long hours | 7 | 3.9 |
| | Have confidence | 16 | 9.0 |
| | Boost appetite | 16 | 9.0 |
| | Total | 178 | 100.0 |
| Ever used alcohol and other substances | Yes | 87 | 48.9 |
| | No | 91 | 51.1 |
| | Total | 178 | 100.0 |
| What substance that you use at the same time | Khat | 74 | 85.1 |
| | Cigarette | 13 | 14.9 |
| | Total | 87 | 100.0 |
| Drinking alcohol causes serious illness | Yes | 536 | 94.5 |
| | No | 31 | 5.5 |
| | Total | 567 | 100.0 |
| Where do you drink alcohol? | At home | 63 | 35.4 |
| | Friend place | 64 | 35.9 |
| | In bar | 40 | 22.5 |
| | Relatives place | 11 | 6.2 |
| | Total | 178 | 100.0 |

chat at least once in the past 30 days. **Current alcohol user:** a person who drink alcohol at least once in the past 30 days. **Current cigarette user:** a person who smoking cigarette at least once in the past 30 days. **Subjective norm:** Substance use favoring of the community is measured by a Likert question, which contains three questions (Most people who are important to me will approve of my substance usage khat, cigarette, alcohol), Most people who are important to me think that, I should use substance (khat, cigarette, alcohol) and Most people who like me want my engaging in substance use (khat, cigarette, alcohol) and a computed score of three items, indicating the maximum sum score considered as important to the respondent’s approved substance use (13). **Psychological factor:** The effect of psychological problems (stress, mental distress, and depression) on substance use is measured by the Likert scale, which contains four questions (I use substances (khat, cigarette, alcohol) to relieve tension, I use substances (khat, cigarette, alcohol) to relieve depression, I use substances (khat, cigarette, alcohol) to feel relaxed and I use substances (khat, cigarette, alcohol) to Forget my problem), with the computed sum score of four items indicating the maximum sum score considered as a psychological factor. **Perceived benefit of substance use:** considering substances as useful things is measured by the Likert scale, which contains three questions, with the computed sum score of three items indicating the maximum sum score considered as a high benefit of substance use as perceived by the user (13). **Substance-related factors:** includes substance availability, accessibility, and affordability it is measured by a Likert scale that contains six questions, and the computed score of six items of the Likert scale indicating the maximum sum score is considered as high Substance-related factors.

**Data Analysis**

The data collected were entered into Epi data manager version 4.4.1 and transferred to SPSS version 21.0 for data analysis purposes. After the data was cleaned for the missing value, the data were analyzed using descriptive and inferential statistics. Specifically, frequency and percentages were used for descriptive analysis, and bivariate and multivariate logistic regression analyzes were used to identify factories associated with cigarette smoking, alcohol consumption, and khat chewing. The degree of dependence (current use of khat, current use of alcohol, and current use of cigarettes) and the independent variable association was assessed using an odds ratio, and statistically significant were declared at 95% of confidence intervals (CI) and the p-value (Pv) less than 0.05. The goodness of the test model was checked by the Hosmer-Lemeshow goodness fit, and the p-value of the model fitness test was 0.28, 0.31, and 0.42 for cigarette use, alcohol use, and khat use, respectively.

**RESULTS**

**Sociodemographic Characteristics of the Respondents**

A total of 567 youth from Jimma town participated in the study, with a response rate of 99.47%. Of the study participants, 397 (70%) are male and 170 (30%) are female. Youth between the ages of 18–20 constitute about 34.9% of respondents (Table 1).

**Prevalence of Cigarettes**

Ninety-one (16.0%) study participants currently smoked a cigarette and among these, 47.1% of the respondents started
smoking cigarettes between the ages of 16–20 years. Most, 86 (84.3%) reported that their friends introduced them to smoking cigarettes. Forty-three (42.2%) of the respondents argued that they smoke a cigarette because it made them happier. Seventy-two (70%) of the respondents were smoking 1–5 sticks of cigarette per day, 81 (79.4%) smoke a cigarette at Khat house, and 538 (94.9%) of the study participant knows the effect of smoking a cigarette on human health (Table 2).

**Factors Associated With Current Smoking in Multivariate Logistic Regression**

The multivariate logistic regression model identified that the use of sibling substances, the subjective norm factor, and the perceived benefits of substances was significantly associated with current cigarette smoking with a $p < 0.05$. Respondents whose siblings use substances were identified to be 2.5 times more likely to use cigarettes than those siblings who do not use the substance (AOR 95%CI 2.53 [1.31–4.87]). In this study, youth who were influenced by the subjective norm factors were 15% more likely to smoke a cigarette [AOR 95%CI 1.15 (1.02–1.30)]. Young people who perceived substance use as important were 42% more likely to smoke a cigarette [AOR 95%CI 1.417(1.16–1.73)] (Table 3).

**Prevalence of Khat**

The study revealed that about half 259 (45.7%) of the study respondents have currently chewed khat. Amongst these, 140 (52.6%) reported that they start chewing khat at the age of 10–15 years. The majority of 207 (77.8%) of the study participants started chewing khat due to peer pressure. Of the youth who ever chewed khat, 124 (46.6%) used it occasionally and 97 (36.5%) chewed khat for relaxation and entertainment (Table 6).

**Factors Associated With Current Khat Chewing in Multivariate Logistic Regression**

The multivariate logistic regression model revealed that sex, substance use by siblings, current school status, subjective norm factor, and psychological factor were significantly associated with the current chewing of khat at $p < 0.05$. In this study, male respondents were eight times more likely to chew khat than female respondents [AOR 95%CI 8.33 (4.24–16.36)]. Respondents whose siblings use substances were 3.6 times more likely to chew khat than those whose siblings do not use the substance [AOR 95%CI 3.76(2.15–6.57)]. Out–of–school youth were 3.6 times more likely to chew khat than those who were in school [AOR 95%CI 3.36(1.99–5.64)]. In this study, youth who were highly influenced by subjective norms were 22% more likely to chew khat [AOR 95%CI 1.22(1.06–1.39)]. Young people with a psychological problem were 52% more likely to chew khat [AOR 95%CI 1.52(1.39–1.66)] (Table 7).

**DISCUSSION**

This study assessed the prevalence of cigarette smoking, alcohol consumption, and khat chewing and associated factors among youth from Jimma town, Oromia, Ethiopia. This study finding revealed that 91 (16.0%) study participants currently used cigarette and sibling substances, subjective norm factor, and perceived benefit of substances were the main factor associated with cigarette smoking. One hundred and seventy (30.0%) of the study respondents were current consume alcohol and the perceived benefit of substance was the factor associated with current alcohol consumption. The study revealed that about half 259 (45.7%) of the study respondents were current

**Prevalence of Alcohol**

Of the total of participants, 170 (30.0%) reported that they have currently drunk alcohol. Among these, 88 (49.4%) start drinking alcohol at the age of 10–15, and 122 (68.5%) frequently use beer/drink. Of the youth who drank alcohol, 118 (66.3%) reported that they did so under peer pressure and 118 (66.3%) were drinking alcohol to make themselves happier (Table 4).

**Factors Associated With the Current Alcohol Drinker in Multivariate Logistic Regression**

The multivariate logistic regression model identified that the perceived benefit of substance use was significantly associated with current alcohol consumption with a $p < 0.05$. Young people who perceived substance use as important were 72% more likely to drink alcohol [AOR 95% CI 1.715 (1.5-2.03)] (Table 5).

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**TABLE 5 | Bivariate and multivariate logistic regression analysis showing the factor associated with alcohol consumption among the youth of Jimma town, southwest Ethiopia, 2019.**

| Variable                   | Category               | Ever drunk alcohol in the last 30 days | COR 95%CI | P-value | AOR 95% CI | P-value |
|----------------------------|------------------------|---------------------------------------|-----------|---------|------------|---------|
| Perceived benefit          |                        | No (3.1%)                             | 3.45 (±SD) 1.8 | 1.784 pep<0.001 | 1.715 pep<0.001 |
| Types of substance used by father | Cigarette              | Yes (2.7%)                            | 11 (4.1%) | 3.013 | 0.020 pep<0.001 | 2.543 pep<0.001 |
|                            | Alcohol                | Yes (2.7%)                            | 3.696 | 0.001 pep<0.001 | 2.624 pep<0.001 |
|                            | Khat                   | Yes (2.7%)                            | 143 (52.8%) | 1 | 1 | 1 |

**Table 2**

**Table 3**

**Table 4**

**Table 5**

**Table 6**

**Table 7**
chewed khat and sex, use of sibling substances, current school status, subjective norm factors, and psychological factors were significantly associated with current chewing of khat.

The current prevalence of smoking is 91 (16.0%), slightly higher than the study accompanied in Jimma town 10.2% (14), Bale preparatory school students 5.6% (12), Bonga public college student 1.5% (15), Woreda high school adolescents 6.8% (11), Axum university 9.3%, Ethiopian demographic and health survey report 4.4% (8), Nigerian secondary school student 4.7% (16) and the survey conducted in Sudan 13.7 % (17). This discrepancy occurred due to a difference in study population and study design. The current study was conducted on the youth of Jimma town (including both in-school and out-of-school youth) and also conducted through community-based. The previous study was conducted on in-school youth, and most of the in-school youth waste their time on education when compared with out-of-school youth. In the current study, around 43% of the study participants were out-of-school youth. The high rate of cigarette smoking was linked to easy access and availability of cigarettes, as well as the lack of a strong smoking control rule.

The current prevalence of alcohol is 170 (30.0%). This finding is in line with the study conducted on a Mekele university student (18) and it is slightly higher than the study accompanied in Jimma town high school students 14.2% (19), Debre Berhan university student 16.9% (19), Nigerian secondary school 8.9% and conducted in Sudan 2.7 % (16). This discrepancy occurred due to a difference in study population and study design. The current study was conducted on the youth of Jimma town (included both in-school and out-of-school youth) through a community based cross sectional study. The previous study was conducted on university and high school youth. Most of the time, university and high school students were busy due to their educational load when compared to out-of-school youth. In the current study, around half of the participants were out-of-school youth, and they had a lot of free time to drink alcohol. In contrast, this finding was lower than the study conducted on Bonga public college students 44.9 (15) and Woreta high school adolescents 40.9% (11). Low alcohol use might be associated with a high number of Islamic religious followers. In the current study, about 55% of the study participants were Islamic religious followers. The Islamic community considered drinking alcohol as a sin. Therefore, alcohol drinking was not accepted by the community.

The current prevalence of chewing khat is 259 (45.7%). These findings are higher than the study conducted on Jimma university internship medical student 13.4% (20), Jimma town high school students 14.2% (14), Bonga public college student 11.4% (15), Woreta high school adolescents 13.8%, Bale preparatory school students 5.6% (12), Debre Berhan university student 5.7% (19) and Ethiopian Demographic and Health Survey report (8). The current study finding was higher than previous study conducted in different parts of Ethiopia due to difference study population, design and setting. The rational justification for this finding is that khat is readily available, accessible, and affordable in the study area due to the local community's economic reliance on khat tree cultivation and some of the Islamic religious followers' use it for praying, or “duway”, but the religion does not command this practice. Also, the community considered khat chewing as normal.

In this study, we identified that the respondents whose siblings use substances were 2.5 times more likely to use cigarettes than those siblings who do not use a substance. This finding is consistent with the previous study (21–26). This finding could be explained by the fact that young people tend to mimic and exercise what they see their family members do. In this study, the subjective norm factor was significantly associated with current smoking. This study finding is in line with a study conducted on Woreta high school adolescents (11) and Nepal Rithepani

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**TABLE 6** Prevalence of khat among youth in Jimma town, southwest Ethiopia, 2019.

| Variable                                      | Category          | Frequency | Percent (%) |
|-----------------------------------------------|-------------------|-----------|-------------|
| Ever chewed khat in the last 30 days          | No                | 7         | 2.6         |
|                                               | Yes               | 259       | 45.7        |
| Age at first starting chewing Khat            | 10–15             | 140       | 52.6        |
|                                               | 16–20             | 119       | 44.7        |
|                                               | 21–24             | 7         | 2.7         |
|                                               | Total             | 266       | 100.0       |
| Who introduces you first to using chat?       | Friend            | 207       | 77.8        |
|                                               | Parents           | 29        | 10.9        |
|                                               | Relative          | 5         | 1.9         |
|                                               | Out of curiosity  | 25        | 9.4         |
|                                               | Total             | 266       | 100.0       |
| How often do you use khat                     | Occasionally      | 124       | 46.6        |
|                                               | Monthly           | 46        | 17.3        |
|                                               | Weekly            | 31        | 11.7        |
|                                               | Daily             | 65        | 24.4        |
|                                               | Total             | 266       | 100.0       |
| Why do you use khat                           | Increase in concentration | 85 | 32.0 |
|                                               | Stronger/ work hard | 35 | 13.1 |
|                                               | Because my friends chew | 47 | 17.7 |
|                                               | Relaxation and entertainment | 99 | 37.2 |
|                                               | Total             | 266       | 100.0       |
| Ever use khat and other substances at the same time | No                | 155       | 58.3        |
|                                               | Yes               | 111       | 41.7        |
|                                               | Total             | 266       | 100.0       |
| If yes, what substances use at the same time  | Alcohol           | 69        | 62.2        |
|                                               | Cigarette         | 42        | 37.8        |
|                                               | Total             | 111       | 100.0       |
| Does chewing khat cause serious illness?      | Yes               | 483       | 85.2        |
|                                               | No                | 69        | 12.2        |
|                                               | I don’t know      | 15        | 2.6         |
|                                               | Total             | 567       | 100.0       |
TABLE 7  | Bivariate and multivariate logistic regression analysis showing the factor associated with khat chewing among the youth of Jimma town, southwest Ethiopia, 2019.

| Variable                  | Category   | Ever chewing khat in the last 30 days | COR 95% CI | P-value | AOR 95% CI | P-value |
|---------------------------|------------|---------------------------------------|------------|---------|------------|---------|
|                           |            | No (28.6%) | Yes (41.4%) |          |            |          |
| Sex                       | Male       | 162    | 235    | 8.825 (5.483–14.202) | 0.001   | 8.33 (4.242–16.361) | 0.001 |
|                           | Female     | 146    | 24     | 1       |          |          |
| Currently school status   | In school  | 218    | 103    | 3.669 (2.586–5.204) | 0.001   | 3.356 (1.996–5.643) | 0.001 |
|                           | Out school | 90     | 156    | 1       |          |          |
| Sibling substance use     | Yes        | 42     | 137    | 7.144 (4.755–10.734) | 0.001   | 3.758 (2.149–6.570) | 0.001 |
|                           | No         | 265    | 121    | 1       |          |          |
| Subjective norm factors   | 4.21 ±SD   | 2.24   | 1.641  | 1.215 (1.056–1.397) | 0.006   | 1.518 (1.390–1.658) | 0.001 |
| Psychological factors     | 6.83 ±SD   | 3.47   | 1.611  | 1.518 (1.390–1.658) | 0.86    | 1.518 (1.390–1.658) | 0.001 |

high school adolescents (27). And also a study conducted on high school students in north Italy showing that seeing teachers who smoke a cigarette was significantly associated with cigarette smoking (24). This might result from exposure to such behaviors through social and mass media and also due to the government police’s weakness in substance use controls.

Our finding indicated that the perceived benefit of substance use was significantly associated with alcohol drinking. Most youths in Ethiopia drink alcohol for relaxation and entertainment purposes and are also considered depressant substances after chewing khat or taking other substances. The study revealed that being male was significantly associated with chewing khat. This finding is in line with the previous study conducted in Ethiopia (14, 28–31) and also a study conducted in Saudi Arabia (31). It can be argued that the community more accepts substance use among males more easily than females. In this study, the use of the substance by siblings was significantly associated with the current chewing of khat. This finding is in line with previously conducted studies (30, 32, 33). This finding could be explained by the fact that young people tend to mimic and exercise what they see their family members do.

The youth found out of school was more likely to chew khat than those youth found in school. The possible justification for this finding was an academic failure, lack of a job, and lack of a recreation area were the main factors that motivated youth to use substances. This study revealed that the psychological factor is significantly associated with chewing khat. This finding was consistent with the study conducted on Gonder university students (33). This is due to the strong link between psychological problems and substance use. But the study conducted in Jimma town contradicts this finding, khat chewers are ten times more likely to develop depression than non-chewers (34).

The subjective norm factor of the community was significantly associated with the chewing of khat by youth. This finding is in line with a study conducted on Woreta high school adolescent students (11). The possible justification for this finding is that the community norms favorable to substance use encouraged young people to engage in substance use. The limitation of the study was that most of the discussion part was compared with the study conducted on high school and university students due to a limited number of articles on youth at the community level.

CONCLUSIONS AND RECOMMENDATION

Generally, this study finding indicated that the prevalence of khat, alcohol, and cigarettes was high among the youth of the town of Jimma; specifically, the prevalence of khat was highest among the youth of the Jimma town than the other two substances. Factors associated with smoking were siblings’ smoking, subjective norm factors, and perceived benefits of substance users. Alcohol consumption was significantly associated with the perceived benefits of substance users. Khat chewing was significantly associated with sex; siblings’ khat chewing of siblings, current youth, school status, subjective norm factors, psychological factors. Therefore, to alleviate these factors, coordinated effort from youth, the government, and the community at large is required. Public health professionals, specifically health promotion and health behavior experts, should focus on providing health education to youth in order to reduce the prevalence...
of substance use, by providing detailed education on the consequences of substance use on one country’s health, social life, and economy, and developing appropriate information education and communication and behavioral change communication materials. Family members or siblings must provide a good example by abstaining from using substances.

**DATA AVAILABILITY STATEMENT**

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

**ETHICS STATEMENT**

The studies involving human participants were reviewed and approved by Jimma University Ethical Review Board. Written informed consent to participate in this study was provided by the participants’ legal guardian/next of kin.

**REFERENCES**

1. Canadian Centre on Substance Abuse. The Canadian standards for youth substance abuse prevention: an overview. Can Cent Subst Abus. (2014) 1–2. Available online at: https://www.scribd.com/doc/305346269
2. United Nations. Drugs and Age. (2018) p.1–59. Available online at: https://www.unlibrary.org/drugs-crime-and-terrorism/world-drug-report-2018_dbd47a51-en
3. United Nations Office on Drugs and Crime. World Drug Report 2018. Drugs and Age: Drugs and Associated Issues Among Young People and Older People. United Nations (2018). p. 1-59. doi: 10.18356/864774/9789241565639
4. World Health Organization. Drugs and Age Drugs and Associated Issues Among Young People And Older People. United Nations (2018). Available online at: https://www.who.int/publications/i/item/9789241565639
5. Abajobir AA, Kassa GM. Magnitude of substance use among young people in Ethiopia: a meta-analytic review. Ethiop Med J. (2019) 57:295–307.
6. WHO. WHO Global Report on Trends in Prevalence of Tobacco Use Third Edition. (2019). Available online at: https://www.who.int/publications/i/item/9789240039322
7. WHO. Global Status Report on Alcohol and Health 2018. (2018). Available online at: https://www.who.int/publications/i/item/9789241565639
8. CSA. Central Statistical Agency (CSA) [Ethiopia] and ICF. 2016. Ethiopia Demographic and Health Survey 2016. Addis Ababa, Ethiopia, and Rockville, Maryland, USA: CSA and ICF. (2016).
9. Girmay A, Mariam AG. Khat use and risky sexual behavior among youth in asendabo town, South Western Ethiopia. Ethiop J Health Sci. (2007) 17. Available online at: https://www.ajol.info/index.php/ejhs/article/view/146055
10. Mekonnen A. Substance Use and Associated Factors Among High School Students in Shashamene Town, Oromiya Region. Jimma University Repository (2016).
11. Birhanu AM, Bisetegn TA, Woldeyohannes SM. High prevalence of substance use and associated factors among high school adolescents in Woreta Town, Northwest Ethiopia: Multi-domain factor analysis. BMC Public Health. (2014) 14:1–11. doi: 10.1186/1471-2458-14-1186
12. Dida N, Kassa Y, Sirak T, Zerga E, Dessalegn T. Substance use and associated factors among preparatory school students in Bale Zone, Oromia Regional State, Southeast Ethiopia. Harm Reduct. (2014) 11:2–7. doi: 10.1186/1477-7517-11-21
13. Gizaw AT, Amdisa D. Lemu YK. Predictors of substance use among Jimma University instructors, Southwest Ethiopia. Subst Abuse Treat Prev Policy. (2020) 8:1–10. doi: 10.1186/s13011-019-0248-8
14. Soboka M. Factors associated with khat chewing among high school students in Jimma. J Psychiatry. (2016) 19. doi: 10.4172/2378-5756.1000372
15. Alemu A. Assessment of substance use and risky sexual behaviour among public college students in Bonga town, Southwest Ethiopia. Am J Biomed Life Sci. (2015) 3:91. doi: 10.11648/j.ajbols.20150305.11
16. Akpand LD, Usoro CI. Substance use among adolescents in secondary schools in Uyo local government area of Akwa Ibom State, Nigeria. Public Heal Res Open Sci. (2013) 3:168–72.
17. Osman T, Victor C, Abdulmoneim A, Mohammed H, Abdalla F, Ahmed A, et al. Epidemiology of substance use among university students in Sudan. J Addict. (2016) 2016. doi: 10.1155/2016/2476164
18. Tulu SK, Keski W. Assessment of causes, prevalence and consequences of alcohol and drug abuse among Mekelle University, CSSL 2 nd year students. Appl Psychol. (2015) 3:47–56. doi: 10.12691/apjap-3-3-1
19. Gebremariam TB, Mruts KB, Neway TK. Substance use and associated factors among Debre Berhan University students, Central Ethiopia. Subst Abuse Treat Prev Policy. (2018) 13:1–8. doi: 10.1186/s13101-018-0150-9
20. Desta E, Soboka M, Workneh D. The prevalence of substance use and associated factors among medical interns of Jimma University, South West. J Subst Abuse Alcoh. (2018) 6:1–8.
21. Dereje NS, Abiot G. Prevalence and predictors of cigarette smoking among adolescents of Ethiopia : school based cross sectional survey. Child Adolesc Behav. (2014) 3:1–8. doi: 10.4172/2375-4494.1000182
22. Reda AA, Moges A, Yazev B, Biadgilign S. Determinants of cigarette smoking among school adolescents in eastern Ethiopia : a cross-sectional study. Harm Reduct J. (2012) 9:1. doi: 10.1186/1477-7517-9-9
23. Bobo FT, Thanasekaran P, Joice AJR, Yadecha B, Alebel A. Susceptibility to cigarette smoking and associated factors among high school students in western Ethiopia. BMC Res Notes. (2018) 11:1–5. doi: 10.1186/s13104-018-3734-6
24. Cosi E, Zaga V, Bertoli G, Campiotti A. Associated with tobacco use in Italian Adolescents. Int Sch Res Not. (2013) 2013:1–7. doi: 10.1155/2013/968505
25. Jallow IK, Britton J, Langley T. Prevalence and determinants of tobacco use among young people in the Gambia. BMJ Glob Heal. (2017) 2:1–8. doi: 10.1136/bmjgh-2017-000482
26. Siziya S, Rudatsikira E, Muula AS. Cigarette smoking among school-going adolescents in Kabwe, Zambia. Malawi Med Journa. (2007) 2:2–5. doi: 10.4314/mmj.v19i2.10933

**AUTHOR CONTRIBUTIONS**

TG, DD, and BD were involved in the writing of the manuscript, interpretation of the results, and performed the statistical analysis. TG was involved in the data collection process and study coordination. All authors read and approved the final manuscript.

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27. Gurung A, Shrestha N, Silwal M, Gurung R, Ojha S. Prevalence of
substance use and associated factors among high school adolescents in
Rithepani, Lekhnath-2, kaski, Nepal. *J Gandaki Med Coll*. (2017) 10:43–8. doi: 10.3126/jgmcn.v10i2.17915
28. Abdesta T, Tolessa D, Adorjan K, Abera M. Prevalence, withdrawal symptoms
and associated factors of khat chewing among students at Jimma University
in Ethiopia. *BMC Psychiatry*. (2017) 17:1–11. doi: 10.1186/s12888-017-1284-4
29. Wondemagegn AT, Cheme MC, Kibret KT. Perceived psychological,
economic, and social impact of Khat chewing among adolescents and adults in
Nekemte Town, East Welega Zone, West Ethiopia. *Hindawi BioMed Res Int*. (2017) 2017. doi: 10.1155/2017/7427892
30. Lakew A, Tariku B, Deyessa N, Reta Y. Prevalence of Catha edulis (Khat)
chewing and its associated factors among Ataye secondary school students in
Northern. *Sci Res Publ Inc*. (2014) 225–33. doi: 10.4236/aasoci.2014.410027
31. Haile D, Lakew Y. Khat chewing practice and associated factors among adults
in Ethiopia : further analysis using the 2011 demographic and health survey. *J
PLoS ONE*. (2015) 10:1–11. doi: 10.1371/journal.pone.0130460
32. Gebreanna E, Berhane Y, Worku A. Khat chewing among Ethiopian
University Students- a growing concern. *BMC Public Health*. (2014)
14. doi: 10.1186/1471-2458-14-1198
33. Mulugeta Y. Khat chewing and its associated factor among college
students in Bahir Dar town, Ethiopia. *Sci J Public Heal*. (2013)
1:209. doi: 10.11648/j.sjph.20130105.14
34. Mossie A, Kindu D, Negash A. Prevalence and severity of depression
and its association with substance use in Jimma Town, Southwest
Ethiopia. *Hindawi Publ Corp*. (2016) 1–7. doi: 10.1155/2016/
3460462

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