

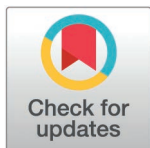
RESEARCH ARTICLE

Exposure to violence and associated factors among university students in Ethiopia: A cross-sectional study

Wudinesh Belete Belihu^{1,2*}, Tobias Herder¹, Minilik Demissie Amogne^{1,2}, Jesper Sundewall¹, Jack Palmieri¹, Anette Agardh¹

1 Social Medicine and Global Health, Malmö, Sweden, **2** Infectious Disease Research Directorate, Ethiopian Public Health Institute, Addis Ababa, Ethiopia

* wudinesh_belete.belihu@med.lu.se, beletewudinesh@gmail.com



Abstract

Background

Violence is a major public health concern with a significant impact on the health and well-being of individuals, families, and communities. Living in a new environment without parental control and experimenting with new lifestyles may increase the risk of violence among university students. Therefore, this study aimed to assess exposure to violence and its associated factors among university students in Ethiopia.

Method

A cross-sectional study was conducted among 2988 university students from six randomly selected universities in Ethiopia. A two-stage stratified sampling method was used to recruit the study participants. A self-administered questionnaire was utilized to collect information regarding exposure to emotional, physical, and sexual violence. Bivariable and multivariable logistic regression analyses were used to identify factors associated with violence exposure in the last 12 months.

Results

The prevalence of exposure to any type of violence in the last 12 months was 17.6% (n=525) (17.9% among males, 16.5% among females). The adjusted odds ratio (AOR) of violence was 2.9 times higher (95% CI 1.6-5.0) among students older than 25 years than those aged 18-20 years. Those students who were in a relationship had 1.4 times higher odds of violence (95% CI 1.0-2.0) than those who were not in a relationship. In addition, those students who were from rural residences before coming to the university had 1.4 times higher odds of violence (95% CI 1.1-1.8) than those from urban residences. The odds of violence among those who consumed alcohol once a week or more in the past month were 2.2 times higher (95% CI 1.3-3.6) than those who did not consume alcohol. Furthermore, the likelihood of violence was 1.6 times higher (95% CI 1.0-2.4) among those who chewed khat and 2 times higher (95% CI 1.3-3.1) among those who used other drugs in the last 12 months.

OPEN ACCESS

Citation: Belihu WB, Herder T, Amogne MD, Sundewall J, Palmieri J, Agardh A (2025) Exposure to violence and associated factors among university students in Ethiopia: A cross-sectional study. PLoS ONE 20(3): e0319792. <https://doi.org/10.1371/journal.pone.0319792>

Editor: Jessica Leight, IFPRI: International Food Policy Research Institute, UNITED STATES OF AMERICA

Received: September 13, 2024

Accepted: February 7, 2025

Published: March 18, 2025

Copyright: © 2025 Belihu et al. This is an open access article distributed under the terms of the [Creative Commons Attribution License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Data availability statement: The data is owned by the Ethiopian Public Health Institute National Data Management Center (EPHI NDMC). It can be made accessible upon request, via web link below. <https://rtids.eph.gov.et/public/>

Funding: The author(s) received no specific funding for this work.

Competing interests: No authors have competing interests.

Conclusion

Exposure to violence is a challenge for both male and female university students in Ethiopia. Several socio-demographic and behavioral factors were significantly associated with exposure to violence. Therefore, it is crucial for universities and stakeholders to raise awareness about contributing factors to minimize violence, regardless of gender.

Background

Globally, violence remains a pervasive issue, manifesting in forms as varied as armed conflict, terrorism, domestic violence, and crime, impacting millions of lives and destabilizing societies. Both men and women across the world are victims of violence. For example, according to the estimates based on the WHO global database from 161 countries on the prevalence of violence against women, more than one in four (27%) ever-partnered women aged 15–49 years has experienced physical and/or sexual intimate partner violence since the age of 15 years and one in seven (13%) experienced this violence in the past year before the survey [1].

Violence is a public health issue due to its widespread prevalence and adverse short and long-term impacts on physical, mental, sexual, and reproductive health. Additionally, it entails significant social and economic costs for victims, their families, and societies, including inter-generational cycles of violence, lower academic performance and reduced productivity [2–4]. Violence is frequently categorized into four types, physical, sexual, psychological violence, and violence involving deprivation or neglect [5]. According to the 2016 Ethiopian Demographic and Health Survey (EDHS), among women aged 15–49, the prevalence of physical violence ever and in the past 12 months was 23% and 15%, respectively; the prevalence of sexual violence ever and in the past 12 months was 10% and 7%, respectively [6]. Although both men and women are victims of violence, limited information is available concerning men's exposure to violence in Ethiopia or neighboring countries.

University students can be particularly at risk for exposure to violence. For many young adults, university study is the first time that they are away from parental control, which can increase their exposure to behaviors associated with experiences of violence, such as alcohol consumption [7–9] and drug use [10–12]. Furthermore, university is a time of self-discovery and exploration of new things, such as being in relationships and having sex. While students are often independent and make their own decisions, they are also subject to power imbalances by peers and teachers, which might increase their exposure to violence. It is difficult to get a clear picture of campus violence due to underreporting of incidents and the use of inconsistent survey methods across studies [13]. Exposure to emotional and physical violence in the past six months among university students in the US and Canada was 17% and 16% among males and females, respectively [14]. Another study among university students in Italy showed that experience of psychological and physical violence among peers/at school was higher among males than females (21.5% vs. 9.7%) [15]. Exposure to violence is also prevalent among university students in African countries. A study on sexual coercion, interpersonal violence, and mental health among university students in southwestern Uganda showed that 31.1% of the respondents had experienced some form of sexual coercion in their lifetime; 27.8% and 9.6% of the respondents had been exposed to perceived threats/threats of violence and actual physical violence, respectively, during the past year [16]. Furthermore, a study on the prevalence of sexual violence among female university students in Ethiopia showed that 9.8% and 1.6% of students had been victims of completed rape in their lifetime and after joining the university, respectively [17]. A similar study among female university students in Ethiopia

revealed a 15.3% lifetime prevalence of rape and a prevalence of 8% and 2.3% since joining the university and in the current academic year, respectively [18].

Theoretical framework

It has been argued that a combination of individual, institutional, community, public policy and societal factors, as well as group processes contribute to exposure to violence in higher education across countries [13]. One way of understanding these vulnerabilities further would be to view them from the perspectives of developmental ecology. According to Bronfenbrenner's ecological model of human development, youth violent behavior should be viewed as a result of interactions within various environmental systems rather than in isolation [19]. The model comprises five subsystems, the micro-, meso-, exo-, macro- and chronosystems. The microsystem includes immediate relationships like family, school/university, and peers, the mesosystem includes interactions between various aspects of the microsystem, and the exosystem encompasses external influences such as policies and institutions that indirectly affect individuals. The lack of curriculum and policy to prevent or manage exposure to violence, is a general problem in Ethiopia, not least for university students, and can be seen as part of the exosystem in the human development model. Furthermore, university students may be influenced by the macrosystem, which involves broader cultural beliefs and ideologies and the chronosystem, accounting for changes over time [20].

Factors such as individual characteristics (age, gender) and behaviors (substance use) interact with these systems to increase vulnerability to violence among youth, particularly among university students who may face unique risks due to their social networks and environmental contexts. A study by Heise of violence among women that adopted an integrated ecological framework, supported by findings from international and cross-cultural research, described factors contributing to violence at different levels of the social ecology [21]. These factors involve determinants at the individual level, such as having witnessed marital violence as a child and having been abused as a child, the microsystem level, including male dominance in the family, the exosystem level, including low socio-economic status and delinquent peer association, and the macrosystem level, including masculinity norms linked to aggression and dominance, rigid gender roles, and acceptance of interpersonal violence [21]. Another longitudinal study of the development of serious delinquent behavior among adolescent boys showed the relationships between microsystem influences of parenting and peer deviance, macrosystem influences of community structural characteristics and neighborhood social organization, and individual involvement in violence [22]. Thus, interpersonal violence may have multiple determinants existing on interacting levels.

Previous studies conducted in Ethiopia, South Africa, India, and Turkey showed that factors significantly associated with violence exposure among university students were age [23], childhood rural residence [24], being a second-year student [25], being married or living with a male partner [25–27], having a father with no formal education [25], alcohol consumption [24,25], substance/drug use [28], and not being able to freely discuss issues with their families [25].

In Ethiopia, political instability might contribute to young people's exposure to violence, with universities often serving as focal points for its escalation. These institutions, characterized by diverse student populations and political discourse, create environments where tensions frequently lead to both the experience and initiation of violent acts. Previous studies of violence among university students in Ethiopia have only targeted one specific university and have focused solely on women/girls, often with an emphasis on gender-based violence [24–26,29]. Further knowledge is needed concerning the prevalence and factors associated

with exposure to violence among both male and female university students. Therefore, this study aimed to determine the prevalence of exposure to violence and associated factors among male and female university students in Ethiopia. A better understanding of the dynamics of violence and the factors associated with exposure to violence among university students is necessary to improve prevention and intervention strategies in the university context.

Methods

Study design and setting

A cross-sectional study was conducted at six randomly selected public universities in Ethiopia: Hawasa, Dire Dawa, Bahir Dar, Ambo, Addis Ababa, and Adama University, located in different regions and city administrations. Bahir Dar and Hawassa Universities are located in scenic areas with cultural attractions, 552 km northwest and 278 km south of Addis Ababa, respectively. Dire Dawa and Adama Universities, about 515 km and 79 km east of Addis Ababa, are located in a region known for its industrial activities. Ambo University, 114 km west of Addis Ababa, is situated in an agricultural hub. Addis Ababa University is the oldest university, located in the capital city of Ethiopia. The data collection period was between August 2021 and February 2022.

Study population

The study participants were undergraduate university students in their second and third year of study. First-year students were excluded since they were new to the university and their exposure to violence during their 12 months at the university may not have been fully established. Fourth- and fifth-year students were excluded because they had mostly completed their coursework and left the university campus for their apprenticeship.

Sample size and sampling procedures

A single population proportion was used to determine the sample size. For each university, the calculated sample size was 493, considering a 45.4% prevalence of sexual violence among female university students [18], a 95% CI, a design effect of 1.2, and a non-response rate of 10%. The aggregated sample size for the six universities was 2958. However, all students from the selected departments who were willing to take part in the study were included, yielding a final sample of 2988.

To recruit study participants, a two-stage stratified sampling technique was used. First, universities were stratified into first- and second-generation universities to assess whether the risk of exposure to violence differed by the university's year of establishment. First-generation universities (i.e., Addis Ababa, Bahir Dar, and Hawassa) are older institutions located in larger towns and have more established environments such as nightclubs and bars, compared to second-generation universities (i.e., Dire Dawa, Ambo, and Adama). Access to venues such as nightclubs and bars might increase the opportunities for the students to engage in risky behavior. During the study period, there were nine first-generation and twelve second-generation universities in Ethiopia, from each of which three universities were randomly selected using the lottery method.

Secondly, on average, 19 departments were randomly selected from each university. This was based on the assumption that there would be no difference between departments in terms of students' likelihood of exposure to violence. Information about the lists of departments was obtained from the registrar of each university before data collection began. During class sessions, students were informed about the study and asked to participate voluntarily. Written consent was collected from those who agreed to participate, and they then completed a self-administered questionnaire in the classroom.

Data collection tools

The questionnaire included background characteristics, alcohol and drug use, and exposure to emotional, physical, and sexual violence. The questionnaire was adapted from the Ethiopian Demographic and Health Survey questionnaire [30,31], the World Health Organization (WHO) alcohol consumption indicator book [32], and previous similar studies [17,24–26,33]. The questionnaire was developed in English and translated into Amharic and Oromifa by professional language translators. A pretest was done on 296 students (10% of the total sample size). Feedback from the pre-test results was incorporated into the final version of the questionnaire. Data collection coordinators were trained on data collection procedures, and the principal investigator closely monitored and supervised the data collection process.

Variables: Definitions and assessment

Violence (dependent variable). According to the World Health Organization (WHO), violence is the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation [34].

For this study, exposure to violence was assessed in terms of experience of emotional, physical, and sexual violence within the time frames “ever” and “during the last 12 months”. For the regression analyses, exposure to violence was defined as exposure to at least one type of violence at least once during the last 12 months. Emotional violence was assessed by the question, “Have you been exposed to any of the following threats or threats of violence (ever and in the past 12 months) that were so dangerous or serious that they scared you?” The response options were (Someone) “Said or did something to humiliate you in front of others”, “Threatened to hurt or harm you or someone close to you”, “Insulted you or made you feel bad about yourself”, “Other, specify” and “No”. Those who answered affirmatively to at least one of the options except “No” were considered to have experienced emotional violence. Physical violence was assessed by the question, “Have you been a victim of any of the following physical violence at any time (ever and during the past 12 months)?”, where the response choices were (Someone) “Pushed you, shook you, or threw something at you”, “Slapped you”, “Twisted your arm or pulled your hair”, “Punched you with his/her fist or with something that could hurt you”, “Kicked you, dragged you, or beat you up”, “Tried to choke you or burn you on purpose”, “Threatened or attacked you with a knife, gun, or any other weapon”, “Other, specify”, and “No”. Those who responded affirmatively to at least one of the options except “No” were considered to have experienced physical violence. Experience of sexual violence was assessed by the question “Have you ever been and during the past 12 months raped or forced to have sex against your will?” where the choices were “Yes” and “No”. Those who replied “Yes” were considered to have experienced sexual violence. Participants were also asked about the frequency of physical and sexual violence using an open-ended question, “In the past 12 months, how many times has someone physically hurt you/ raped you or forced you to have sex against your will?”. Regarding the perpetrator, information was obtained by the questions: “The last time this has happened, what was your relationship to the perpetrator? If it was more than one person, what was your relationship to the person who initiated the violence the most recent time this happened?”, where the response options were “Boyfriend/girlfriend”, “Teacher/lecturer”, “Other student/classmate”, “Husband/ wife”, “Family member”, “Person unknown to me/ stranger” and “Other (specify)”.

Sociodemographic characteristics (independent variables). Information about age was obtained by an open-ended question that was grouped into three categories for the purpose of analysis: 18–20 years, 21–24 years, and older than 25 years. Relationship status was

dichotomized as “in a relationship” and “not in a relationship.” “In a relationship” was defined as having a boyfriend or girlfriend, being married, or living together.

Residence was dichotomized as urban vs. rural, according to the Ethiopian Central Statistical Authority, which classifies a locality as urban residence if it has at least 2000 inhabitants, includes all administrative capitals of regions, zones, and woredas, or has at least 1000 people who are primarily engaged in non-agricultural activities and/or is declared urban by the administrative official. All areas not classified as urban were designated as rural residences [35].

Living status on campus was assessed by asking participants, “Where do you live?” The response options were “on campus” (living on university premises) and “off campus” (living outside the university premises). Participants were also asked about their living conditions during secondary school in the form of the question, “Did you mostly live at home or away from home while attending secondary school?” The response options were “at home” and “away from home.” Other demographic information collected included sex, religion, year of study, and faculty of study.

Alcohol consumption. Regarding alcohol consumption, participants were asked whether they had ever experienced alcohol induced blackout, with the following response options: “I do not drink alcohol”, “I don’t remember”, “No”, “I didn’t consume so much alcohol”, “Yes, before the past 12 months”, and “Yes, in the past 12 months.” Those who affirmed having this type of excessive consumption before the past 12 months and during the past 12 months are hereafter referred to as having excessive alcohol consumption and those who affirmed that they did not drink alcohol or did not consume excessive amounts of alcohol were considered as not having excessive alcohol consumption. Additionally, those who responded, “I don’t remember” were considered as missing. Participants were also asked about the frequency of their alcohol consumption in the past month, with the following response options: “I do not drink alcohol”, “Less often than once every two weeks”, “Once every two weeks or more”, “Once a week or more”, “Every day”, and “Other”. Those who drank every day and once a week or more were considered as drinking once a week or more. Those who drank once every two weeks or more and less often than once every two weeks were considered drinking less often than once a week. Furthermore, those who replied “other” without text were considered as missing. Participants were also asked about heavy episodic drinking (HED), defined as those who ever consumed five or more (for men) or four or more (for women) standard drinks of alcohol on at least one occasion in the past 30 days [36]. Thus, participants were asked, “Have you ever consumed four/five or more standard drinks of alcohol on at least one occasion?”, with the response options “Never”, “Yes, before the last 12 months”, “Yes, in the last 12 months”, “Yes, in the last one month” and “Yes, in the last one week”. For the current analysis, those who responded “Yes, in the last one month” and “Yes, in the last one week” were considered as “Yes” (HED) and the rest of the options were considered as “No”.

Substance use. Substance use was assessed by asking participants, “Have you used any substances/drugs/ intoxicants other than alcohol in the past 12 months?” The response options were “Khat”, “Ganja (Atsefaris)”, “Cocaine”, “Inhaling solvents such as benzine or glue”, “Marijuana (cannabis)”, “Never used”, and “Other, specify.” For the analysis, those who chose any of the options were categorized as “Yes”. Those who reported using substances other than khat, i.e., ganja (atsefaris), hashish, inhaling solvents, marijuana, and cannabis were considered as having “used any other drugs”. Khat (*Catha edulis*) is a flowering stimulant plant containing the alkaloid cathinone, which causes excitement and euphoria [37]. Ganja is a colloquial term used to refer to cannabis, particularly the dried flowers and leaves of the *Cannabis sativa* plant [38]. The frequency of substance or drug use was asked in the form of

“How often have you used the drugs or intoxicants during the past month?” The response options were, “Less often than once every two weeks”, “Once a week or more”, “Once every two weeks or more”, “Every day”, “I do not use drugs or intoxicants”, and “Other specify”. Those who used drugs or intoxicants every day and once a week or more were considered as if they used once a week or more. In addition, those who used drugs or intoxicants once every two weeks or more and less often than once every two weeks were considered if they used less often than once a week. Furthermore, those who replied “other” without text were considered as missing. The frequency of substance or drug use includes all types of substances or drugs.

Data analysis

The data were entered twice using EpiInfo version 7.2.2.12 by two independent data clerks in order to validate the consistency of the data and then exported to SPSS Version 26 for analysis. Data from all six universities were aggregated into a single dataset for the final analysis. Descriptive statistics, such as frequency and percentages, were used to summarize the data. Bivariable and multivariable logistic regression analyses were performed to identify factors associated with exposure to violence in the last 12 months. Crude and adjusted odds ratios with 95% confidence intervals (CIs) were used to measure the strength of the association. A $p\text{-value} \leq 0.25$ was used to select potential variables for the final multivariable analysis. A higher $p\text{-value}$ was initially used to keep important variables in the model selection process [39]. A correlation analysis was also conducted to assess multicollinearity and no correlation was found between the variables. Associations with a $p\text{-value}$ less than 0.05 were considered statistically significant. Cases with missing values for a particular variable were excluded from those analyses.

Ethical considerations

Ethical approval was granted by the Scientific and Ethical Research Office (SERO) of the Ethiopian Public Health Institute (reference number EPHI 6.13/609). Written informed consent was obtained from each study participant prior to administering the questionnaire during their class sessions. The participants were informed that participation was voluntary and that they could withdraw at any point in the study process. No personally identifiable information was collected, and confidentiality of the information was maintained.

Inclusivity in global research

Additional information regarding the ethical, cultural, and scientific considerations specific to inclusivity in global research is included in the Supporting Information (S1 Checklist).

Results

Socio-demographic characteristics of the participants

[Table 1](#) presents the socio-demographic distribution of the study participants by gender.

Out of 3165 students in selected departments, 2988 participated in the study. The majority of participants (65.1%) were male. The largest proportion of students were aged between 21–24 years (68.7%), 80.5% were not in relationships, more than half (56.5%) were Orthodox Christian, and about three-fourths (73.3%) were from urban residences. In addition, about half of the participants (50.4%) were from first-generation universities and about one-fourth (26.0%) were from the Faculty of Business and Economics. The majority (92.8%) of the students were living on campus and half (48.9%) of them were in their second year of studies ([Table 1](#)).

Table 1. Socio-demographic characteristics by gender among undergraduate students at six universities in Ethiopia, 2022 (N = 2988).

Variable	Total n (%)	Male n (%)	Female n (%)
Age (n = 2758)			
18 - 20 years	770 (27.9)	395 (51.3)	375 (48.7)
21 - 24 years	1894 (68.7)	1330 (70.2)	564 (29.8)
>25 years	94 (3.4)	81 (86.2)	13 (13.8)
Sex (n = 2911)			
Female	1016 (34.9)		
Male	1895 (65.1)		
Relationship status (n = 2774)			
In relationship	542 (19.5)	305 (56.3)	237 (43.7)
Not in relationship	2232 (80.5)	1492 (66.8)	740 (33.2)
Religion (n = 2851)			
Orthodox Christian	1609 (56.4)	1011 (62.8)	598 (37.2)
Catholic	33 (1.2)	22 (66.7)	11 (33.3)
Protestant	731 (25.6)	492 (67.3)	239 (32.7)
Muslim	433 (15.2)	290 (67.0)	143 (33.0)
Other	45 (1.6)	37 (82.2)	8 (17.8)
Residence before coming to the university (n = 2794)			
Urban	2044 (73.2)	1272 (62.2)	772 (37.8)
Rural	750 (26.8)	552 (73.6)	198 (26.4)
Living conditions while attending secondary school (n = 2829)			
At home	2188 (77.3)	1347 (61.6)	841 (38.4)
Away from home	641 (22.7)	493 (76.9)	148 (23.1)
Generation of the university (n = 2911)			
First generation	1467 (50.4)	978 (66.7)	489 (33.3)
Second generation	1444 (49.6)	917 (63.5)	527 (36.5)
Faculty (n = 2890)			
Faculty of Natural and Computational Science	521 (18.0)	351 (67.4)	170 (32.6)
Faculty of Medicine	48 (1.7)	30 (62.5)	18 (37.5)
Faculty of Social and Human Science	619 (21.4)	367 (59.3)	252 (40.7)
Faculty of Law	224 (7.7)	136 (60.7)	88 (39.3)
Faculty of Business and Economics	751 (26.0)	491 (65.4)	260 (34.6)
Faculty of Institute of Technology	727 (25.2)	510 (70.2)	217 (29.8)
Year of study (n = 2911)			
Second-year student	1424 (48.9)	877 (61.6)	547 (38.4)
Third-year student	1487 (51.1)	1018 (68.5)	469 (31.5)
Living status on campus (n = 2777)			
On campus	2578 (92.8)	1726 (67.0)	852 (33.0)
Off-campus	199 (7.2)	92 (46.2)	107 (53.8)

<https://doi.org/10.1371/journal.pone.0319792.t001>

Table 2 shows the distribution of alcohol consumption and substance use among the study participants. Regarding alcohol consumption, 9.3% of the students had ever had alcohol induced black-out. Only 4.8% of participants reported their alcohol consumption as weekly or more often in the past month. Of the study participants, 5.9% were classified as having had HED in the past month.

Concerning substance/drug/intoxicant use, 10.8% of respondents had ever used khat and 7.0% of them used khat in the last 12 months. Further, 8.7% and 6.8% of them used other

Table 2. Alcohol consumption and substance use by gender among undergraduate students at six universities in Ethiopia, 2022 (N = 2988).

Variable	Total n (%)	Male n (%)	Female n (%)
Alcohol induced blackout (n = 2624)			
Yes	245 (9.3)	172 (70.2)	73 (29.8)
No	2379 (90.7)	1549 (65.1)	830 (34.9)
Frequency of alcohol drinking in the last month (n = 2477)			
Once a week or more	120 (4.8)	87 (72.5)	33 (27.5)
Less often than once a week	344 (13.9)	256 (74.4)	88 (25.6)
Did not drink alcohol	2013 (81.3)	1279 (63.5)	734 (36.5)
Heavy episodic drinking in the last month (n = 2740)			
Yes	161 (5.9)	112 (69.6%)	49 (30.4)
No	2579 (94.1)	1665 (64.6)	914 (35.4)
Ever chewing khat (n = 2654)			
Yes	286 (10.8)	224 (78.3)	62 (21.7)
No	2368 (89.2)	1514 (63.9)	854 (36.1)
Chewing khat in the last 12 months (n = 2794)			
Yes	195 (7.0)	152 (77.9)	43 (22.1)
No	2599 (93.0)	1668 (64.2)	931 (35.8)
Ever used any other drugs (n = 2654)			
Yes	230 (8.7)	157 (68.3)	73 (31.7)
No	2424 (91.3)	1581 (65.2)	843 (34.8)
Used any other drugs in the last 12 months (n = 2795)			
Yes	189 (6.8)	126 (66.7)	63 (33.3)
No	2606 (93.2)	1695 (65.0)	911 (35.0)
Frequency of all types of substance use in the last month (n = 2703)			
Once a week or more	140 (5.2)	111 (79.3)	29 (20.7)
Less often than once a week	166 (6.1)	122 (73.5)	44 (26.5)
Did not use substance or drug	2397 (88.7)	1534 (64.0)	863 (36.0)

<https://doi.org/10.1371/journal.pone.0319792.t002>

drugs ever and in the last 12 months, respectively. Regarding the frequency of drug use in the past month, 5.2% of them used once a week or more. The majority of substance/drug/intoxicant users were men as shown in [Table 2](#).

Exposure to violence

The prevalence of exposure to any type of violence ever was 24.9% (n = 742), while the prevalence of exposure to violence in the last 12 months was 17.6% (n = 525). The prevalence of exposure to emotional, physical and sexual violence in the last 12 months was 17.8% (n = 508), 12.3% (n = 349) and 3.3% (n = 87), respectively.

The prevalence of exposure to at least one type of violence ever among males and females was 25.5% (n = 482) and 23.6% (n = 240), respectively, whereas the prevalence of exposure to violence among males and females in the last 12 months was 17.9% (n = 340) and 16.5% (n = 168), respectively ([Fig 1](#)).

Regarding the frequency of violence experience, 41.9% of the students experienced physical violence more than once and 13% of the students experienced sexual violence more than once.

[Table 3](#) shows the proportion of students who experienced different forms of violence and the type of perpetrator who had initiated the violence on the most recent occasion.

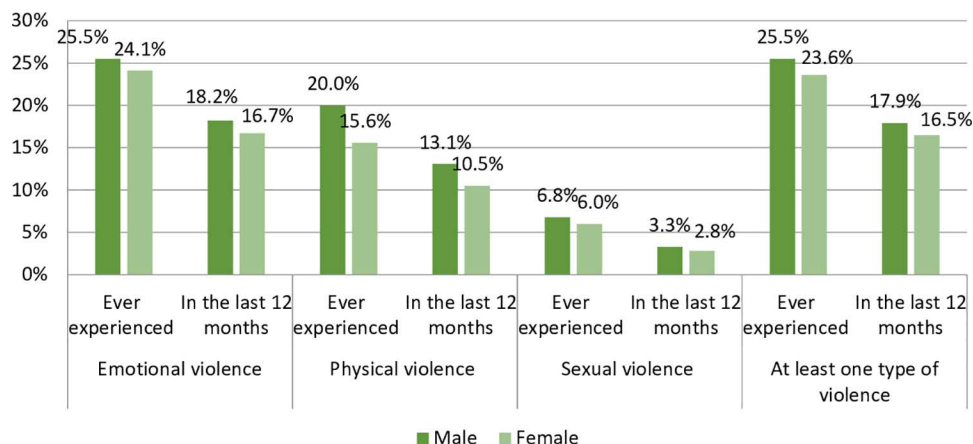


Fig 1. Exposure to different types of violence by gender, 2022.

<https://doi.org/10.1371/journal.pone.0319792.g001>

Intimate partners (boyfriends/girlfriends) were the most common perpetrators of emotional violence (27.7%) and sexual violence (39.3%). With regard to physical violence, other students/classmates were the most frequent perpetrators (25.5%).

Factors associated with violence as shown by bivariable and multivariable logistic regression analysis

[Table 4](#) shows the results of the bivariable and multivariable logistic regression analyses for factors contributing to violence in the last 12 months.

The bivariable regression analysis showed that being older than 25 years, being in a relationship, being from a rural residence before coming to the university, studying at first-generation universities, drinking alcohol once a week or more and less often than once a week in the past month, having HED in the past month, chewing khat and using other drugs in the last 12 months were significantly associated with violence (p -value < 0.05). In addition to the aforementioned variables, the variables aged between 21–24 years, being Orthodox Christian, being a third-year student, and living off-campus were selected for multivariable regression analysis (p -value < 0.25) ([Table 4](#)).

In multivariable logistic regression analysis, when all variables were mutually adjusted for one another, the adjusted odds of experience of violence were 2.9 times higher (95% CI 1.6–5.0) among students older than 25 years compared to those aged 18–20 years. Students who were in a relationship had 1.4 times higher likelihood of violence (95% CI 1.0–2.0) than those who were not in a relationship. In addition, students who were from rural residences before coming to the university had 1.4 times higher odds of violence (95% CI 1.1–1.8) as compared to those from urban residences. Students studying at first-generation universities had 1.4 times higher (95% CI 1.1–1.8) odds of violence than students at second-generation universities. The odds of violence were 2.2 times higher (95% CI 1.3–3.6) among those who consumed alcohol once a week or more compared to those who did not drink alcohol in the past month. Furthermore, the odds of violence were 1.6 times higher (95% CI 1.0–2.4) among those who had chewed khat and 2 times higher (95% CI 1.3–3.1) among those who used other drugs ([Table 4](#)).

Discussion

To our knowledge, this is the first study that examines exposure to violence both among male and female university students in Ethiopia and presents data from six universities. The overall

Table 3. Perpetrators and different types of violence experienced by undergraduate university students in Ethiopia, stratified by gender of respondent, 2022.

Perpetrators	Emotional violence (n = 623)				Physical violence (n = 399)				Sexual violence (n = 143)			
	Male		Female		Male		Female		Male		Female	
	N	%	N	%	N	%	N	%	N	%	N	%
Boyfriend/girlfriend	130	31.3	41	19.7	73	25.9	28	23.9	40	43.0	17	34.0
Teacher/lecturer	65	15.7	34	16.3	42	14.9	13	11.1	22	23.7	7	14.0
Other student/ classmate	102	24.6	42	20.2	82	29.1	23	19.7	8	8.6	11	22.0
Husband/wife	23	5.5	16	7.7	5	1.8	3	2.6	2	2.2	3	6.0
Family member	33	7.9	26	12.5	28	9.9	18	15.4	11	11.8	8	16.0
Person unknown to me/ stranger	40	9.6	34	16.3	36	12.8	25	21.4	3	3.2	3	6.0
Other	22	5.3	15	7.2	16	5.7	7	6.0	7	7.5	1	2.0

Note: Cases with missing data were not included in the analysis

<https://doi.org/10.1371/journal.pone.0319792.t003>

prevalence of exposure to at least one type of violence (emotional or/and physical or/and sexual violence) ever was 24.9%, whereas the prevalence in the last 12 months was 17.6%, with similar exposure prevalence among males and females, 17.9% and 16.5%, respectively. The odds of exposure to violence in the last 12 months were higher among students older than 25 years, those who were in a relationship, those with rural residence before coming to the university, those who consumed alcohol more frequently, and those who used khat and other drugs in the last 12 months.

The current study shows that exposure to any form of violence was common among both male and female university students. This might be due to university students experiencing difficulties in adjusting to a new environment, managing newfound independence and experimenting with different risky lifestyles such as excessive consumption of alcohol and substance use. Comparing the prevalence of exposure to violence across studies can be difficult due to various types of methodological differences, including sampling and definitions of violence. Furthermore, previous studies in Ethiopia have largely concentrated on gender-based violence, primarily focusing on women and girls, thus making it difficult to compare the prevalence of violence among males and females in the current study with any other locally conducted studies. Nevertheless, the prevalence of violence among males and females in the last 12 months in this study was similar to the prevalence obtained in a study conducted among university students in the US and Canada, showing 17% and 16% among males and females, respectively [14]. Even though their setting is different from our study, the study was similar in terms of study design, study population, and age. The overall prevalence of experience of violence at two universities in Mexico was 25.7% and 31.9% [40] which is higher than the current study, most likely because violence was measured as the sum of four types of violence (verbal, psychological, sexual, and physical violence), whereas in our study, those who experienced at least one type of violence were considered as having violence exposure.

In this study, the prevalence of emotional violence (17.8%) was lower, while the prevalence of physical violence (12.3%) in the last 12 months was higher compared to results from a study conducted among university students in southwestern Uganda, which found a prevalence of 27.8% and 9.6%, respectively [16]. This might be due to methodological differences. The study in Uganda included the entire undergraduate class of the university and used a different formulation with regard to the violence questions. Our study used questions with different categorical options, whereas the Ugandan study used response options in the form of “yes” or “no”. Furthermore, a study on violence against dating partners by male and female university

Table 4. Bivariable and multivariable logistic regression analysis of factors associated with exposure to violence among undergraduate university students in Ethiopia, 2022 (N = 2988).

Variables	COR (95% CI)	p-value	AOR (95% CI)	p-value
Age				
18 - 20 years	1		1	
21 - 24 years	1.2 (1.0-1.5)	0.119*	1.1 (0.8-1.5)	0.422
>25 years	2.9 (1.8-4.6)	<0.001*	2.9 (1.6-5.0)	<0.001**
Sex				
Female	0.9 (0.7-1.1)	0.341		
Male	1			
Relationship status				
In relationship	1.6 (1.3-2.0)	<0.001*	1.4 (1.0-2.0)	0.002**
Not in relationship	1		1	
Religion				
Orthodox Christian	1		1	
Catholic	2.4 (1.1-4.9)	0.022*	1.9 (0.7-5.6)	0.228
Protestant	1.0 (0.8-1.3)	0.987	0.9 (0.7-1.2)	0.528
Muslim	1.0 (0.7-1.3)	0.814	1.0 (0.7-1.5)	0.813
Other	1.0 (0.5-2.1)	0.940	1.1 (0.4-2.8)	0.844
Residence before coming to the university				
Rural	1.4 (1.1-1.7)	0.003*	1.4 (1.1-1.8)	0.015**
Urban	1		1	
Generation of the university				
First	1.3 (1.0-1.5)	0.016*	1.4 (1.1-1.8)	0.006**
Second	1		1	
Year of study				
Second-year student	1		1	
Third-year student	1.2 (1.0-1.4)	0.156*	1.0 (0.8-1.3)	0.821
Living status on campus				
In campus	1		1	
Out of campus	0.7 (0.5-1.1)	0.081*	0.6 (0.4-1.1)	0.111
Frequency of alcohol drinking in the last month				
Once a week or more	2.8 (1.9-4.2)	<0.001*	2.2 (1.3-3.6)	0.002**
Less often than once a week	1.8 (1.3-2.3)	<0.001*	1.4 (1.0-2.1)	0.050
Did not drink alcohol	1		1	
Heavy episodic drinking in the past one month				
Yes	2.0 (1.4-2.8)	<0.001*	1.0 (0.6-1.7)	0.975
No	1		1	
Chewing khat in the last 12 months				
Yes	1.8 (1.3-2.5)	<0.001*	1.6 (1.0-2.4)	0.039**
No	1		1	
Used any other drugs in the last 12 months				
Yes	2.9 (2.2-4.0)	<0.001*	2.0 (1.3-3.1)	0.001**
No	1		1	

*P-value < 0.25;

**P-value < 0.05; COR = Crude Odds Ratio; AOR = Adjusted Odds Ratio; CI = Confidence interval; 1 = Reference category.

Note: P-value < 0.25 was used as the cut-off point for inclusion in the multivariable analysis.

<https://doi.org/10.1371/journal.pone.0319792.t004>

students worldwide showed that 7% had been physically injured by a partner (range = 2% to 20%) in the past 12 months [41]. The finding of the current study falls within this range. The experience of physical violence within a relationship could be due to the power imbalance, jealousy or possessiveness in a relationship, as shown in a studies of jealousy and intimate partner violence among university students in Ecuador [42] and young adults in the US [43].

Unexpectedly, the prevalence of sexual violence was higher among males than females in the current study. This might be due to the fact that sexual violence is a very sensitive issue in Ethiopia, where strict social norms and cultural factors play a significant role. Thus, female students may underreport incidents of sexual violence due to stigma, fear of not being believed, or concern about potential consequences. According to the EDHS, among women aged 15 to 49 years who experienced either physical or sexual violence or both, 66% have never disclosed their exposure to anyone [6]. Similarly, a systematic review and meta-analysis of female domestic violence disclosure in Ethiopia showed a pooled prevalence of 36.2% [44]. The reasons for not disclosing were considering violence as normal or not serious, shame, embarrassment, and fear of disclosure related consequences [44]. An internet-based study of undergraduate females in New York City and Miami, Florida showed that among participants who reported sexual victimization, 25% had not previously disclosed it because of shame, minimization of experience, fear of consequences, and privacy [45]. Furthermore, a study among adult female sexual assault survivors in the United States revealed that the reasons for not telling people were fear of negative social reactions, lack of perceived available support, fear of burdening others, and family and social norms expectations [46]. In this study, the prevalence of sexual violence among females was lower compared to findings from a study conducted among female university students in Wolaita Sodo [18], and a systematic and meta-analysis conducted among female university students in Ethiopia [47,48]. This could be due to the difference in the operational definition of sexual violence, as the other studies included attempted rape, and also variations in study design, with the systematic review and meta-analysis encompassing all types of observational studies. The ecological model can help us understand the importance of exploring how factors such gender and gender norms could affect vulnerabilities to, and behaviors associated with, violence [49,50]. Our study showed no significant gender differences in overall exposure to violence, which is similar to a study among university students in southwestern Uganda [16]. However, a study conducted among university students in Italy showed that ever experienced psychological and physical violence among peers/school was reported significantly more often by males than by females (21.5% vs. 9.7%) [15]. Another study among university students in Finland showed that men reported more emotional and physical violence than women [51], which is similar to the current study. This might be due to the societal norms and expectations around masculinity that encourage confrontation among men [52,53]. In addition, the current findings of a higher prevalence of emotional violence among male students vs. female students could be due to male students in Ethiopia engaging in risky behaviors such as alcohol consumption [7,54,55] and drug use [10,12,56].

In the microsystem described by Bronfenbrenner's immediate relationships with family, peers and teachers can play a role in contributing to violent behaviors [20]. In our study, most of the perpetrators of emotional violence were boyfriends/girlfriends, which is in line with a study among university students in the US and Canada [14] which found that nearly half of the students experienced violence from intimate partners or persons whom the students were dating or with whom they were in an ongoing romantic relationship. However, physical violence perpetrators were other students/classmates and also boyfriends/girlfriends, albeit to a lesser extent, which is similar to the aforementioned study [14]. Furthermore, the perpetrators of sexual violence were boyfriends/girlfriends and also teachers/lecturers, albeit

to a lesser extent, which is in line with a study conducted on sexual violence among female university students in Ethiopia [57]. The patterns of perpetrator characteristics shown here could be linked to experiences of childhood abuse and growing up with domestic violence, factors which have previously been shown to be significantly associated with intimate partner violence in a multi-country population-based study among women [58]. The relevance of childhood abuse experiences would also be suggested by Bronfenbrenner's model where children who experience violence at home may develop unhealthy coping mechanisms and encounter difficulties in establishing and maintaining healthy relationships [19]. Similarly, the authority held by lecturers or teachers can lead to situations where students may be vulnerable to manipulation or abuse [59,60].

Another individual factor contributing to violence exposure is age. In the current study, students who were older than 25 years had higher odds of having experienced violence in the last 12 months. This finding is in line with a study on exposure to emotional violence among university students in Turkey [23], which showed that the level of exposure to emotional violence increased as age increased. Another study on the effect of sex and age on experiences of violence during the past year among adolescents aged 13 to 24 years in five countries (Cambodia, Haiti, Kenya, Malawi, and Tanzania) [61] revealed that the risk of sexual violence and also intimate partner violence increased with age. This could be due to older students being more prone to alcohol or substance use than their younger counterparts [62–64], which can impair their judgment and elevate the likelihood of encountering violent situations. A study conducted on the magnitude of and trends in alcohol-related mortality and morbidity among U.S. college students revealed that excessive alcohol consumption increased with age and alcohol consumption was associated with violence experience among the students [65].

Bronfenbrenner's ecological model suggests that immediate social environments such as family dynamics, peer influences, and intimate relationships play a crucial role in shaping an individual's behavior [20,21]. These could significantly affect the likelihood of experiencing or perpetrating violence where negative interactions in a relationship can create a cycle of conflict and aggression, reinforcing patterns of violent behavior over time. In the current analysis, students who were in a relationship had higher odds of violence. Romantic partners could spend a long time together, which can create opportunities for conflicts and disagreements that can escalate into violence. Additionally, dependency in romantic relationships can make individuals more vulnerable to manipulation and abuse. Being in a relationship was previously found to be significantly associated with sexual violence among female university students in Ethiopia [18,57]. This factor was also significantly associated with gender-based violence (GBV) among female students in Ethiopia [25,26], at public universities in South Africa [27] and among male and female university students in the US and Canada [14]. Being in a relationship would de facto increase the risk of experiencing intimate partner violence, including emotional, physical, or sexual violence by a partner.

Another factor significantly associated with violence was having a rural residence prior to attending the university. This is similar to a study conducted on sexual violence among female students at Bahir Dar private college [66] in Ethiopia, which revealed that rural residence was significantly associated with exposure to different types of violence in the academic setting. This could be due to students from rural residences being exposed to forms of violence such as teasing and bullying, potentially because they are perceived as different or outsiders. A study conducted on structural family factors and bullying at school among adolescents in China showed that being from a rural residence was associated with bullying at school [67]. Furthermore, the influence of rural residence is supported by Bronfenbrenner's ecological model, suggesting that broader social systems indirectly influence an individual's development, such as the community and neighborhood in which they live [68].

In the absence of parental oversight, students may feel a newfound sense of freedom and independence, which could result in experimenting with risky behaviors such as drinking alcohol and substance use. Additionally, the influence of peers plays a significant role; students may be encouraged or feel compelled to partake in these behaviors to fit in or gain acceptance within their social circles. Students often engage in these risky behaviors in social settings, such as parties or gatherings, where the dynamics of the group can intensify these actions. The collective influence of peers can amplify tendencies toward excessive drinking or drug use [69–71]. This is also in line with Bronfenbrenner's ecological model where peer pressure can influence individuals' behaviors [20,21]. Such an environment can also heighten aggressive behavior and consequently, this can escalate into violent incidents.

In the current study, the odds of violence were higher among those who consumed alcohol more frequently. The effects of alcohol include a reduction in cognitive and physical functions that impair self-control, with the consequent effect of reducing the ability to resolve conflicts peacefully [72]. Studies in Ethiopia on sexual violence and GBV among female college/university students [24,25,18] revealed that those students who habitually drank alcohol were more likely to be victims of violence. A research review of alcohol consumption among college students showed that those students who binge drink frequently (three or more times in two weeks) were at particularly high risk of negative alcohol-related outcomes [73]. Being a college or university student may involve a special risk for young adults, as increased availability of alcohol and acceptance of drinking on college campuses may lead to increases in unwanted consequences, including physical and sexual assaults [74].

Furthermore, in the current study, those who used khat and other drugs had higher odds of exposure to violence. Studies conducted among female college and university students in Ethiopia showed that khat was significantly associated with GBV [17,24,57]. A study on violence among college students in India found a significant association between substance use and violence [28]. In addition, physical violence was significantly associated with illicit drug use in the past 30 days in a study conducted in the US [75]. Moreover, consumption of alcohol or other drugs was significantly associated with experiences of harassment among students in a study in Spain [76]. Both alcohol and substance use can impair cognitive function and decision-making abilities, lower inhibitions, and increase aggression, which potentially leads to greater exposure to violence. Furthermore, there is a complex causal relationship between violence and alcohol and drug use, where these substances are often used as coping mechanisms after traumatic events, such as experiences of violence [77,78]. Additionally, being in environments like bars can increase vulnerability, as the presence of intoxicated individuals can heighten the likelihood of violence, even if one does not drink to the extent of losing judgment. Therefore, universities could create a comprehensive approach to reduce violence related to risky behaviors, such as implementing comprehensive education programs about the risks and consequences of alcohol and drug use, offering accessible counseling services that provide support for students struggling with substance use [79,80], and working with local businesses to limit the availability of alcohol and substances near campus [81,82]. A comprehensive approach would be in line with Bronfenbrenner's ecological model, indicating the need to address multiple contributing factors across individual, relational, community, and societal levels that contribute to violence. This holistic perspective could inform the development of effective prevention and intervention strategies tailored to university students.

Methodological considerations

While this study is a comprehensive exploration of violence among university students in Ethiopia, the findings might be specific to the studied population, and caution is needed when

generalizing to university students broadly or students in other countries because of differences in culture and socioeconomic background.

Self-administration of the questionnaire may have led to incomplete, inaccurate, under-reported, or overreported data. To mitigate these issues, participants were provided with orientation on how to complete the questionnaire before it was administered. Social desirability bias may have been present due to the sensitive nature of some questions, but the anonymity of study participation, where students placed their completed questionnaires in a designated box and the use of external data collection coordinators helped to reduce this source of bias. This study examines violence exposure among both male and female participants but does not assess the gender of the perpetrators. Although there were some missing data points in the responses to the questionnaire, no systematic pattern was observed, and the distribution of missing data was considered to be random.

Conclusion

Exposure to violence is a prevalent challenge among female and male university students in Ethiopia. Socio-demographic and behavioral factors such as the use of alcohol and substances were significantly associated with exposure to violence. Universities, together with stakeholders such as the Ministry of Science and Higher Education, Ministry of Health, students, and partners that work on violence need to strengthen/develop awareness raising activities targeting violence prevention mechanisms and its associated factors, regardless of gender.

Supporting information

S1 File. Checklist.
(PDF)

Acknowledgments

We would like to express gratitude to the study participants and coordinators.

Author contributions

Conceptualization: Wudinesh Belete Belihu, Tobias Herder, Minilik Demissie Amogne, Anette Agardh.

Data curation: Wudinesh Belete Belihu, Anette Agardh.

Formal analysis: Wudinesh Belete Belihu, Tobias Herder, Minilik Demissie Amogne, Jesper Sundewall, Anette Agardh.

Methodology: Wudinesh Belete Belihu, Tobias Herder, Minilik Demissie Amogne, Jesper Sundewall, Jack Palmieri, Anette Agardh.

Supervision: Wudinesh Belete Belihu, Anette Agardh.

Writing – original draft: Wudinesh Belete Belihu.

Writing – review & editing: Wudinesh Belete Belihu, Tobias Herder, Minilik Demissie Amogne, Jesper Sundewall, Jack Palmieri, Anette Agardh.

References

1. Sardinha L, Maheu-Giroux M, Stöckl H, Meyer SR, García-Moreno C. Global, regional, and national prevalence estimates of physical or sexual, or both, intimate partner violence against women in 2018. *Lancet* [Internet]. 2022;399(10327):803–13. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0140673621026647> PMID: [35182472](https://pubmed.ncbi.nlm.nih.gov/35182472/)

2. World Health Organization. Violence against women [Internet]; 2024 [cited 2024 Jul 7]. Available from: <https://www.who.int/news-room/fact-sheets/detail/violence-against-women>
3. World Health Organization. Injuries and violence [Internet]; 2024 [cited 2024 Jul 7]. Available from: <https://www.who.int/news-room/fact-sheets/detail/injuries-and-violence>
4. Brewer N, Thomas KA, Higdon J. Intimate partner violence, health, sexuality, and academic performance among a national sample of undergraduates. *J Am Coll Health* [Internet]. 2018;66(7):683–92. <https://doi.org/10.1080/07448481.2018.1454929> PMID: [29565765](#)
5. Rutherford A, Zwi AB, Grove NJ, Butchart A. Violence: a glossary. *J Epidemiol Community Health*. 2007;61(8):676–80. <https://doi.org/10.1136/jech.2005.043711> PMID: [17630364](#)
6. Central Statistical Agency. Ethiopia demographic and health related survey [Internet]; 2016. Available from: <https://dhsprogram.com/pubs/pdf/FR328/FR328.pdf>
7. Boltana G, Kacharo MM, Abebe A, Baza D. Alcohol consumption and associated factors among undergraduate regular students in Wolaita Sodo University, Southern Ethiopia, 2021: a cross-sectional study. *Pan Afr Med J* [Internet]. 2023;45:179. Available from: <https://www.panafrican-med-journal.com/content/article/45/179/full> PMID: [37954438](#)
8. Lemma A, Salelew E, Demilew D, Tesfaye W, Shumet S, Kerebih H. Alcohol use disorder and associated factors among University of Gondar undergraduate students: a cross-sectional study. *J Subst Abuse Treat* [Internet]. 2021;129:108373. <https://doi.org/10.1016/j.jsat.2021.108373> PMID: [34080544](#)
9. Amare T, Getinet W. Alcohol use and associated factors among high school, college and university students in Ethiopia, systematic review, and meta-analysis, 2018. *J Ment Health* [Internet]. 2020;29(4):455–63. <https://doi.org/10.1080/09638237.2019.1677871> PMID: [31718345](#)
10. Roba HS, Gebremichael B, Adem HA, Beyene AS. Current substances use among students in Ethiopia: a systematic review and meta-analysis of 20-years evidence. *Subst Abuse* [Internet]. 2021;15:11782218211050352. Available from: <http://journals.sagepub.com/doi/10.1177/11782218211050352> PMID: [34671181](#)
11. Yosef T, Getachew D, Shifera N. Psychoactive substance use among undergraduate students of Mizan-Tepi University in Southwest Ethiopia. *Cogent Psychology* [Internet]. 2023;10(1). <https://doi.org/10.1080/23311908.2023.2230021>
12. Shegute T, Wasihun Y. Prevalence of substance use in university students, Ethiopia. *Subst Abuse*. 2021;15:11782218211003558. Available from: <http://journals.sagepub.com/doi/10.1177/11782218211003558> PMID: [33854324](#)
13. Langford L. Preventing violence and promoting safety in higher education settings: overview of a comprehensive approach [Internet]. Available from: <https://files.eric.ed.gov/fulltext/ED537696.pdf>
14. Saewyc EM, Brown D, Plane M, Mundt MP, Zakletskaia L, Wiegel J, et al. Gender differences in violence exposure among university students attending campus health clinics in the United States and Canada. *J Adolesc Health* [Internet]. 2009;45(6):587–94. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S1054139X09001414> PMID: [19931831](#)
15. Romito P, Grassi M. Does violence affect one gender more than the other? The mental health impact of violence among male and female university students. *Soc Sci Med* [Internet]. 2007;65(6):1222–34. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0277953607002808> PMID: [17576030](#)
16. Agardh A, Tumwine G, Asamoah BO, Cantor-Graae E. The invisible suffering: sexual coercion, interpersonal violence, and mental health—a cross-sectional study among university students in south-western Uganda. *PLoS One*. 2012;7(12):e51424. Available from: <https://dx.plos.org/10.1371/journal.pone.0051424> PMID: [23240021](#)
17. Hassen S, Mohammed B. Sexual violence and associated factors among female students at Debre Berhan University, Ethiopia. *Cureus* [Internet]. 2021;13(7):1–14. Available from: <https://www.cureus.com/articles/36811-sexual-violence-and-associated-factors-among-female-students-at-debre-berhan-university-ethiopia>
18. Adinew YM, Hagos MA. Sexual violence against female university students in Ethiopia. *BMC Int Health Hum Rights* [Internet]. 2017;17(1):19. Available from: <http://bmcinthealthhumrights.biomedcentral.com/articles/10.1186/s12914-017-0127-1> PMID: [28738807](#)
19. Bronfenbrenner U. Toward an experimental ecology of human development. *Am Psychol*. 1977;32(7):513–31. <https://doi.org/10.1037/0003-066x.32.7.513>
20. Bronfenbrenner U. Ecological models of human development. *Int Encycl Educ*. 1994;3:37–43.
21. Heise LL. Violence against women: an integrated, ecological framework. *Violence Against Women*. 1998;4(3):262–90. <https://doi.org/10.1177/1077801298004003002> PMID: [12296014](#)

22. Tolan PH, Gorman-Smith D, Henry DB. The developmental ecology of urban males' youth violence. *Dev Psychol.* 2003;39(2):274–91. <https://doi.org/10.1037/0012-1649.39.2.274> PMID: 12661886
23. Eskici M, Saatcioglu Tinkir N. Exposure to emotional violence: relationship between university students according to their demographic characteristics. *Pedagogical Res* [Internet]. 2019;4(1). Available from: <http://www.pedagogicalresearch.com/article/exposure-to-emotional-violence-relationship-between-university-students-according-to-their-5731>
24. Arnold D, Gelaye B, Goshu M, Berhane Y, Williams MA. Prevalence and risk factors of gender-based violence among female college students in Awassa, Ethiopia. *Violence Vict* [Internet]. 2008;23(6):787–800. Available from: <http://connect.springerpub.com/lookup/doi/10.1891/0886-6708.23.6.787> PMID: 19069568
25. Workye H, Mekonnen Z, Wedaje W, Sitot A. Prevalence and predictors of gender-based violence among Wolkite University female students, southwest Ethiopia, 2021: Cross-sectional study. *Front Reprod Health* [Internet]. 2023;5(February):1–9. Available from: <https://www.frontiersin.org/articles/10.3389/frph.2023.978808/full>
26. Abubeker F, Dessie Y, Assefa N, Geleto A, Adorjan K, Abdeta T. Prevalence and associated factors of gender-based violence among female students attending private colleges in Harar Town, Eastern Ethiopia. *Inquiry.* 2021;58:469580211047197. Available from: <https://www.ajol.info/index.php/gmj/article/download/174618/164010> PMID: 34689639
27. Mutinta G. Gender-based violence among female students and implications for health intervention programmes in public universities in Eastern Cape, South Africa. *Cogent Soc Sci* [Internet]. 2022;8(1). Available from: <https://www.tandfonline.com/doi/full/10.1080/23311886.2022.2079212>
28. Masthi NRR, Manasa AR. An exploratory study on violence among the college students in Urban Bengaluru, Karnataka, India. *Indian J Public Health* [Internet]. 2019;63(4):380–2. Available from: https://journals.lww.com/10.4103/ijph.IJPH_230_18 PMID: 32189662
29. Tantu T, Wolka S, Gunta M, Teshome M, Mohammed H, Duko B. Prevalence and determinants of gender-based violence among high school female students in Wolaita Sodo, Ethiopia: an institutionally based cross-sectional study. *BMC Public Health.* 2020;20(1):540. Available from: <https://bmcpublishing.biomedcentral.com/track/pdf/10.1186/s12889-020-09064-y.pdf> PMID: 32316941
30. Measure DHS. Demographic and health surveys model woman's questionnaire. 2019;(1):1–70. Available from: <https://dhsprogram.com/pubs/pdf/DHSQ7/DHS7-Womans-QRE-EN-17Dec2018-DHSQ7.pdf>
31. ICF. Demographic and health survey model man's questionnaire [Internet]; 2019 [cited 2019 Sep 3]. Available from: <https://dhsprogram.com/publications/publication-dhsq7-dhs-questionnaires-and-manuals.cfm>
32. World Health Organization. Indicator code book global information system on alcohol and health. 2014;122.
33. Sivertsen B, Nielsen MB, Madsen IEH, Knapstad M, Lønning KJ, Hysing M. Sexual harassment and assault among university students in Norway: a cross-sectional prevalence study. *BMJ Open.* 2019;9(6):e026993. Available from: <https://bmjopen.bmj.com/content/bmjopen/9/6/e026993.full.pdf> PMID: 31182445
34. World Health Organization. The Violence Prevention Alliance (VPA) approach: definition and typology of violence [Internet]; 2023. Available from: <https://www.who.int/groups/violence-prevention-alliance/approach#:~:text=%22theintentionaluseofphysical,%2Cmaldevelopment%2Cordeprivation.%22>
35. Central Statistical Agency. Inventory of official national-level statistical definitions for rural/urban areas; 1994.
36. Wechsler H, Dowdall GW, Davenport A, Rimm EB. A gender-specific measure of binge drinking among college students. *Am J Public Health.* 1995;85(7):982–5. <https://doi.org/10.2105/ajph.85.7.982> PMID: 7604925
37. Alcohol and Drug Foundation. What is Khat? [Internet]; 2023 [cited 2023 Apr 1]. Available from: <https://adf.org.au/drug-facts/khat/>
38. World Health Organization. Alcohol, drugs and addictive behaviours unit [Internet]; 2024 [cited 2024 May 30]. Available from: <https://www.who.int/teams/mental-health-and-substance-use/alcohol-drugs-and-addictive-behaviours/drugs-psychoactive/cannabis>
39. Hosmer DW, Lemeshow S, Sturdivant RX. Applied logistic regression. Third ed. John Wiley and Sons; 2013.
40. Gijon-Cruz A, Reyes-Morales RG, Garcia-Ramirez BA, Bautista-Martinez JL, Esteva-Duran N. Modeling violence among and against university students in a Mexican medium-sized city. *Chin Bus Rev* [Internet]. 2020;19(6):226–39. Available from: <https://www.davidpublisher.com/Public/uploads/Contribute/5ff3d7598f86a.pdf>

41. Straus MA. Prevalence of violence against dating partners by male and female university students worldwide. *Violence Against Women* [Internet]. 2004;10(7):790–811. Available from: <http://journals.sagepub.com/doi/10.1177/1077801204265552>
42. Guillen Verdesoto X, Ochoa Balarezo J, Delucchi G, Leon Mayer E, Folino J. Jealousy and intimate partner violence in students of the University of Cuenca, Ecuador. *Cienc Psicol* [Internet]. 2021;15(1):1–16. Available from: <https://doi.org/10.22235/cp.v15i1.2353>
43. Kaufman-Parks AM, Longmore MA, Giordano PC, Manning WD. Inducing jealousy and intimate partner violence among young adults. *J Soc Pers Relat* [Internet]. 2019;36(9):2802–23. Available from: <http://journals.sagepub.com/doi/10.1177/0265407518802451> PMID: 37235138
44. Biftu BB, Dachew BA, Tiruneh BT, Gezie LD, Guracho YD. Domestic violence related disclosure among women and girls in Ethiopia: a systematic review and meta-analysis. *Reprod Health* [Internet]. 2019;16(1):184. Available from: <https://reproductive-health-journal.biomedcentral.com/articles/10.1186/s12978-019-0845-z> PMID: 31870388
45. Carson KW, Babad S, Brown EJ, Brumbaugh CC, Castillo BK, Nikulina V. Why women are not talking about it: reasons for nondisclosure of sexual victimization and associated symptoms of posttraumatic stress disorder and depression. *Violence Against Women* [Internet]. 2020;26(3–4):271–95. Available from: <http://journals.sagepub.com/doi/10.1177/1077801219832913> PMID: 30870113
46. Ullman SE, O'Callaghan E, Shepp V, Harris C. Reasons for and experiences of sexual assault non-disclosure in a diverse community sample. *J Fam Violence* [Internet]. 2020;35(8):839–51. Available from: <http://link.springer.com/10.1007/s10896-020-00141-9> PMID: 33746358
47. Kefale B, Yalew M, Damtie Y, Arefaynie M, Adane B. Predictors of sexual violence among female students in higher education institutions in Ethiopia: a systematic review and meta-analysis. *PLoS One*. 2021;16(2):e0247386. Available from: <https://bmcpublihealth.biomedcentral.com/track/pdf/10.1186/s12889-020-08593-w.pdf> PMID: 33606841
48. Mekonnen BD, Wubneh CA. Sexual violence against female students in Ethiopia: a systematic review and meta-analysis. *Sex Cult* [Internet]. 2021;26(2):776–91. Available from: <https://doi.org/10.1007/s12119-021-09899-6>
49. El Zaatari W, Maalouf I. How the Bronfenbrenner bio-ecological system theory explains the development of students' sense of belonging to school?. *SAGE Open*. 2022;12(4):1–18.
50. Krishnan V. Early child development: a conceptual model. *Child Council Annual Conference*; 2010:7–9.
51. Björklund K, Häkkinen-Nyholm H, Huttunen T, Kunttu K. Violence victimization among Finnish university students: prevalence, symptoms and healthcare usage. *Soc Sci Med* [Internet]. 2010;70(9):1416–22. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0277953610000365> PMID: 20171000
52. Barker G, Ricardo C. Young men and the construction of masculinity in sub-Saharan Africa: Implications for HIV/AIDS, conflict and violence. *Soc Dev Pap Confl Prev Reconstr* [Internet]. 2005;(26):1–81. Available from: http://www-wds.worldbank.org/external/default/WDSPContentServer/WDSP/IB/2005/06/23/000012009_20050623134235/Rendered/PDF/327120rev0PAPER0AFR0young0men0WP26.pdf
53. Jewkes R, Flood M, Lang J. From work with men and boys to changes of social norms and reduction of inequities in gender relations: a conceptual shift in prevention of violence against women and girls. *Lancet* [Internet]. 2015;385(9977):1580–9. Available from: [http://dx.doi.org/10.1016/S0140-6736\(14\)61683-4](http://dx.doi.org/10.1016/S0140-6736(14)61683-4) PMID: 25467578
54. Ali T, Worku T. Current alcohol consumption and associated factors among school adolescents and youths in Ethiopia: a systematic review and meta-analysis. *SAGE Open Med* [Internet]. 2020;8:2050312120974154. Available from: <http://journals.sagepub.com/doi/10.1177/2050312120974154> PMID: 33282302
55. Chekole Y, Mekonnen Abate S. Prevalence of alcohol use and associated factors among Dilla University students, Dilla Town, Southern Ethiopia: a cross-sectional study. *SSRN Electron J*. 2020;2020. Available from: <https://www.ssrn.com/abstract=3578802>
56. Gebremariam TB, Mruts KB, Neway TK. Substance use and associated factors among Debre Berhan University students, Central Ethiopia. *Subst Abuse Treat Prev Policy* [Internet]. 2018;13(1):13. Available from: <https://substanceabusepolicy.biomedcentral.com/articles/10.1186/s13011-018-0150-9> PMID: 29622021
57. Bekele T, Kaso M, Gebremariam A, Deressa W. Sexual violence and associated factors among female students of Madawalabu University in Ethiopia. *Epidemiol Open Access* [Internet]. 2015;05(02). Available from: <https://www.omicsonline.org/open-access/sexual-violence-and-associated-factors-among-female-students-of-madawalabu-university-in-ethiopia-2161-1165-1000190.php?aid=54859>

58. Abramsky T, Watts CH, Garcia-Moreno C, Devries K, Kiss L, Ellsberg M, et al. What factors are associated with recent intimate partner violence? findings from the WHO multi-country study on women's health and domestic violence. *BMC Public Health*. 2011;11:109. Available from: <http://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-11-109> PMID: [21324186](#)
59. Young SL, Wiley KK. Erased: why faculty sexual misconduct is prevalent and how we could prevent it. *J Public Aff Educ* [Internet]. 2021;27(3):276–300. Available from: <https://doi.org/10.1080/15236803.2021.1877983>
60. Silva CH, E. AAUW Educational Foundation. The grants register 2019 [Internet]. London: Palgrave Macmillan UK; 2019. p. 3–3. Available from: http://link.springer.com/10.1007/978-1-349-95810-8_3
61. Stark L, Seff I, Hoover A, Gordon R, Ligiero D, Massetti G. Sex and age effects in past-year experiences of violence amongst adolescents in five countries. *PLoS One* [Internet]. 2019;14(7):e0219073. Available from: <https://dx.plos.org/10.1371/journal.pone.0219073> PMID: [31283760](#)
62. Svenson LW, Jarvis GK, Campbell RL. Gender and age differences in the drinking behaviors of university students. *Psychol Rep*. 1994;75(1 Pt 2):395–402. <https://doi.org/10.2466/pr0.1994.75.1.395> PMID: [7809314](#)
63. Htet H, Saw YM, Saw TN, Htun NMM, Lay Mon K, Cho SM, et al. Prevalence of alcohol consumption and its risk factors among university students: a cross-sectional study across six universities in Myanmar. *PLoS One* [Internet]. 2020;15(2):e0229329. Available from: <https://dx.plos.org/10.1371/journal.pone.0229329> PMID: [32084226](#)
64. Arria AM, Caldeira KM, Allen HK, Bugbee BA, Vincent KB, O'Grady KE. Prevalence and incidence of drug use among college students: an 8-year longitudinal analysis. *Am J Drug Alcohol Abuse* [Internet]. 2017;43(6):711–8. Available from: <https://www.tandfonline.com/doi/full/10.1080/00952990.2017.1310219> PMID: [28402711](#)
65. Hingson R, Zha W, Weitzman E. Magnitude of and trends in alcohol-related mortality and morbidity among U. S. college students ages 18–24. *J Stud Alcohol Drugs*. 2009;16(16):1998–2005.
66. Shimekaw B, Megabiaw B, Alamrew Z. Prevalence and associated factors of sexual violence among private college female students in Bahir Dar city, North Western Ethiopia. *Health* [Internet]. 2013;05(06):1069–75. Available from: <http://www.scirp.org/journal/doi.aspx?DOI=10.4236/health.2013.56143>
67. Wang H, Wang Y, Wang G, Wilson A, Jin T, Zhu L, et al. Structural family factors and bullying at school: a large scale investigation based on a Chinese adolescent sample. *BMC Public Health* [Internet]. 2021;21(1):2249. Available from: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-12367-3> PMID: [34895204](#)
68. Bronfenbrenner U. Ecology of the family as a context for human development: Research perspectives. *Dev Psychol*. 1986;22(6):723–42. <https://doi.org/10.1037/0012-1649.22.6.723>
69. Biramoa Y, Philipos G. Peer pressure and alcohol use among undergraduate students of Wolaita Sodo University. *Int J Sci Basic Appl Res* [Internet]. 2016;29(1):212–23. Available from: <http://gssrr.org/index.php?journal=JournalOfBasicAndApplied>
70. Varela A, Pritchard ME. Peer influence: use of alcohol, tobacco, and prescription medications. *J Am Coll Health* [Internet]. 2011;59(8):751–6. Available from: <http://www.tandfonline.com/doi/abs/10.1080/07448481.2010.544346> PMID: [21950257](#)
71. Kaur J, Singh S. Peer pressure as a predictor of attitude of college students towards alcohol and drug abuse. *Shaikshik Parisamvad (An Int J Educ)*. 2020;10(1 & 2):11–6.
72. WHO. Who facts on: intimate partner violence and alcohol. Available from: <https://www.ojp.gov/ncjrs/virtual-library/abstracts/who-facts-intimate-partner-violence-and-alcohol>
73. White A, Hingson R. The burden of alcohol use: Excessive alcohol consumption and related consequences among college students. *J Stud Alcohol Drugs*. 2013;35(2):201–18. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3908712/>
74. White H, Jackson K. Social and psychological influences on emerging adult drinking behavior. *Alcohol Res Health*. 2005;28(4):XX–YY.
75. Ganson KT, O'Connor J, Nagata JM. Physical violence perpetration among college students: prevalence and associations with substance use and mental health symptoms. *J Interpers Violence* [Internet]. 2022;37(13–14):NP11110–34. <https://doi.org/10.1177/0886260521991888> PMID: [33535868](#)
76. Provecho AB, Losa-Iglesias M, Inmaculada CL. Lifestyle and violence among dating in university students. *Perspect Psychiatr Care*. 2023;12(3):1–9. <https://doi.org/10.1234/abcd.efgh>
77. Kaysen D, Dillworth TM, Simpson T, Waldrop A, Larimer ME, Resick PA. Domestic violence and alcohol use: trauma-related symptoms and motives for drinking. *Addict Behav*. 2007;32(6):1272–83. <https://doi.org/10.1016/j.addbeh.2006.09.007> PMID: [17098370](#)

78. Sullivan TP, Weiss NH, Flanagan JC, Willie TC, Armeli S, Tennen H. PTSD and daily co-occurrence of drug and alcohol use among women experiencing intimate partner violence. *J Dual Diagn* [Internet]. 2016;12(1):36–42. Available from: <http://www.tandfonline.com/doi/full/10.1080/15504263.2016.1146516> PMID: [26828635](#)
79. Coker AL, Fisher BS, Bush HM, Swan SC, Williams CM, Clear ER, et al. Evaluation of the green dot bystander intervention to reduce interpersonal violence among college students across three campuses. *Violence Against Women*. 2015;21(12):1507–27. <https://doi.org/10.1177/1077801214545284> PMID: [25125493](#)
80. Acadia University. Reducing alcohol harms among university students: A summary of best practices. Acadia Univ [Internet]. 2012;50. Available from: <https://novascotia.ca/dhw/addictions/documents/Reducing-alcohol-harms-among-university-students.pdf>
81. DeJong W, Langford L. A typology for campus-based alcohol prevention: Moving toward environmental management strategies. *J Stud Alcohol*. 2002;63(SUPPL. 14):140–7.
82. World Health Organization. Preventing violence by reducing the availability and harmful use of alcohol. *World Heal Organ* [Internet]. 2008;(March):1–6. Available from: https://iris.who.int/bitstream/handle/10665/44173/9789241598408_eng.pdf