ORIGINAL RESEARCH

CHRISTIAN JOURNAL for GLOBAL HEALTH

Prevalence of substance use and the role of religiosity among Uganda Christian University undergraduate students

Henry Sseguya[a], Jennifer Hatzfeld[b], Angella Napakol[c], Alicia Cortright[d], Geoffrey Mulindwa[e], Paul S. Wasswa[f], Mukooza Edward Kibikyo[g], Jason Paltzer[h]

[a] Uganda Christian University, University Computing Services
[b] Meros Center, Wisconsin Lutheran College
[c] Uganda Christian University, Directorate of Academic Affairs
[d] Meros Center, Wisconsin Lutheran College
[e] Uganda Christian University, Directorate of Medical Services
[f] Uganda Christian University, Chaplaincy
[g] MBCHB, DHA, MBL, MPH, PhD Senior Lecturer, Department of Public Health, Uganda Christian University, Uganda
[h] MPH, PhD, Meros Center, Wisconsin Lutheran College

Abstract

The United Nations estimates that there are approximately 28 million substance users in Africa with alcohol being the most prevalent substance. In Africa, students make up a large percentage of substance users. Evidence indicates substance use prevalence among this population may exceed 84%. While evidence highlights religiosity as a determinant of health, the study of its prevalence and role in Africa is still inadequate. This study established substance use prevalence among undergraduates who attended classes in-person at the Uganda Christian University's Mukono and Kampala campuses and examined the role of faith, religion, and spirituality on substance use. Data was collected from a sample of 407 students in the Uganda Christian University semester of January to May 2024 and analyzed through logistic regression. Substance use was influenced by multiple determinants, including males being twice more likely to use substances than females, and third-year students twice more likely than first-year students. Students residing on campus or in university-affiliated hostels showed a 42% reduced likelihood of substance use. Participants attending religious meetings once or more times weekly were about 44.8% less likely to use substances than those attending less frequently. Catholics were twice more likely to use substances than Anglicans, while Pentecostals were 42% less likely than Anglicans. Participants with multiple substance-using family members were eight times more likely to use substances than those without a family history. Findings draw attention to the value of including spiritual guidance and targeting high-risk groups with faith-based interventions to reduce substance use.

Keywords: Substance use, prevalence, young adult, religiosity, Africa, university student

Introduction

In the World Health Organization's (WHO) list of health challenges in the current decade, substance use is listed as one of the challenges affecting young people.[1] Substance use is defined as "the use of selected substances, including alcohol, tobacco products, drugs, inhalants, and other substances that can be consumed, inhaled, injected, or otherwise absorbed into the body with possible dependence and other detrimental effects."[2] According to the World Health Organization, substances including alcohol, opioids, and cocaine, which are mood-altering when consumed, are called psychoactive substances.[3] The use of these substances, however, can deteriorate into abuse with health complications, which may include increased risk of non-communicable diseases such as cardiovascular disease, cancer, liver disease, increased risk of suicidal tendency, depression, anxiety, reduced productivity, and antisocial behavior.[1,4,5] The World Health Organization asserts that about 36.7 million Disability Adjusted Life Years (DALYs) were lost globally in 2019 due to nonmedical use of psychoactive drugs, and 115.9 million DALYs were lost due to alcohol consumption.[3]

According to the World Population Review, substance use is more prevalent in the developed world with countries such as the USA, the UK, and Greenland reporting that 5% or more of their population uses illicit substances.[6] However, individuals in low- and middle-income countries are more likely to experience complications related to substance use because of limited access to appropriate interventions.[7] Globally, only one in eight substance users who need treatment receive it because resources are very limited in low- and middle-income countries.[7]

The most used psychoactive substance is alcohol, and young people are disproportionately affected more than older people.[3,7] The United Nations estimates that there are approximately 28 million substance users in Africa, and, globally, alcohol contributes to the loss of approximately 42 million years of healthy life.[8,9,10] Students make up a large percentage of substance users, with some studies reporting prevalence as high as 84.5% among university students in Africa.[11] Students are known to use illicit substances to aid in academic efficiency, to cope with their difficult circumstances, for recreation, and excitement.[12] Abate, Chekol, & Minaye found that across all universities in Ethiopia, approximately 16.2%-72.6% of students were misusing substances such as alcohol, khat, bhang, and other psychoactive substances.[13] In East Africa, 48.99% of young people in universities were found to misuse substances.[13] Uganda, a low-income country with a large youth population, is a leading East African nation in alcohol consumption with a prevalence rate of 28.6%.[14,15] Approximately 20% of admissions to Butabika National Psychiatric Referral Hospital are attributed to alcohol and other drug-related issues.[16,17] The misuse of substances among adolescents and young adults is a public health problem in Uganda and slows down progress toward SDG 3.5 target: to strengthen the prevention and treatment of substance abuse.[17,18] Access to substances, especially alcohol, in Uganda is easy because of limited regulation, with approximately 52% of alcohol being manufactured by the unregulated informal sector, and it is widely available in all retail outlets for anyone who can afford to buy it.[17] There is a Narcotics and Psychotropic Control Act with harsh punishments for illegal possession and use of opioids, but implementation has not yet yielded significant results.[19]

Religiosity and substance use

Multiple studies show an inverse relationship between substance use and religiosity, but the mechanisms underlying this relationship are not well understood.[20,21] Uganda Christian University (UCU), founded by the Anglican Church in 1997, is a top private university whose core values are underpinned by Christian principles.[22] The University has a student population of more than 4,000 students in each of its three semesters a year. In the UCU Alcohol and Other Drugs Abuse Policy, nonmedical use of psychoactive substances, specifically alcohol and drugs such as cocaine, is prohibited.[23] Data on substance use in Africa is limited, and there

is scarcity of literature explaining the spiritual determinants of health in African countries and yet, many studies found that religiosity has a positive, protective effect on substance use and health in general.[8,21,24,25,26] Previous analyses on substance use among university students have been mainly focused on South African countries, Ethiopia and Nigeria, with fewer studies on East African countries such as Uganda.[13,25,27] This study measured the point prevalence of substance use among undergraduate students at the Uganda Christian University's' Main Campus at Mukono, Kampala Campus, and the Medical and Dental Schools at Mengo Hospital during the January/May semester of 2024. The study also assessed the role of faith, religion, and spirituality in substance use among UCU students.

Methodology

Study design

A quantitative cross-sectional approach was used to measure the point prevalence of substance use and to assess the role of religiosity in substance use among UCU undergraduate students. In this study, religiosity was defined as encompassing three dimensions: religion (participation in organized practices), faith (personal belief in a divine being), and spirituality (a sense of connection to the transcendent). The Social Ecological Model guided the design of the study. Religious factors impact decision-making and behavior at multiple levels, including individual (religious practices), interpersonal (family, close friends, wider social network including the church family), organizational (campus environment), community (cultural norms and church practices), and policy (government). Spirituality, faith, and religion impact health behaviors both directly and indirectly through psychological, social, and emotional factors.[28,29]

Study setting

The main campus of Uganda Christian University (UCU) is located in Mukono, 21 kilometres east of Kampala with several regional campuses across Uganda. The majority of UCU students are mostly found at the UCU main campus, the Kampala campus, and the Dental and Medical schools at Mengo Hospital located within Kampala. The University runs on a three-semester system where each academic year is divided into Easter Semester (January to April), Trinity Semester (May to August), and Advent Semester (September to December). The university has four faculties and seven schools, which for the purpose of this study, were re-categorized into five, including the School of Law; School of Business; Technical and Applied Sciences (Faculty of Engineering, Design & Technology and Faculty of Agricultural Sciences); Humanities and Social Sciences (Bishop Tucker School of Divinity & Theology, School of Education and School of Journalism, Media & Communication); and Health Sciences (School of Medicine, School of Dentistry and Faculty of Public Health, Nursing and Midwifery). Each semester has an average of approximately 4000 students with a female to male ratio of 52:48 and with an average undergraduate age of 21 Years.

Participants

The participants were undergraduate students randomly selected from all the schools and faculties of the University at Main Campus Mukono, Kampala Campus and the Medical and Dental Schools at Mengo Hospital during Easter semester of 2024. The focus was on undergraduate students because studies in Africa show that young people aged 15-24 are the most frequent substance users.[7,30] The inclusion criteria were all the UCU undergraduate students in their 2nd up to 10th semesters, registered in the data centre, studying at the UCU Main Campus in Mukono, Kampala Campus, and the Medical and Dental Schools at Mengo Hospital during Easter semester of 2024. The optimal sample size of 366 participants was determined using a formula for estimating proportions in cross-sectional studies,[31] with a population size of 4,000, a prevalence of 49%, $\alpha = 0.05$, and error tolerance of 5% (0.05).[13] To account for potential incomplete or poorly filled questionnaires, the calculated sample size was

increased by 15%, resulting in a target sample size of 420 participants.

Sampling

Stratified random sampling was used to obtain a representative sample. To improve representation and enable sub-group comparison, the students in the sampling frame were stratified according to the schools/faculties at Uganda Christian University. After stratification according to school/faculty, systematic random sampling was applied after working out an appropriate sampling interval in each of the faculties according to the proportion of students in each stratum. If a particular respondent was not available or did not agree to take part in the study, the next option on the list was selected.

Data collection

A self-administered questionnaire in English, adapted from validated tools, including The Duke University Religion Index (DUREL),[32] the WHO Alcohol Use Disorders Identification Test (AUDIT),[33,34] and the WHO Alcohol, Smoking and Substance Involvement Screening Test (ASSIST),[35] was pre-tested and converted into a Google form. The digital form included an automated completeness check. The form was then shared with the selected participants to complete and submit online. Sharing of the Google form occurred only after informed consent was obtained from each participant via telephone.

Data analysis

Data from the participants was received in a Google sheet, which was examined and cleaned of data entry errors and then exported to Python Version 3.12 for descriptive analysis of demographics, prevalence of substance use, and spirituality and religiosity of participants. Logistic regression was done to assess the relationship between substance use, demographics, religion, faith and spirituality. Odds ratios and confidence intervals were used to interpret logistic regression results. Chi-square was used to test the association between categorical variables. In this study, substance use was defined according to the WHO as "consumption of any psychoactive substance regardless of its controlled status."[36]

Results

The number of randomly selected participants who submitted a self-administered Google form questionnaire was 407 out of the targeted sample of 420. All the submitted Google form questionnaires were useable. This gave a completion rate of approximately 97%. Table 1 shows participants were in the age range of 19-24 (82.6%) and the mean age with a standard deviation was 23.52 (4.35) with a range of 19-58 and median of 22 years. The majority of participants came from the Law School (35.5%) and the School of Business (21.1%). Most participants had been students at the university for more than a year (77.6%). Females comprised 59.7% of the participants. A total of 69.5% of the participants reported having relatives who used substances, while 61.9% had one relative and 7.6% had multiple relatives using substances. Anglicans (48.9%), Catholics (23.6%), and Pentecostals (20.4%) were the predominant religious affiliations. Most respondents resided in private hostels (41.0%) off campus or in campus/university affiliated hostels (32.4%).

Table 1. Participant demographics

Variable	Category	Frequency *(n=407)*	Percentage
Age in complete years	19-24	336	82.6
	25-34	56	13.8
	≥ 35	15	3.7
Faculty / School	*School of Law*	144	35.4
	School of Business	86	21.1
	Technical and Applied Sciences	74	18.2
	Humanities and Social Sciences Schools	59	14.5
	Health Sciences	44	10.8
Sex	Female	243	59.7
	Male	164	40.3
Duration at the University	3 years	133	32.7
	Less than 1 year	91	22.4
	1 year	77	18.9
	4 years & over	61	15.0
	2 years	45	11.1

Variable	Category	Frequency *(n=407)*	Percentage
Is there anyone in your family that drinks alcohol or uses drugs?	someone in my extended family	151	37.1
	No family member drinks alcohol or uses drugs	124	30.5
	sibling	54	13.3
	parent	47	11.5
	Relatives (multiple)	31	7.6
How often do you have a drink containing alcohol?	Never	282	69.3
	Monthly or less	91	22.4
	2-4 times a month	29	7.1
	2-3 times a week	4	1.0
	4 or more times a week	1	0.3
Religious affiliation	Anglican	199	48.9
	Catholic	96	23.6
	Pentecostal	83	20.4
	Seventh Day Adventist	14	3.4
	Islam	9	2.2
	Other	6	1.5
Residential Status	Private Hostel	167	41.0
	Resident on campus / University affiliated hostel	132	32.4
	I commute from home	65	16.0
	I rent a room / a house	43	10.6

Table 2 shows the prevalence of alcohol and other substances was 36.7%. The most frequently used substance was alcohol with a prevalence of 30.8%, of which 22.9% of participants used alcohol exclusively. The prevalence of other substances was 13.8%, with 5.9% using substances excluding alcohol. The participants were classified according to the WHO Alcohol Use Disorder Identification Test[34] with the majority (87.47%) categorized as low risk and 12.53% were identified as engaging in risky to harmful alcohol use. The prevalence of participants who used multiple types of substances was 7.9%. Other substances used by participants without the use of any alcohol were tobacco products (3.4%) and cannabis (2.5%).

Table 2. Prevalence and AUDIT levels

Variable	Category/*Level*	Count (*n=407*)	Percentage	
Substance use	Never used any substance	258	63.4	
	Alcohol only	93	22.9	
	Multiple substances including alcohol	32	7.9	36.7 prevalence of overall substance use
	Other substances only	24	5.9	
Breakdown of other substances	Tobacco products only (cigarettes, chewing tobacco, cigars, shisha, etc.)	14	3.4	5.9 prevalence of other substances
	Cannabis only (marijuana, pot, grass, hash, etc.)	10	2.5	
AUDIT Risk of alcohol use disorders	Low risk	356	87.47	
	Risky	44	10.81	
	Dependence	4	0.98	
	Harmful	3	0.74	

Using logistic multivariate analysis (Table, sex [(AOR = 1.636, 95% CI=1.027, 2.6069), p=0.0382], residential status [(AOR=0.425, 95% CI=0.2144 , 1.3176), p=0.04], multiple family member use of substances [(AOR = 8.652, 95% CI=3.2961 , 22.7122), p=0.001], duration at UCU [(AOR=2.2848, 95% CI=1.3398 , 3.8966), p=0.024], and affiliation with Catholicism [(AOR=2.036, 95% CI=1.1864 , 3.4947), p=0.0099] were all significantly associated with substance use. Males were approximately 1.64 times more likely to use substances than females. Participants who were resident on campus or university-affiliated hostels were 57.5% less likely to use substances which suggested a protective effect. Participants with multiple family members using substances were 8.7 times more likely to use substances than those with no family history of substance use. Students who identified as Catholic were twice more likely to use substances than the Anglicans, and Pentecostalism was protective against substance use compared to Anglicanism [(AOR=0.428, 95% CI=0.221, 0.8304), p=0.0121]. Being a student in schools/faculties other than the School of Law, was protective based on the bivariate analysis with those in Humanities and Social Science Schools with the largest protective effect [(AOR=0.4, 95% CI=0.2018, 0.7929), p=0.0087]. The multivariable analysis did not show an association by School/Faculty. Participants who had been students at UCU for three years were more likely to use substances than those who had been there for less than a year [(AOR=2.285, 95% CI=1.3398, 3.8966), p=0.0024]. Being a student at UCU for more than four years was significantly associated with substance use [(COR=2.031, 95% CI=1.1015, 3.7431), p=0.0232] but not in the multivariable analysis. A Variance Inflation Test (VIF) of 1 indicated no correlation among predictor variables in the model, which suggests no multi-collinearity issues. At bi-variate level, all dimensions of religiosity, as measured by the DUREL, have a significant protective effect on substance use among study participants. Table 4 shows the multivariable analysis of the religiosity dimensions of religion [(AOR=0.4485, 95% CI = 0.2169, 0.9275) P=0.0305] and faith [(AOR=0.5025, 95% CI=0.2544, 0.9924), P=0.0475], each being independent of other variables, are significantly protective against substance use. A Variance Inflation Test (VIF) of 1 indicated no correlation among predictor variables in the model suggesting no multi-co linearity issues.

Table 3. Logistic regression of demographic predictors of substance use

		n = 407								
Variable	**Levels**	**Bivariate analysis**				**Multivariable analysis**				**VIF**
		Coefficient	**p-value**	**COR**	**CI [95%]**	**Coefficient**	**p-value**	**AOR**	**CI [95%]**	
Intercept	n/a					-1.913	p-value < 0.001	0.148	(0.072, 0.303) **	n/a
Sex	Female									
	Male	0.436	0.037	1.546	(1.026, 2.329) **	0.492	0.038	1.636	(1.027, 2.607) **	1
Faculty / School	*School of Law*	1								
	School of Business	-0.424	0.13	0.654	(0.375, 1.140)					1
	Technical and Applied Sciences	-0.303	0.30	0.739	(0.415, 1.315)					
	Humanities and Social Sciences Schools	-0.916	0.009	0.4	(0.202, 0.793) **					
	Health Sciences	-0.308	0.386	0.735	(0.366, 1.475)					
Residential status	I rent a room / a house	1								
	I commute from home	-0.671	0.099	0.511	(0.230, 1.135)					1
	Resident on campus/ University affiliated hostel	-0.880	0.016	0.415	(0.203, 0.847) **	-0.856	0.04	0.425	(0.214, 1.318) **	
	Private Hostel	-0.089	0.796	0.915	(0.467, 1.793)					
How long have you attended UCU?	1 year & below	1								
	2 years	0.507	0.151	1.660	(0.830, 3.317)					1
	3 years	0.840	< 0.001	2.316	(1.429, 3.752) **	0.826	0.002	2.285	(1.340, 3.897) **	
	4 years & above	0.7083	0.0232	2.031	(1.102, 3.743) **					
Family Use of Alcohol or Drugs?	No family member drinks alcohol or uses drugs	1								
	Parent	1.437	< 0.001	4.208	(2.029, 8.728) **	1.304	0.001	3.682	(1.681, 8.065) **	1
	Relatives (multiple)	2.222	< 0.001	9.222	(3.83, 22.204) **	2.158	< 0.001	8.652	(3.296, 22.712) **	
	Sibling	1.028	0.005	2.795	(1.374, 5.685) **	0.904	0.018	2.467	(1.166, 5.232) **	
	Someone in my extended family	1.091	< 0.001	2.976	(1.705, 5.197) **	1.147	0.0001	3.15	(1.743, 5.694) **	
What is your religious affiliation?	Anglican	1								
	Catholic	0.756	0.003	2.131	(1.298, 3.496) **	0.711	0.010	2.036	(1.186, 3.495) **	1
	Pentecostal	-0.843	0.008	0.431	(0.232, 0.799) **	-0.848	0.0121	0.428	(0.221, 0.830) **	
	Other (including Islam & SDA)	-0.053	0.9	0.949	(0.418, 2.152)					

Table 4. Logistic regression of the Duke University Religion Index (DUREL) as predictors of substance use among UCU undergraduates

n = 407										
Variable	**Levels**	**Bivariate analysis**				**Multivariable analysis**				**VIF**
		Coefficient	**p-value**	**COR**	**CI [95%]**	**Coefficient**	**p- value**	**AOR**	**CI [95%]**	
Intercept	n/a					0.637	0.132	1.891	(0.826, 4.331)	n/a
Time spent in private religious activities (Spirituality)	*Rarely or never*	1								1
	Few times a week	-0.522	0.049	0.594	(0.353, 0.998)					
	Once a day	-0.759	0.013	0.468	(0.257, 0.854)					
	More than once a day	-1.225	< 0.001	0.294	(0.162, 0.532)					
How often attend religious meetings (Religion)	*Rarely or never*	1								1
	A few times a month	-0.092	0.792	0.913	(0.462, 1.802)					
	Once a week	-0.575	0.063	0.563	(0.307, 1.031)					
	More than once a week	-1.412	< 0.001	0.244	(0.131, 0.452) **	-0.802	0.031	0.449	(0.217, 0.928) **	
Importance of religious beliefs (Faith)	*Not true*	1								1
	Somewhat true	-0.102	0.753	0.904	(0.480, 1.701)					
	Definitely true	-1.155	< 0.001	0.315	(0.186, 0.533) **	-0.688	0.048	0.503	(0.254, 0.992) **	
Experience the presence of God (Spirituality)	*Not true*	1								1
	Somewhat true	-0.505	0.318	0.604	(0.224, 1.624)					
	Definitely true	-1.064	0.005	0.345	(0.165, 0.724) **					
Religion carries over into life. (Religion)	*Not true*	1								1
	Somewhat true	0.095	0.769	1.1	(0.581, 2.082)					
	Definitely true	-1	0.0003	0.368	(0.214, 0.632) **					

*** Significant at 95% Confidence Interval; Variance Inflation Factor (VIF = 1 no multicollinearity*

Discussion

The objectives of this study were to determine the prevalence of substance use among undergraduates at Uganda Christian University and to describe the role of faith, religion, and spirituality in substance use. This survey had a completion rate of 97% (407/420) which was higher than expected. The design of the Google form, which included a completeness check, may have contributed to a high response rate, as all the returned questionnaires were useable. Stratified random sampling, with the number of participants who were chosen from each stratum proportionate to the size of the schools/faculties, ensured that the sample in terms of demographic variables was a reflection of the typical UCU undergraduate student. For example, there were more females (59.7%) than males and most respondents were selected from the schools of law (35.5%) and business (21.1%), which according to the UCU data centre, contribute more than 50% of the undergraduate students at UCU. The respondents' mean age was 23.52 years. The data exhibited a right skew, with a median age of 22 years, reflecting that most participants were younger than the mean. There was a minority of participants with ages of up to 58 years, primarily from the School of Theology. Priests tend to go for their undergraduate studies as adult learners. This minority of older participants pulled the mean upwards. The median age of 22 years falls in the category of young people who were the target demographic for this study. In Africa, studies show that substance use tends to be more common among young adults.[7,30] Anglicanism (48.9%) was the predominant religious affiliation, reflecting UCU's foundation by the Anglican Church of Uganda and its alignment with the University's Christ-centered core values. However, the university is open to all other religious affiliations including Catholics, Muslims, Seventh Day Adventists, Pentecostals, and others.

Prevalence

The substance use prevalence of 36.7% by young people in this study was much higher than the lifetime prevalence of any substance use of 21% pooled from 53 studies in Sub Saharan Africa.[37] However, in the same systematic review and meta-analysis of related studies, the country-specific studies showed that current substance use among young people in Uganda was 75%, much higher than what was found in this study. Uganda Christian University strongly discourages substance use. The Chaplaincy and health promotion initiatives led by the Health and Safety Committee, as well as the UCU Alcohol and Other Drugs Abuse Policy (AOD) are in place to designates campuses as substance free zones.[23] Thus, a lower prevalence of substance use was anticipated. A systematic review and meta-analysis of studies on lifetime use of substances among students in Ethiopia by Roba and others found a high lifetime prevalence of any substances among students at 52.5%, but the studies in the systematic and meta-analysis included both high schools and universities.[38] Recent rigorous substance use studies done among university students in Uganda were limited. The prevalence of substance use in the reviewed studies among university students in Uganda, ranged from 30% to 56.82%.[39,40]

The most frequently used substance among the UCU undergraduate students was alcohol with a prevalence of 30.8% consistent with existing literature.[37,38,40,41] A major contributor to the high prevalence of alcohol use is the failure to regulate its availability in Uganda where it is legally acceptable for use by adults aged 21 years and above. The National Alcohol Control Policy envisions "a country free of harmful use of alcohol and its consequences."[17] However, weak implementation of the policy has allowed alcohol to be easily available in bars, shops, and supermarkets across the country with little or no restrictions on access even for under-age individuals. On the UCU campuses, alcohol is not easily available because of the University's Christian Identity and the AOD policy.[23] However, most students (>67%) stay off campus where alcohol is easily available, and this study showed that students staying off campus were more likely to use

substances than those staying on campus X^2 (2, N=407) = 15.53, p<0.001.

Responses to the AUDIT categorized 12.53% of the participants as engaging in risky to harmful use of alcohol. Harmful use of alcohol is linked to numerous health risks which include behavioral issues, injuries, harm to others, social problems, and an increased likelihood of infectious diseases such as HIV.[3] Some of the participants in this study (7.9%) reported multiple use of substances including alcohol, tobacco products, and cannabis. Concurrent use of alcohol and other substances is known to be associated with more adverse health risks and reduced compliance with available support.[42,43,44] *The concurrent users of alcohol and other substances would likely benefit from customized support measures.*

Demographic effects on substance use

Age was not found to be significantly associated with substance use in this population, which differs from what other researchers found in similar studies.[30,7] The males in this study were found to be 63.6% more likely to use substances than females (p= 0.0382). The mechanism of this sex difference in substance use is not well understood, but it is known that sex affects behavior and perception.[45] This study found that males were more likely to use substances than females. This aligns with the observation that female participants tended to be more religious and religiosity is known to be protective against substance use.[21,46,47,48,49,50] However, substance use is multifaceted, for example, some studies show that trauma including sexual violence increases the likelihood of women using substances.[65]

Students attending Humanities and Social Sciences, which include the Schools of Education, School of Journalism, School of Social Sciences, and Bishop Tucker School of Divinity and Theology, were 40% less likely to use any substance compared to those in the School of Law (p=0.0087). This may reflect Humanities and Social Sciences' professional codes of conduct that discourage use of substances. However, multivariable analysis adjusting for potential confounders, the association lost statistical significance suggesting that there may be other factors like stress levels which may vary across professional programs; stress levels were not measured in this study. Participants who had attended UCU for 3 years were 2.285 times more likely to use substances than those who had attended the university for less than a year. This association was significant (p=0.0024) and the majority of third-year students at UCU are likely to be under pressure in order to complete their courses and stress is a known contributing factor to substance use.[12,51,52]

Participants with a relative using substances were significantly more likely to do the same compared to those without such a relative, especially when multiple relatives or a parent were substance users (AOD 8.65, p=0.0182). This finding is consistent with studies showing that use of substances by parents, siblings, or other members of the household is a risk factor for substance use by young people.[53,54,55] Participants who were residents on campus were less likely to use substances compared to those staying off campus (p=0.04). Several published studies report a similar association between living off campus and a higher likelihood of substance use.[56,57,58,59] This finding was not unexpected given the fact that the alcohol and other drugs policy designates the UCU campuses to be substance free zones. Regarding religious affiliation, Catholics were twice as likely to use substances compared to Anglicans (p=0.0099) and Pentecostals were 43% less likely to use substances than Anglicans (p=0.0121). The Catholic Church Catechism discourages excess use of alcohol, food, and medicines, but it promotes temperance, and alcohol is seen as gift to be enjoyed responsibly.[60] Anglicans and Pentecostals, have different opinions on alcohol use (Mirror, 2015).[60,61] The Anglican Church of Uganda and Pentecostal churches in Uganda discourage use of alcohol, viewing it as harmful due to its potential for misuse and the associated negative consequences.

Uganda Christian University aims to prepare students for productive lives of Christian faith and service, with core values rooted in

Christ-centeredness with faith and learning integrated in the curricula and in all extra-curricular activities.[22] Consequently, the predominant religious affiliations in this study were Anglicans (48.9%), Catholics (23.6%), Pentecostals (20.4%), and Seventh Day Adventists (3.4%). At UCU, the chaplaincy plays a central role in nurturing a prayer-centered culture by organizing regular religious services, cell meetings, opening prayers at formal gatherings, and providing spiritual counseling. This creates an atmosphere where students are consistently encouraged to participate in religious activities. As a result, more than 70% of the participants reported high levels of religiosity which is associated with health protecting behaviors and attitudes.[21,46,47,48,50,54,49,62]

The role of religion, spirituality and faith in substance use

The bivariate analysis (Table 4) identified that religion, spirituality, and faith each had a significantly protective effect against substance use. In the multivariable analysis, both religion and faith, individually, demonstrated a protective effect, with adjusted odds ratios (AOR) of 0.4485 (95% CI: 0.2169–0.9275, p=0.0305) and 0.5025 (95% CI: 0.2544–0.9924, p=0.0475), respectively. This finding is not surprising given the numerous studies showing that religiosity has a health protective effect.[21,46,47,48,50,54,49,62] Participants in this study showed high levels of religiosity (Table 4) and analysis of their responses to statements on prevention and treatment showed that they preferred faith-based interventions. This creates a favourable environment for designing and implementing faith-based substance use prevention and management interventions. Faith-based interventions have been found to be effective in substance use prevention and management, especially in populations with high religiosity.[24,63,64] However, the fact that not all participants favoured faith-based interventions implies that the interventions should be flexible so that options for those who are not religious are also available.

Limitations

This study has several limitations. First, data were self-reported by participants from a Christian university with strict substance use policies, which risks social desirability bias such as underreporting substance use or overreporting religiosity. Findings may, thus, be context-specific to faith-based institutions and not generalizable to secular or other religious settings. Further research in diverse populations, including secular and non-Christian religious communities, is recommended. Second, while validated scales were used (AUDIT, ASSIST, DUREL), potential limitations include: (i) Construct contamination in AUDIT/ASSIST due to items assessing mental health-related consequences, for example guilt, which may inflate associations with religiosity; (ii) DUREL's potential confounding with unmeasured protective factors, for example social support. Future studies should employ longitudinal designs and advanced statistical methods to clarify causal relationships and reduce confounding.

Conclusion

The overall prevalence of substance use among undergraduate students at UCU was 36.7% with alcohol the most used substance at 30.7%. The AUDIT identified 12.53% as engaging in risky to harmful use while the majorities were identified as low risk to alcohol use disorders. Multiple substance use was reported by 7.9% and the most used other substances were tobacco products at 3.4% and cannabis at 2.5%. The risk factors for substance use among the UCU undergraduate students included being male, duration of stay on campus, rarely or never attending church services or religious activities, making life decisions or choices without reference to faith, and staying off campus. Students identifying as Catholics or having a family history of substance use were also at an increased risk. Protective factors included being female, residing in a campus hostel or university-affiliated hostel, attending religious activities more than once a week, making decisions grounded in faith, identifying as Anglican or Pentecostal, and coming from a

substance-free, family background. University leadership should develop targeted programs for third- and fourth-year undergraduates by expanding campus-affiliated housing; integrating faith-based, cell groups; providing on-site chaplaincy support in hostels; and establishing prayer spaces to nurture spiritual growth.

References

1. World Health Organization. Urgent health challenges for the next decade [Internet]. 2020. Available from: https://www.who.int/news-room/photo-story/detail/urgent-health-challenges-for-the-next-decade
2. Centers for Disease Control and Prevention. Substance use [Internet]. 2023. Available from: https://www.cdc.gov/nchs/hus/sources-definitions/substance-use.htm
3. World Health Organization. Global status report on alcohol and health and treatment of substance use disorders [Internet]. 2024 Available from: https://iris.who.int/bitstream/handle/10665/377960/9789240096745-eng.pdf
4. International Narcotics Control Board. Economic consequences of drug abuse [Internet]. 2013. Available from: https://www.incb.org/documents/Publications/AnnualReports/AR2013/English/AR_2013_E_Chapter_I.pdf
5. Degenhardt L, Glantz M, Evans-Lacko S, Sadikova E, Sampson N, Thornicroft G et al. World Health Organization's World Mental Health Surveys collaborators. Estimating treatment coverage for people with substance use disorders: an analysis of data from the World Mental Health Surveys. World Psychiatry. 2017;16(3):299–307. https://doi.org/10.1002/wps.20457
6. World Population Review. Drug use by country 2024 [Internet]. 2024. Available from: https://worldpopulationreview.com/country-rankings/drug-use-by-country
7. United Nations Office on Drugs and Crime. World drug report 2020: socioeconomic characteristics and drug use disorders [Internet]. 2020. Available from: https://wdr.unodc.org/wdr2020/field/WDR20_Booklet_5.pdf
8. Onaolapo OJ, Olofinnade AT, Ojo FO, Adeleye O, Falade J, Onaolapo AY. Substance use and substance use disorders in Africa: an epidemiological approach to the review of existing literature. World J Psych. 2022;12(10):1268-86. https://doi.org/10.5498/wjp.v12.i10.1268
9. Global Burden of Disease 2016 Alcohol and Drug Use Collaborators. The global burden of disease attributable to alcohol and drug use in 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. Lancet Psych. 2018;5(12):987-1012. https://doi.org/10.1016/S2215-0366(18)30337-7
10. United Nations Office on Drugs and Crime. World drug report 2019: executive summary [Internet]. 2019. Available from: https://wdr.unodc.org/wdr2019/prelaunch/WDR19_Booklet_1_EXECUTIVE_SUMMARY.pdf
11. Aguocha CM, Nwefoh E. Prevalence and correlates of substance use among undergraduates in a developing country. African Health Sci. 2021;21(2):875-83. https://doi.org/10.4314/ahs.v21i2.49
12. Zaman M, Razzaq S, Hassan R, Qureshi J, Ijaz H, Hanif M, et al. Drug abuse among the students. Pakistan J Pharma Res. 2015;1:41-7.
13. Abate SM, Chekol YA, Minaye SY. Prevalence and risk factors of psychoactive substance abuse among students in Ethiopia: a systematic review and meta-analysis. Ann Med Surgery. 2021;70:102790. https://doi.org/10.1016/j.amsu.2021.102790
14. Uganda Bureau of Statistics. National population and housing census 2024: preliminary report [Internet]. 2024. https://www.ubos.org/wp-content/uploads/publications/National-Population-and-Housing-Census-2024-Preliminary-Report.pdf
15. World Bank Group. World Bank country classifications by income level (Uganda) [Internet]. 2022. Available from: https://www.worldbank.org/en/news/factsheet/2022/07/07/world-bank-country-classifications-by-income-level-uganda
16. Gitatui M, Kimani S, Muniu S, Okube O. Determinants of harmful use of alcohol among

urban slum dwelling adults in Kenya. African Health Sci. 2019;19(4):2906-25. https://doi.org/10.4314/ahs.v19i4.12

17. Ministry of Health Uganda [MoH]. National alcohol control policy [Internet]. 2019. Available from: https://www.issup.net/files/2024-01/Uganda-Alcohol-policy-2019.pdf
18. Abbo C, Okello ES, Muhwezi W, Akello G, Ovuga E. Alcohol, substance use and psychosocial competence of adolescents in selected secondary schools in Uganda: a cross-sectional survey. Int Neuropsych Disease J. 2016;7(2):1-12. https://doi.org/10.9734/INDJ/2016/25387
19. Government of Uganda. The Narcotic Drugs and Psychotropic Substances (Control) Act 2023 [Internet]. Available from: https://bills.parliament.ug/attachments/Narcotic%20Drugs%20and%20Psychotropic%20Substances%20(Control)%20Act,%202023.pdf
20. Edlund MJ, Harris KM, Koenig HG, Han X, Sullivan G, Mattox R, et al. Religiosity and decreased risk of substance use disorders: Is the effect mediated by social support or mental health status? Soc Psych Psychiat Epidemiol. 2010;45(8):827-836. https://doi.org/10.1007/s00127-009-0124-3
21. Oman D, editor. Why religion and spirituality matter for public health: evidence, implications, and resources. Springer; 2018.
22. Uganda Christian University. Uganda Christian University values and identity [Internet]. 2025. Available from: https://ucu.ac.ug/values-and-identity/
23. Uganda Christian University. Alcohol and other drugs policy [Unpublished policy document]. 2016.
24. Grim BJ, Grim ME. Belief, behavior, and belonging: how faith is indispensable in preventing and recovering from substance abuse. J Reli Health. 2019;58(5):1713-50. https://doi.org/10.1007/s10943-019-00876-w
25. Joseph OA, Joseph A, Tella O, Adekeye D, Williams TM, Olokoba BL, et al. Substance use and treatment in an institution of higher learning in Nigeria. African J Social Work [Internet]. 2020;9(2):1-10. Available from: https://www.ajol.info/index.php/ajsw/article/view/192190
26. Sliedrecht W, de Waart R, Witkiewitz K, Roozen HG. Alcohol use disorder relapse factors: a systematic review. Psych Res. 2019;278:97-115. https://doi.org/10.1016/j.psychres.2019.05.038
27. Blows S, Isaacs S. Prevalence and factors associated with substance use among university students in South Africa: implications for prevention. BMC Psych. 2022;10(1):309. https://doi.org/10.1186/s40359-022-00987-2
28. Alghzawi HM, Ghanem FK. Social ecological model and underage drinking: a theoretical review and evaluation. Psych. 2021;12(5):817-28. https://doi.org/10.4236/psych.2021.125050
29. Koenig HG, King DE, Carson VB. Handbook of religion and health. 2nd ed. Oxford University Press; 2012.
30. Fentaw KD, Fenta SM, Biresaw HB. Prevalence and associated factors of substance use male population in East African countries: a multilevel analysis of recent demographic and health surveys from 2015 to 2019. Subst Abuse: Res Treat. 2022;16:1-10. https://doi.org/10.1177/11782218221101011
31. Cvetković Vega A, Maguiña JL, Soto A, Lama-Valdivia J, Correa López LE. Cross-sectional studies. Revista de la Facultad de Medicina Humana [Internet]. 2021;21(1):Article 22. Available from: https://revistas.urp.edu.pe/index.php/RFMH/article/view/3069/4497
32. Koenig HG, Büssing A. The Duke University Religion Index (DUREL): a five-item measure for use in epidemiological studies [Internet]. 2010;1(1):78-85. https://doi.org/10.3390/rel1010078
33. Kokotailo PK, Egan J, Gangnon R, Brown D, Mundt M, Fleming M. Validity of the alcohol use disorders identification test in college students. Alcohol: Clin Exper Res. 2004;28(6):914-20. https://doi.org/10.1097/01.ALC.0000128239.87611.F5
34. World Health Organization. The Alcohol Use Disorders Identification Test [Internet]. 2001. Available from: https://iris.who.int/server/api/core/bitstreams/

c57d9855-5450-4c46-84b1-c88a6df4192c/content

35. Humeniuk R, Ali R, Babor TF, Farrell M, Formigoni ML, Jittiwutikarn J, et al. Validation of the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) [Internet]. Addiction. 2008;103(6):1039-47. https://doi.org/10.1111/j.1360-0443.2007.02114.x
36. World Health Organization. Substance use [Internet]. 2023. Available from: https://iris.who.int/bitstream/handle/10665/367424/9789240064812-eng.pdf?sequence=1
37. Ebrahim J, Adams J, Demant D. Substance use among young people in sub-Saharan Africa: a systematic review and meta-analysis. Front Psych. 2024;15:1328318. https://doi.org/10.3389/fpsyt.2024.1328318
38. Roba HS, Beyene AS, Irenso AA, Gebresilassie BT. Prevalence of lifetime substances use among students in Ethiopia: a systematic review and meta-analysis. System Rev. 2019;8(1):326. https://doi.org/10.1186/s13643-019-1217-z
39. Kuteesa J. Prevalence and determinants of substance use among students at Kampala International University Western Campus, Ishaka Municipality Bushenyi District Uganda. Eurasian Exper J Med Med Sci [Internet]. 2024;5(1):1-12. https://publications.kiu.ac.ug/view/1340/prevalence-and-determinants-of-substance-use-among-students-at-kampala-international-university-western-campus-ishaka-municipality-bushenyi-district-uganda
40. Oluwole I. Prevalence & risk factors for substance abuse among university students in Kampala, Uganda [Doctoral dissertation] [Internet]. Victoria University Uganda; 2018. https://www.researchgate.net/publication/329060348_PREVALENCE_RISK_FACTORS_FOR_SUBSTANCE_ABUSE_AMONG_UNIVERSITY_STUDENTS_IN_KAMPALA_UGANDA
41. Mupara LM, Tapera R, Selemogwe-Matsetse M, Kehumile JT, Gaogane L, Tsholofelo E, et al. Alcohol and substance use prevention in Africa: systematic scoping review. J Subst Use. 2021;27(4):335-51. https://doi.org/10.1080/14659891.2021.1941356
42. Gjersing L, Bretteville-Jensen AL. Patterns of substance use and mortality risk in a cohort of 'hard-to-reach' polysubstance users. Addict. 2018;113(4):729-39. https://doi.org/10.1111/add.14053
43. Wang L, Min JE, Krebs E, Evans E, Huang D, Liu L, et al. Polydrug use and its association with drug treatment outcomes among primary heroin, methamphetamine, and cocaine users. Int J Drug Policy. 2017;49:32-40. https://doi.org/10.1016/j.drugpo.2017.07.009
44. Timko C, Han X, Woodhead E, Shelley A, Cucciare MA. Polysubstance use by stimulant users: health outcomes over three years. J Stud Alcohol Drugs 2018;79(5):799-807. https://doi.org/10.15288/jsad.2018.79.799
45. Institute of Medicine. Exploring the biological contributions to human health: does sex matter [Internet]? Washington, DC: National Academies Press. 2001. https://www.ncbi.nlm.nih.gov/books/NBK222287/
46. Zimmer Z, Rojo F, Ofstedal MB, Chiu C, Saito Y, Jagger C. Religiosity and health: a global comparative study. SSM - Pop Health. 2019;7:100322. https://doi.org/10.1016/j.ssmph.2018.11.006
47. Gillum RF, King DE, Obisesan TO, Koenig HG. Frequency of attendance at religious services and mortality in a U.S. national cohort. Ann Epidemiol. 2008;18(2):124-29. https://doi.org/10.1016/j.annepidem.2007.10.015
48. Headey B, Hoehne G, Wagner GG. Does religion make you healthier and longer lived? Evidence for Germany. Soc Indic Res. 2014;119(3):1335-61. https://doi.org/10.1007/s11205-013-0546-x
49. Pitel L, Madarasova Geckova A, Kolarcik P, Halama P, Reijneveld SA, van Dijk JP. Gender differences in the relationship between religiosity and health-related behaviour among adolescents.J Epidemiol Comm Health [Internet]. 2012;66(12):1122-8. https://doi.org/10.1136/jech-2011-200914
50. Hummer RA, Benjamins MR, Ellison CG, Rogers RG. Religious involvement and mortality risk among pre-retirement aged U.S. adults. In: Ellison CG, Hummer RA, editors. Religion, families, and health:

population-based research in the United States. Rutgers University Press; 2010. p. 273-91.

51. Likisa K. The causes and challenges of students' drug abuse in higher learning institutions: a comprehensive review of related literature. Ethiop J Sci Sustain Devel. 2019;6(2):33-45. https://doi.org/10.20372/ejssdastu:v6.i2.2019.88
52. Sinha R. Stress and substance use disorders: risk, relapse, and treatment outcomes. J Clin Invest. 2024;134(16):e172883. https://doi.org/10.1172/JCI172883
53. Hust SJT, Willoughby J, Couto L, Velazquez N, Bares S. Parents & cannabis: adolescents' reports of parent-related factors associated with their attitudes about and intentions to use cannabis. J Child Family Studies. 2024;33(10):3428-39. https://doi.org/10.1007/s10826-024-02943-7
54. Srivastava S, Kumar P, Rashmi, Singh SK, Chauhan S. Does substance use by family members and community affect the substance use among adolescent boys? Evidence from UDAYA study, India. BMC Public Health. 2021;21(1):1896. https://doi.org/10.1186/s12889-021-11911-5
55. Shegute T, Wasihun Y. Prevalence of substance use in university students, Ethiopia. Subst Abuse: Res Treat. 2021;15:1–9. https://doi.org/10.1177/11782218211003558
56. Musyoka CM, Mbwayo A, Donovan D, Mathai M. Alcohol and substance use among first-year students at the University of Nairobi, Kenya: prevalence and patterns. PLOS ONE. 2020;15(8):e0238170. https://doi.org/10.1371/journal.pone.0238170
57. Walters KS, Bulmer SM, Troiano PF, Obiaka U, Bonhomme R. Substance use, anxiety, and depressive symptoms among college students. J Child Adolesc Subs Abuse. 2018;27(2):103-11. https://doi.org/10.1080/10677828X.2017.1420507
58. Gebremariam TB, Mruts KB, Neway TK. Substance use and associated factors among Debre Berhan University students, Central Ethiopia. Subst Abuse Treat Preven Policy. 2018;13(1):13. https://doi.org/10.1186/s13011-018-0150-9
59. Ramdhani S. Demographic factors and depression as predictors of substance use among students at a South African university [Unpublished master's thesis]. University of Cape Town; 2018.
60. Libreria Editrice Vaticana. Catechism of the Catholic Church [Internet]. n.d. Available from: https://www.vatican.va/archive/ENG0015/__P80.HTM
61. Mirror J. Church denominational positions on drinking alcohol [Internet]. 2015 Sep 21. Available from: https://jamesmirror.com/2015/09/21/church-denomination-positions-on-alcohol/
62. Sullivan SC. Living faith: Everyday religion and mothers in poverty. University of Chicago Press; 2011.
63. Hai AH, Franklin C, Park S, DiNitto DM, Aurelio N. The efficacy of spiritual/religious interventions for substance use problems: a systematic review and meta-analysis of randomized controlled trials. Drug Alcohol Depend. 2019;202:134-48. https://doi.org/10.1016/j.drugalcdep.2019.04.045
64. Yeung JWK. Faith-based intervention, change of religiosity, and abstinence of substance addicts. Brazil J Psych. 2022;44(1):46-56. https://doi.org/10.1590/1516-4446-2020-1576
65. Resnick HS, Acierno R, Amstadter AB, Self-Brown S, Kilpatrick DG. An acute post-sexual assault intervention to prevent drug abuse: updated findings. Addict Behav. 2007;32(10):2032-45. https://doi.org/10.1016/j.addbeh.2007.01.001

Submitted 8 Oct 2025, Accepted 4 Mar 2026, Published 6 Apr 2026

Corresponding author: Dr. Mukooza Edward Kibikyo, Uganda mukooza_edward@yahoo.com

Funding: The funding for this project came from the Meros Center Small Projects Fund and Uganda Partners.

Conflict of Interest: The authors have no competing interests to declare that are relevant to the content of this article

Ethical Approval: The study protocol was approved by the Uganda Christian University Research Ethics Committee (UCUREC-2023-723) and the Uganda National Council of Science and Technology (Ref: HS3577ES). Written administrative clearance was obtained from the university administration.

Informed Consent: Verbal informed consent was secured from all participants via telephone.

Acknowledgement: We sincerely thank the participants who shared their time and insights, making this study possible. We also acknowledge the support of Uganda Christian University, whose partnership allowed this research to happen. The study team would also like to acknowledge the research assistants who helped with data collection throughout the project.

Cite this article as: Sseguya H, Hatzfeld J, Napakol A, Cortright A, Mulindwa G, Wasswa PS, Kibikyo ME, Paltzer J. Prevalence of substance use and the role of religiosity among Uganda Christian University undergraduate students. Christ J Glob Health. 2026 Apr; 13(1). https://doi.org/10.15566/cjgh.v13i1.628