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

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ABSTRACT

BACKGROUND: East Africa is still home to one of the world's highest rates of substance user. Substance use is primarily associated with male behavior and is becoming one of the region's most public health issues.

METHODS: The study included data from 11 East African countries' Demographic and Health Surveys. About 55 307 men were enrolled in the study and multilevel logistic regression model was applied

RESULT: East African countries had a 43.70% prevalence of substance abuse coverage. Education level, age, current working status, marital status, wealth index, media exposure, residence, and nation were all found to be statistically associated with substance use of males.

CONCLUSION: In East African countries, the prevalence of substance abuse among men was high. As a result, substance control programs should focus on the poor, not (least) educated, rural people, and adult age groups, who are the region's most vulnerable social groups.

KEYWORDS: Substance use, multi-level analysis, east Africa

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Background

Substance usage includes cigarettes, illegal substances, prescription medications, inhalants, and solvents, as well as the intake of alcohol or drugs. Despite massive attempts to reduce the use of licit elements and prevent the use of illicit substances, these substance usage continues to result in significant illness and mortality, as well as tremendous societal monetary costs.[1] Substance use is primarily associated with male behavior and is quickly becoming one of the most pressing public health issues in the world.[2] The usage of khat (*Catha edulis*), cigarettes, heroine, alcohol, and other substances is a global problem that has a particularly negative impact on young people.[3] Internationally, there are 2 billion alcohol users, 1.3 billion smokers, and 185 million drug users. Tobacco and alcohol consumption account for around 5.4% and 3.7% of the global burden of disease, respectively.[4] More than one substance use amongst substance users is common. The pooled prevalence of simultaneous (refers to "two or more elements used in the same event with overlapping consumption/effects within a particular period; eg, previous 30 days") use of alcohol and cocaine customers is 74% and 77%, respectively.[5] Sub-Saharan Africa has a long history of substance abuse, but it was mostly limited to alcohol, tobacco, cannabis, and khat at the time.[6] Hard drug use, such as cocaine and heroin, has increased in recent years.[7] In Africa, the most often abused substances are alcohol, hashish, and khat.[8] The negative health implications that illicit drug use has on society are one of the most significant effects. Individuals, families, and society all suffer financially as a result of drug usage.[9] A number of factors are clearly driving the development of the complex global illicit drug problem. Gender, age, and the rate of urbanization are all factors that have an impact on sociodemographic trends.[10] Ten nations in Sub-Saharan Africa are among the top 22 in the world in terms of per capita alcohol consumption growth. Marijuana, tobacco, and khat are often used, while cocaine, amphetamine, and heroin use is on the rise.[6] In Sub-Saharan Africa, 41.6% of people used "any substance," with Central Africa having the highest percentage at 55.5%.[3] Substance use behavior is more prominent in males than females. The lifetime and current substance use were 3.2 and 2.8 times higher among males compared to females.[11,12] This could reflect underreporting as a result of the shame associated with substance use among women or social desirability bias. Only male substance users were included in the current study because the sample size for current female substance users was insufficient, and the problem is more prevalent among males. To the best of our knowledge, there is no study in East Africa that determines the degree of substance use and associated determinants using a regionally representative sample of males from each nation. Therefore, the objective of this study was to measure the prevalence and associated factors of

Table 1. Survey characteristics and sample sizes for men participants of Demographic and Health Surveys in 11 East African countries.

COUNTRY	YEAR OF FIELD WORK	MALE POPULATION	WEIGHTED SAMPLE	OVERALL RESPONSE RATE (%
Burundi	October 2016-March 2017	7552	5323	89.5
Comoros	2012	2167	2167	99.3
Ethiopia	2016	12688	6009	95.3
Kenya	2014	12014	6086	90.2
Malawi	2011	7478	5110	94.1
Mozambique	May 2015-December 2015	5283	5283	99.7
Rwanda	2014-2015	6217	6217	99.6
Tanzania	2015-2016	3514	3514	99.2
Uganda	2016	5336	5336	98.9
Zambia	2018 and first month of 2019	12132	5258	89.3
Zimbabwe	July-December 2015	8396	5004	90.1

substance use male population in East African countries using a multilevel analysis of recent demographic and health surveys from 2015 to 2019.

Methods

Study area, study design, and population

Study area: This research was conducted in 11 East African countries (Tanzania, Burundi, Comoros, Ethiopia, Kenya, Malawi, Rwanda, Zambia, Mozambique, Uganda, and Zimbabwe). The 11 nations were chosen based on the variables of interest being available in the respective databases.

Study design: This analysis used the most recent standardized DHS data from 11 East African countries, with one survey conducted between 2015 and 2019. To collect data that is nearly comparable across nations around the world, the DHS programs can use standardized tactics such as consistent surveys, manuals, and field methodology. The DHSs are demonstrative home studies conducted around the country that give data on a wide range of variables in the areas of population, health care, and diet. A multistage sampling strategy was used to choose the sample for each survey in the various nations. Because, it used to collect data from a large, geographically spread group of people in national surveys.[13] The selection of clusters (ie, enumeration areas [EAs]) was the initial step in this sampling strategy, which was followed by systematic household sampling within the selected EAs. The sample size for this study was 55 307 men who had complete cases on all variables of interest, N = 55 307 (Table 1).

Study population: A survey gathered from DHS data was used to perform this study on substance use among males in 11 East African countries. This dataset's primary purpose was to provide current information on critical demographic and health factors.

Dependent variable

We created a nominal outcome variable categorized as "Yes" or "No" for "current substance usage" (cigarettes, alcohol, tobacco, khat, etc.). Except for the response possibilities in some countries, the questions were fairly identical in structure. The following is a general outline of the questions: (1) Do you currently consume tobacco? Yes/No, (2) Do you smoke or use any other form of tobacco at the moment? Yes/No, (3) What (other) tobacco products do you now consume or smoke? (Pipe, chewing tobacco, snuff, and other tobacco products), (4) How many cigarettes have you smoked in the last 24 hours? "How many days did you chew khat in the last 30 days?" and "How many days in the last 30 days did you have an alcoholic beverage?" Anyone who reported at least 1 day of khat or alcohol usage in the past 30 days was deemed a current khat or alcohol user in both situations. As a result, those who were presently using at least 1 of the 4 substances based on the above measurement were classified as current substance users and included in the study.

Independent variables

The covariates that considered in this study are Age (15-24, 25-34, 35-44, and >44), Religion (Christian, Muslim, and Others), Marital status (Single, Married, and Others), place of residence (Rural and Urban), current working status (Yes and No), educational level (no education, primary, secondary, and Higher), Wealth index (Poor, Middle, and Rich), Media exposure (No and Yes) and Head of house hold (Male and Female).

Statistical analysis

After extracting the data with SPSS statistical software version 20, the data were weighted using sample weight (v005),

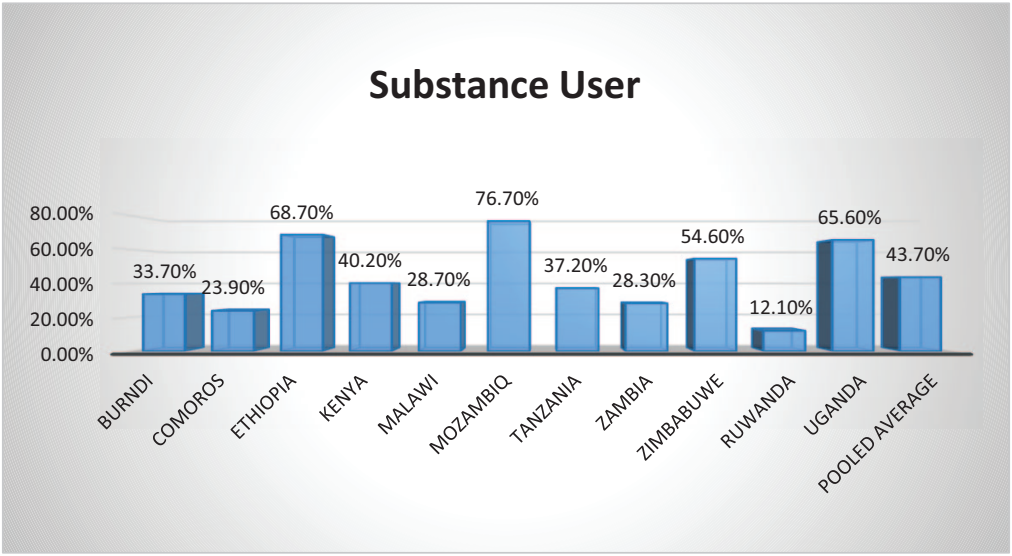

Figure 1. Prevalence of substance use coverage in East African Africa countries.

primary sampling unit (v023), and stratum (v021) to derive applicable inferences. STATA14 and R statistical software version 4.0 were used to examine the data. The study was described using descriptive statistics including percent's bar charts and frequency tables. Because the data had a hierarchical structure, the classical logistic regression model's assumptions of independence of observations and equal variance were violated. This means that sophisticated models must account for cluster heterogeneity. The individual and community-level characteristics related to male substance use were identified using a 2-level mixed-effects logistic regression model. In our research, we used 4 different models in a row. The first is the null model (Model I), which is useful for detecting the presence of a probable contextual influence when no explanatory variables are used. The second model (Model II) was fitted using only individual-level factors, the third model (Model III) used community-level variables, and the final model (Model IV) used both individual and community-level variables. The fixed effect's result is expressed as an adjusted odds ratio (AOR) with a 95% confidence interval (CI). Statistical significance was determined for those variables with *P* values less than .05. Intracluster Correlation Coefficient (ICC), Median Odds Ratio (MOR), and Proportional Change in Variance were used to provide the measures of variance (random-effects) (PCV). The ICC is a measure of within-cluster variation, or variance between individuals inside a single cluster, that was determined using the formula: $ICC = \frac{V_A}{V_A + \pi^2/3} = \frac{V_A}{V_A + 3.29}$, where V_A is the estimated variance in each model.[14] The proportional change in variance was used to calculate the overall variation attributable to individual or community level factors in each model (PCV), which was calculated as: $\text{PCV} = \frac{V_A - V_B}{V_A}$, where V_A = variance of the initial model, and V_B = variance of the model with more terms.[14] When comparing 2 individuals from 2 separate randomly chosen clusters, the MOR is the median odds ratio between the individual with higher propensity and the individual with lower propensity, and it represents unexplained cluster heterogeneity, or variation between clusters. It was computed using the formula:

$MOR = \exp\left(\sqrt{2 * V_A} * 0.6745\right) \approx \exp\left(0.95\sqrt{V_A}\right)$, where V_A is the cluster level variance. The MOR measure is always greater than or equal to 1. If the MOR is 1, there is no variation between clusters.[14-17] The Variance Inflation Factor (VIF) test was used to check for multicollinearity, and all variables had VIF < 5 and a tolerance larger than 0.1, indicating that there was no multicollinearity.[18]

Model comparison

The candidate model was compared using the Deviance Information Criteria (DIC), Akaike's Information Criterion (AIC), and Bayesian's Information Criterion (BIC). The model with the lowest information criteria value will be chosen as the best model for the analysis.[19]

Result

Pooled prevalence of substance user coverage

The pooled prevalence of substance user coverage in the 11 East African countries was 43.70%. Rwanda (12.10%), Comoros (23.90%), and Zambia (74.8%) were the countries with the smallest proportions of substance user coverage. While Mozambique (76.70%), Ethiopia (68.70%), and Uganda (65.60%) were the highest proportions of full substance user coverage (Figure 1).

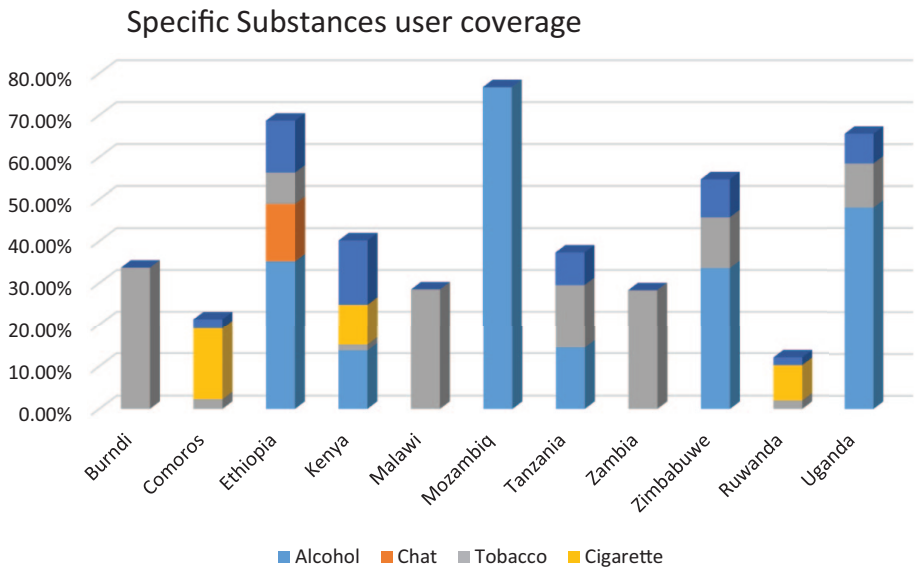

Figure 2. Specific Substances coverage in east African countries.

Specific substances coverage in East African countries

The coverage of a specific substances are different among counties. Alcohols are pre-dominantly used in Mozambique (76.70%), Uganda (48.00%), Ethiopia (35.20%), and Zimbabwe (33.60%). Chats are used by the male population in Ethiopia (13.70%). Burundi, Malawi, and Zambia have more Tobacco users (33.70%), (28.50%), and (28.30%), respectively. The prevalence of cigarette users are highest in Comoros (16.80%). The prevalence of each substance user in each country are presented in Figure 2.

Socio-demographic characteristics of respondents

Among the 55 307 male population, 24 185.70%) were one or more substance users. The majority 15 567 (64.40%) of the substance users were born in rural. In the case of education level, persons who have primary 11 541 (47.7%) and secondary 7053 (29.2%) education level are more substance users. Male population who get media accesses 19 939 (82.4%) are more exposed to substances. The frequency of male population whose age between15 and 24 are the most substance users. While, whose age greater than 44 years are less substance used in this study. Furthermore, the chi-square test of association showed that education level, age, media exposure, wealth index, sex of household head, and residence were significantly correlated with substance use (Table 2).

Multilevel logistic regression model results

The results of the multilevel logistic regressions were summarized in Table 3. The model with smaller deviance and the largest likelihood (model IV) was the best fit data and the interpretation of the fixed effects were based on this model. Education level, age, current working status, sex of household head, marital status, wealth index, media exposure, residence, and country were significantly associated with substance use of male population in the East Africa Countries. The odds of substance user of male population who attained primary, secondary, and higher education level were 0.69 (AOR = 0.69, 95% CI = 0.65, 0.74), 0.52 (AOR = 0.52, 95% CI = 0.48, 0.56) and 0.47 (AOR = 0.47, 95% CI = 0.42, 0.52) respectively times less than substance user of male population who was not educated. The odds of substance use male population whose age group were between 25 and 34 years 1.97 (AOR = 1.97, 95% CI = 1.85, 2.10), 35 to 44 years 2.49 (AOR = 2.49, 95% CI = 2.31, 2.68) and greater than 44 years 3.31 (AOR = 3.31, 95% CI = 3.05, 3.59) times higher than the odds of substance use male population whose age group were between 15 and 24 years. The odds of substance use male population who were working was 1.55 (AOR = 1.55; 95% CI; 1.46, 1.64) times higher odds of substance user male population who did not have work. If the household head is female, the odds of substance use male population is 1.10 (AOR = 1.10; 95% CI = 1.04, 1.17) times higher than the male household head. Regarding to the wealth index, the odds of substance use in the class of middle and rich were 0.86 (AOR = 0.86; 95% CI; 0.81, 0.91) and 0.77 (AOR = 0.77; 95% CI = 0.73, 0.81) respectively times lower than the odds of substance who are in class of poor. Married male population were 0.82 (AOR = 0.82, 95% CI = 0.77, 0.88) times less likelihood of substance use than the single male population. While, other group male population were 1.02 (AOR = 1.02; 95% CI = 0.94, 1.10) times higher likelihood of substance use than the single male population. Male population lived in urban areas were 0.72 (AOR = 0.72; 95% CI = 0.69, 0.76) times lower likelihood of substance use compared to male populations living in rural areas. Male population

Table 2. Socio-demographic characteristics of substance user male population in East African countries.

	SUBSTANCE USE			X^2 VALUE (*P*-VALUE)
	NO	YES	TOTAL	
	FREQUENCY (%)	FREQUENCY (%)	FREQUENCY (%)	
Educational level				
No education	2727 (8.8)	3508 (14.5)	6235 (11.3)	599.87 (<.000)
Primary	14 792 (47.5)	11 541 (47.7)	26 333 (47.6)	
Secondary	11 186 (35.9)	7053 (29.2)	18 239 (33.0)	
Higher	2417 (7.8)	2083 (8.6)	4500 (8.1)	
Country				
Burundi	3527 (11.3)	1796 (7.4)	5323 (9.6)	9283.8 (<.000)
Comoros	1649 (5.3)	518 (2.1)	2167 (3.9)	
Ethiopia	1880 (6.0)	4129 (17.1)	6009 (10.9)	
Kenya	3639 (11.7)	2447 (10.1)	6086 (11.0)	
Malawi	3644 (11.7)	1466 (6.1)	5110 (9.2)	
Mozambique	1233 (4.0)	4050 (16.7)	5283 (9.6)	
Tanzania	2206 (7.1)	1308 (5.4)	3514 (9.4)	
Zambia	3771 (12.1)	1487 (6.1)	5258 (9.5)	
Zimbabwe	2271 (7.3)	2733 (11.3)	5004 (9.0)	
Rwanda	5465 (17.6)	752 (3.1)	6217 (11.2)	
Uganda	1837 (5.9)	3499 (14.5)	5336 (9.6)	
Religion				
Christian	22 209 (71.4)	16 170 (66.9)	38 379 (69.4)	576.81 (<.000)
Muslim	6537 (21.0)	4649 (19.2)	11 186 (20.2)	
Others	2376 (7.6)	3366 (13.9)	5742 (10.4)	
Media exposure				
No	4782 (15.4)	4246 (17.6)	9028 (16.3)	47.83 (<.000)
Yes	26 340 (84.6)	19 939 (82.4)	46 279 (83.7)	
Age				
15-24	14 342 (46.1)	7059 (29.2)	21 401 (38.7)	1877.3 (<.000)
25-34	8020 (25.8)	6945 (28.7)	14 965 (27.1)	
35-44	5254 (16.9)	5557 (23.0)	10 811 (19.5)	
>44	3506 (11.3)	4624 (19.1)	8130 (14.7)	
Residence				
Urban	9947 (32.0)	8618 (35.6)	18 565 (33.6)	82.30 (<.000)
Rural	21 175 (68.0)	15 567 (64.4)	36 742 (66.4)	
Sex of house hold head				
Male	25 581 (82.2)	20 396 (84.3)	45 977 (83.1)	44.33 (<.000)
Female	5541 (17.8)	3789 (15.7)	9330 (16.9)	

(Continued)

Table 2. (Continued)

	SUBSTANCE USE			X^2 VALUE (*P*-VALUE)
	NO	YES	TOTAL	
	FREQUENCY (%)	FREQUENCY (%)	FREQUENCY (%)	
Wealth index				
Poor	10192 (32.7)	8762 (36.2)	18954 (34.3)	76.61 (<.000)
Middle	5872 (18.9)	4191 (17.3)	10063 (18.2)	
Rich	15058 (48.4)	11232 (46.4)	26290 (47.5)	
Current working				
No	7093 (22.8)	3539 (14.6)	10632 (19.2)	1456.2 (<.000)
Yes	24029 (77.2)	20646 (85.4)	44675 (80.8)	
Marital status				
Single	14638 (65.5)	7716 (34.5)	22354 (40.4)	65 (<.001)
Married	12997 (52.0)	12003 (48.0)	23060 (41.7)	
Others	3487 (43.8)	4466 (56.2)	7953 (14.4)	

who had media access were 1.19 (AOR = 1.19; 95% CI = 1.13, 1.26) times higher likelihood of substance using than who didn't have media access. Male population living in Ethiopia (AOR = 6.33; 95% CI = 5.84, 6.98), Kenya (AOR = 1.48; 95% CI = 1.36, 1.62), Mozambique(AOR = 9.56; 95% CI = 8.68, 10.53), Zimbabwe(AOR = 3.57; 95% CI = 3.26, 3.92), Tanzania (AOR = 1.82; 95% CI = 1.62, 2.04) and Uganda (AOR = 4.30; 95% CI = 3.92, 4.72) were more likely to abuse substance use than male population living in Burundi. Moreover, the male population living in Rwanda were 0.25 (AOR = 0.25, 95% CI = 0.23, 0.28) times lower odds of substance use compared to the male population in Burundi (Table 3).

Measures of variation (random effects)

The findings revealed that there was a considerable difference in male population substance usage among clusters. The null model's intraclass correlation coefficients revealed that community-level factors accounted for 28.30% of the variation in male substance use. When individual and community-level factors are included, there is statistically significant variation in substance use among communities or clusters. Almost 40% of the substance use in the communities was accounted for in the overall model. In the null model, the MOR for male substance use was 2.95, indicating that there was a variance between communities (clustering) (2.95 times larger than the reference (MOR = 1)). When both individual and community factors were included in the model, the unexplained community variation in substance was reduced to a MOR of 2.31. This showed that in the full model the effects of clustering are still statistically significant when we considered both individual and community factors (Table 4).

Discussion

The substance use coverage of the male population in East African countries was 43.70%. It was low compared to the study done in sub Saharan countries 55.5%.[3] The multilevel multivariable logistic regression model demonstrated that education level, age, marital status, current job status, sex of household, head media exposure, wealth index, residence, and nation were all substantially linked with substance use in the East African male population. Different studies has been reported that substance use is more common among uneducated/illiterate/male people than among educated people.[20-24] However, in our study, educated males were more likely to use substances than uneducated males. The result is consistent with the studies.[25,26] On the other hand, because those educated people are largely young, they may be vulnerable to substance use behavior due to curiosity, peer pressure, or fun, as other studies have shown.[27,28] The multivariable model revealed that substance use increased with age. This is consistent with a study conducted in Sutherland and Shepherd[29] and Narendorf and McMillen.[30] The possible reason may be that as age increases, male population are more likely to have alterations in life circumstances such as bereavement, social isolation, lack of social support and financial difficulties, all of which have been found to increase the risk of substance use.[31,32] The odds of substance use male population who were working was higher than the odds of substance user male population who did not have work. A study done by Merline et al[33] and Hong et al[34] is similar with our findings. The possible justification is stress related to their work; it means much time spent in work causes stress which leads to substance use.[35] Similar to data from South and South-East African countries, substance usage among males in East African countries was highly associated with wealth index, that

Table 3. Multivariable multilevel logistic regression analysis of both individual and community-level factors associated with substance user male population in East Africa countries.

VARIABLES	MODEL I	MODEL II	MODEL III	MODEL IV
	AOR (95% CI)			
Education level				
No education		1		1
Primary		0.70 (0.65, 0.74)*		0.69 (0.65, 0.74)*
Secondary		0.64 (0.60, 0.68)*		0.52 (0.48, 0.56)*
Higher		0.73 (0.67, 0.80)*		0.47 (0.42, 0.52)*
Age				
15-24		1		1
25-34		1.55 (1.47, 1.65)*		1.97 (1.85, 2.10)*
35-44		1.91 (1.78, 2.04)*		2.49 (2.31, 2.68)*
>44		2.34 (2.18, 2.52)*		3.31 (3.05, 3.59)*
Religion				
Christian		1		1
Muslim		0.96 (0.92, 1.28)		0.67 (0.62, 1.71)
Others		1.96 (0.85, 2.08)		1.24 (0.16, 1.33)
Current working status				
No		1		1
Yes		1.24 (1.18, 1.31)*		1.55 (1.46, 1.64)*
Sex of household head				
Male		1		1
Female		1.16 (1.11, 1.22)		1.10 (1.04, 1.17)*
Wealth index				
Poor		1		1
Middle		0.85 (0.81, 0.90)*		0.86 (0.81, 0.91)*
Rich		0.95 (0.90, 0.99)		0.77 (0.73, 0.81)*
Marital status				
Single		1		1
Married		0.97 (0.91, 1.03)*		0.82 (0.77, 0.88)*
Others		1.45 (1.36, 1.55)*		1.02 (0.94, 1.10)
Media exposure				
No			1	1
Yes			1.05 (1.00, 1.11)*	1.19 (1.13, 1.26)*
Residence				
Rural			1	1
Urban			0.95 (0.91, 0.99)*	0.72 (0.69, 0.76)*

(Continued)

Table 3. (Continued)

VARIABLES	MODEL I	MODEL II	MODEL III	MODEL IV
	AOR (95% CI)			
Country				
Burundi			1	1
Comoros			0.61 (0.54, 0.69)*	1.01 (0.88, 1.16)
Ethiopia			4.61 (4.25, 5.00)*	6.38 (5.84, 6.98)*
Kenya			1.18 (1.09, 1.28)*	1.48 (1.36, 1.62)*
Malawi			0.72 (0.66, 0.79)*	0.91 (0.83, 1.00)
Mozambique			6.88 (6.30, 7.52)*	9.56 (8.68, 10.53)*
Tanzania			1.06 (0.97, 1.17)*	1.82 (1.62, 2.04)*
Zambia			0.78 (0.71, 0.84)	0.97 (0.89, 1.06)
Zimbabwe			2.40 (2.21, 2.61)*	3.57 (3.26, 3.92)*
Rwanda			0.25 (0.23, 0.27)*	0.25 (0.23, 0.28)*
Uganda			3.40 (3.13, 3.70)*	4.30 (3.92, 4.72)*

1 reference category for categorical variables and * reference *P*-value < .05.

Table 4. Measures of variation and model fit statistics on substance use in East Africa countries.

MEASURES OF VARIATION	MODEL I (NULL MODEL)	MODEL II	MODEL III	MODEL IV (FULL MODEL)
Variance (SE)	1.30 (0.040)*	0.79 (0.02)*	0.804 (0.042)*	0.78 (0.02)*
PCV (%)	Reference	39.23	38.15	40
ICC (%)	28.30	19.36	20	28.32
MOR	2.95	2.32	2.34	2.31
Model fit statistics				
DIC (–2log likelihood)	75302.54	72235.58	65486.72	62102.84
AIC	75306.55	72267.58	65514.71	62158.83
BIC	75324.39	72410.31	65639.6	62408.61

*Reference *P*-value < .001.

is, poor males were more likely to use substance.[36] Poor people are said to use tobacco to keep their hunger at bay,[33] because many smokers feel that smoking suppresses their appetite, many tobacco corporations have taken advantage of this by adding appetite suppressant chemicals to cigarettes.[37]

Compared to those who were single, the married male populations were less likely to use substances. These findings are consistent with other studies in Africa.[21,36,38,39] However, males who were (separated, divorced, or widowed) had a higher likelihood of being substance users, which could be due to their ability to try a new type of substance while tolerating the prior one, as a coping mechanism for their loneliness, or as one of the causes for their divorce/separation. On the other side, they were no longer "under the influence of their partner," which could lead to a new substance using behavior.[40]

One factor that enhanced the likelihood of substance use was media exposure. Advertising for a product may pique someone's interest in trying it.[2,11] Substance use has been reported to be higher among urban residents.[21,41] However, in our study, the rural male populations were more likely to use substances. Our finding was consistent with studies done in was in line with studies done in different African countries.[42-44]

Generally, the prevalence of substance use in East African countries were much lower than in South and South-East Asian countries[36] and other regions of the world.[45] Prevalence's of each substance user are different among countries. Tobacco was dominant substance in Burundi, Malawi and Zambia,[11,46-48] cigarette smokers were highest in Comoros, Rwanda and Kenya.[21,49-51] Alcohol was another important substance in our study, which has the highest number of users in Ethiopia,

Zimbabwe, Mozambique, and Uganda. Similar studies also publicize comparable findings.[2,9,52]

Strengths and limitations of this study

The main strength of this study was using nationally representative data and it is generalizable to all the concerned countries. However, since the source of the data was self-report, the accuracy of the data could be affected by recall bias. Using secondary data limited the researcher to measure all possible predictors like peer-related and cultural related factors.

Conclusion

In east African countries, the prevalence of substance use among men was high. According to the survey, there is a considerable disparity in substance use amongst East African countries. Male substance usage was substantially linked to education level, age, marital status, current employment status, sex of household, media exposure, wealth index, residence, and nation. As a result, substance control programs should focus on the poor, not (least) educated, rural people, and adult age groups, who are the region's most vulnerable social groups. DHSs can give accurate estimates for each substance user's surveillance at the country level and by social group. In addition to cessation, substance control programs in Africa should focus on health promotion to prevent the initiation of substance use.

In general, it is preferable to research the underlying structural, policy, and behavioral variables using a holistic approach, and it may also be useful to investigate the genetic predisposition of people who are at increased risk of substance use behavior. Furthermore, the law prohibiting the promotion of drugs in the media should be implemented.

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Author Contributions

KDF was involved in the study design, performed the data extraction, analyzed and drafted the manuscript; SMF and HBB were involved in the study design and reviewed the manuscript. All authors have read critically and approved the final manuscript.

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Data Availability and Statement

The DHS Dataset, which may be found at (http://idhsdata.org), was used in this investigation. On reasonable request, the corresponding author will provide the datasets used and/or analyzed in this study.

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