Patterns of Substance Use Disorders among Patients in Selected Rehabilitation Centers in Nairobi County, Kenya.

Henrietta Amen Usunobun, Ph.D. Candidate in Clinical Psychology; Naomi James, Ph.D; & Martha Kiarie, Ph.D., Daystar University.

Abstract

Substance use disorders (SUDs) are a significant public health concern in Kenya, mirroring global trends of escalating addiction rates that have strained health systems and communities. The purpose of the study was to assess the patterns of substance use disorders among patients in selected rehabilitation centers in Nairobi County, Kenya. This study employed a quantitative research method, utilizing a cross-sectional research design, targeting six rehabilitation centers. The target population consisted of male participants aged 18–59 years, from which a sample size of 98 participants was drawn. Purposive sampling was used to select the study sites, while convenience sampling was used to select participants. Data was collected using the Socio-Demographic Questionnaire and Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST). Data were analysed using SPSS (version 25), applying descriptive statistics to reveal patterns of substance use. The study found that the most commonly used substances were: alcoholic beverages (95.9%), tobacco (73.5%), and cannabis (62.2%) based on lifetime use reports. Further analysis showed variation in substance use by age group, with adults aged 18–29 having the highest lifetime use rates across most substances, with over 90% reporting tobacco and alcohol use, more than 75% using cannabis, and notable use of cocaine, amphetamines, and inhalants. Opioid use was also more common in this group compared to older adults. Hence, this study recommends collaboration among the government, healthcare providers, psychologists, and communities to implement evidence-based policies, ensure accessible treatment, raise public awareness, and support recovery from substance use. The results contribute to the growing body of psychological research on substance use in African contexts and underscore the role of psychologists in designing tailored interventions for prevention, treatment, and recovery support.

Keywords: Substance Use Patterns, Substance Use Disorders (SUDs), Addiction, Rehabilitation Centers, Nairobi County, Kenya

Introduction and Background

The global prevalence of substance use has been on the rise, with recent global estimates suggesting that over 284 million individuals aged 15-64 reported to have used drugs in 2020 (UNODC World Drug Report, 2022), and 107 million suffered from alcohol use disorders alone (Degenhardt et al., 2018; Olashore et al., 2022; World Drug Report, 2020; Yang et al., 2018). According to the World Population Review (2025), the most widely used drugs in the world are alcohol and cannabis/marijuana. While most countries have established control laws for these substances, the risks and health effects associated with their abuse remain significantly high. Moreover, according to the United Nations World Drug Report 2024, the number of individuals who used drugs increased to 292 million by 2022. Cannabis was the most popular drug in the world, with 228 million users, followed by opioids (60 million), amphetamines (30 million), cocaine (23 million), and ecstasy (20 million), with 64 million people suffering from SUDs (UNODC, 2024). Today, cannabis is grown in 154 countries and territories, being the second most-cultivated drug after opium, which is found in 57 countries according to the 2022 World Drug Report of the United Nations.

This increase in SUDs, particularly among young adults, was attributed to various factors, including higher availability/access of the drugs, peer influences, and liberal attitudes (Ebrahim et al., 2024; Olashore et al., 2022). This trend has had a devastating impact on adolescents and young people, with a higher likelihood of developing SUDs (Muswerakuenda et al., 2023). Furthermore, this growing crisis has placed a substantial burden on healthcare systems and communities around the world, underscoring the pressing need for evidence-based treatment models (Muswerakuenda et al., 2023; Olashore et al., 2022; UNODC, 2021; Yang et al., 2018).

In Sub-Saharan Africa, 38.2% used psychoactive substances regularly, with alcohol, khat, tobacco, and cannabis commonly used (Olawole-Isaac et al., 2018; UNODC, 2020). In South Africa, it ranged from cannabis to methamphetamines and opioids. In West Africa -Nigeria, cannabis, opioids such as tramadol, and codeine syrup are among the most commonly used substances. According to recent reports, approximately 29.4 million Nigerians aged 15 to 64 abuse psychoactive substances, reflecting a significant public health challenge (Vanguard News, 2022). Likewise, the patterns of substance use varied greatly among nations, with

tobacco being the most often used substance in Burundi, Malawi, and Zambia, among others (Olawole-Isaac et al., 2018).

Furthermore, cigarette smoking was more common in countries such as Greece, Bulgaria, France, Comoros, Rwanda, and Kenya, while alcohol consumption was highest in Moldova, Russia, the Czech Republic, Ethiopia, Uganda, Mozambique, and Zimbabwe (Fentaw et al., 2022; NACADA, 2022; WHO, 2019). SUDs were more prevalent in the Americas compared to Europe (Castaldelli-Maia & Bhugra, 2022). Similar to worldwide trends of increasing addiction rates that taxed communities and health systems (UNODC, 2024), the patterns of SUDs grew to be a significant public health concern in Kenya (NACADA, 2022). The National Authority for the Campaign against Alcohol and Drug Abuse reported that over 16% of Kenyan adults grappled with some form of SUDs, most commonly alcohol use disorder (AUD) (NACADA, 2022).

The rising SUDs threaten global progress toward the 2030 Sustainable Development Goals unless urgent action is taken (Gureje et al., 2019; Mungai et al., 2019; Musyimi et al., 2017). The Narcotic Drugs and Psychotropic Substances (Control) Act of 1994, which criminalizes the possession, trafficking, and use of controlled substances (Kenya Law, 1994), primarily guides drug enforcement in Kenya. The Act provides the legal framework for prosecuting drug-related offenses but has historically emphasized a punitive rather than rehabilitative approach. While intended to curb drug trafficking and misuse, critics argue that strict enforcement has contributed to prison overcrowding and stigmatization of users, while failing to address the underlying causes of SUDs (Mburu et al., 2019; UNODC, 2022).

In response to these challenges, Kenya has gradually begun to incorporate public health perspectives into drug policy. The *National Authority for the Campaign Against Alcohol and Drug Abuse (NACADA),* established under the NACADA Act (2012), plays a central role in prevention, public education, compliance monitoring, and rehabilitation support (NACADA, 2020). NACADA has also been instrumental in developing the *National Alcohol and Drug Abuse Control Policy*, which emphasizes prevention, treatment, and harm reduction alongside enforcement. Nevertheless, the tension between punitive drug laws and emerging health-based approaches continues to shape Kenya's response to substance use (Obot & Wairagu, 2021).

Understanding this policy and enforcement landscape provides a critical backdrop for examining rehabilitation centers in Nairobi. Rehabilitation facilities serve as essential

interventions, offering structured environments for individuals recovering from substance dependence (Jaguga & Kwobah, 2018; NACADA, 2017). Globally, the scale of the treatment gap remains stark (UNODC, 2024) reported that an estimated 64 million people suffer from substance use disorders, yet only one in eleven receives treatment. In Kenya, NACADA's *National Survey on the Status of Drugs and Substance Use (2022)* highlighted the magnitude of the challenge, noting that one in three men and one in sixteen women were current users, reflecting significant gender disparities in prevalence. This suggested that substance usage was more common in men than in women.

Although the types of alcohol used varied by region, the Western region of Kenya had the highest rate of alcohol usage (23.8%). One in twelve Kenyans (2,305,929) reported using tobacco, with males using it at a substantially higher rate (one in six) than females (one in fifty). Tobacco use was highest in the Central region (11.9%), followed by the Eastern and Coast regions (10.8% and 10.7%), respectively (NACADA, 2022). Following the findings of the survey, one in twenty-eight Kenyans (964,737 people), primarily men, used Khat (*Miraa/Muguka*). The highest usage rate (9.6%) was observed in the Eastern region of Kenya. One in fifty-three Kenyans (518,807) acknowledged using cannabis, and over the last five years, its use has significantly increased (by 90%). Cannabis use was most common in Nairobi (6.3%). One in five hundred Kenyans, or 60,407 people, used prescription medicines, with a slightly higher frequency among women. One out of every fifteen Kenyans (1,766,583) admitted to using multiple substances, known as poly-drug usage, with men significantly more likely to do so. The Coastal region of Kenya had the highest rate of multiple drug use (10.5%) (NACADA, 2022). The findings of this survey highlighted how urgently focused interventions were needed to combat drug and substance use in Kenya. In order to effectively battle SUDs nationwide, localized and gender-sensitive measures were required, as evidenced by the survey's large regional and gender disparities. SUDs were a growing concern in Nairobi, Kenya, with factors such as urbanization, youth demographics, and limited access to specialized treatment contributing to their prevalence (Chege, 2022; NACADA, 2022).

Although global literature highlights the severity of SUDs, especially among youth and urban populations, there is limited empirical research focusing on individuals already enrolled in rehabilitation centers within Kenya. This gap is crucial, as understanding the patterns of substance use among patients seeking treatment can provide insights into both prevention and intervention strategies. Addressing this gap, the present study investigates the patterns of SUDs

among patients admitted to selected rehabilitation centers in Nairobi County, Kenya. In doing so, it contributes context-specific evidence to the global discourse on substance use, offering data that can inform prevention efforts, intervention strategies, and policy development tailored to low-resource settings. Beyond generating local prevalence data, the study enriches the field of psychology by highlighting the behavioral patterns, social dynamics, and treatment needs of individuals with SUDs in Kenya, thereby supporting the advancement of targeted, culturally relevant, and effective models of psychological care.

Methodology

This study adopted a cross-sectional quantitative research design targeting individuals aged 18 to 59 years undergoing treatment in six of the fifteen accredited rehabilitation centers in Nairobi County, Kenya. The primary objective was to determine the patterns of SUDs among patients in these selected centers. A total of 98 participants were recruited using convenience sampling, after the rehabilitation centers were purposively selected based on accessibility, ethical clearance, and willingness to participate. Data was collected using two instruments. First, a Socio-Demographic Questionnaire (SDQ) captured information on participants' age, religion, marital status, education level, employment status, and level of income. Second, the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST), developed by the World Health Organization (WHO, 2008; Humeniuk et al., 2010), was employed to assess both lifetime and recent (past three months) use of alcohol, tobacco, and other substances. The ASSIST is a validated screening tool that measures patterns of use, frequency, related problems, and symptoms of dependence. It consists of eight items scored according to WHO guidelines, with risk classifications defined as follows: for alcohol, scores of 0–10 indicate low risk, 11–26 moderate risk, and 27 or above high risk; for other substances, scores of 0–3 indicate low risk, 4–26 moderate risk, and 27 or above high risk. Participants who reported injecting drugs more than four times in the previous three months were also categorized as high-risk. To determine patterns of SUDs, Question 1 of the ASSIST, which asks about lifetime use of substances with a yes/no response, was specifically utilized.

The instrument has shown good psychometric reliability, with Cronbach's alpha scores of 0.74 for alcohol, 0.70 for tobacco, and 0.87 for other drugs, including within Kenyan populations (Anundo et al., 2022; Kariuki et al., 2024; Kuria et al., 2012; Muriungi & Ndetei, 2013). Similar evidence from South Africa demonstrated strong internal consistency, with lifetime

Cronbach's alpha of 0.7 for alcohol, 0.8 for cannabis, and 0.9 for methamphetamine, and corresponding past three-month alphas of 0.6, 0.7, and 0.9, respectively (Adlard et al., 2023). Data was analysed using the Statistical Package for the Social Sciences (SPSS) version 25. Descriptive statistics, including frequencies and percentages, were used to summarize demographic variables and substance use patterns. Ethical approval for the study was obtained from the Daystar University Institutional Scientific and Ethical Review Committee (DU-ISERC), School of Applied Human Sciences, and the National Commission for Science, Technology, and Innovation (NACOSTI). Further, administrative approval was obtained from the managers of each participating rehabilitation centers. All participants in their first month in the rehabilitation centers were provided with detailed information about the study, and written informed consent was obtained prior to data collection.

Results

Six rehabilitation centers in Nairobi County, Kenya, participated in the study, involving 98 participants aged 18 to 59 years. All participants completed a self-administered questionnaire. The questionnaires were all completed and returned. The response rate for the participants was 100%. This response rate was considered adequate. The high response rate achieved in this study can be attributed to the researcher's physical distribution of questionnaires and close supervision of the process with the help of research assistants.

This study's objective sought to examine the patterns of substance use among participants in selected rehabilitation centers in Nairobi County, Kenya. The researcher adopted the ASSIST and the socio-demographic questionnaire to investigate the different types of substance use among participants. Specifically, question 1 asked about lifetime use of substances, with a yes/no response. By examining the demographic data and substance use patterns obtained through the ASSIST, this research aimed to characterize the sample and enhance understanding of the population. The analysed data are presented in the following sections, providing a comprehensive overview of substance use in this population. The data, which was extracted, was analysed and is presented in Table 2.

Table 1: Lifetime Patterns of Substance Use among Participants

Lifetime use of substances	Yes	No
Tobacco Products (Cigarettes, chewing tobacco, cigars, etc.)	72(73.5%)	26(26.5%)
Alcoholic Beverages (beer, wine, spirits, etc.)	94(95.9%)	4 (4.1%)
Cannabis (marijuana, pot, grass, hash, etc.)	61(62.2%)	37(37.8%)
Cocaine (coke, crack, etc.)	9(9.2%)	89(90.8%)
Amphetamine-type stimulants (speed, meth, ecstasy, etc.)	7(7.1%)	91(92.9%)
Inhalants (nitrous, glue, petrol, paint thinner, etc.)	9(9.2%)	89(90.8%)
Sedatives or sleeping pills (diazepam, alprazolam, flunitrazepam, midazolam, etc.)	24(24.5%)	74(75.5%)
Hallucinogens (LSD, acid, mushrooms, trips, ketamine, etc.)	6(6.1%)	92(93.9%)
Opioids (heroin, morphine, methadone, buprenorphine, codeine, etc.)	10(10.2%)	88(89.8%)
Other - specify: (Khat)	10(10.2%)	88(89.8%)

As shown in Table 1 on the lifetime use of substances among participants, the data revealed that alcoholic beverages are the most commonly used substance, with a staggering 95.9% of participants reporting lifetime use. This was followed by tobacco products, used by nearly three-quarters of participants (73.5%), and cannabis, used by almost two-thirds (62.2%). On the other end of the spectrum, the study found that certain substances are less prevalent, but still pose significant concerns. Hallucinogens were reported by 6.1% of participants, while amphetamine-type stimulants, inhalants, and cocaine were reported by 7.1%, 9.2%, and 9.2%, respectively. In addition, 10.2% of participants reported using Khat and Opioids (heroin, morphine, methadone, buprenorphine, and codeine), while Sedatives or sleeping pills were used by around a quarter of participants (24.5%), highlighting the need for targeted support. These findings underscore the complexity of substance use patterns among the participants, highlighting the need for targeted support and interventions tailored to specific substance use issues.

Table 2: Lifetime Substance Use by Age Group

Age Group	Tobacco	Alcohol	Cannabis	Cocaine	Amphetamines	Inhalants	Sedatives	Hallucinogens	Opioids	Other
	n (%) NO n (%)YES									
18–23	2(9.5%) 19(90.5%)	1(4.8%) 20(95.2%)	4(19.0%) 17(81.0%)	16(76.2%) 5(23.8%)	17(81.0%) 4 (19.0%)	18 (85.7%) 3 (14.3%)	16(76.2%) 5 (23.8%)	17 (81.0%) 4 (19.0%)	17(81.0%) 4 (19.0%)	19(90.5%) 2 (9.5%)
24–29	4 (19.0%) 17(81.0%)	0 (0.0%) 21(100.0%)	5(23.8%) 16(76.2%)	19 (90.5%) 2 (9.5%)	20 (95.2%) 1 (4.8%)	17 (81.0%) 4 (19.0%)	16(76.2%) 5 (23.8%)	20 (95.2%) 1 (4.8%)	18 (85.7%) 3 (14.3%)	20(95.2%) 1 (4.8%)
30–35	9(36.0%) 16(64.0%)	3 (12.0%) 22 (88.0%)	12(48.0%) 13(52.0%)	23 (92.0%) 2 (8.0%)	24 (96.0%) 1 (4.0%)	24 (96.0%) 1 (4.0%)	18(72.0%) 7 (28.0%)	24 (96.0%) 1 (4.0%)	23 (92.0%) 2(8.0%)	24(96.0%) 1(4.0%)
36–41	6 (42.9%) 8 (57.1%)	0 (0.0%) 14(100.0%)	6 (42.9%) 8 (57.1%)	14(100.0%) 0 (0.0%)	13 (92.9%) 1 (7.1%)	13 (92.9%) 1 (7.1%)	10(71.4%) 4 (28.6%)	14 (100.0%) 0 (0.0%)	13 (92.9%) 1(7.1%)	11(78.6%) 3 (21.4%)
42–47	3 (27.3%) 8 (72.7%)	0 (0.0%) 11(100.0%)	6 (54.5%) 5 (45.5%)	11(100.0%) 0 (0.0%)	11 (100.0%) 0 (0.0%)	11(100.0%) 0 (0.0%)	9 (81.8%) 2 (18.2%)	11 (100.0%) 0 (0.0%)	11(100.0%) 0 (0.0%)	10(90.9%) 1 (9.1%)
48–53	2 (50.0%) 2 (50.0%)	0 (0.0%) 4 (100.0%)	2 (50.0%) 2 (50.0%)	4 (100.0%) 0 (0.0%)	4 (100.0%) 0 (0.0%)	4 (100.0%) 0 (0.0%)	4(100.0%) 0 (0.0%)	4 (100.0%) 0 (0.0%)	4 (100.0%) 0(0.0%)	3 (75.0%) 1(25.0%)
54–59	0 (0.0%) 2(100.0%)	0 (0.0%) 2 (100.0%)	2(100.0%) 0 (0.0%)	2 (100.0%) 0 (0.0%)	2 (100.0%) 0 (0.0%)	2 (100.0%) 0 (0.0%)	1 (50.0%) 1 (50.0%)	2 (100.0%) 0 (0.0%)	2 (100.0%) 0 (0.0%)	1 (50.0%) 1(50.0%)
Total	26(26.5%) 72 (73.5%)	4 (4.1%) 94 (95.9%)	37(37.8%) 61(62.2%)	89 (90.8%) 9 (9.2%)	91 (92.9%) 7 (7.1%)	89 (90.8%) 9 (9.2%)	74(75.5%) 24(24.5%)	92 (93.9%) 6 (6.1%)	88 (89.8%) 10(10.2%)	88(89.8%) 10(10.2%)

Note. Values represent the number and percentage of participants who answered "No" (first) and "Yes" (second) to lifetime use of each substance by age group.

Data from Table 2 revealed that tobacco and alcohol remained the most commonly reported substances across all age groups. Among participants aged 18–23, 90.5% reported having used tobacco, and 95.2% had used alcohol at least once in their lives. These high rates were consistent among young adults aged 24–29 (tobacco 81.0%, alcohol 100%) and declined somewhat with increasing age. In contrast, older age groups such as 48–53 and 54–59 showed much lower tobacco use (50.0% and 100.0%), respectively, though alcohol use remained high across all groups. Cannabis use was also prevalent, particularly among those aged 18–29, with over 75% of participants in these age groups reporting lifetime use. The prevalence of cannabis use decreased notably with age, with only 45.5% of those aged 42–47 and none used of those aged 54–59 years (0%). This suggests that cannabis use is most common among

younger adults, potentially reflecting generational shifts in cultural attitudes, access, and legality.

Although the overall patterns of less commonly used substances such as cocaine, amphetamines, inhalants, hallucinogens, sedatives, and opioids were relatively lower, the data revealed noteworthy trends. Cocaine use was highest among the youngest group (23.8% in 18–23) and declined sharply with age. Amphetamine use followed a similar pattern, with 19.0% of those aged 18–23 reporting use, compared to none among those over 47. Inhalants were also 19% commonly used by younger participants, particularly among those aged 24–29. Sedative use showed a slightly different trend, peaking among participants aged 30–41, suggesting a potential link between stress, sleep disturbances, and substance use in early-to-mid adulthood (McCabe et al., 2021). Although overall opioid use was relatively low (10.2%), it was most frequently reported among participants under the age of 30.

Discussion

This study explored the lifetime patterns of substance use across different age groups and substance types, focusing on tobacco, alcohol, cannabis, cocaine, amphetamines, inhalants, amphetamine-stimulants, hallucinogens, opioids, sedatives, and others (khat). The results revealed distinct patterns of use that varied significantly by both age group and substance.

As detailed in Table 1, the patterns of lifetime substance use among participants presents both expected patterns and important areas of concern. Remarkably, alcoholic beverages were by far the most commonly used substance, with 95.9% of participants reporting that they had consumed alcohol at some point in their lives. This finding is consistent with global and regional data that position alcohol as the most widely used psychoactive substance, and it underscores its cultural and social accessibility in many communities. Tobacco products were also highly prevalent, with 73.5% of respondents acknowledging lifetime use. This high percentage reflects the continued public health challenge posed by nicotine dependence and its associated health risks. In addition, these findings mirror global trends, where alcohol and tobacco continue to dominate patterns of substance use (Castaldelli-Maia & Bhugra, 2022; Wu et al., 2017).

Following closely, cannabis was reported by 62.2% of participants, indicating that it remains a widely used substance among the population studied. The relatively high use of cannabis

could be attributed to changing perceptions about its risk profile or increased social acceptability, especially among younger adults. Other substances were reported with lower, but still noteworthy, prevalence. Sedatives or sleeping pills (such as diazepam and alprazolam) had been used by nearly a quarter of participants (24.5%), raising concerns about non-medical use and potential dependency. Meanwhile, Khat, a plant-based stimulant commonly used in parts of East Africa and the Arabian Peninsula, was reported under the "Other (Khat)" category by 10.2% of participants.

Although often overlooked in broader substance use research, Khat (*mirra*) has known psychoactive properties, and its use may be culturally embedded yet under-regulated. Subsequently, the use of more potent or illicit substances was less common but still evident. For example, 10.2% of respondents also reported lifetime use of opioids (including heroin, morphine, codeine, and methadone), and 9.2% reported use of cocaine and inhalants. Amphetamine-type stimulants (such as methamphetamine or ecstasy) were used by 7.1% of the sample, while hallucinogens (including LSD and ketamine) were the least commonly reported at 6.1%.

Further analysis presented in Table 2 shows variation in substance use patterns across different age groups. For instance, alcohol use was nearly universal among those aged 35–39 years (100%), 30–34 years (97.3%), and 25–29 years (97.1%), indicating high lifetime consumption rates in these cohorts. In contrast, individuals in the 20–24 age group reported slightly lower alcohol use (91.9%) but had the highest cannabis use at 70.3%, suggesting a potential age-related preference or exposure pattern. Interestingly, inhalant use was most prevalent in the 20–24 age group (13.5%), while sedatives were the most used by those aged 35–39 (40%). The use of opioids and Khat was also notably higher in the older age groups (30–39 years), perhaps reflecting cumulative exposure or coping mechanisms over time.

A small portion across all age groups indicated no response, ranging from 2.9% to 5.4%. Additionally, the findings indicate that younger adults (particularly those aged 18–29) had the highest rates of lifetime use across nearly all substances. For example, 95.2% of those aged 18–23 and 100% of those aged 24–29 reported alcohol use, while 90.5% and 81.0%, respectively, reported tobacco use. Cannabis use was also particularly high in these younger groups, with 76.2% in the 18–23 range and 85.7% among 24–29-year-olds. Interestingly, the use of substances such as cocaine, amphetamines, and inhalants was also concentrated in the

younger age brackets, with usage rates dropping sharply after age 30. These findings may reflect a combination of social, developmental, and generational factors, including peer influence, experimentation, and changing cultural attitudes toward drug use (Ebrahim et al., 2024; NACADA, 2022; UNODC, 2024).

On the other hand, sedative use showed a more even distribution across age groups and peaked in the 30–41 age range, suggesting a potential link to stress, occupational demands, or underlying mental health issues during midlife. Similar trends have been reported in prior research, where sedative and benzodiazepine misuse was found to vary across the lifespan, with notable peaks during mid-adulthood (Schepis et al., 2020). Opioid use, though relatively low overall, was reported almost exclusively by participants under 30 years, raising concerns about early exposure and risk for dependency. These results are consistent with previous literature documenting high rates of substance use in primary care and mental health settings (Wu et al., 2017; Karino et al., 2023). They also align with findings from NACADA (2022), which reported elevated substance use in Kenya, particularly among youth and in the Western region.

Furthermore, the findings from this study reveal significant patterns of substance use across various age groups in Nairobi County, Kenya. The highest rates of substance use were observed among young adults aged 18–29, particularly for substances such as alcohol, cannabis, and tobacco. These results mirror global patterns in substance use, where younger populations consistently demonstrate higher levels of experimentation and illicit drug use. This trend has been widely documented in a recent systematic review by Ebrahim, et al. (2024), which highlighted increased exposure, peer influence, and social experimentation as major contributing factors to substance use among youth. According to the *World Drug Report 2024* by the United Nations Office on Drugs and Crime (UNODC), substance use continues to rise globally, with adolescents and young adults comprising a large share of those initiating drug use (UNODC, 2024).

These findings are consistent with those reported by Olawole-Isaac et al. (2018), who conducted a systematic review and meta-analysis of adolescent substance use across sub-Saharan Africa. Their research found an overall prevalence of 41.6% for any substance use among adolescents, with alcohol (32.8%) and tobacco (23.5%) being the most commonly used substances. This aligns closely with the current study's data, which indicate a lifetime alcohol

use rate of 95.9% and tobacco use at 73.5% rates that are notably higher, possibly due to the older average age of the sample and differing local contexts.

Rahman et al. (2019) also reported similar findings in their cross-sectional study at the Central Drug Addiction Treatment Center in Dhaka, Bangladesh. They found that 42% of their sample fell between the ages of 26 and 30, and cannabis was the most commonly initiated substance, used by 85% of participants. Their study highlighted the role of urban environments, high unemployment, and early age of onset in shaping substance use behaviors, factors that also emerged in the current Nairobi-based data. Both studies reflect the increased vulnerability of urban youth to substance use, pointing to similar socio-economic pressures such as stress, peer influence, and lack of opportunity. Furthermore, this is consistent with Aber-Odonga et al. (2024) report that the urban context often provides more access and anonymity, both of which can facilitate substance experimentation and long-term use among urban youth.

In the current study, sedatives and opioids appeared more frequently in individuals aged 30–47, suggesting a shift from recreational or social drug use to substances often linked with stress management, chronic pain, or sleep disorders. This is consistent with global trends reported in the *Monitoring the Future* study in the United States, which followed over 51,000 individuals from adolescence into adulthood. It found that misuse of prescription drugs, especially sedatives and opioids, peaked in the late 20s and early 30s, correlating with higher rates of long-term dependence and substance use disorders in adulthood (McCabe et al., 2021).

Moreover, global surveys such as the *Journal of Adolescent Health* (2022) have reported an increasing burden of opioid use disorder (OUD) among young adults, with adolescent females showing particularly sharp increases since 2014.

This trend underscores the need to focus not only on adolescent prevention programs but also on tailored interventions for early adulthood, especially given the high accessibility of prescription medications through peers or informal channels. The decline in illicit drug use with increasing age observed in the Nairobi study may reflect shifting life priorities, health concerns, or reduced access, but the continued prevalence of medically-associated substance use (e.g., opioids and sedatives) raises concerns about dependence and misuse in older adults (McCabe et al., 2019). As highlighted by the World Health Organization (WHO, 2010), the potential for prescription misuse particularly in underserved or overstressed populations, necessitates regular medication reviews, alternative pain management approaches, and improved access to mental health care.

Remarkably, the study's identification of Khat as a commonly used substance among 10.2% of respondents reflects regional specificity in drug preference. While not widely used globally, Khat is prevalent in parts of East Africa and the Arabian Peninsula. This aligns with findings by Olawole-Isaac et al. (2018), who reported a 22% prevalence of Khat use among West African adolescents, highlighting cultural factors in substance use trends. Poly-drug use also emerged as a significant concern in both this study, Kalungi et al. (2024) and Rahman et al.'s (2019) findings. The latter reported that 59% of their participants were multi-drug users, and similar patterns were observed in Nairobi, particularly among young adults. This pattern reflects the complex nature of substance use behaviours and underlines the importance of integrated treatment programs that account for concurrent use of multiple substances.

This study faced several limitations, including reliance on self-reported data, which may be affected by recall or social desirability bias. The sample was limited to selected rehabilitation centers in Nairobi County, reducing generalizability to the broader population. Some centers declined participation or requested anonymity, which further limited diversity. Future research should aim for broader sampling and more inclusive demographic analysis, like gender, income, or education, which could have provided more context. Despite these limitations, the study offers meaningful insights.

Conclusion

This study set out to examine the patterns of substance use among individuals undergoing rehabilitation, with particular attention to age-specific differences. By analysing substance use and its distribution across age groups, the study offers a snapshot of how use varies at different stages of life. The findings revealed that alcohol, tobacco, and cannabis were the most commonly used substances, particularly among younger adults aged 18–29. In contrast, middle-aged adults showed a higher prevalence of sedative use, while older adults, though reporting lower overall substance use, still demonstrated continued use of alcohol and prescription sedatives. These results point to clear age-related differences in substance use patterns. The discussion highlighted how such differences may be shaped by life stage, stress, access, and socio-environmental factors such as urbanisation and unemployment.

Comparisons with existing evidence suggest that these findings are consistent with patterns observed in other cultural and geographic contexts. For example, early onset of cannabis and multi-drug use among young urban males has also been documented in other regions, while

persistent prescription sedative use in older adults reflects wider concerns about medically-associated dependency. In conclusion, while the cross-sectional design limits the ability to track changes in substance use across the lifespan, this study nonetheless contributes valuable insights into the complex, age-specific drivers of substance use. It underscores the need for context-sensitive prevention and intervention strategies that are tailored not only to the type of substance but also to the psychological and social realities of each age group. Such an approach can guide psychologists, healthcare providers, rehabilitation managers, and policy-makers in developing more targeted and effective responses to reduce the burden of substance use disorders. Future research employing longitudinal designs is recommended to better understand how substance use patterns change over time and to confirm the trends observed in this study.

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