Original Article

Prevalence and Associated Factors of Substance Use Among Adolescents Aged 18–24 Years at Kigali Transit Center, Rwanda

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ABSTRACT

Background: Substance use among adolescents remains a significant global public health issue, with increasing prevalence reported across both high-income and low-income countries. In Rwanda, urban and marginalized communities are witnessing a concerning rise in substance use among adolescents, particularly those aged 18 to 24 years. This study aimed to estimate the prevalence of substance use among adolescents aged 18–24 years at the Kigali Transit Center, to identify the associated factors contributing to substance use, and to determine the most commonly used substances within this population.

Methods: A cross-sectional design was employed, incorporating both quantitative and qualitative methods. Data were collected through structured questionnaires and in-depth interviews. Quantitative data were analyzed using SPSS, applying descriptive statistics and chi-square tests to assess associations between variables. Thematic analysis was used for qualitative data to provide contextual insights into substance use behaviors.

Results: The prevalence of substance use among adolescents at the Kigali Transit Center was found to be 73%. Peer pressure (79.8%), easy access to substances (74%), and early initiation (80% initiated between ages 15–19) were major contributing factors. Stressful life events also played a role, with 17.7% reporting substance use as a coping mechanism. A high proportion (93.6%) expressed interest in receiving help to quit. Chi-square analysis confirmed significant associations between substance use and variables such as peer influence, age of initiation, frequency of use, family influence, accessibility, and stress (P < 0.001).

Conclusion: This study highlights the high prevalence and multifactorial nature of substance use among adolescents in transit settings in Rwanda. Findings support the urgent need for targeted interventions, including peer-led education, family engagement, and accessible psychosocial support services. The results are consistent

with national data from the Rwanda Biomedical Center (RBC) and the Rwanda Demographic and Health Survey (RDHS), emphasizing alcohol and cannabis as the most frequently used substances among youth.

Keywords (MeSH): Adolescents, Substance use, Peer pressure, Kigali Transit Center, Risk factors.

Introduction

Substance use among youth is a growing global public health concern, contributing significantly to morbidity, social instability, and economic strain. The United Nations Office on Drugs and Crime (UNODC, 2023) estimates that approximately 36 million people globally suffer from drug use disorders, with young adults aged 18 to 25 being disproportionately affected due to their heightened vulnerability to experimentation and risk-taking behaviors. In Africa, urbanization and shifting socio-cultural dynamics have contributed to an increase in substance use among youth, particularly the misuse of alcohol, cannabis, amphetamines, and prescription medications (Onaolapo et al., 2024).

In East Africa, countries like Kenya and Tanzania have documented notable substance use rates among adolescents, citing peer pressure, unemployment, and socio-economic hardship as primary drivers (Musyoka et al., 2021; Ephard & Mweya, 2022). Similarly, Rwanda has observed an upward trend in youth substance use, particularly in urban areas such as Kigali. According to the Rwanda Biomedical Center (RBC, 2022), over 65% of individuals undergoing drug rehabilitation in the country are youth, with alcohol, cannabis, tobacco, and prescription drug misuse being most prevalent. Moreover, national surveys indicate that peer pressure, low parental supervision, and economic hardship are key predictors of early drug initiation (Kanyoni et al., 2015; National Institute of Statistics of Rwanda [NISR], 2020).

The Kigali Transit Center represents a unique microcosm within this broader national trend. As a temporary shelter and rehabilitation facility for vulnerable youth, many residents arrive with a history of substance use, often linked to prior street life, family breakdown, or conflict with the law. Reports from the center suggest a growing number of adolescents presenting with substance use disorders, yet limited empirical studies have explored the underlying causes within this context (Uwera et al., 2022). While global and continental data underscore the scope of the issue, the specific socio-environmental dynamics at the Transit Center such as social dislocation, lack of mentorship, and ease of access to substances demand localized investigation.

Existing studies in Rwanda highlight a concerning association between adolescent substance use and psychosocial issues such as truancy, suicidal ideation, and family neglect (Abio, 2020; Nyongesa et al., 2021). However, these findings often reflect general populations and may not capture the compounded vulnerabilities of youth at transitional facilities like the Kigali Transit Center. For instance, recent assessments by the Rwanda Biomedical Center (RBC, 2023) revealed that over 60% of urban youth reported initiating substance use due to peer influence,

a trend that is likely amplified within the communal and high-risk environment of the Kigali Transit Center. This study aims to address the current evidence gap by examining the prevalence and associated factors of substance use among adolescents aged 18–24 years residing at the Kigali Transit Center. Grounded in Bandura's Social Learning Theory (1977), which posits that behaviors such as substance use are learned through observation and imitation of peers and influential figures, this research will explore how environmental and social influences contribute to drug use within this vulnerable group. By identifying specific risk factors such as peer dynamics, family background, economic stress, and exposure to drug-use role models the study seeks to inform targeted interventions to support rehabilitation and reintegration of affected youth in Rwanda.

Methods

Research Design

This study employed a cross-sectional design to capture data on substance use patterns and associated factors at a single point in time. A mixed-methods approach was used to enhance the depth and breadth of understanding, integrating quantitative data for statistical generalizability with qualitative insights for contextual and experiential depth. The rationale for this approach aligns with Creswell and Plano Clark (2018), who advocate for mixed methods when exploring complex social phenomena. In this study, triangulation of both data types was intended to provide a comprehensive analysis and validate findings across different data sources.

Study Area

The study was conducted at the Kigali Transit Center (KTC) located in Gikondo Sector, Kicukiro District, Kigali. This facility provides temporary shelter and rehabilitation support for vulnerable adolescents, many of whom are former street dwellers, victims of abuse, or affected by family breakdown. The setting was selected due to its concentration of at-risk youth, who represent a population highly susceptible to substance use.

Study Population

The target population comprised adolescents aged 18–24 years residing at the KTC. According to center records, approximately 2,500 individuals in this age group were present during the study period. Inclusion criteria included: (1) current registration at the center, (2) being within the 18–24 age range, and (3) ability to provide informed consent. Exclusion criteria included cognitive or mental impairments that hindered communication or comprehension of the study procedures.

Sampling Techniques and Sample Size

A stratified random sampling technique was employed to ensure representativeness across key demographic variables specifically gender and duration of stay at the center. The population was divided into subgroups based on these characteristics, guided by center demographic data which indicated that 60% of residents were male and

40% female. Duration of stay was categorized as less than 3 months, 3 to 6 months, and more than 6 months. Proportional allocation was used within each stratum. For example, if 30% of males had stayed less than three months, then 18% of the total sample ($60\% \times 30\%$) was randomly selected from that subgroup. This stratification process aimed to balance the sample and reflect the actual demographic composition of the center, reducing sampling bias and enhancing external validity.

The required sample size was calculated using Cochran's formula for large populations:

$n = Z^2 * p * (1-p) / e^2$

where Z = 1.96 (for 95% confidence), p = 0.525 (estimated prevalence from previous studies), and e = 0.05 (margin of error), yielding a sample of 384 participants. This size ensured sufficient statistical power to detect meaningful associations.

Data Collection Methods

Quantitative Data: A structured questionnaire was administered by trained data collectors. The instrument was developed by adapting items from validated international tools such as the WHO ASSIST and Youth Risk Behavior Surveillance System (YRBSS), ensuring alignment with global standards. To ensure cultural relevance, the questionnaire was translated from English to Kinyarwanda and back-translated to check for consistency. A pre-test was conducted with 30 adolescents at a similar facility in Kigali, assessing language clarity, cultural appropriateness, response time, and item relevance. Based on feedback, modifications were made to improve clarity and eliminate ambiguous questions. The final tool demonstrated acceptable internal consistency (Cronbach's α = 0.78).

Qualitative Data: Key Informant Interviews (KIIs) were conducted with 20 purposively selected staff members and social workers at the center. A semi-structured interview guide was developed based on literature and revised following expert input. Interviews were audio-recorded and transcribed verbatim. Thematic analysis was conducted using a hybrid approach inductive themes emerged from the data, while deductive codes were based on known substance use risk factors. Coding was done manually by two independent researchers, and inter-coder reliability was ensured through iterative comparison and resolution of discrepancies. NVivo 12 software was used to organize and manage qualitative data. To validate findings, member checking was conducted with five participants to confirm the accuracy of preliminary interpretations.

Data Analysis

Quantitative data were analyzed using SPSS version 25. Descriptive statistics (frequencies, percentages, means) summarized substance use patterns. Inferential statistics, including Chi-square tests and binary logistic regression, were applied to determine associations between substance use and variables such as gender, family structure, peer

influence, and duration of stay. Results were reported at a 95% confidence interval, with $p < 0.05$ considered statistically significant.

Qualitative data were analyzed through thematic analysis. After familiarization with the transcripts, codes were generated, reviewed, and grouped into themes representing recurring patterns. This process provided contextual depth to quantitative findings and enabled triangulation of data sources to enhance the credibility of results.

Validity and Reliability

Content validity was ensured by aligning questionnaire items with prior research and established theoretical frameworks. Construct validity was supported by incorporating indicators of known substance use predictors. Reliability was evaluated through a pilot test, with Cronbach's alpha used to assess internal consistency. Qualitative reliability was addressed through independent coding and inter-coder agreement, while triangulation between data sources improved the robustness of interpretations.

Ethical Considerations

Ethical approval was obtained from the Mount Kenya University Research Ethics Committee. Informed consent was obtained from all participants after explaining the study's objectives, risks, and benefits. Given the vulnerability of the adolescent population many with histories of trauma, substance dependence, or mental health concerns additional ethical safeguards were implemented. These included: Private interview settings to ensure psychological safety. Availability of a trained psychosocial support officer during interviews to manage distress. Referral protocols for participants showing signs of acute emotional or psychological distress. Although the study targeted participants aged 18–24, sensitivity to maturity and mental capacity was observed during consent. In cases of impaired understanding, participation was respectfully declined. All data were anonymized and securely stored, with access restricted to the core research team.

Results

Demographic and Socio-Economic Characteristics of Participants

The present study included 384 adolescents from various provinces of Rwanda, with the majority (34.1%, n = 131) originating from Kigali City. This urban predominance likely reflects the center's location and the higher prevalence of social deviance, including substance use, commonly observed in metropolitan settings. Participants were evenly distributed across three age groups: 18–20 years (32.8%, n = 126), 21–22 years (33.9%, n = 130), and 23–24 years (33.3%, n = 128), suggesting that substance use affects adolescents throughout late adolescence and early adulthood. Male participants accounted for 59.9% (n = 230) of the sample, aligning with global data indicating a higher prevalence of substance use among male adolescents. This may be attributed to cultural norms that afford males greater behavioral autonomy. Regarding educational attainment, 53.6% (n = 206) had completed secondary school, followed by 28.1% (n = 108) with primary education, 13.0% (n = 50) with tertiary education,

and 5.2% (n = 20) with no formal education. Adolescents with lower educational levels may face increased susceptibility to substance use due to limited awareness and socio-economic challenges. Most respondents were single (69.5%, n = 267), with 28.1% (n = 108) married and 2.3% (n = 9) divorced. Being single may correlate with increased engagement in risk behaviors, including substance use. Employment status varied, with 48.4% (n = 186) employed, 34.6% (n = 133) unemployed, 15.9% (n = 61) students, and 1.0% (n = 4) reporting disability or chronic illness. Unemployment is recognized as a socio-economic stressor linked to substance use vulnerability.

In terms of religious affiliation, 73.4% (n = 282) identified as Christians, 10.2% (n = 39) as Muslims, and 16.4% (n = 63) had no religious affiliation. Religion may offer protective factors through community support and moral guidance. These findings underscore the importance of designing targeted, demographically sensitive interventions to prevent and address substance use among adolescents in transitional urban settings such as the Kigali Transit Center.

Table 1 Demographic and Socio-Economic Characteristics of Participants

Category	Variable	Frequency	Percent
Province Origin	Eastern Province	46	12.0%
	Kigali City Province	131	34.1%
	Northern Province	66	17.2%
	Southern Province	53	13.8%
	Western Province	88	22.9%
	Total	384	100.0%
Age Category	18-20 Years Old	126	32.8%
	21-22 Years Old	130	33.9%
	23-24 Years Old	128	33.3%
	Total	384	100.0%
Gender	Male	230	59.9%
	Female	154	40.1%
	Total	384	100.0%
Education Level	No Formal Education	20	5.2%
	Primary School	108	28.1%
	Secondary School	206	53.6%
	Tertiary School	50	13.0%
	Total	384	100.0%
Marital Status	Single	267	69.5%
	Married	108	28.1%
	Divorced	9	2.3%
	Total	384	100.0%

Category	Variable	Frequency	Percent
Employment Status	Employed	186	48.4%
	Unemployed	133	34.6%
	Student	61	15.9%
	Disabled/Diseased	4	1.0%
	Total	384	100.0%
Religion	Christianity	282	73.4%
	Islam	39	10.2%
	No Religion	63	16.4%
	Total	384	100.0%

Commonly Used Substances Among Adolescents at Kigali Transit Center

The study revealed a high prevalence of alcohol and marijuana use among adolescents at the Kigali Transit Center. Alcohol emerged as the most frequently consumed substance, with 213 participants (55.5%) reporting its use. This indicates a notable pattern of alcohol consumption within the adolescent population at the center. Marijuana followed closely, with 159 individuals (41.4%) admitting to having used it, pointing to significant levels of cannabis use. Tobacco was used by 94 participants (24.5%), showing that nearly a quarter of the adolescents have engaged in smoking, although this figure remains lower than that of alcohol and marijuana. The misuse of prescription drugs was reported by 22 participants (5.7%), suggesting limited but present misuse of medical substances. Harder substances such as cocaine and heroin were reported less frequently, with only 2 (0.5%) and 16 (4.2%) adolescents acknowledging their use, respectively. The use of other unspecified substances was extremely rare, with only one participant (0.3%) reporting usage. Notably, 282 respondents (73%) confirmed having used at least one type of substance, while only 102 (27%) reported complete abstinence. These patterns underscore the urgent need for comprehensive prevention and intervention programs targeting the most commonly used substances, particularly alcohol and marijuana, to curb the growing trend of substance use among adolescents in this vulnerable setting.
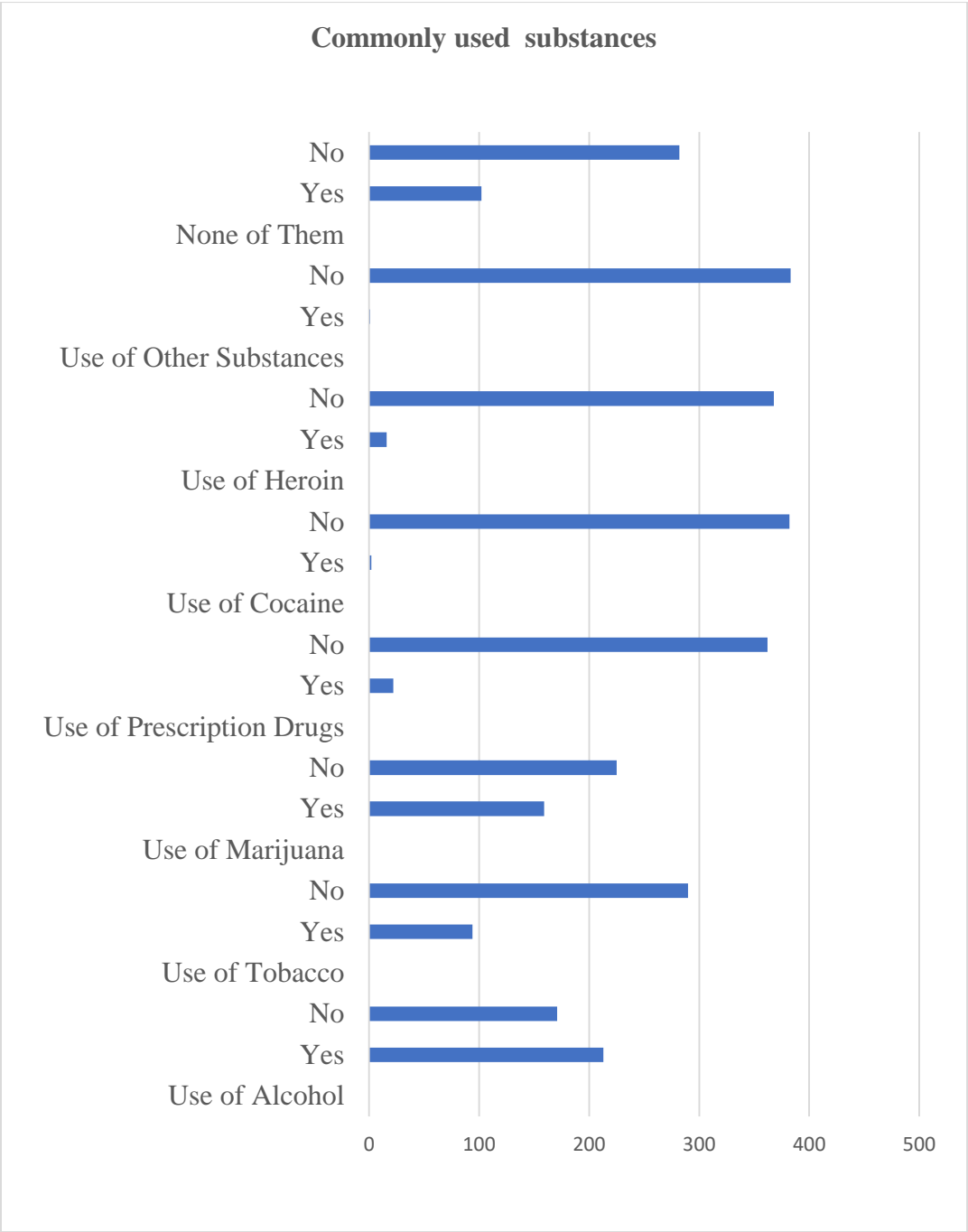
Figule1: **Commonly Used Substances Among Adolescents at Kigali Transit Center**

Association Between Demographic characteristics and Substance Use

The analysis reveals several significant demographic factors associated with substance use among adolescents at the Kigali Transit Center. Notably, province of origin plays a critical role, with Kigali City showing the highest prevalence of substance use (105 users), while the Eastern Province reports the lowest (32 users). The association is statistically significant (p = 0.001), suggesting that geographical location strongly influences substance use

behaviors. Age is another significant factor. Adolescents aged 18–20 years demonstrate the highest substance use (104 users), followed by those aged 21–22 and 23–24. The p-value of 0.006 confirms a statistically significant relationship, indicating that younger adolescents are more prone to substance use than their older peers. Gender differences are also pronounced. Males exhibit a much higher prevalence (184 users) compared to females (98 users), with the association being statistically significant (p = 0.001). This implies that gender plays an important role, with males more likely to engage in substance use.

Religion is significantly linked to substance use as well. Christianity is associated with the highest prevalence (196 users), followed by Islam (30 users) and those with no religion (56 users). The p-value of 0.006 indicates a meaningful association between religious affiliation and substance use, with Christians more frequently reporting substance use than others. In contrast, other demographic factors show no significant association. Education level (p = 0.383), marital status (p = 0.150), and employment status (p = 0.507) do not demonstrate statistically meaningful relationships with substance use. This suggests that factors such as schooling, marital condition, or employment do not significantly influence substance use in this population. Overall, province of origin, age, gender, and religion emerge as key demographic determinants of substance use, highlighting areas for targeted intervention.

Table 2: Association Between Demographic characteristics and Substance Use

Category	Prevalence of Substance use		P-Value
	Users	**Non Users**	
Province Origin			0.001
Eastern Province	32	14	
Kigali City Province	105	26	
Northern Province	44	22	
Southern Province	29	24	
Western Province	72	16	
Total	282	102	
Age Category			
18-20 Years old	104	22	**0.006**

21-22 Years old	95	35	
23-24 Years old	83	45	
Total	282	102	
Gender			
Male	184	46	**0.001**
Female	98	56	
Total	282	102	
Education Level			
No Formal Education	17	3	0.383
Primary School	78	30	
Secondary School	154	52	
Tertiary School	33	17	
Total	282	102	
Marital Status			
Single	197	70	0.15
Married	76	32	
Divorced	9	0	
Total	282	102	
Employment Status			
Employed	134	52	0.507
Unemployed	101	32	
Student	43	18	
Disabled/Diseased	4	0	
Total	282	102	
Religion			

Christianity	196	86	**0.006**
Islam	30	9	
No Religion	56	7	
Total	282	102	

4.2.7 Association Between Determinants of Substance Use and Its Prevalence Among Adolescents at Kigali Transit Center

The study on the factors influencing substance use among adolescents at the Kigali Transit Center reveals a range of significant determinants associated with the prevalence of substance use, all of which show a strong statistical significance with p-values of 0.001. The frequency with which adolescents use substances is strongly linked to their overall substance use behavior. Among those who reported using substances, 157 used them daily, 13 weekly, and 109 occasionally. Interestingly, only one non-user reported daily use, and the majority of non-users (101) had never used substances. This suggests that substance use is typically habitual once initiated. A notable correlation exists between the age of first substance use and the likelihood of continued use. Most adolescents who reported using substances (226) first tried them between the ages of 15 and 19, followed by 31 who initiated use between the ages of 10 and 14. A smaller number (2) began before the age of 10. In contrast, all non-users (101) had never used substances. This highlights the importance of early intervention in preventing substance use during adolescence. Peer pressure is a major factor influencing substance use. Among users, 225 frequently felt peer pressure to use substances, while only 18 reported no such pressure. This contrasts sharply with non-users, 101 of whom did not experience any peer pressure. This finding underscores the significant role that friends and peers play in the initiation and continuation of substance use. Family attitudes toward substance use also significantly impact adolescents' behaviors. Among the users, 73 were negatively influenced by their families' attitudes, while 68 reported a positive influence. However, a majority (141) of users stated that their families' attitudes had no direct effect on their decisions to use substances. This suggests that family dynamics can both encourage and discourage substance use, but they are not always the decisive factor. Stressful life situations were

also a key factor in substance use. Among the users, 50 admitted that stress led them to use substances, whereas no non-users reported this connection. This finding indicates that stress may act as a trigger for substance use in adolescents.

The availability of substances significantly impacts their use. A large majority of users (211) reported having easy access to substances, while 70 had some difficulty obtaining them. In comparison, only one non-user had easy access, and 101 reported no access at all. This suggests that access to substances plays a crucial role in their use among adolescents. Environmental influences, such as living conditions, were also associated with substance use. Among users, 120 indicated that environmental factors contributed to their substance use, while none of the non-users reported such influences. This highlights the importance of addressing environmental factors in interventions aimed at preventing substance use. Education about substance use was found to significantly impact adolescents' behavior. Among users, 84 had received some form of education or intervention, while 198 had not. Among non-users, 94 had not received such education, suggesting that awareness and education programs may help reduce substance use. The desire for help in overcoming substance use was also evident. A majority of users (264) expressed a willingness to seek help to stop using substances, while only 18 did not. Among non-users, 101 did not feel the need for help, but this still suggests that a large number of users are open to receiving assistance. Access to support services was an important determinant. Among users, 259 reported that such services were available, while 23 said they were not. For non-users, 59 had access, while 43 did not. This indicates that support services play a vital role in helping adolescents who use substances.

The willingness to participate in programs aimed at reducing substance use was high among users, with 274 expressing interest. Only 8 users were not interested in such programs, while 54 non-users were interested, and 48 were not. This suggests that adolescents who use substances are particularly receptive to intervention programs. When asked about the type of support or intervention they would find most helpful, the majority of users (164) preferred counseling or therapy. Other preferred methods included access to health services (47),

education programs (40), and peer support groups (18). Among non-users, 47 preferred educational programs, and 44 indicated other forms of intervention. Users and non-users had similar perceptions of the prevalence of substance use. Most users (204) believed that less than 50% of adolescents used substances, while 32 non-users shared the same view. This perception suggests that adolescents may underestimate the extent of substance use among their peers.

Overall, these findings highlight the complex interplay of personal, social, and environmental factors that influence substance use among adolescents at the Kigali Transit Center. The significant associations, indicated by the p-values of 0.001, emphasize the importance of addressing factors like peer pressure, family influence, access to substances, and stress management in efforts to reduce substance use among young people.

Table 3: Association Between Determinants of Substance Use and Its Prevalence Among Adolescents at Kigali Transit Center

Category	Have you ever used substance?		
	Yes	**No**	**P-Value**
How often did you use substance?			**0.001**
Daily	157	1	
Weekly	13	0	
Monthly	2	0	
Occasionally	109	0	
Never	1	101	
At what age did you first try substance use?			
Less than 10 years	2	0	**0.001**
10-14 years	31	0	
15-19 years	226	1	
20-24 years	22	0	

Never used substance	1	101	
Did you feel pressure from your friends or peers to use substances?			
Yes frequently	225	1	**0.001**
Yes occasionally	39	0	
No	18	101	
Does your family's attitude towards substances influence you?			
Yes positively	68	1	**0.001**
Yes negatively	73	0	
No	141	101	
Have you ever faced a stressful situation that led you to use substances?			
Yes	50	0	
No	232	102	**0.001**
Did you have access to substances (e.g., alcohol, drugs, cigarettes)?			
Yes easily	211	1	**0.001**
Yes with difficulty	70	0	
No	1	101	
Are there any environmental factors (e.g., living conditions) influencing your substance use?			
Yes	120	0	**0.001**
No	162	102	
Have you ever received any education or intervention about substance use?			
Yes	84	8	**0.001**
No	198	94	

Would you like help with substance use or to stop using substances?

Yes	264	1	**0.001**
No	18	101	

Are there support services available at this transit center?

Yes	259	59	**0.001**
No	23	43	

Would you be interested in participating in a program aimed at reducing substance use?

Yes	274	54	**0.001**
No	8	48	

What type of support or intervention would be most helpful?

Counseling or therapy	164	11	**0.001**
Family support	9	0	
Access to health services	47	0	
Education program	40	47	
Others	4	44	
Peer support group	18	0	

How common do you think substance use is among adolescents in your community?

Less than 50%	204	32	**0.001**
Between 51% and 70%	18	27	
71% and above	20	16	
Don't know	40	27	

Logistic Regression Results for Substance Use as the Dependent Variable

The logistic regression analysis was conducted to assess the likelihood of substance use among adolescents, with substance use serving as the dependent variable. The exponentiated coefficient [Exp(B)], which represents the odds ratio, was 0.362. This suggests that, in the absence of any predictors, the baseline odds of an adolescent reporting substance use were approximately 36.2%. This significant constant provides a reference point for evaluating how the inclusion of independent variables in subsequent steps will improve the prediction of substance use.

Table 4. Logistic Regression Results for Substance Use as the Dependent Variable

Variables in the Equation	B	S.E.	df	Sig.	Exp(B)
Constant	-1.017	0.116	1	0.000	0.362

Substance Use (Dependent Variable)

Qualitative Insights on Adolescent Substance Use at Kigali Transit Center

Thematic analysis of key informant interviews including perspectives from adolescents, youth counselors, social workers, and health professionals revealed a high prevalence of substance use among adolescents at the Kigali Transit Center, often starting between ages 15 and 19. Many youths described substance use as a routine coping mechanism for stress, trauma, or idleness, with some reporting daily use that had become habitual. Peer pressure emerged as a powerful influence, as adolescents commonly initiated use to gain acceptance within their social circles. This behavior was further reinforced by unstable home environments, limited recreational outlets, and normalized substance use within families. Accessibility was a consistent theme. Substances such as alcohol, cannabis, glue, and prescription medications were readily available and inexpensive. Glue sniffing, in particular, was widespread among economically marginalized adolescents due to its affordability. Respondents noted minimal regulatory enforcement, which further enabled frequent and unmonitored access.

Knowledge and perception of risk were varied. While some adolescents were aware of the dangers of substance use, many underestimated its long-term consequences or considered it a temporary solution to difficult life circumstances. Health professionals observed that this misinformation contributes to persistent use despite observable harm. Reported consequences included respiratory and psychological health issues, financial strain,

and conflicts with family or law enforcement. Encouragingly, many adolescents expressed a desire to quit but cited the lack of information, counseling services, and structured support as major barriers. Key informants emphasized the need for adolescent-centered interventions, including psychosocial support, peer-led education, and improved service visibility.

Overall, the findings underscore a multifactorial crisis shaped by social, economic, and informational gaps. Addressing substance use among vulnerable youth in transitional settings like the Kigali Transit Center will require integrated strategies that target accessibility, awareness, family dynamics, and mental health support.

Discussion

This study found a notably high prevalence of substance use among adolescents aged 18–24 years at the Kigali Transit Center, with 73% reporting current use. This rate substantially exceeds national estimates, such as those from the Rwanda Biomedical Center (RBC, 2021), which reported a 28.5% alcohol use prevalence among adolescents, and the Rwanda Demographic and Health Survey (NISR, MOH, & ICF, 2020), which found lower rates of tobacco and illicit drug use nationally. The elevated prevalence in this study likely reflects the unique socio-environmental context of the Kigali Transit Center, where vulnerable youth face heightened exposure to stress, peer pressure, and limited family support. This aligns with findings from urban informal settings across sub-Saharan Africa, where socioeconomic instability and lack of structured recreational opportunities contribute to higher substance use (Mwangi, Kimani, & Ochieng, 2023). However, due to the study's cross-sectional design and the unique population of a transit center, these findings may not be generalizable to broader adolescent populations in Rwanda or elsewhere.

Social-environmental factors, particularly peer influence, emerged as the strongest driver of substance use initiation. Consistent with the RBC (2021) and global literature (Johnson & Lee, 2021), participants frequently cited peer acceptance as a primary motivation. This dynamic is amplified in communal environments like the transit center, where social bonds among peers can normalize risky behaviors (Smith, Johnson, & Williams, 2022). Family context also played a critical role; adolescents from households with active substance use or weak parental supervision were more likely to engage in similar behaviors, reinforcing evidence that parental monitoring serves as a protective factor (Williams, Green, & Miller, 2022). These findings underscore the importance of targeting both peer networks and family environments in prevention strategies. Nevertheless, social desirability bias may have influenced participants' reporting on sensitive issues such as family substance use, potentially underestimating certain risk factors.

Access to substances was another significant facilitator, with most respondents reporting easy availability of alcohol, cannabis, and cigarettes through local vendors and peers. This widespread accessibility parallels reports by UNAIDS (2021) on unregulated illicit substance markets in urban African settings, contrasting with more

regulated rural areas where substance availability is lower. The prevalence of daily substance use, noted in over half of the participants, suggests that use is not merely experimental but has progressed to habitual consumption, which elevates risks for adverse health and social outcomes (Patel & Kumar, 2021). While these results are robust, the study did not objectively measure the density of substance vendors or enforcement levels, which could have provided further insight into environmental risk factors. The age of initiation, primarily between 15 and 19 years, was consistent with national data; however, qualitative findings revealed that early onset was often linked to exposure to adverse life events and entrenched peer influences unique to the transit center's high-risk environment. These insights suggest that while the timing of initiation may be similar across contexts, the underlying psychosocial pressures are more acute in transient, vulnerable populations (Nguyen & Brown, 2020). Given the qualitative data's reliance on self-reports, recall bias and selective memory may affect accuracy regarding age and motivations for initiation.

The health and social consequences identified, including respiratory issues, academic decline, and strained family relationships, are consistent with established literature documenting the multifaceted impact of adolescent substance use (Patel & Kumar, 2021; Williams et al., 2022). Encouragingly, many youths expressed willingness to participate in support programs, highlighting an opportunity for intervention. However, the scarcity of adolescent-friendly services at the transit center limits effective outreach. Evidence supports that comprehensive, culturally tailored programs involving counseling, peer support, and family engagement yield the best outcomes in similar settings (Roberts, Thomas, & Walker, 2021). Nevertheless, the study's findings on willingness to engage in services might be influenced by social desirability, and actual uptake rates need further investigation.

The integration of quantitative prevalence data with qualitative insights strengthens the understanding of substance use dynamics at the Kigali Transit Center. While the 73% prevalence quantifies the problem's magnitude, qualitative findings elucidate the socio-environmental and psychological mechanisms driving use. This mixed-methods approach highlights that effective interventions must address not only individual behaviors but also the broader community and familial contexts. Despite these strengths, the study is limited by its cross-sectional nature, precluding causal inferences, and the specific population limits broader applicability.

Conclusion

This study revealed a significantly high prevalence of substance use among adolescents at the Kigali Transit Center, with 73% of participants reporting use markedly higher than national figures reported by RBC and RDHS. The findings point to peer pressure, easy access to substances, and family dynamics as major influencing factors. Adolescents exposed to these conditions were more likely to initiate and sustain substance use, often experiencing adverse outcomes such as health complications, legal issues, and strained relationships. However, the expressed willingness among adolescents to seek help indicates a crucial opportunity for intervention. These results

underscore the urgent need for tailored strategies addressing the unique vulnerabilities of adolescents in high-risk environments like transit centers.

Recommendations

To effectively reduce substance, use among adolescents in high-risk settings, Minister of Health is recommended to implement comprehensive prevention programs that focus on peer education, life skills training, and awareness of substance-related risks. These efforts should be supported by Local health authorities in providing accessible support services, including counseling and peer support, integrated within community systems. Also Minister of Education and community Leaders are recommended to Engage parents through education and involvement is essential, as family attitudes greatly influence adolescent behavior. Local government authorities must address socio-environmental factors such as poverty, instability, and the widespread availability of substances. A collaborative, multi-sectoral approach involving community stakeholders is vital, along with ongoing monitoring and evaluation to ensure interventions remain relevant and impactful.

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