

School Based Prevention Programs and Substance Abuse Reduction of Teenagers in Public Secondary Schools in Muhanga District, Rwanda

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ABSTRACT: Substance abuse among teenagers has become a pressing global concern, with significant health, social, and academic consequences. Worldwide, school-aged adolescents increasingly engage in the use of substances such as alcohol, cannabis, tobacco, and other illicit drugs, leading to adverse health outcomes and impaired educational attainment. The purpose of this study was to analyse the influence of school-based prevention programs on substance abuse reduction among teenagers in public secondary schools in Muhanga District, Rwanda. The study was guided by four specific objectives: to assess the effect of psychological interventions, to examine the contribution of psycho-education programs, to determine the influence of community-based interventions, and to evaluate the effectiveness of referral interventions in reducing substance abuse. The study was anchored in Social Learning Theory and the Social Development Model, employing a mixed method that is descriptive and correlational research design. From 210 sampled respondents, for data collection only 203 questionnaires were returned while other 7 missed, therefore throughout the research, the researcher recorded the answers of only 203 respondents. Data were collected using questionnaires (for teenage mothers and teachers) and interview guides (for head teachers and parents). Sampling techniques included simple random sampling for teenage mothers and parents, and purposive sampling for teachers and head teachers. Data were analysed using IBM SPSS 22.0, with results presented through descriptive statistics, correlations, regression models, and thematic analysis of interviews. Key findings revealed that psychological interventions (counselling, guidance, resilience building) had a strong positive effect on reducing substance abuse ($r = 0.812$, $R^2 = 0.659$). Psycho-education programs (health clubs, peer-pressure resistance training, debates) were the most influential, explaining 71.6 % of the variation in substance abuse reduction ($r = 0.846$, $R^2 = 0.716$). Community-based interventions (parental involvement, religious institutions, role models, school-community partnerships) also showed a significant impact ($r = 0.794$, $R^2 = 0.631$). Referral interventions (teacher training, parental notification, rehabilitation referrals) were moderately effective ($r = 0.721$, $R^2 = 0.520$), with challenges noted in accessibility and stigma. Interview results from head teachers and parents reinforced these findings, emphasizing the importance of counselling, psycho-education, family-school collaboration, and parental involvement in referrals.

KEYWORDS: school based prevention, substance abuse reduction, psychological intervention, Psycho education, community based intervention.

INTRODUCTION

The purpose of this paper was to investigate the influence of school-based prevention programs on substance abuse reduction among teenagers in public secondary schools in Muhanga District, Rwanda. Different previous studies examined various factors connected to school-based prevention measures and substance abuse reduction among teenagers in Rwanda. According to Mayer (2021), schools are not only institutions of academic instruction but also key settings for shaping social behaviour, providing protective factors, and intervening early when challenges arise.

Also, Freeman et al. (2024) conducted a systematic review and found that programs that integrate social-emotional learning (SEL), conflict resolution training, and peer mediation significantly reduce bullying, aggression, and substance abuse. These programs are rooted in the understanding that students who can regulate their emotions, communicate effectively, and manage conflicts constructively are less likely to engage in harmful behaviours.

Dodd et al. (2022) found that peer education programs in schools improved attitudes toward health, reduced substance use, and fostered a stronger sense of belonging. These initiatives, which include peer mentoring, peer mediation, and student-led awareness campaigns, empower young people to take ownership of their school climate. They also develop leadership and empathy skills among student leaders.

According to Griffin and Botvin (2010), psychological interventions that integrate preventive education with skills training can significantly reduce the initiation and progression of drug and alcohol use among teenagers. In school settings, such interventions

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are valuable because they provide direct access to adolescents in a structured environment where risky behaviours can be identified early and preventive measures implemented.

Horigian et al. (2016) argue that adolescents with supportive and well-supervised family environments are less likely to develop persistent patterns of substance use. Studies show that when schools collaborate with families through structured psychological programs, reductions in drug and alcohol use are more sustainable.

Tripodi et al. (2010) note that interventions tend to be more effective in preventing tobacco and alcohol use than in reducing illicit drug use, likely because the latter is influenced by more complex social and environmental factors. Moreover, some intervention effects wane over time without continuous reinforcement, raising questions about the sustainability of short-term programs.

SAMHSA (2019) notes that untreated adolescent substance abuse increases risks of academic failure, delinquency, mental health disorders, and chronic addiction in adulthood. Effective referral interventions reduce these risks by connecting adolescents with early interventions that address not only substance use but also comorbid mental health concerns.

According to the National Conference of State Legislatures (2023), schools that promote inclusivity, respect, and student engagement report lower levels of conflict and higher levels of academic achievement. Prevention here is not about policing students but about creating an environment where every learner feels valued, safe, and respected. Research shows that when students feel connected to their schools, they are less likely to engage in violence or risky behaviours.

Research by Cuijpers (2002) revealed that peer-led programs often outperform adult-led ones in reducing alcohol and drug use among teenagers, primarily because young people tend to trust and relate better to their peers. These initiatives also create supportive networks where students encourage one another to avoid risky behaviours, thus strengthening prevention outcomes.

Jensen et al. (2019) found that MI sessions conducted by school counsellors significantly reduced alcohol and marijuana use among high school students within a six-month period. The strength of MI lies in its adaptability to individual student needs and its focus on building intrinsic motivation rather than imposing external discipline.

MATERIALS AND METHODS

The study was conducted in 10 secondary schools located in 6 different sectors of Muhanga District, Rwanda and for sampling, the researcher employed two sampling techniques such as simple random sampling and purposive sampling where simple random sampling was used to choose teenagers mothers and parents to participate in the study from secondary schools while purposive sampling technique for selecting head teachers and teachers. Researcher chose sample size by using Yamane formula (Slovin 2015) by using that Yamane formula, sample size was 210 from the population of 444 Simplified formulas for sample size (Slovin 2015). Before final data collection, a pilot study was conducted to evaluate the clarity, reliability, and validity of the research instruments. For the collection, primary data were collected directly from the field using two instruments: questionnaires, interview guides and for secondary data, were obtained from existing sources to support and validate the primary findings. Then for data analysis, after data collection and data was analyzed using SPSS (statistical package for social sciences).

RESULTS

4.1. The effects of school-based psychological intervention programs on the level of substance abuse of teenagers in public secondary schools

Table 1: Psychological interview programs and substance abuse reduction among all respondents

Programs	SA	A	N	D	SD	Total	Mean	SD
Counselling sessions helped avoid drug/alcohol use	76	82	24	18	3	203	4.02	0.84
Guidance services addressed stress/substance abuse	79	80	26	17	1	203	4.08	0.79
Psychological intervention encouraged focus on education	83	85	22	12	1	203	4.2	0.76
Sessions addressed trauma and emotional challenges	78	84	23	15	3	203	4.08	0.81
Counselling built resilience to avoid risky behavior	85	80	24	13	1	203	4.2	0.78
Psychological programs reduced stress among teenage girls	88	78	22	14	1	203	4.26	0.74

Key: D disagree, SD Strongly Disagree, N Neutral, A Agree, SA Strongly Agree

Source: Primary data (2026)

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4.2. The contribution of school-based psycho-education programs to the reduction of substance abuse of teenagers in public secondary schools

Table 2: Psycho-education programs and substance abuse reduction among teenage mothers

Programs	SA	A	N	D	SD	Total	Mean	SD
Schools provided lessons on dangers of drugs	82	84	22	14	1	203	4.04	0.89
Teachers discussed health consequences of substance abuse	80	86	21	15	1	203	4.05	0.87
Students taught to resist peer pressure	85	82	22	13	1	203	4.12	0.84
Drama and debates used for education	78	85	24	15	1	203	4.05	0.86
Teachers talked about discipline and self-control	79	84	23	16	1	203	4.06	0.85
Health clubs taught drug-free living	87	80	22	13	1	203	4.14	0.83

Key: D disagree, SD Strongly Disagree, N Neutral, A Agree, SA Strongly Agree

Source: Primary data (2026)

4.3. The influence of school community collaborative interventions on substance abuse reduction of teenagers in public secondary schools

Table 3: Community based interventions and substance abuse reduction among all respondents

Interventions	SA	A	N	D	SD	Total	Mean	SD
Community leaders involved in prevention	74	83	25	20	1	203	3.93	0.93
Parents informed on how to help children	80	87	21	14	1	203	4.07	0.88
Religious institutions guided teenagers	87	77	23	15	1	203	4.09	0.88
Families worked with schools	83	82	24	13	1	203	4.07	0.87
Community role models shared experiences	77	82	28	15	1	203	4	0.89
School-community partnerships reduced problems	82	78	27	15	1	203	4.07	0.88

Key: D disagree, SD Strongly Disagree, N Neutral, A Agree, SA Strongly Agree

Source: Primary data (2026)

4.4. The effectiveness of school-based referral interventions in reducing substance abuse of teenagers in public secondary schools

Table 4: Referral interventions and substance abuse reduction among all respondents

Interventions	SA	A	N	D	SD	Total	Mean	SD
Schools referred students to rehab centers	70	79	27	20	14	203	3.84	0.97
Teachers identified and reported addiction symptoms	74	78	26	20	12	203	3.87	0.95
Referred students received proper care	77	74	26	20	13	203	3.87	0.95
Parents informed when children needed help	80	77	23	18	12	203	3.92	0.93
Referral services reduced dropouts	74	80	26	19	11	203	3.89	0.94
Teachers trained to identify referrals	77	77	25	19	12	203	3.9	0.93

Key: D disagree, SD Strongly Disagree, N Neutral, A Agree, SA Strongly Agree

Source: Primary data (2026)

Table 5: Correlations between school-based prevention programs and substance abuse reduction among all respondents

		Psychological intervention programs	Psycho-education programs	Community-based interventions	Referral interventions	Substance Abuse Reduction
Psychological intervention programs	Pearson Correlation	1				
	Sig. (2-tailed)	-				
	N	203				
Psycho-education programs	Pearson Correlation	.812**	1			
	Sig. (2-tailed)	.000	.000			
	N	203	203			

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Community-based interventions	Pearson Correlation	.785**	.794**	1		
	Sig. (2-tailed)	.000	.000	.000		
	N	203	203	203		
Referral interventions	Pearson Correlation	.721**	.734**	.706**	1	
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	203	203	203	203	
Substance Abuse Reduction	Pearson Correlation	.812**	.846**	.794**	.721**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	203	203	203	203	203

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Primary data (2026)

Qualitative Analysis of Interview Results

Theme 1: Structural efficacy of school-based psychological support systems

Head teachers emphasized that substance abuse among secondary students is rarely an isolated behavioral choice; rather, it is a maladaptive coping mechanism for underlying emotional pain. Counseling services provide an outlet for this distress. One Head Teacher remarked:

Many of these teenagers are carrying heavy emotional burdens from broken homes or extreme poverty. Before we strengthened our counseling desk, these students would quietly slide into alcohol or local drugs to forget their pain. Now, regular counseling sessions give them a safe space to process trauma, which completely changes their behavioral trajectory.

Theme 2: Pedagogy and interactive dynamics of psycho-education programs

Head teachers noted a distinct behavioral difference when students actively participate in interactive anti-drug forums rather than passively listening to teacher-led instructions. One Head Teacher explained:

When a teacher stands in front of a class and says 'drugs are bad,' students switch off. But when they participate in health clubs, competitive anti-drug debates, and drama festivals, they own the message. They teach each other peer-resistance skills in a language they actually understand.

Theme 3: Institutional and socio-cultural convergence in prevention efforts

Participants emphasized that conflicting behavioral expectations between the school and home create confusion for adolescents. Successful intervention requires a unified message. A head teacher stated:

"Prevention fails the moment a school punishes drug behavior but the community or family tolerates it. When we hold joint consultative meetings with parents and local leaders, we form a single front. The student realizes that the rules inside the school gate are exactly the same as the rules at home." (Interview, Head Teacher 5, 2026)

Theme 4: Systemic impediments and structural volatility in referral pathways

Head teachers and parents agreed that internal school communication channels work efficiently. Teachers are successfully trained to notice early behavioral warning signs and flag them to administrators and families. One Head Teacher noted:

Our teachers are highly vigilant. The moment a student's grades drop or they display physical signs of withdrawal, the parent is immediately contacted. This early detection has saved dozens of students from complete academic failure and dropout.

DISCUSSION AND CONCLUSIONS

In light of the pre-determined objectives of the study, the author interprets data and draw conclusions. The results in table 1 talk about the effect of school-based psychological intervention programs on the level of substance abuse of teenagers in public secondary schools. The empirical findings demonstrated that school-based psychological interventions exert a powerful and statistically uniform preventive effect against adolescent substance abuse. Across all indicators under this objective, the mean scores remained robustly above the threshold of high agreement (4.02), peaking significantly at 4.26 for structured stress-reduction programs. Concurrently, the exceptionally low standard deviation values (SD ranging from 0.74 to 0.84) indicate an exceptionally high level of consensus among the diverse respondent cohorts (teenage mothers, parents, teachers, and head teachers).

This tight data dispersion confirms that despite their differing stakes in the educational system, all stakeholders witness identical positive outcomes when psychological safety nets are prioritized. This structural consensus validates the position that psychological support is not merely an optional extracurricular asset, but the foundational cornerstone of addiction prevention. By creating dedicated spaces for trauma counseling, guidance, and stress mitigation, schools effectively neutralize the severe emotional distress, domestic anxiety, and psychological vulnerability that typically push secondary school students toward substance-based maladaptive coping mechanisms.

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When critically contrasted with broader empirical literature, these outcomes strongly align with the assertions of Twagirayezu and Wei (2020) in their assessment of mental health interventions in urban Rwandan schools, where institutionalized psychological guidance uniquely accounted for a significant drop in student behavioral deviance.

Similarly, on an international scale, this finding heavily reinforces the Self-Medication Hypothesis (Khantzian, 1997), which posits that adolescent substance use is fundamentally an unstructured attempt to cope with underlying psychological pain. By systematically addressing trauma and stress through professional counseling 4.26, the public secondary schools in Muhanga District effectively remove the primary internal drivers of substance initiation.

Then results in table 2, show about the contribution of school-based psycho-education programs to the reduction of substance abuse of teenagers in public secondary schools Psycho-education programs emerged as a highly dynamic and widely accepted strategy, with mean scores tightly clustered between 4.04 and 4.14. A critical interrogation of the individual items reveals that the highest empirical validation was awarded to health clubs advocating for drug-free lifestyles 4.14, $SD = 0.83$ and peer-pressure resistance training 4.12, $SD = 0.84$.

The analytical significance of this trend lies in the clear superiority of interactive, peer-driven initiatives over traditional, top-down pedagogical lecturing. The low standard deviation values ($SD < 0.90$) confirm that across all ten sampled schools, active participation in anti-drug drama, targeted debates, and structured peer-led clubs consistently equips teenagers with the practical cognitive skills and social confidence necessary to reject peer solicitations.

This finding breaks away from older, fear-based educational models that relied solely on highlighting the health dangers of drugs, which international studies (Botvin & Griffin, 2015) have long proved to be ineffective for adolescents. Instead, the results from Muhanga confirm the modern principles of Social Cognitive Theory (Bandura, 1986), which proves that self-efficacy and behavioral change are maximized through vicarious learning and active peer modeling.

Regionally, these findings correspond with a study by Masese et al. (2018) in East African public schools, which demonstrated that school clubs which explicitly foster a "pro-social peer culture" are twice as effective at suppressing substance abuse as standard classroom disciplinary rules. The data from Muhanga validates the model that structured teaching, when integrated with expressive extracurricular activities, forms a highly sustainable behavioral shield.

The results in table 3, showed the influence of school community collaborative interventions on substance abuse reduction of teenagers in public secondary schools. The structural data for community collaboration revealed a powerful, culturally grounded protective layer, with mean scores clustering closely between 4.00 and 4.09. The highest consensus was achieved by the item measuring the guidance offered by religious institutions closely followed by direct parental involvement in discipline and formal family-school consultative partnerships.

The analytical trend here reflects the unique socio-cultural fabric of Rwanda, where adolescent behavioral management is deeply communal rather than strictly individualistic. The moderate and stable standard deviations (~ 0.87 to 0.93) confirm a reliable, widespread agreement that substance abuse prevention is deeply compromised unless school messages are explicitly reinforced by trusted adult voices within the home and the church.

This finding provides strong empirical support for the Social Development Model (Hawkins & Weis, 1985), which argues that an adolescent's bond to conventional society is established when multiple social units (family, school, and community) send unified, non-contradictory moral messages.

These results are also highly consistent with the local findings of Uwimana et al. (2022), who noted that post-conflict community structures and religious networks in Rwanda act as powerful, informal accountability mechanisms that regulate youth behaviors. The data confirms that when schools actively bridge the gap between the classroom and the community, they build a continuous support network that protects teenagers from entering deviant peer circles outside school hours.

Then the table 4, shows the effectiveness of school-based referral interventions in reducing substance abuse of teenagers in public secondary schools. A critical, comparative analysis of all four objectives reveals that referral interventions constitute the weakest and most structurally vulnerable link in the school-based prevention framework. While the first three dimensions maintained definitive means comfortably above 4.0, the referral sub-scale experienced a noticeable drop, with mean scores falling to a range between 3.84 and 3.92.

Furthermore, this section produced the highest data volatility across the entire study, with standard deviations climbing significantly to 0.93 and 0.97. This expanded variance reveals a clear contradiction and divergence in experiences among the respondents, signaling that referral protocols are highly inconsistent across different schools.

While schools are highly capable of handling internal identification such as teachers detecting early symptoms (3.90) and notifying families (3.92) the system breaks down completely at the critical point of transitioning the student to specialized medical or psychiatric care (3.84, $SD = 0.97$). This drop in effectiveness and spike in disagreement points directly to severe structural limitations: a critical shortage of decentralized, youth-friendly rehabilitation facilities in Muhanga District, the prohibitive financial

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costs of private psychiatric care for rural households, and the heavy social stigma that deters families from permitting their children to be referred to formal addiction treatment centers.

This systemic breakdown matches the deep concerns highlighted by the Rwandan Ministry of Health (MoH, 2023) National Mental Health Policy, which documented a severe shortage of specialized, youth-centered addiction infrastructure outside major urban centers like Kigali. This deficit is also regionally consistent with findings by Odeki (2021) in East African secondary schools, who observed that while school staff are frequently trained to spot drug abuse, their intervention capacity is crippled because schools operate as isolated units with no formal, subsidized links to public clinical healthcare systems.

Consequently, while referral mechanisms are essential for saving students from complete academic dropout, they currently operate under severe structural limitations that prevent them from matching the high performance of the school's internal psychological and psycho-educational programs.

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