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ORIGINAL ARTICLE

FACTORS ASSOCIATED WITH PSYCHOACTIVE DRUGS INITIATION AMONG ADOLESCENTS IN YAOUNDÉ –CAMEROON

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ABSTRACT

Introduction: Initiation of psychoactive drugs during adolescence is associated with numerous adverse consequences. High occurrence of this menace have been recorded but there exist few reports on secondary school students especially in sub-Saharan Africa. This study assessed the factors associated with psychoactive drug initiation among adolescents attending secondary schools in Yaoundé, Cameroon.

Methodology: We carried out a cross sectional study in twelve secondary schools in Yaoundé from October 2022 to May 2023 (8 months). We included adolescents from Form four to upper sixth, who assented to participate in the study and had received parental consent. Data were collected with a structured self-reported questionnaire and analyzed using SPSS 23. Cross tabs and logistic regression models were used to determine the odds ratio of each associated factors for drug initiation with a significance level of 5%.

Results: Of the 1593 students recruited, 1478 consented and completed the questionnaire. The lifetime-prevalence of psychoactive drug consumption (other than alcohol) was 22.9%. Among psychoactive drug users, 55.3% were male giving a sex ratio of 1.2. On multivariate analysis, the principal risk factors for psychoactive drug use were prior alcohol consumption (p<0.001; OR=4.527), prior sexual intercourse (p<0.001; OR=4.087) and siblings using psychoactive drugs (p=0.001; 1.548 – 6.177). The main protective factor was no psychoactive drug user in the participants' immediate environment (p=0.005; OR=0.607).

Conclusion: Numerous factors are associated with psychoactive drug use among adolescents attending secondary schools in Cameroon. Several public interventions like raising awareness must be carried out at an individual, family and community level.

Introduction

Psychoactive drug use is a major public health concern that affects millions of people worldwide[1]. The initiation of psychoactive drug use often occurs during adolescence, a critical period of development and vulnerability[2]. Understanding the factors that influence the decision to start using psychoactive drugs is essential for designing effective prevention and intervention strategies. This article aims to determine the individual, familial and community factors associated with psychoactive drug initiation among adolescents attending secondary schools in Yaoundé, Cameroon.

1 Material and methods

1.1 Study location
The study was conducted in Yaoundé, the capital city of Cameroon. It is the second most populous city in the country with a population of approximately 2.8 million spread over 7 subdivisions. It is an administrative area with a high level of urbanization, industrialization and education. Owing to this high-profile structures, Yaoundé has a higher cost of living than majority of other cities in Cameroon. This creates a favorable environment for drug distribution and consumption.

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1.2 Study design, population and sampling

We conducted a cross-sectional study in 12 secondary schools (6 public and 6 private schools) in Yaoundé between October 2022 and May 2023 (8 months). Selection of participants was done using a three-stage sampling approach. Firstly, six out of seven subdivisions were randomly selected. Secondly, we stratified secondary schools in the selected subdivisions into public and private categories, after which we randomly chose one school from each category. Finally, a simple random approach was used to select one classrooms from form 4, form 5, lower sixth and upper sixth. The survey form was shared to all adolescents who assented to participate in the study and had received parental consent.

1.3 Data collection

Research authorizations was obtained from the regional delegation of secondary education and administrative authorization from principals of the selected secondary schools. Eligible participants were then handed a pretested, structured questionnaire adapted from the Global Assessment Programme (GAP) on Drug Abuse Toolkit Module 3[3]. The questionnaire was piloted on upper sixth students in a secondary school not included in the study in order to ensure reliability and internal validity of questions.
The questionnaire contained 04 major items. The first item sought to identify the sociodemographic characteristics of participants. The second item assessed the relevant personal and family history of participants. The third item assessed their toxicological history while the fourth item assessed the mode of drug administration of drug using participants.

1.4 Ethical considerations

Ethical clearance was obtained from the Institutional Review Board of the Faculty Medicine Biomedical Sciences, University of Yaoundé I. The nature and purpose of the study was explained to students collectively. Voluntary participation was ensured by obtaining informed consent from all participants. Anonymity and confidentiality, by identifying each technical sheet with numbers instead of names. All information obtained during the course of this study was used for the sole purpose of the study. The results obtained were used to provide baseline data for early diagnosis and prevention of drug abuse.

1.5 Measurements and data analysis

The dependent variable was lifetime use of any psychoactive drug. The independent variables were divided into three groups; individual, family and community factors. Bivariate analysis was done for each group of variables. Multivariate analysis by binary logistic regression was done to control for confounding. The individual factors considered in this study were sex, weekly pocket money, religion, frequency of church attendance, history of sexual intercourse, type of sexual intercourse, cumulated number of sexual partners, history of sexual abuse, prior alcohol use, age of alcohol initiation, frequency of alcohol intake, degree of alcohol, perception about psychoactive drugs. Family factors were type of household, father's level of education, mother`s level of education frequency of parental dispute, family size, rank among siblings; and the community factors were address, proximity to markets and bars, proximity to drug vendors, system of education and type of school.

2. Factors associated with psychoactive drug initiation

2.1 Sociodemographic characteristics
Of the 1593 students enrolled in this study, 1478 students filled the questionnaire completely and were used for the final analysis. A total of 338 participants had taken a psychoactive drug other than alcohol at least once in their lifetime. Majority of these drug users were male (55.3%) giving a male-to-female a sex ratio of 1.2. The median age of drug users was 17 years [16; 18] with a range of 11 to 19 years. Most drug users were of Christian faith (90.2%), of the Anglo-Saxon system of education (52.1%) and in public schools (48.5%).

2.2 Individual factors
This study found several individual risk factors for drug use among adolescents. These included being male [p<0.001, OR=1.568 (1.228-2.002)], having weekly pocket money ≥8.3 USD [p<0.001, OR=2.001(1.552-2.579)], having a history of sexual abuse [p=0.029, OR=1.709 (1.051-2.778)], prior psychiatric consultation [p<0.001, OR=3.069 (2.017-4.671)] and believing that psychoactive drugs are harmless [p=0.020, OR=1.675 (1.077-1.970)]. Another significant risk factor was engaging in sexual intercourse [p<0.001, OR=6.217 (4.762-8.110)] especially before the age of 16 years [p=0.032, OR=1.572 (1.039)] or with multiple sexual partners [p<0.001, OR=2.358 (1.541-3.846)]. There was no significant association between drug use and sexual orientation. Similarly, alcohol use [p<0.001, OR=7.133 (4.933-10.315)] was strongly associated with drug use. Those who drank alcohol more than once a week (p<0.001) were 7 times more likely to use drugs than their counterparts who used alcohol once weekly, monthly and occasionally (Table I).

3.3 Family and community factors

Having family members, who used psychoactive drugs significantly, increased the risk of drug use. The highest risk was observed among those whose mothers [p<0.001, OR = 5.762 (2.079 – 15.973)], siblings [p<0.001; OR = 4.364 (2.504 – 7.605)] or fathers [p=0.017; OR=2.432 (1.150 – 5.144)] consumed drugs actively. The absence of parental dispute was a significant family protective factor [p=0.014, OR=0.712(0.542-0.936)].

Community risk factors significantly associated with drug use included having friends who used psychoactive drugs [p<0.001, OR = 5.005 (3.680-6.806)], media exposure to drugs [p=0.012, OR = 1.636 (1.110-2.410)], living in Yaoundé I [p=0.013, OR = 1.511 (1.089-2.097)], proximity of residence/schools to bars/markets [p=0.001, OR = 1.713 (1.234-

Table I: Sociodemographic and lifestyle associated factors

Variables	Psychoactive drug use		P-value	Odds ratio (CI-95%)
	Yes (%)	No (%)		
Sex				1.568 (1.228 – 2.002)
Male	187 (55.3)	503 (44.1)	**<0.001**	
Female	151 (44.7)	637 (55.9)		
Weekly pocket money (USD)				2.001 (1.552 – 2.579)
≥ 8.3	139 (41.1)	295 (25.9)	**<0.001**	
< 8.3	199 (58.9)	60 (74.1)		
Sexual intercourse				6.215 (4.762 – 8.110)
Yes	183 (54.1)	182 (16)	**<0.001**	
No	155 (45.9)	958 (84)		
Age of onset of sexual intercourse				1.572 (1.039 – 2.377)
< 16	107 (58.5)	86 (47.3)	**0.03**	
≥ 16	76 (41.5)	96 (52.7)		
Type of sexual intercourse				0.543 (0.234 – 1.263)
Heterosexual	165 (91.3)	173 (95.1)	0.15	2.375 (0.604 – 9.324)
Homosexual	7 (3,8)	3 (1.6)	0.20	1.517 (0.529 – 4.353)
Bisexual	9 (4.9)	6 (3.3)	0.44	
Cumulated number of sexual partners				2.358 (1.541 –3.846)
>1	141 (77.5)	106 (58.6)	**<0.001**	
1	41 (22.5)	75 (41.4)		
History of sexual abuse				1.709 (1.051 – 2.778)
Yes	26 (7.7)	53 (4.6)	**0.03**	
No	312 (92.3)	1087 (95.4)		
Frequency of religious attendance				0.645 (0.496 – 0.833)
Frequently	219 (64.8)	845 (74.1)	**0.001**	
Not frequently	119 (35.2)	295(25.9)		
Psychiatric consultation				3.069 (2.017 – 4.671)
Yes	44 (13.0)	53 (4.6)	**<0.001**	
No	294 (87.0)	1087 (95.4)		
Alcohol use				7.133 (4.933 – 10.315)
Yes	303 (89.6)	625 (54.8)	**<0.001**	
No	35 (10.4)	515 (45.2)		
Age of alcohol initiation				1.975 (1.212 – 3.318)
5 – 9	27 (8.9)	48 (7.7)	**0.005**	2.302 (1.784 – 2.968)
10 – 14	144 (47.5)	278 (44.5)	**<0.001**	1.802 (1.396 – 2.326)
15 – 19	132 (43.6)	478 (299)	**<0.001**	
Preferred alcoholic beverage				2.212 (1.494 – 3.276)
<7	45 (17.2)	74 (13.8)	**<0.001**	1.806 (1.406 – 2.321)
7 – 17	144 (55.0)	332 (61.9)	**<0.001**	2.438 (1.549 – 3.839)
17 – 27	34 (13.0)	50 (9.3)	**<0.001**	1.728 (1.154 – 2.588)
>27	39 (14.9)	80 (14.9)	**0.007**	
Frequency of alcohol use				7.382 (4.476 – 12.176)
More than once weekly	48 (14.2)	25 (2.2)	**<0.001**	2.425 (1.568 – 3.750)
Once weekly	37 (12.2)	55 (8.8)	**<0.001**	3.410 (2.165 – 5.370)

Monthly	39 (12.9)	42 (6.7)	**<0.001**	1.421 (1.114 – 1.812)
Occasionally	179 (59.1)	504 (80.5)	**0.005**	1.421 (1.114 – 1.812)
Perception about psychoactive drugs				
Harmful	170 (50.3)	645 (56.6)	**0.04**	0.777(0.609 – 0.990)
Not harmful	32 (9.5)	67 (5.9)	**0.02**	1.675(1.077 – 1.970)
No idea	136 (40.2)	428 (37.5)	0.37	1.120(0.874 – 1.436)

Table II: Familial and community associated factors

Variables	Psychoactive drug use		P-value	Odds ratio (CI-95%)
	Yes (%)	No (%)		
Type of household				
Single mother	61 (18.0)	195 (17.1)	0.688	1.067 (0.777 – 1.466)
Single father	7 (2.1)	29 (2.5)	0.620	0.810 (0.352 – 1.866)
Monogamy	234 (69.2)	799 (70.1)	0.763	0.960 (0.738 – 1.250)
Polygamy	17 (5.0)	42 (3.7)	0.267	1.385 (0.778 – 2.465)
Adoptive	5 (1.5)	18 (1.6)	0.897	0.932 (0.345 – 2.540)
Reconstituted	14 (4.1)	57 (5)	0.517	0.821 (0.452 – 1.492)
Parental dispute				
Never	88 (26.1)	377 (33.1)	0.014	0.712 (0.542 -0.936)
Rarely	138 (40.9)	409 (35.9)	0.098	1.233 (0.962 – 1.581)
Sometimes	71 (21.1)	220 (19.3)	0.488	1.112 (0.824 – 1.501)
Often	26 (7.7)	98 (8.6)	0.598	0.886 (0.565 – 1.390)
Always	14 (4.2)	34 (3.0)	0.291	1.406 (0.745 – 2.651)
Models of drugs use				
Mother	10 (3.0)	6 (0.5)	<0.001	5.762 (2.079 – 15.973)
Father	12 (3.6)	17 (1.5)	0.017	2.432 (1.150 – 5.144)
Siblings	29 (8.6)	24 (2.1)	<0.001	4.364 (2.504 – 7.605)
Extended family	59 (17.5)	142 (12.5)	0.019	1.486 (1.067 – 2.070)
Friends	109 (32.2)	99 (8.7)	<0.001	5.005 (3.680 – 6.806)
Neighbors	15 (4.4)	43 (3.8)	0.580	1.185 (0.650 – 2.160)
Nobody	118 (34.9)	770 (67.8)	<0.001	**0.258** (0.200 – 0.333)
School type				
Public	164 (48.5)	614 (53.9)	0.084	0.807 (0.633 – 1.030)
Private DS	81 (24.1)	299 (26.2)	0.403	0.886 (0.633 – 1.030)
Private NDS	93 (27.4)	227 (20)	0.003	1.527 (1.154 – 2.019)
Media exposure	42 (12,4)	91 (8)	0.012	1.636(1.110 – 2.410)
Proximity of drug vendors	143 (42.3)	195 (17.1)	<0.001	3.554 (2.726 – 4.633)
Proximity of bars/ markets	287 (84.9)	874 (76.7)	0.001	1.713 (1.234 – 2.377)

2.377)] and attending private non-denominational school [p=0.003, OR = 1.527 (1.154-2.019)]. The absence of a drug use in the participants' immediate environment [p<0.001, OR = 0.258 (0.200-0.333) was the main community protective factor (Table II).

Multivariate analysis of the aforementioned associated factors showed that drug use was independently influenced by frequent alcohol consump-tion [p<0.001, OR=4.527 (3.022 – 6.780)], sexual intercourse [p<0.001, OR=4.087 (3.021 – 5.529)], having friends who use drugs [p<0.001, OR=2.292 (1.514 – 3.471)] living near drug vendors [p<0.001, OR=2.567 (1.869 – 3.526)], having a weekly pocket allowance greater than 8.3 USD [p<0.001, OR=1.746 (1.285-2.371)] and a history of psychi-atric consultation [p=0.00, OR= 12.301 (1.382 – 3.831)].

Table III: Multivariate analysis by binary logistic regression

Variables	Psychoactive drug use		Adjusted p-value	Adjusted Odds ratio (CI-95%)
	Yes (%)	**No (%)**		
Prior alcohol consumption	303 (89.6)	625 (54.8)	<0.001	4.527 (3.022 – 6.780)
Prior sexual intercourse	183 (54.1)	182 (16)	<0.001	4.087 (3.021 – 5.529)
Alcohol consumption more than once a week	48 (14.2)	25 (2.2)	<0.001	2.867 (1.600 – 5.139)
Friends using psychoactive drugs	109 (32.2)	99 (8.7)	<0.001	2.292 (1.514 – 3.471)
Proximity to psychoactive drug vendors	143 (42.3)	195 (17.1)	<0.001	2.567 (1.869 – 3.526)
Weekly pocket allowance ≥ 8.3 USD	139 (41.1)	295 (25.9)	<0.001	1.746 (1.285 – 2.371)
Siblings using psychoactive drugs	29 (8.6)	24 (2.1)	0.001	3.092 (1.548 – 6.177)
Psychiatric consultation	44 (13.0)	53 (4.6)	0.001	2.301 (1.382 – 3.831)
No psychoactive drug users in immediate environment	118 (34.9)	770 (67.8)	0.005	**0.607** (0.428 – 0.861)

Discussion

In this study, we assessed the factors associated with psychoactive drug initiation. Frequent alcohol use was significantly associated with drug use. In 2018, Mbanga et al. discovered that medical and nursing who consumed alcohol were 6.29 times more likely to use tramadol and/or marijuana[4]. According to the gateway drug theory, alcohol increases dopamine levels in the brain, which makes the brain release less dopamine over time[5]. This reduces the pleasure from alcohol and makes individuals seek harder drugs that cause more dramatic dopamine release.

Previous psychiatric consultation was a significant risk factor for psychoactive drug use, also similar to what Mbanga and colleagues reported[4]. This may be because people with mental disorders use psychoactive drugs to cope with their symptoms. Another factor that increased the risk of drug use was having a history of sexual abuse. This could lead to Post Traumatic Stress Disorder (PTSD), a mental disorder that often involves mood problems and substance abuse.

A weekly pocket allowance greater than or equal to 8.3 USD was a significant risk factor. In another study carried out among students in tertiary institutions in Buea, Metuge and collaborators found that having an average monthly allowance greater than 44.90 USD (11.22 USD weekly) was associated with more substance use. This association could be explained by the fact that students who have higher allowances can easily purchase these substances or find themselves in areas where these substances are sold.

There was no significant association between non-heterosexuality and psychoactive drug use. This difference may be due to small number of homosexual and bisexuals in our study. A study conducted by Ogunbajo & al in 2021 found that Nigerian gay, bisexual, and other men who have sex with men (GBMSM) experienced social marginalization, discrimination and violence due to their sexual orientation and same-sex attraction[6]. These may affect their mental health, making these individuals to turn to psychoactive drugs for relief. Other GBMSM engaged in at risk sexual activity under the influence of drugs and alcohol.

Availability of psychoactive drugs was a significant community risk factor. Individuals who schooled or stayed near drug vendors, or who had friends and/or siblings who used psychoactive drugs were at increased risk. These findings were similar to those of Ogunsola et al.[7]. Friends may influence drug initiation by making drugs available, providing an example or defining the nature of the physiological experiences.

A major limitation is the cross-sectional nature of the study, which does not represent the strongest design to assess associated factors. Nevertheless, the large sample size suggests that our results may be representative of the reality. On the other hand, self-reported data was collected from participants. It is possible that participants may have misreported their drug use despite our assurances of confidentiality and ensuring privacy during data collection. Furthermore, the study was limited to adolescents in secondary schools who may be different from out-of-school adolescents.

Conclusion

Prior frequent alcohol consumption, sexual intercourse, models of substance use, prior psychiatric consultation and high weekly pocket allowance were the strongest determinants of psychoactive drug initiation among adolescents. In view of these results, there is need to provide education on the harmfulness of drug use and to follow up individuals at risk of drug use. Furthermore, the relevant legislative authorities should impose localization of drug hotspots (bars, markets) away from schools; reinforce sanctions on the distribution of illicit drugs in general and licit drugs to minors in particular. Conducting research in teenagers with psychiatric diseases and context of drug use will help develop new treatment and prevention strategies.

Compliance with ethical standards

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References:

1. Levy S, Siqueira LM, COMMITTEE ON SUBSTANCE ABUSE. Testing for Drugs of Abuse in Children and Adolescents. Pediatrics [Internet]. 2014 Jun 1 [cited 2022 Nov 13];133(6): e20140865. Available from: https://doi.org/10.1542/peds.2014-0865

2. Wang GS, Hoyte C. Common Substances of Abuse. Pediatr Rev. 2018 Aug;39(8):403–14.

3. Vereinte Nationen, editor. Conducting school surveys on drug abuse: global assessment programme on drug abuse (GAP); toolkit module 3. New York: United Nations Office on Drugs and Crime; 2005. 104 p.

4. Mbanga CM, Efie DT, Aroke D, Njim T. Prevalence and predictors of recreational drug use among medical and nursing students in Cameroon: a cross sectional analysis. BMC Res Notes [Internet]. 2018 Dec [cited 2023 May 1];11(1):515. Available from: https://bmcresnotes.biomedcentral.com/articles/10.1186/s13104-018-3631-z

5. Testing the Gateway Hypothesis - PMC [Internet]. [cited 2023 May 2]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5506797/

6. Ogunbajo A, Iwuagwu S, Williams R, Biello KB, Kahler CW, Sandfort TGM, et al. Experiences of minority stress among gay, bisexual, and other men who have sex with men (GBMSM) in Nigeria, Africa: The intersection of mental health, substance use, and HIV sexual risk behavior. Glob Public Health. 2021 Nov;16(11):1696–710.

7. Ogunsola OO, Fatusi AO. Risk and protective factors for adolescent substance use: a comparative study of secondary school students in rural and urban areas of Osun State, Nigeria. Int J Adolesc Med Health. 2016 Jan 29;29(3) :/j/ijamh.2017.29.issue-3/ijamh-2015-0096/ijamh-2015-0096.xml.