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ARTICLE

Substance Use and Involvement in Situations of Violence: A Typological Study of a Brazilian Population-Based Sample

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Abstract
Substance use in adolescence relates to other problems such as involvement in violence and mental/physical health problems. This study aimed to identify substance use patterns in a considerable sample of Brazilian adolescents and to estimate the magnitude of the relationship between each pattern and violence involvement indicators, as aggressor and/or as victim, and of mental and general health. The data analyzed were collected from 6702 school-children, within the scope of the National Survey of School Health, employing latent class analysis for reports of alcohol, tobacco, marijuana and crack cocaine use. The five groups identified were compared regarding their involvement in violence and mental and general health aspects. *Abstainers* (18%) would neither make use of substances, nor be involved in violence or display health problems. *Drinkers* (26%) would tend to only make use of alcohol, but would not display the other problems either. *Conventional Drug Users* (28%) would tend to make use of alcohol and tobacco or alcohol and marijuana and would also be involved in violence, but would not display health problems. *Polysubstance Users* (23%) would tend to make use of alcohol, tobacco and marijuana and would be more frequently involved in violence. *Hard Drug Users* (5%) would tend to make frequent use of all substances in addition to also being more involved in violence, both as aggressor and victim, and would display mental/general health problems. Our findings reveal different levels of problems and reinforce the importance of varied prevention/treatment policies in order to meet specific demands.

Keywords mental health; latent class analysis; substance use; typology; violence

INTRODUCTION

Adolescence is marked by the intensification of physical and neuropsychological maturational processes as well as abrupt social and relational changes. Such processes, while raising new capacities for a better adaptation to the demands of

social life, also generate vulnerability since they foster behaviors that sometimes imply the involvement in activities harmful to physical and mental health (Kaufmann et al. 2017; Lee et al. 2014). One of such activities consists of the use of licit and illicit substances, a practice that tends to start in adolescence. Motives for the use of psychoactive substances among youth are varied: in order to feel accepted by their peers (peer pressure use), to feel pleasure (recreational use), to feel well (therapeutic use), to improve their performance (use for sportive or academic reasons), or to experience new sensations (exploratory use) (NIDA (National Institute on Drug Abuse) 2014). For some, these practices may become habits that persist beyond adolescence (Meier et al. 2012). In extreme cases, an abusive use may lead to dependence (Atkinson et al. 2009).

Furthermore, substance abuse relates to other mental and physical health problems as well as other antisocial types of conduct, especially the violent ones, which poses a great challenge to public health and security policies in various countries (Atkinson et al. 2009; Komatsu, Estevão, and Bazon 2018). The criminological literature has been reporting these relationships between the use of substances and other problems of various magnitudes. It is known, for example, that substance abuse increases the risk of an individual becoming the victim or the aggressor in a situation of violence (Duke et al. 2018). It is also known that being inserted in a context of repeated exposure to violence increases the risk of substance abuse as well as the development of other mental health problems (Löfving-Gupta et al. 2017; Vermeiren et al. 2003). Additionally, co-morbidity between substance abuse and mental health problems has been observed even in the absence of exposure to violence (NIDA 2018a).

It is also known that, even though the relationship between psychoactive substance abuse and mental health and conduct problems exists and is well documented in the literature, many individuals only display one of the problems (Chalub and Telles 2006; Håkansson and Jesionowska 2018). This observation points to the existence of heterogeneity regarding the way each of these conditions manifests itself during the course of the life of each individual, hence the importance of identifying the different deviant trajectories and risk factors related to each one, as highlighted by Piquero et al. (2010) as being one of the core aims of Developmental Criminology. Regarding this, many studies have resorted to methodological approaches centered on the person, such as latent class analysis (LCA), since they are more flexible than analytical techniques that focus on the variable (Collins and Lanza 2010). Following this trend, some studies have resorted to LCA in order to identify patterns of substance use and their relationship with other areas such as academic performance, violence involvement, among others (for a review of these studies, see Tomczyk, Isensee, and Hanewinkel 2016). In Brazil, however, there have been no investigations of this nature, aiming to describe typologies of psychoactive substance abuse that may exist among the adolescent population in association with other variables of interest, be it from a phenomenon comprehension point of view, or a public policies point of view.

Therefore, this study aimed to identify patterns of psychoactive substance abuse in a sample of the population of Brazilian adolescent students and estimate the magnitude of the relationship between each identified pattern and indicators of involvement in violence, victimization and mental and general health. LCA was

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employed in order to identify subgroups of adolescents regarding conducts of use of substances like alcohol, tobacco, marijuana and cocaine/crack and, afterwards, these subgroups (latent classes) were compared in regard to their prevalence in: (1) four categories concerning involvement in violence (bullying practices, involvement in fights, involvement in fights with bladed weapons and fights with fire arms); (2) five categories of victimization (humiliation by a colleague, submission to bullying, physical aggression by an adult family member, serious injury and sexual abuse); (3) two categories related to mental health problems (loneliness/frequently feeling alone and worry/stress); (4) one category related to general health (general evaluation of overall well-being).

METHODS

The data used in this study come from the National Survey of School Health (PeNSE) conducted in 2015 in Brazil by the Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística) (IBGE 2016a) through a partnership with the Ministry of Health and support from the Ministry of Education. In this cross-sectional survey, data were collected from two independent representative samples of public and private education in the country: one formed by schoolchildren attending the 9th grade (former 8th grade) of elementary school (sample A) and another one formed by schoolchildren attending the 6th grade of elementary school to the 3rd grade of high school (sample 2). PeNSE 2015 was approved by the National Research Ethics Committee (Conep; Comissão Nacional de Ética em Pesquisa) of the National Health Council, which regulates and approves health studies involving human beings through legal advice (no. 1,006,467 of Conep).

For this investigation, only data from sample 1 were used, that is, data from school children attending the 9th grade of elementary school. This choice was based on the recommendation made by the World Health Organization (2014) to consider children under 15 years of age as a reference in the conduct of surveys involving schoolchildren as well as the fact that this grade amasses, in Brazil, 80% of students between the ages of 13 and 15 years (IBGE 2015).

Therefore, we can affirm that this study was carried out with data from a representative sample of adolescents from the 9th grade of elementary school, from public and private teaching institutions, from urban and rural areas of all states of Brazil. Considering the aims of this study, only data from adolescents who had answered all the questions regarding the investigated substances (alcohol, tobacco, marijuana and crack cocaine) were included in the analyses, so that the final sample was 6702 adolescents averaging 14.9 years of age (standard deviation = 1.2). The majority were males (53%). The frequency of participants by country region assumed the following distribution: 23% in the Northeast, 22% in the North, 19% in the Southeast, 18% in the Midwest and 16% in the South. Regarding race, 32% claimed to be white, 44% brown, 15% black, 5% yellow and 4% indigenous. Regarding family, 42% said they lived with their father and mother, 40% said they lived only with their mother, 8% only with their father and 10% said they lived with someone else rather than their mother or father.

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Instruments and Measures

The data were collected thorough a structured self-administered questionnaire with the help of a *Personal Digital Assistant*, a smartphone that allowed the answers to be recorded directly into an electronic database without the need for interference by the interviewer (IBGE 2016a). The questionnaire included questions about family, its socio-economic level; dietary habits; practice of physical activities; sexual and reproductive health; use of cigarettes, alcohol and other drugs; violence, safety and accidents; use of health services, among other aspects (IBGE 2016a). However, for the purposes of this study, only the questions related to the use of substances, the involvement (as aggressor and/or victim) in situations of violence and mental and general health were considered.

The questions within these themes generated the following measures:

Use of psychoactive substances: This consisted of four questions regarding each one of the investigated substances: (1) "In the past 30 days, how many days did you drink at least one glass or one dose of an alcoholic drink? (one dose is equivalent to one can of beer or a glass of wine or a dose of cachaça or whisky, etc.)"; (2) "In the past 30 days, how many days did you smoke cigarettes?"; (3) "In the past 30 days, how many days did you smoke marijuana?"; and (4) "In the past 30 days, how many days did you use crack?". Answers to the questions could range from zero to 30 days. In this study, answers were dichotomized between "didn't make use in the past 30 days" and "made use in the past 30 days". We opted for using the 30-day period (instead of the prevalence of use throughout their lives) because we consider this measure to more faithfully represent the current life moment of each adolescent regarding substance use patterns.

Sociodemographic characteristics: This measure involved a group of questions related to age, gender, race, region of the country where they lived and the type of teaching institution attended (public/private).

Involvement in situations of violence: Involvement in situations of violence was investigated by four questions: (1) Practice of bullying: "In the past 30 days, did you roast, mock, ridicule, intimidate or make fun of any of your school colleagues so much that they felt upset, angry, offended or humiliated?" (yes/no); (2) Involvement in fights: "In the past 12 months, how many times did you get into a fight (physical fight)?" (not one/1 to 3 times/more than 3 times); (3) Involvement in fights with bladed weapons: "In the past 30 days, did you get into a fight in which someone used some other weapon such as a knife, jackknife, fishmonger knife, rock, piece of wood or glass bottle?" (yes/no); and (4) Involvement in fights with fire arms: "In the past 30 days, did you get into a fight in which someone used a fire arm such as a revolver or a shotgun?" (yes/no).

Victimization: This measure, concerning the exposure of the adolescent to violence as a victim, consisted of five questions: (1) Humiliation by colleague: "In the past 30 days, how often were you roasted, mocked, ridiculed, intimidated or made fun of by school colleagues so much that you felt upset, uncomfortable, angry, offended or humiliated?" (not one/1 to 3 times/more than 3 times); (2) Bullying: "Have you ever been bullied?" (yes/no); (3) Physical violence inside the family: "In the past 30 days, how many times were you physically hurt by an adult family member?" (not one/1 to 3 times/more than 3 times); (4) Serious

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physical injury: "In the past 12 months, how many times were you seriously injured?" (not one/1 to 3 times/more than 3 times); and (5) Sexual abuse: "Have you ever been forced to have sexual relations?" (yes/no).

General and mental health: Two questions were used as indicators of mental health problems among adolescents: (1) Loneliness: "In the past 12 months, how often did you feel alone?" (never/rarely or sometimes/always or almost always); and (2) Worry/stress: "In the past 12 months, how often were you unable to sleep because you were too worried about something?" (never/rarely or sometimes/always or almost always). One question was used as an indicator of general health/well-being: "How would you rate your health condition?" (good or very good/regular/bad or very bad).

Data Collection and Plan of Analysis

Data collection was collectively performed in school classrooms between April and September 2015. As stated before, students answered the questions directly into a smartphone provided by the investigators. Participation was voluntary and the adolescents were free not to answer any of the questions. The compiled data were stored in digital spreadsheets.

In order to analyze the data, at first, we used LCA to identify subgroups within the sample in terms of different patterns of substance use in the past 30 days. Four dichotomous variables were used as indicators for LCA: use of alcohol, tobacco, marijuana and crack cocaine. In addition to these four variables, a fifth descriptive indicator of use pattern, relative to the number of substances used, was incorporated into the analysis; this one could range from zero (abstemious) to four substances. LCA was performed using the poLCA package (Linzer and Lewis 2011) of the statistical software R 3.5.2 (R Core Team 2018). Models consisting of two to seven classes were generated. Firstly, a two-class model was generated. Then, new classes were added to the model until no statistical or theoretical improvements were no longer observed. Models were compared based on the Bayesian information criterion (BIC). Additionally, visual and tabular representations of the classes were used in order to identify the conceptual adjustment of each model. The model with higher parsimony and interpretability was chosen, to ensure that it did not estimate more parameters than necessary in order to adequately represent the data. Then, bivariate analyses (χ^2 test) were used in order to verify whether or not belonging to each class was associated with sociodemographic variables and measures of involvement in violence, victimization and mental/general health problems.

In order to calculate the effect size on the association measures, adjusted Pearson residuals were used (Agresti 2002:81) based on the following equation:

$$r_{ij} = \frac{O_{ij} - E_{ij}}{\sqrt{E_{ij}\left(1 - \frac{m_i}{N}\right)\left(1 - \frac{n_j}{N}\right)}}$$

in which O is the value observed in line i and column j, E is the expected value in line i and column j, m_i is the sum in line i and n_j is the sum of column j. With the premise that the adjusted Pearson residuals follow a standardized normal distribution, i.e. N~(0,1), the magnitude of the residues was interpreted based on

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	Class 1	Class 2	Class 3	Class 4	Class 5
	18%	26%	28%	23%	5%
	n = 1228	*n* = 1739	*n* = 1873	*n* = 1544	*n* = 318
Alcohol use	.04	**.73**	**.81**	**1.0**	**.94**
Tobacco use	.01	.15	**.52**	**1.0**	**.89**
Cannabis use	.01	.19	**.61**	**1.0**	**.99**
Crack use	.01	.01	.05	.00	**1.0**
Use of 0 substance	**.92**	.01	.10	.04	.06
Use of 1 substance	.00	**.93**	.01	.05	.10
Use of 2 substances	.02	.01	**.78**	.00	.01
Use of 3 substances	.07	.06	.12	**.91**	.23
Use of 4 substances	.01	.02	.01	.01	**.62**

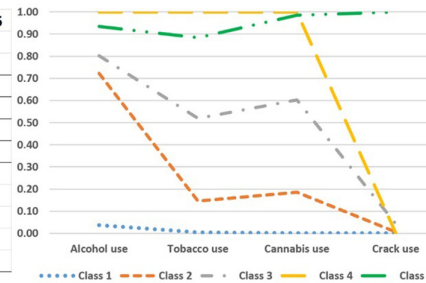

Figure 1. Probability of a "yes" response to each substance item conditional on latent class membership. Items with probability above .50 are highlighted in bold.
Source: authors

normal distribution parameters, assuming, therefore, that *r* values above 2 and below –2 are significantly outside of the expected value, so that the size of the effect be comparable with the magnitude of the calculated residual value.

RESULTS

The model with five latent classes, represented in Figure 1, showed better statistical adjustment than the models with fewer classes ($BIC_2 = 43.616$; $BIC_3 = 41.450$; $BIC_4 = 41.188$; $BIC_5 = 39.691$; $BIC_6 = 39.156$; $BIC_7 = 38.606$) and better theoretical adjustment than the models with more classes. Therefore, it was the model elected to represent the findings of this study. Figure 1 shows the approximate statistical probability in each group of using each of the investigated substances as well as the probability, conditional to belonging to each class, of having used zero to four substances (maximum value) in the past 30 days prior to the investigation.

Based on the conditional probabilities shown in Figure 1 and the conceptual significance they represent together, class 1 was named *Abstainers* because adolescents in this class display low probability of using any of the investigated substances. Class 2, due to its high probability of alcohol use and low probability of using other substances, was named *Drinkers.* Class 3 was named *Conventional Drug Users*, based on the group found by Bohnert et al. (2014) with a similar use pattern: high probability of alcohol use associated with another substance: tobacco or marijuana.

Class 4 was named *Polysubstance Users*, based on the group with similar characteristics identified by Choi et al. (2018), which shows high probability of using three substances together: alcohol, tobacco and marijuana. Lastly, Class 5 was named *Hard Drug Users* because it groups adolescents with high probability of using all four investigated substances together: alcohol, tobacco, marijuana and crack.

Table 1 complements the descriptions of the groups by showing how the classes differ regarding the categories of frequency of use of each substance, making it possible to assess the problematic use of drugs, especially considering that the frequent use of psychoactive substances at this age represents a potential risk to development.

Table 2 displays the sociodemographic characteristics of the participants. *Abstainers* had a slightly higher proportion of inhabitants in the Northeast region

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Table 1. Five-Latent-Class Model of Substance Use in the Last 30 Days

	Abstainers: *n* (%)	Drinkers: *n* (%)	Conventional Drug Users: *n* (%)	Polysubstance Users: *n* (%)	Hard Drug Users: *n* (%)
Alcohol					
1–9 Times	61 (5)	1058 (61)	1146 (62)	1091 (71)	144 (46)
More than 10 times	9 (1)	207 (12)	319 (18)	453 (29)	152 (48)
Tobacco					
1–9 Times	0 (0)	167 (10)	749 (40)	1051 (68)	125 (40)
More than 10 times	0 (0)	42 (3)	214 (12)	493 (32)	148 (47)
Marijuana					
1–9 Times	0 (0)	228 (14)	892 (48)	1091 (71)	178 (56)
More than 10 times	0 (0)	48 (3)	222 (12)	453 (29)	140 (45)
Crack					
1–9 Times	1 (0)	7 (0)	51 (3)	0 (0)	206 (65)
More than 10 times	0 (0)	3 (0)	25 (2)	0 (0)	112 (36)

Source: Data from the National Survey of School Health (PeNSE) conducted in 2015, with analyses carried out by the authors.

($r = 2.2$) and much higher in the North region ($r = 4.6$) and a sub-representation in the Southeast ($r = -3.4$) and South ($r = -3.0$), while the number of adolescents in the Midwest region was close to what was expected ($r = -1.1$). The proportions of male ($r = .2$) and female adolescents ($r = -.2$) were also within the expected range, considering the existing proportions in the total sample. Regarding race, *Abstainers* were predominantly brown ($r = 3.0$) and rarely white ($r = -3.2$). Regarding the type of educational institution, *Abstainers* were more highly present in public schools ($r = 3.4$) and, consequently, less present in private schools ($r = -3.4$).

Drinkers had fewer adolescents in the North region ($r = -3.9$) and slightly more in the Southeast region ($r = 2.0$), keeping the proportions for the Northeast ($r = .4$), South ($r = .4$) and Midwest ($r = .5$) regions close to the average. In this group, females ($r = 2.1$) were slightly more prevalent and males slightly less prevalent ($r = -2.1$) than in the overall sample. Indigenous people were underrepresented in this group ($r = -2.8$), while the other races had proportions within the expected range (r ranging from –1.3 to 1.5). The proportions of students in public ($r = 4$) and private ($r = -4$) schools also remained within the average range. *Conventional Drug Users* were the fewest in the North region ($r = -4.1$) and the most in the South ($r = 2.5$). Regarding gender, race and type of educational institutions, the percentages of this group remained within the expected (r ranging from –1.2 to 1.3).

Polysubstance Users had the lowest number of adolescents in the Northeast region ($r = -3.2$) and the highest number of adolescents in private schools ($r = 2.7$), keeping the remaining proportions within the average of the overall sample. *Hard Drug Users* had the highest number of adolescents living in the North region ($r = 2.6$) and the lowest in the Southeast ($r = -3.2$), in comparison with all the other

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Table 2. Sociodemographic Characteristics of the Groups

	Abstainers: *n* (%)	Drinkers: *n* (%)	Conventional Drug Users: *n* (%)	Polysubstance Users: *n* (%)	Hard Drug Users: *n* (%)	Overall: *n* (%)	χ^2 (Degrees of Freedom)
Mean age, years (standard deviation)	14.8 (1.2)	14.8 (1.1)	14.9 (1.2)	14.9 (1.2)	14.9 (1.3)	14.9 (1.2)	
Geographical region							73.6 (16)*
North	336 (27)[a]	346 (20)[a]	358 (19)[a]	373 (24)	90 (28)[a]	1503 (22)	
Northeast	316 (26)[a]	412 (24)	453 (24)	316 (20)[a]	72 (23)	1569 (23)	
Southeast	197 (16)[a]	366 (21)[a]	373 (20)	326 (21)	41 (13)[a]	1303 (19)	
South	166 (14)[a]	288 (17)	338 (18)[a]	249 (16)	51 (16)	1092 (16)	
Midwest	213 (17)	327 (19)	351 (19)	280 (18)	64 (20)	1235 (18)	
Gender							24.7 (4)*
Male	656 (53)	890 (51)[a]	1008 (54)	807 (52)	210 (66)[a]	3571 (53)	
Female	572 (47)	849 (49)[a]	865 (46)	737 (48)	108 (34)[a]	3131 (47)	
Race							70.9 (20)*
White	351 (29)[a]	581 (33)	620 (33)	523 (34)	98 (31)	2173 (32)	
Black	182 (15)	243 (14)	274 (15)	233 (15)	54 (17)	986 (15)	
Yellow	68 (6)	73 (4)	90 (5)	68 (4)	19 (6)	318 (5)	
Brown	585 (48)[a]	788 (45)	801 (43)	654 (42)	112 (35)[a]	2940 (44)	
Indigenous	42 (3)	53 (3)[a]	87 (5)	63 (4)	34 (11)[a]	279 (4)	
Educational institution							16.1 (4)
Public	1077 (88)[a]	1475 (85)	1570 (84)	1272 (82)	273 (86)[a]	5667 (85)	$p = .003$
Private	151(12)[a]	264 (15)	303 (16)	272 (18)	45 (14)[a]	1035 (15)	

Source: Data from the National Survey of School Health (PeNSE) conducted in 2015, with analyses carried out by the authors.
[a]Proportions significantly above or below the overall average (χ^2 test).
*$p < .001$.

classes, while the other regions displayed average proportions. This group also had, proportionally, the highest number of males ($r = 4.6$) and indigenous people ($r = 6$), substantially above the overall average, while females ($r = -4.6$) and brown adolescents ($r = -2.6$) were the lowest of all classes.

Table 3 presents the percentage of adolescents in each class who got involved with violence. *Abstainers* were significantly less involved with all types of violence than the average: bullying practice ($r = -3.5$), involvement in fights ($r = -4.5$ for "1 to 3 times" and $r = -8.8$ for "more than 3 times"), involvement in fights with bladed weapons ($r = -11.3$) and involvement in fights with fire arms ($r = -10.5$). The proportion of *Drinkers* who got involved in violent situations was also lower than the average, but generally larger than *Abstainers*: offending/humiliating a colleague ($r = -4.5$), involvement in fights ($r = -7.5$ for "more than three times"), involvement in fights with bladed weapons ($r = -7.8$) and involvement in fights with fire arms ($r = -6.3$). *Conventional Drug Users* had a prevalence of involvement in violence within the expected for all investigated modalities, except for involvement in a fight in the past 12 months, with a ratio above the average for "1 to 3 involvements" ($r = 3.2$). *Polysubstance Users* had significantly higher prevalence of involvement in violent situations than the three previous groups: bullying practice ($r = 3.6$), involvement in fight ($r = 2.3$ for "1 to 3 times" and "$r = 7.2$ for "more than three times"), involvement in fights with bladed weapons ($r = 10.4$) and involvement in fights with fire arms ($r = 7.4$). Finally, the proportion of adolescents from the *Hard Drug Users* group in all four violence modalities was substantially higher than all other classes: bullying practice ($r = 8.2$), involvement in fights ($r = 17.1$ for "more than three times"), involvement in fights with bladed weapons ($r = 15.2$) and involvement in fights with fire arms ($r = 17.7$).

Table 4 presents the percentages of adolescents from each group of each of the five investigated victimization modalities. The proportion of *Abstainers* who reported having been bullied was higher than the average ($r = 2.7$), but for all other forms of victimization, this group was the one with the lowest proportion of adolescents: frequency with which they felt offended/humiliated by colleagues ($r = .3$ for "rarely or sometimes" and $r = -2.5$ for "always or almost always"), frequency with which they were physically hurt by a family member ($r = -3.5$ for "1 to 3 times" and $r = -5.5$ for "more than three times"), frequency with which they were seriously hurt ($r = -5.1$ for "1 to 3 times" and $r = -6.3$ for "more than three times") and having suffered sexual abuse ($r = -4.9$). The proportion of *Drinkers* who reported being bullied was also higher than the average ($r = 2.6$) but, as well as the *Abstainers*, the proportion of *Drinkers* who suffered other forms of violence was significantly below average: frequency with which they felt offended/humiliated by colleagues ($r = -2.9$ for "always or almost always"), frequency with which they were physically hurt by a family member ($r = .2$ for "1 to 3 times" and $r = -6.5$ for "more than three times"), frequency with which they were seriously hurt ($r = -2.8$ for "1 to 3 times" and $r = -6.2$ for "more than three times") and having suffered sexual abuse ($r = -4.3$). Among *Conventional Drug Users*, the proportion of those who reported having been bullied was below average ($r = -2.1$). Regarding other forms of violence, this class displayed prevalence equivalent to the overall averages. The proportion of adolescents in the *Polysubstance Users* class who reported being bullied was also below average

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Table 3. Prevalence of Violence Involvement in Each Latent Class

	Abstainers: *n* (%)	Drinkers: *n* (%)	Conventional Drug Users: *n* (%)	Polysubstance Users: *n* (%)	Hard Drug Users: *n* (%)	Overall: *n* (%)	χ^2 (Degrees of Freedom)
Did you offend or humiliate any of your school colleagues? (past 30 days)							97.3 (4)*
Yes	436 (36)[a]	615 (35)[a]	749 (40)	674 (44)[a]	195 (62)[a]	2669 (40)	
No	791 (64)[a]	1119 (65)[a]	1120 (60)	865 (56)[a]	120 (38)[a]	4015 (60)	
How many times did you get into a fight (physical fight)? (past 12 months)							513.2 (8)*
Not once	757 (62)[a]	934 (54)[a]	837 (45)[a]	597 (39)[a]	54 (17)[a]	3179 (48)	
1–3 times	322 (27)[a]	548 (32)	645 (35)[a]	522 (34)[a]	77 (25)[a]	2114 (32)	
More than 3 times	135 (11)[a]	242 (14)[a]	376 (20)	407 (27)[a]	181 (58)[a]	1341 (20)	
Did you get into a fight in which someone used a fire arm? (past 30 days)							454.4 (4)*
Yes	142 (12)[a]	304 (18)[a]	425 (23)	457 (30)[a]	200 (64)[a]	1528 (23)	
No	1077 (88)[a]	1423 (82)[a]	1432 (77)	1068 (70)[a]	113 (36)[a]	5113 (77)	
Did you get into a fight in which someone used some bladed weapon? (past 30 days)							450.2 (4)*
Yes	204 (17)[a]	394 (23)[a]	566 (30)	622 (41)[a]	214 (69)[a]	2000 (30)	
No	1015 (83)[a]	1336 (77)[a]	1294 (70)	903 (59)[a]	98 (31)[a]	4646 (70)	

Source: Data from the National Survey of School Health (PeNSE) conducted in 2015, with analyses carried out by the authors.
[a]Proportions significantly above or below the overall average (χ^2 test).
*$p < .001$.

Table 4. Prevalence of Victimization in Each Latent Class

	Abstainers: *n* (%)	Drinkers: *n* (%)	Conventional Drug Users: *n* (%)	Polysubstance Users: *n* (%)	Hard Drug Users: *n* (%)	Overall: *n* (%)	χ^2 (Degrees of Freedom)
Have you ever been bullied? (lifetime)							21.3 (4)*
Yes	734 (60)[a]	1020 (60)[a]	1002 (55)[a]	805 (53)[a]	162 (58)	3723 (57)	
No	483 (40)	693 (40)[a]	821 (45)[a]	703 (47)[a]	115 (42)	2815 (43)	
How often have you been offended/humiliated by a colleague? (past 30 days)							160.2 (8)*
Never	686 (56)	917 (53)[a]	1040 (56)	850 (55)	113 (36)[a]	3606 (54)	
Rarely or sometimes	453 (37)	692 (40)[a]	655 (35)[a]	573 (37)	119 (38)	2492 (37)	
Always or almost always	84 (7)[a]	121 (7)	176 (9)	112 (7)[a]	84 (27)[a]	577 (9)	
How many times were you physically hurt by an adult family member? (past 30 days)							391.1 (8)*
Not once	972 (80)[a]	1312 (76)[a]	1324 (72)	1028 (67)[a]	125 (40)[a]	4761 (72)	
1–3 Times	149 (12)[a]	268 (16)	294 (16)	267 (18)[a]	46 (15)	1024 (15)	
More than 3 times	97 (8)[a]	142 (8)[a]	230 (12)	229 (15)[a]	141 (45)[a]	839 (13)	
How many times were you seriously injured? (past 12 months)							697.6 (8)*
Not once	1018 (84)[a]	1378 (80)[a]	1369 (74)	1059 (69)[a]	109 (35)[a]	4933 (74)	
1–3 Times	151 (12)[a]	263 (15)[a]	348 (19)	330 (22)[a]	65 (21)	1157 (17)	
More than 3 times	46 (4)[a]	81 (5)[a]	142 (8)	135 (9)	140 (45)[a]	544 (8)	
Have you ever been forced to have sexual relations? (lifetime)							311.7 (4)*
Yes	104 (9)[a]	168 (10)[a]	226 (12)	204 (13)	137 (44)[a]	839 (13)	
No	1119 (91)[a]	1560 (90)[a]	1635 (88)	1320 (87)	174 (56)[a]	5808 (87)	

Source: Data from the National Survey of School Health (PeNSE) conducted in 2015, with analyses carried out by the authors.
[a]Proportions significantly above or below the overall average (χ^2 test).
*$p < .001$.

($r = -3.2$), as well as those who reported being offended/humiliated by a colleague ($r = -2.2$ for "always or almost always"). In this class, the proportion of adolescents who reported being physically hurt by a family member was above average ($r = 2.6$ for "1 to 3 times" and $r = 3.2$ for "more than three times") as well as adolescents from this class who reported having been seriously hurt ($r = 5.5$). Regarding sexual abuse, the proportion of adolescents who reported having suffered from this form of violence was equivalent to the overall average ($r = 1.1$). Among *Hard Drug Users*, the percentage of those who reported having been bullied was equivalent to the average ($r = .6$), although the proportion of those who reported having been offended/humiliated by a colleague in the past 30 days was significantly higher than the other groups ($r = 11.7$ for "always or almost always"). In this class, the proportion of adolescents was substantially higher than all the other classes for other forms of violence: physical violence within the family ($r = 11.7$ for "more than three times"), having been seriously hurt ($r = 24.1$ for "more than three times") and having suffered sexual abuse ($r = 17.1$).

Table 5 shows the percentages of adolescents from each class regarding general and mental health issues. *Abstainers* had the smallest proportion among the adolescents who reported "always or almost always" feeling lonely ($r = -3.9$) and "always or almost always" feeling stressed to the point of not being able to sleep ($r = -4.5$) for the past 12 months prior to the survey. Regarding general health, *Abstainers* had the highest frequency of adolescents who rated their health condition as "good or very good" ($r = 2.4$), being the only class in which the percentage of adolescents who rated themselves within this category was above average. *Drinkers* found themselves within the average regarding adolescents who reported "always or almost always" feeling lonely ($r = .5$) or stressed to the point of not being able to sleep ($r = -1.8$). Regarding general health, *Drinkers* were also within the average regarding a "good or very good" health condition ($r = 1.8$). Similarly to *Drinkers*, *Conventional Drug Users* were also within the average in all categories whose frequency could indicate problems. *Polysubstance Users* were within the average in all categories related to feeling lonely and general health condition, but displayed a prevalence higher than the three previous groups regarding "always or almost always" being stressed/worried to the point of not being able to sleep ($r = 2.8$). Finally, *Hard Drug Users* represented the class with the highest proportion of adolescents who reported "always or almost always" feeling lonely ($r = 2.9$) or stressed/worried to the point of not being able to sleep ($r = 4.4$) and having a "bad or very bad" health condition ($r = 8.8$).

DISCUSSION

Firstly, we can see that the analysis technique employed was able to identify a model with five classes that adequately adjusted itself to the data statistically and theoretically. The classes displayed a high degree of separation (heterogeneity among themselves) and internal homogeneity, revealing an empirical reality in which Brazilian adolescents can clearly be grouped in terms of substance use patterns. The characteristics of each class show that there is a tendency to have a combined use of specific substances. Thus, although 16 (2^4) possible combinations of use of the four substances could exist, four of them stood out in terms of

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Table 5. Prevalence of General and Mental Health Issues in Each Latent Class

	Abstainers: *n* (%)	Drinkers: *n* (%)	Conventional Drug Users: *n* (%)	Polysubstance Users: *n* (%)	Hard Drug Users: *n* (%)	Overall: *n* (%)	χ^2 (Degrees of Freedom)
How often did you feel alone? (past 12 months)							33.0 (8)*
Never	324 (26)[a]	374 (22)[a]	421 (23)	361 (23)	82 (26)	1562 (23)	
Rarely or sometimes	624 (51)	898 (52)[a]	921 (49)	741 (48)	127 (40)[a]	3311 (49)	
Always or almost always	280 (23)[a]	465 (27)	527 (28)	438 (28)	108 (34)[a]	1818 (27)	
How often were you unable to sleep because you were too worried about something? (past 12 months)							56.5 (8)*
Never	345 (28)[a]	417 (24)	403 (22)[a]	330 (21)[a]	72 (23)	1567 (23)	
Rarely or sometimes	677 (55)	973 (56)	1053 (56)	840 (55)	144 (46)[a]	3687 (55)	
Always or almost always	204 (17)[a]	345 (20)	413 (22)	366 (24)[a]	98 (31)[a]	1426 (21)	
How would you rate your health condition?							92.9 (8)*
Good or very good	783 (64)[a]	1086 (63)	1139 (61)	905 (59)	140 (45)[a]	4053 (61)	
Regular	296 (24)	448 (26)	455 (25)	403 (26)	76 (24)	1678 (25)	
Bad or very bad	145 (12)[a]	197 (11)[a]	260 (14)	220 (14)	95 (31)[a]	917 (14)	

Source: Data from the National Survey of School Health (PeNSE) conducted in 2015, with analyses carried out by the authors.
[a]Proportions significantly above or below the overall average (χ^2 test).
*$p < .001$.

prevalence: alcohol use only (*Drinkers*, 26%), alcohol use associated with tobacco or marijuana (*Conventional Drug Users*, 28%), combined use of alcohol, tobacco and marijuana (*Polysubstance Users*, 23%) and the use of all four substances (*Hard Drug Users*, 5%). Other patterns of use such as alcohol–crack, tobacco–marijuana, tobacco–crack or marijuana–crack showed relatively low probability of occurrence. These patterns are similar to those identified in other studies in different sociocultural contexts (Bohnert et al. 2014; Choi et al. 2018; Goldstick et al. 2016; Liu et al. 2019).

In addition to the qualitative differences in terms of use of certain substances by some groups and not others, strong quantitative differences could also be observed, so that *Hard Drug Users* stood out for displaying the highest frequencies of use of all substances, followed by *Polysubstance Users* (second), *Conventional Drug Users* (third) and *Drinkers* (fourth). Knowledge of the patterns of substance use in adolescence is especially important since it allows us to learn about and describe the existing heterogeneity among adolescents regarding this problem and identify the behavioral characteristics that may develop in its early stages as well as to identify their similarities to other problems that affect adolescents, such as violence and those related to physical and mental health.

In terms of sociodemographic characterization, some differences deserve attention. Regarding the regions of the country, the North shows the most intriguing distribution. If, on the one hand, this region is the most frequent for *Abstainers*, on the other hand, it is also the most frequent for *Hard Drug Users.* Because this region is part of the Latin American route of international cocaine trafficking (Couto and Oliveira 2017), it is possible that access to this substance in the North is facilitated, partially justifying the higher concentration of adolescents from the *Hard Drug Users* class in this region. However, the reasons why the North is also the region that concentrates most *Abstainers* are not clear. This region, along with the Northeast, are the ones with the highest Gini index in Brazil (IBGE 2016b), thus being characterized as a region marked by enormous social inequalities, which may impose an economic restriction to the use of substances by certain groups of adolescents.

Regarding gender, the disparity between males (66%) and females (34%) in the *Hard Drug Users* class is striking, while in the other classes distributions were closer to that of the overall sample (53% males and 47% females). There is evidence that prevalence and frequency of substance use tend, in general, to be higher among men (NIDA 2018b), although women tend to make more use of prescribed substances (Loikas et al. 2013; Skoog et al. 2014). The European Monitoring Centre for Drugs and Drug Addiction (2005) reports that the ratio between men and women regarding the use of substances is higher when we talk about adults rather than adolescents between 15 and 16 years of age, which may explain the relative parity of the two genders in the four classes that display lower substance use. The high concentration of males among *Hard Drug Users*, however, may be due to the use of cocaine in the form of crack, a substance that sets this class apart from the others. The use of crack is associated with the search for more intense effects (Jorge et al. 2013). It is also a substance characterized by a higher risk of addiction and short-term side effects (Noto et al. 2003) as well as greater reactivity and social stigma (McNeil et al. 2015; Ribeiro, Sanchez, and Nappo 2010), aspects that may restrain its consumption by females.

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Regarding race distribution among the groups, the proportion of 10 fewer percentage points of brown adolescents and the almost three times higher proportion of indigenous adolescents in the *Hard Drug Users* class, compared with those in the overall sample, are striking. Some studies have indicated a growing problematic use of substances associated with violence and mental health-related problems for indigenous populations (Duarte, Stempliuk, and Barroso 2009; Indigenist Missionary Council 2014; Netto 2018). The various historical processes of marginalization of this population, associated with the increase in the spread of trafficking within indigenous communities (Indigenist Missionary Council 2014; Netto 2018), may favor the use of substances as a mechanism to deal with the adversities faced by this population. These results are in line with the study by Stanley et al. (2014), which found that Native Americans from 8th, 10th and 12th grades have a significantly higher consumption rate than the national rate for all substances among schoolchildren. As pointed out by the authors themselves, a comprehensive understanding of the causes of this relationship has not been established yet, which requires special attention not only in terms of prevention policies and specific interventions directed towards this population, but also to the need to study these groups more deeply.

Regarding the correlated problems analyzed – involvement in violence as an aggressor or as a victim and aspects of mental and general health – results indicate that *Abstainers* would be better protected from them in all situations investigated. The number of adolescents in this class that reported being involved with violence, as a victim or as an aggressor, and that reported feeling lonely or stressed/worried to the point of not being able to sleep, was frequently or almost always the lowest among all classes. Although this study does not allow the identification of a correlation between mental health and the use of substances, we emphasize that the literature indicates that this relationship may be initiated in two ways: (1) the use of substances may harm the mental health and cause symptoms of depression and anxiety, which may lead to excessive worries; (2) a below-average performance, caused by internal mechanisms (personal) and/or external (social, relational and contextual), may favor the use of substances as a coping mechanism (NIDA 2018a; Ross 2004; Stewart and Conrod 2008). In both cases, these mechanisms may create a feedback loop. In terms of general health, the frequency of *Abstainers* who rated their health conditions as good or very good was higher than the other classes. Therefore, *Abstainers* were characterized by being less involved in situations of violence and displaying better general and mental health conditions.

Drinkers, who had a use pattern significantly different from *Abstainers*, especially when it came to alcohol, were, however, similar to *Abstainers* regarding the other problems: most were not involved with violence, neither as an aggressor nor as a victim. The only exception, as well as the *Abstainers*, was the high prevalence of adolescents from both classes who reported having been bullied. However, when the bullying is described in behavioral terms, few claimed to have been offended strongly enough in order to feel embarrassed/humiliated, which may indicate a varied and inaccurate understanding of the concept of "bullying" among the investigated adolescents. Regarding mental health aspects, the number of *Drinkers* with a frequency of worrisome problems (always or almost always) was below the other groups with a more accentuated use pattern. Additionally, most rated their general

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health as good or very good. These results suggest that *Drinkers* are not at a higher psychosocial risk than *Abstainers*. Therefore, we can speculate that the use of substances in this class would be within a normative pattern, exploratory/experimental, without representing significant personal or social–relational harm (Brown et al. 2008). However, there is indeed a need for longitudinal studies in order to verify whether this trend will persist over time.

Conventional Drug Users, who displayed a pattern of alcohol use similar to *Drinkers*, differed from them regarding the use of tobacco or marijuana, reporting the use of these substances at a relatively higher frequency. *Conventional Drug Users* tended to combine the use of two substances, usually alcohol–tobacco and alcohol–marijuana and, also, tobacco–marijuana. Regarding the correlated problems, we could observe average proportions in most of the investigated variables, in comparison with those of the other groups. This class encompassed the largest number of adolescents in the sample, representing, maybe, an average profile of adolescents within the age group covered in the study. However, it is important to mention that, despite being the majority of the investigated adolescents, this class did not necessarily refer to a non-harmful ("healthy") pattern of substance use. In this class, the use of the investigated substances happened at a high frequency (more than ten times in the past 30 days) for many of the adolescents: alcohol (18%), tobacco (12%), marijuana (12%) and crack (2%). This frequency of use certainly poses risks to their full development (Meier et al. 2012; Meruelo et al. 2017). Moreover, involvement in situations of violence, as an aggressor or as a victim, was also higher within this class, in comparison with *Abstainers* and *Drinkers*, indicating an association between the more frequent use of substances and a higher exposure to violent situations. However, in terms of health, both mental and general, *Conventional Drug Users* were always within the average, reinforcing the idea that this class represents the "average adolescent", with risk behaviors, but without letting them significantly affect their mental and/or physical health.

Regarding *Polysubstance Users*, it is important to note that adolescents within this class tended to make combined use of three specific substances, alcohol–tobacco–marijuana, at a significantly higher frequency than the three previous groups, which points to a more problematic pattern of use, characterizing 23% of the sample. Classes with a similar pattern of use were also identified in previous studies (Silveira et al. 2019; Tomczyk et al. 2016). A significantly higher involvement in violence, as an aggressor or a victim, was associated with this pattern of use, in comparison with *Abstainers*, *Drinkers* and *Conventional Users*. In addition to the involvement in violence, studies indicate that problematic patterns of substance use are also associated with other delinquent behaviors (Komatsu et al. 2018; Le Blanc and Bouthillier 2003). With regard to mental and general health, this class was similar to *Conventional Drug Users*, showing that a more accentuated use of substances does not automatically correlate to worse health conditions, at least not for the investigated age group. However, in comparison with *Abstainers* and *Drinkers*, *Polysubstance Users* displayed worse health conditions. Therefore, it is important to point out that if this pattern of use persists over time, there is a risk of deterioration of the overall health condition, both physical and mental (Nelson et al. 2019). Future longitudinal studies must be carried out in order to verify this hypothesis.

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Lastly, the *Hard Drug Users* class encompassed adolescents with a high probability of having used the four substances simultaneously in the past 30 days. Relatively to the other classes, *Hard Drug Users* stood out for the high probability of using crack, a drug with a stronger and more immediate effect than the other investigated substances. Additionally, the *Hard Drug Users* class displayed a higher proportion of adolescents with a higher frequency of use in the past 30 days ("10 or more times"). Moreover, the proportion of adolescents from this class that reported being involved in violent situations also attracts attention, being this the only class in which more than half the adolescents were involved in fights with bladed weapons (69%) or fire arms (64%). This was also the only class in which the majority (62%) reported some offense/humiliation from a colleague. These results suggest that the *Hard Drug Users* class represents a profile of adolescents who get actively involved with violence, being similar to other groups described in the literature, highly engaged in juvenile delinquency and characterized by personal and social deficits associated with substance abuse (Farrington, Piquero, and Jennings 2013; Komatsu, Bono, and Bazon forthcoming; Le Blanc and Bouthillier 2003; Moffitt 2018).

Regarding victimization, the *Hard Drug Users* class also encompassed the highest proportion of adolescents at risk, being the only class in which most adolescents reported having been physically hurt by an adult family member, with almost half (45%) having suffered from violence more than three times in the past 30 days, and having suffered sexual abuse (44%). These results are in line with other studies which show a positive correlation between victimization and substance abuse in adolescence (Kobulsky et al. 2016; Vermeiren et al. 2003). Additionally, many of these adolescents reported frequently feeling lonely (always or almost always) and feeling excessively stressed/worried to the point of not being able to sleep, denoting some harm to their mental health, as has been identified by other studies (Komatsu et al. forthcoming; NIDA 2018a).

Finally, more than half of the *Hard Drug Users* rated their own health conditions as regular, bad or very bad, with the proportion of those who rated it as bad or very bad (31%) representing more than double the average of the sample. Therefore, the *Hard Drug Users* class was characterized by the highest prevalence and frequencies of use of multiple psychoactive substances and the most significant negative psychosocial conditions, being similar to classes identified in other sociocultural realities (Goldstick et al. 2016; Nelon et al. 2019). Adolescents within this profile find themselves under a high risk of several negative events in their lives, requiring specific primary and secondary prevention policies.

LIMITATIONS

This study included only school adolescents, regularly attending public or private educational institutions, leaving out adolescents who have abandoned school (a relatively common phenomenon in Brazil, especially at the beginning of high school). In addition, the sample was composed of schoolchildren who completely answered the questions for all four of the investigated substances, omitting those who for various reasons did not answer the questions. Therefore, the accuracy of the results presented here depends to a certain extent on whether the non-answers

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were due to random reasons, in such a way that the data were not significantly biased. It should be noted, however, that no systematic error was observed in the sample, so that the large number of participants encompassed in this study should be enough to dilute non-response biases.

It should also be mentioned that other substances with relatively widespread use among Brazilian adolescents were not investigated. Although the questionnaire utilized for PeNSE 2015 touched on the use of other substances such as powdered cocaine, *loló* and *lança perfume* (a combination of ether, chloroform, ethyl chloride and perfume essence), ecstasy and oxycodone, this was done through a single question, in which marijuana and crack cocaine were repeated, not allowing us to separately investigate the exclusive use of each one.

CONCLUSION

This was the first study in Brazil to work with a considerable sample of the population and to systematically identify a typology of use of psychoactive substances during adolescence. This was also the first study to characterize each identified profile regarding involvement in violence, as an aggressor or a victim, and regarding indicators of physical and mental health, reiterating studies performed in other countries and thus contributing in a significant way to Brazilian criminological knowledge. In addition, results show clear implications for the creation of public policies. Findings highlight the importance of specific prevention and damage reduction policies and programs directed towards each target audience, considering each group displays specific characteristics.

Finally, it should be noted that most adolescents reported the use of at least one substance in the past 30 days, even though the sale of alcohol and tobacco is prohibited to anyone below 18 years of age, and marijuana and crack are illicit substances in Brazil. This evidence, in addition to showing the worrisome psychoactive substance use situation of many children still in the first half of adolescence, increasing their psychosocial vulnerability, denotes the fragility of social controls and, within this, the fragility of public health and security policies in the country, which are incapable of stopping an important part of its children from having access to these substances.

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TRANSLATED ABSTRACTS

Abstracto

El uso de sustancias en la adolescencia se relaciona con otros problemas, como participación en la violencia y problemas de salud mental/física. Este estudio tuvo como objetivo identificar patrones de uso de sustancias en una muestra considerable de adolescentes brasileños y estimar la magnitud de la relación entre cada patrón y los indicadores de participación de la violencia, como agresor y / o víctima, y de salud mental y general. Los datos analizados se obtuvieron de 6.702 escolares, dentro del alcance de la Encuesta Nacional de Salud Escolar, empleando el Análisis de Clase Latente para informes de consumo de alcohol, tabaco, marihuana y crack. Los cinco grupos identificados se compararon con respecto a su participación en la violencia y los aspectos de salud mental y general. Los abstemios (18%) no harían uso de sustancias, ni se involucrarían en violencia ni mostrarían problemas de salud. Los bebedores (26%) tenderían a consumir solo alcohol, pero tampoco mostrarían los otros problemas. Los usuarios de drogas convencionales (28%) tenderían a consumir alcohol y tabaco o alcohol y marihuana y también estarían involucrados en la violencia, pero no mostrarían problemas de salud. Los usuarios de poli-sustancias (23%) tenderían a consumir alcohol, tabaco y marihuana y estarían más frecuentemente involucrados en la violencia. Los usuarios de drogas duras (5%) tenderían a hacer un uso frecuente de todas las sustancias además de estar más involucrados en la violencia, tanto como agresores como víctimas, y mostrarían problemas de salud mental / general. Nuestros hallazgos revelan diferentes niveles de problemas y refuerzan la importancia de diversas políticas de prevención / tratamiento para satisfacer demandas específicas.

Palabras clave: salud mental; análisis de clase latente; uso de sustancias; tipología; violencia

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Abstrait

La consommation de substances pendant l'adolescence est liée à d'autres problèmes tels que la violence et les problèmes de santé mentale / physique. Cette étude visait à identifier les modes de consommation de substances dans un échantillon considérable d'adolescents brésiliens et à estimer l'ampleur de la relation entre chaque modèle et les indicateurs d'implication de la violence, en tant qu'agresseur et / ou en tant que victime, et de la santé mentale et générale. Les données analysées ont été collectées auprès de 6.702 écoliers, dans le cadre de l'Enquête nationale sur la santé en milieu scolaire, en utilisant l'analyse de classe latente pour les rapports de consommation d'alcool, de tabac, de marijuana et de crack. Les cinq groupes identifiés ont été comparés en ce qui concerne leur implication dans la violence et les aspects de santé mentale et générale. Les abstentionnistes (18%) ne feraient pas usage de substances, ne seraient pas impliqués dans des violences ou présenteraient des problèmes de santé. Les buveurs (26%) auraient tendance à ne consommer que de l'alcool, mais ne présenteraient pas non plus les autres problèmes. Les utilisateurs de drogues conventionnelles (28%) auraient tendance à consommer de l'alcool et du tabac ou de l'alcool et de la marijuana et seraient également impliqués dans la violence, mais ne présenteraient pas de problèmes de santé. Les utilisateurs de substances multiples (23%) auraient tendance à consommer de l'alcool, du tabac et de la marijuana et seraient plus fréquemment impliqués dans la violence. Les consommateurs de drogues dures (5%) auraient tendance à utiliser fréquemment toutes les substances en plus d'être également plus impliqués dans la violence, à la fois en tant qu'agresseur et victime, et afficheraient des problèmes de santé mentale / générale. Nos résultats révèlent différents niveaux de problèmes et renforcent l'importance de politiques de prévention / traitement variées afin de répondre à des demandes spécifiques.

Mots-clés: santé mentale; analyse de classe latente; consommation de substances; typologie; violence

摘要：青少年使用药物与其他问题有关，如参与暴力、身心健康等问题。这项研究的目的是在大量巴西青少年样本中确定药物使用模式，并估计每种模式与暴力参与指标(作为攻击者和/或受害者)以及心理和一般健康之间的关系程度。所分析的数据是在全国学校健康调查范围内收集到的 6702 名小学生的数据，使用潜在类别分析法报告酒精、烟草、大麻和可卡因的使用情况。对确定的五组人员在参与暴力、精神和一般健康方面的情况进行了比较。节制者(18%)既不使用药物，也不参与暴力活动，也不会出现健康问题。饮酒者(26%)倾向于只使用酒精，但也不会表现出其他问题。传统吸毒者(28%)倾向于使用酒精、烟草或大麻，也会参与暴力活动，但不会出现健康问题。多药物使用者(23%)倾向于使用酒精、烟草和大麻，并更经常卷入暴力。吸毒者(5%)除了更容易卷入暴力之外，无论施暴者还是受害人，还往往频繁使用所有药物，并会表现出精神与一般健康问题。我们的调查结果揭示了不同程度的问题，并强调各种预防/治疗政策的重要性,以满足特定需求。

关键词：心理健康；潜在类别分析法；药物使用；类型学；暴力

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ملخّص

يرتبط تعاطي المخدرات في سن المراهقة بمشاكل أخرى مثل التورّط بأعمال العنف ومشاكل الصحّة العقليّة / الجسديّة. هدفت هذه الدراسة إلى تحديد أنماط تعاطي المخدرات في عيّنة كبيرة من المراهقين البرازيليين وإلى تقدير حجم العلاقة بين كل نمط ومؤشرات التورّط بأعمال العنف، كمعتدٍ و/أو كضحية، ورؤية الصحة العقلية والعامة. تم جمع البيانات، التي تم تحليلها من 6,702 طالب مدرسيّ، ضمن نطاق المسح الوطني للصحة National Survey of School Health، باستخدام تحليل الصف الكامن latent class analysis لتقارير تعاطي الكحول والتبغ والحشيشة marijuana والكوكايين. تمت مقارنة المجموعات الخمس المحدّدة من حيث تورطها بأعمال العنف ومن ناحية الصّحة العقليّة والعامّة. لن يتورّط الممتنعون *Abstainers* (18٪) في مشكلة تعاطي المخدّرات، أو في أعمال العنف، ولن يعانون من مشاكل صحيّة. أمّا مدمنو الكحول (26٪) فسيميلون إلى تعاطي الكحول فقط، دون الوقوع في مشاكل أخرى. في حين أنّ متعاطي المخدرات التقليديّين (28٪) سيميلون إلى تعاطي الكحول والتبغ أو تعاطي الكحول والحشيشة marijuana، وسيتورطون بأعمال العنف، لكنهم لن يعانوا من مشاكل صحيّة. أمّا بالنّسبة لمتعاطي المواد المخدرة *Polysubstance Users* (23٪) فسيميلون إلى تعاطي الكحول والتبغ والحشيشة وسيتورطون بأعمال العنف على نحو أكثر تواترًا. وسيميل مستخدمو المخدرات الصّلبة (5 ٪) إلى التّعاطي المتكرر لجميع أنواع المخدرات بالإضافة إلى تورّطهم بأعمال العنف، سواء كمعتدين أو كضحايا. كما سيتعرّضون إلى مشاكل في الصّحة العقليّة / العامة. تكشف النتائج التي توصلنا إليها مستويات مختلفة من المشاكل وتعزز أهمية سياسات الوقاية / العلاج المتنوعة من أجل تلبية مطالب محدّدة.

الكلمات الرّئيسيّة: الصحة النفسيّة؛ تحليل الصف الكامن؛ تعاطي المخدرات؛ دراسة الرّموز؛ العنف

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