



Consumption of alcohol and drugs and youth violence in a tri-national region

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Objective: to identify the association between consumption of drugs and alcohol and the violence amongst teenagers of the frontier of Brazil, Paraguay and Argentina. **Method:** cross-sectional descriptive study, with 2788 students teenagers, with random sampling. **Results:** The heightened consumption of tobacco and alcohol in the three mentioned cities/countries. Girls consume more alcohol. Argentinian teenagers consume more drugs. Paraguayans as victims have increased chances of consumption of alcohol and drugs, and, brazilians as victims and victims/aggressors by consumption of alcohol. **Conclusion:** that the exposition of violence between teenagers is high, and is associated with the use of alcohol. Interventions such as prevention and health education in schools of a tri-national frontier region are needed.

Descriptors: Violence; Teenager; Border Areas; Alcohol Drinking; Street Drugs.

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Consumo de álcool e drogas e participação em violências por adolescentes de uma região trinacional

Objetivo: identificar a associação entre o consumo de drogas e álcool e a participação em violência de adolescentes da tríplice fronteira, de três municípios/países: Brasil, Paraguai e Argentina. Método: estudo descritivo transversal com 2788 adolescentes estudantes, com amostragem aleatória. Resultados: consumo elevado de tabaco e álcool nos três municípios/países. As meninas consomem mais álcool, adolescentes argentinos consomem mais drogas. Os paraguaios como vítimas tem maiores chances para o consumo de álcool e drogas, os brasileiros como vítimas e vítimas/agressores tendem para o consumo de bebidas alcoólicas. Conclusão: a exposição à violência entre os adolescentes é alta quando é associada ao uso de álcool. Há a necessidade de intervenções como prevenção e educação em saúde nas escolas de uma região trinacional.

Descritores: Violência; Adolescente; Áreas de Fronteira; Consumo de Bebidas Alcoólicas; Drogas Ilícitas.

Consumo de alcohol y drogas y participación en violencia por adolescentes de una región trinacional

Objetivo: identificar la asociación entre el consumo de drogas y alcohol y la participación en violencia de adolescentes de tres municipios/ países: Brasil, Paraguay y Argentina. Método: Estudio descriptivo transversal con 2788 adolescentes, con muestreo aleatorio. Resultados: consumo elevado de tabaco y alcohol en los tres municipios/países. Las niñas consumen más alcohol, los adolescentes argentinos consumen más drogas. Los paraguayos como víctimas tienen más posibilidades para el consumo de alcohol y drogas, los brasileños como víctimas y víctimas/agresores propenden para el consumo de bebidas alcohólicas. Conclusión: Altos índices de violencia asociados al uso de alcohol. Hay la necesidad de intervenciones como prevención y educación en salud en las escuelas de una región trinacional.

Descritores: Violência; Adolescente; Áreas Fronterizas; Consumo de Bebidas Alcoholicas; Drogas Ilícitas.

Introduction

Violence and drug use are recurrent themes in literature and the association of drug abuse and behavioral changes and violent practices is currently a public health problem. Studies have shown a connection between alcohol consumption and violent behavior⁽¹⁻³⁾, but the present study also associates alcohol consumption, drug abuse and participation in violence among adolescents in the three countries observed.

For over two decades, violence is considered by the World Health Organization and the Brazilian Ministry of Health a serious public health problem, being part of the global agenda of movements for health or global health agenda^(2,4). The World Drug Report estimates that about one in every twenty adults, or a quarter of a billion people between the ages of 15 and 64 years of age, will use at least one illicit drug during their lifetime. In addition, there is an estimate that 76.3 million people are diagnosed with alcohol use disorder⁽⁵⁾.

In general, these public health problems are related to the consumption of alcohol and other drugs, the increase of violent behavior, drug dealing, the use of violence by groups organized for territorial domination and control as a result of drug trafficking, militias or biopiracy in the border cities trafficking route or smuggling of weapons and other goods^(4,6).

To that end, we consider the tri-border area of *Foz do Iguaçu* - Brazil, *Ciudad del Este* -Paraguay and *Puerto Iguazú* - Argentina, as a reference to atypical cities that reflect a series of social issues. Among the problems facing the region are illegal actions which transformed it into the main international route for trafficking drugs, guns, humans, organs, and for the organized crime of terrorism, violence and smuggling in South America, in the last decade. It is noteworthy that Brazil is a distributor while Paraguay is the largest producer of marijuana in the world, as well as a cocaine-smuggling route from Colombia, Bolivia and other countries⁽⁵⁾.

This justifies the interest in developing a study with adolescents because they are individuals who undergo several physical and psychological changes, often exposed to situations of violence and risky behaviors such as the use/consumption of alcohol and other drugs. In addition, the association of these factors becomes a concern because it constitutes an increasing trend of vulnerability for adolescents^(3,7-8).

Given the scarcity of scientific studies on violence and drug use by adolescents in the tri-border region of Brazil, Paraguay and Argentina, this study aimed to identify the association between drug and alcohol consumption and the participation in violence among adolescents from three cities: border of Brazil, Paraguay and Argentina.

Method

An analytical cross-sectional study was carried out between 2012 and 2013 in three cities/countries *Puerto Iguazú* (Argentina), *Foz do Iguaçu* (Brazil) and *Ciudad del Este* (Paraguay) with Elementary School students (6th to 8th grade) and High School (1st to 3rd year) of public schools and residents in the cities of *Foz do Iguaçu* (Brazil/BRA), *Ciudad del Este* (Paraguay/PAR) and *Puerto Iguazú* (Argentina/ARG).

A self-administered semi-structured anonymous questionnaire developed by the researchers was translated, analyzed and evaluated in each city/country by two education professionals. A pre-test was carried out with 10 students from each city/country, totaling 30 volunteers.

The questions analyzed were related to the socio-demographic characteristics of gender, age and country, in addition to the types of drugs (legal and illegal) and alcoholic beverages that the adolescent consumed in the previous 30 days. The specific questions about violence introduced a categorization defined as participation in violence for the adolescents who fit the profiles of victim (V), aggressor (A), victim/aggressor (V/A), nor victim or aggressor (NVNA) or observers in relation to the consumption of drugs and alcoholic beverages in the previous 30 days.

The sample size determination was based on the total number of students enrolled in public schools in the three cities/countries. The inclusion criteria were adolescents between 12 and 18 years-old, both male and female, living in each city/country analyzed. Difficulties of understanding and interpreting the questions in the questionnaire was used as a criterion for the exclusion of adolescents.

A stratified random sampling method was used based on the lists provided by the schools, totaling 2,788 adolescents, of which 1,014 are from *Puerto Iguazú* (ARG), 1,071 from *Foz do Iguaçu* (BRA) and 703 adolescents are from *Ciudad del Este* (PAR).

To collect the data in each educational institution, the researchers looked for students in their classrooms, presented the study proposal and invited them to participate. On the following day, the application of the questionnaire was restricted to the invited students (selected) who brought the informed consent form signed by their parents and the assent signed by the adolescent. The questionnaire was then read and delivered to the students in the presence of the researcher in the school facilities.

The analysis of the data was preceded by the creation of an Excel Database whose data were imported into the Statistical Analysis Software (SAS) 9.0, considering a level of significance of 95% in all analyzes. For general description of the data regarding socio-demographic characteristics, the prevalence was

obtained through a descriptive analysis of absolute and relative frequency. The logistic regression model was used to measure and identify factors associated with gender, country, violence and drug and alcohol use, according to Odds Ratio (OR) measure of quantitative association. The reference was defined as affirmative answers (Yes), gender: female (F) and country: Brazil (BRA). The study was approved by the Ethics in Research Committee (CEP) of the State University of Western Paraná - UNIOESTE (Legal Opinion 357/2011-CEP).

Results

Of the 2,788 adolescent students interviewed, the mean age was 14.6 years old, 50.71% female and 45.22% male. Statistically significant consumption of alcohol was found in adolescent females ($OR=M/F=0.47$) in comparison with adolescent males. Brazilian adolescents showed a significant association ($OR=ARG/BRA=0.71$) with higher odds for drug use when compared to the Argentinean adolescents. And Paraguayan adolescents showed statistical significant association ($OR=PAR/BRA=2.66$) with higher odds for drug and alcohol consumption ($OR=2.00$) compared to Brazilian adolescents (Table 1).

Tobacco was the most used drug among adolescent students in the three cities/countries. Adolescents from Argentina showed statistically significant higher odds ($OR=1.58$) for tobacco ($OR=1.42$), marijuana ($OR=4.27$) and crack when compared to adolescents in Brazil. But when compared to the Paraguayan, adolescents from Brazil obtained higher odds for tobacco consumption ($OR=0.43$), marijuana ($OR=0.18$), cocaine ($OR=0.26$) and other drugs ($OR=0.12$). In comparison to Argentina, Brazil showed higher chances of consumption of other drugs ($OR=ARG/BRA=0.10$). Per gender, adolescent males showed significant association with tobacco consumption ($OR=1.24$), marijuana ($OR=2.29$), cocaine ($OR=2.14$),

anabolic steroids ($OR=3.75$) and ecstasy ($OR=3.85$). Adolescent females showed significant association with weight loss pills intake (R.E), ($OR=M/F=0.40$) (Table 2).

Regarding the consumption of alcoholic beverages, it was evidenced by each country that Brazilian adolescents showed statistical significant association with the consumption of beer, spirits (*pinga*, *cachaça*), vodka, whiskey and sparkling wine, when compared to adolescents in Argentina and Paraguay. The Argentine adolescents showed association ($OR=ARG/BRA=1.22$) with higher odds to consume wine, in comparison to Brazil, ($OR=ARG/BRA=2.81$) and to 'other' drinks such as Gancia (beverage of American origin made with citrus fruits and sugar), Frizze (sparkling mixed wine with tropical fruits) and Frezze (full-bodied wine with high alcohol content). Per gender, the percentage shows that both consume alcoholic beverages. Adolescent females had higher odds ($OR=F/M=0.85$) for wine consumption than adolescent males (Table 3).

Table 4 shows the categorization of violence participants as victims (V), aggressors (A), victims and aggressors (V/A), and neither victims nor aggressors (NVNA). In this table, the results showed that the participants of violence totaled 37.59% victims, 4.80% aggressors, 31.56% victim/aggressor and 22.67% neither victim nor aggressor (observers) (data not shown). Adolescent victims from Paraguay showed significant association of higher odds ($OR=PAR/BRA=1.68$) to consume legal and illegal drugs in relation to adolescents in Argentina and Brazil.

In Table 5, the data set suggests that adolescents in Brazil, as participants in violence who consume alcoholic beverages, were more likely to be victims ($OR=PAR/BRA=0.57$) and victims/aggressors ($OR=PAR/BRA=0.45$), in comparison to adolescents from Paraguay. Adolescents from Argentina showed a higher percentage of alcohol consumption in the last 30 days, as participants in violence as aggressors and victims/aggressors.

Table 1 - Drug and alcohol consumption by adolescent students in the last 30 days, related to gender and country: Argentina, Brazil and Paraguay, 2013

Consumption	Gender		ODDS/Gender	Country			ODDS/ Country	
	F	M	MvsF	ARG	BRA	PAR	ARG/BRA	PAR/BRA
	n(%)	n(%)		n(%)	n(%)	n(%)	OR(IC95%)	OR(IC95%)
Drugs								
Yes	237(16.76)	257(20.38)	1.19 (0.78-1.81)	244(24.06)	210(19.61)	57(8.11)	0.71 (0.59-0.87)	2.66 (2.01-3.53)
No	1122(79.35)	954(75.65)		711(70.12)	819(76.47)	631(89.76)		
NA	55(3.89)	50(3.97)		59(5.82)	42(3.92)	15(2.13)		
Alcoholic Beverages								
Yes	949(67.11)	803(63.67)	0.47 (0.24-0.89)	713(70.32)	736(68.72)	373(53.06)	0.84 (0.69-1.01)	2.00 (1.64-2.43)
No	450(31.82)	431(34.18)		274(27.02)	230(29.88)	325(46.23)		
NA	15(1.06)	27(2.14)		27(2.66)	15(1.40)	5(0.71)		
TOTAL 2788 (100)								

NR = Not Responded; OR = Odds Ratio; LL = Lower Limit; UL = Upper Limit; ARG = Argentina; BRA = Brazil; PAR = Paraguay; MvsF = male versus female, female is the reference

Table 2 - Distribution by type of drugs used/consumed by adolescents in relation to gender and country: Argentina, Brazil and Paraguay, 2013

Types of Drugs	Consumption	Gender		ODDS Gender MvsF	Country			ODDS Country	
		M	F		ARG	BRA	PAR	ARG/BRA	PAR/BRA
		n(%)	n(%)		n(%)	n(%)	n(%)	OR(IC95%)	OR(IC95%)
Tobacco	Yes	202 (16.02)	188 (13.30)	1.24	207(20.41)	149(13.91)	46(6.54)	1.58	0.43
	No	1059 (83.98)	1226(86.70)	(1.00-1.54)	807 (79.59)	922(86.09)	657(93.46)	(1.26-1.99)	(0.30-0.61)
	NR	113							
Marijuana	Yes	98 (7.77)	50 (3.54)	2.29	83 (8.19)	63(5.88)	8(1.14)	1.42	0.18
	No	1163 (92.23)	1364 (96.46)	(1.62-3.26)	931 (91.81)	1008(94.12)	695(98.86)	(1.01-2.00)	(0.08-0.38)
	NR	113							
Cocaine	Yes	45 (3.57)	24 (1.70)	2.14	23 (2.27)	39(3.64)	7 (1)	0.61	0.26
	No	1216 (96.43)	1390 (98.30)	(1.29-3.53)	991 (97.73)	1032(96.36)	696 (99)	(0.36-1.03)	(0.11-0.59)
	NR	113							
Crack	Yes	14 (1.11)	8(0.57)	1.97	16 (1.58)	4 (0.37)	2 (0.28)	4.27	0.76
	No	1247 (98.89)	1406(99.43)	(0.82-4.71)	998 (98.42)	1067 (99.63)	701 (99.72)	(1.42-12.83)	(0.13-4.16)
	NR	113							
Anabolic	Yes	10 (0.79)	3 (0.21)	3.75	10 (0.99)	3 (0.28)	0	3.54	*
	No	1251 (99.21)	1411 (99.79)	(1.03-13.68)	1004 (99.01)	1068 (99.72)	7039 (100)	(0.97-12.92)	
	NR	113							
***R.E	Yes	12 (0.95)	33 (2.33)	0.40	18 (1.78)	17 (1.59)	12 (1.71)	1.12	1.07
	No	1249 (99.05)	1381 (97.67)	(0.20-0.78)	996 (98.22)	1054 (98.41)	691 (98.29)	(0.57-2.18)	(0.51-2.26)
	NR	113							
Ecstasy	Yes	17 (1.35)	5 (0.35)	3.85	7 (0.69)	10 (0.93)	5 (0.71)	0.73	0.76
	No	1244 (98.65)	1409 (99.65)	(1.41-10.46)	1007 (99.31)	1061 (99.07)	698 (99.29)	(0.28-1.94)	(0.25-2.23)
	NR	113							
Other	Yes	36 (2.85)	31 (2.19)	1.31	6 (0.59)	58 (5.41)	5 (0.71)	0.10	0.12
	No	1225 (97.15)	1383 (97.81)	(0.80-2.13)	1008 (99.41)	1013 (94.58)	698 (99.29)	(0.04-0.24)	(0.05-0.31)
	NR	113							
Never used	Yes	286 (22.68)	364 (25.74)	0.84	209 (20.61)	298 (27.82)	171 (24.32)	0.67	0.83
	No	975 (77.32)	1050 (74.26)	(0.70-1.01)	805 (79.39)	773 (72.18)	532 (75.68)	(0.55-0.82)	(0.67-1.03)
	NR	113							
TOTAL 2.788 (100)									

MvsF = male versus female. Feminine is the reference; *Insufficient data; CI = confidence interval; LL = lower limit; UL = upper limit; NR = Not Responded; ***WL = Weight loss Medicine; OR = Odds Ratio; ARG = Argentina; BRA = Brazil; PAR = Paraguay

Table 3 - Distribution by type of alcoholic beverages consumed in the last 30 days by adolescents in relation to gender and country: Argentina, Brazil and Paraguay, 2013

Alcoholic Beverages	Consumption	Gender		ODDS Gender MvsF	Country			ODDS Country	
		M	F		ARG	BRA	PAR	ARG/BRA	PAR/BRA
		n(%)	n(%)		n(%)	n(%)	n(%)	OR(IC95%)	OR(IC95%)
Beer	Yes	681(54)	681(48.16)	0.96	505(49.80)	586(54.72)	230(32.72)	0.81	0.40
	No	732(51.77)	732(51.77)	(0.82-1.11)	509(50.20)	484(45.19)	473(67.28)	(0.68-0.97)	(0.32-0.48)
	NR	113							
ACP	Yes	138(9.76)	141(11.18)	1.16	96(9.47)	176(16.43)	14(1.99)	0.53	0.10
	No	1276(90.24)	1120(88.20)	(0.90-1.49)	918(90.53)	895(83.57)	689(98.01)	(0.40-0.69)	(0.05-0.18)
	NR	113							
Vodka	Yes	273(21.65)	310(21.92)	0.98	251(24.75)	312(29.13)	39(5.55)	0.80	0.14
	No	988(78.35)	1104(78.08)	(0.81-1.18)	763(75.25)	759(70.87)	664(94.45)	(0.65-0.97)	(0.10-0.20)
	NR	113							
Whiskey	Yes	278(22.05)	309(21.85)	1.01	212(20.91)	327(30.53)	69(9.82)	0.60	0.24
	No	983(77.95)	1105(78.08)	(0.84-1.21)	802(79.09)	744(69.47)	634(90.18)	(0.49-0.73)	(0.18-0.32)
	NR	113							
Wine	Yes	455(36.08)	563(39.82)	0.85	463(45.66)	436(40.71)	158(22.48)	1.22	0.42
	No	806(63.92)	851(60.18)	(0.73-0.99)	551(53.34)	635(59.29)	545(77.52)	(1.02-1.45)	(0.34-0.52)
	NR	113							
Sparkling wine	Yes	224(17.76)	280(19.80)	0.87	169(16.67)	243(22.69)	109(15.50)	0.68	0.62
	No	1037(82.24)	1134(80.20)	(0.72-1.06)	845(83.33)	828(77.31)	594(84.50)	(0.54-0.84)	(0.48-0.80)
	NR	113							
Other	Yes	106(8.41)	99(7)	1.21	134(13.21)	55(5.14)	24(3.41)	2.81	0.65
	No	1155(91.59)	1315(93)	(0.91-1.62)	880(86.79)	1016(94.86)	679(96.59)	(2.02-3.89)	(0.40-1.06)
	NR	113							
TOTAL 2.788 (100)									

*Insufficient data; **CI = confidence interval; OD = Odds Ratio; LL = lower limit; UL = Upper limit; MvsF = Male versus female; NR = Not Responded; ACP = spirits/cachaça/pinga; ARG = Argentina; BRA = Brazil; PAR = Paraguay

Table 4 - Characterization of adolescents who participated in violence due to drug use per country: Argentina, Brazil and Paraguay, 2013

Consumption of Drugs		Country			ODDS/ Country	
		ARG	BRA	PAR	ARG/BRA	PAR/BRA
		n(%)	n(%)	n(%)	OR (IC95%)	OR (IC95%)
V	Yes	57(32.94)	62(35.84)	54 (31.22)	1.35	1.68
	No	254(30.86)	375(45.56)	194(23.58)	(0.91-2.01)	(1.12-2.52)
	NR	26(50.00)	19(36.53)	7(13.47)		
	Total	337(32.12)	457(43.58)	255(24.30)		
A	Yes	15(40.54)	9(24.32)	13(35.14)	1.88	1.96
	No	30(33.70)	34(38.21)	25(28.09)	(0.72-4.93)	(0.73-5.31)
	NR	5(62.50)	2(25.00)	1(12.50)		
	Total	50(37.30)	45(33.60)	39(29.10)		
V/A	Yes	149(50.17)	104(35.01)	44(14.82)	0.77	0.84
	No	249(45.28)	200(36.38)	101(18.34)	(0.42-1.43)	(0.55-1.28)
	NR	16(48.48)	13(39.40)	4(12.12)		
	Total	414(47.04)	317(36.02)	149(16.94)		
NVNA	Yes	19(22.62)	29(34.53)	36(42.85)	1.15	1.43
	No	165(31.07)	196(36.91)	170(32.02)	(0.84-1.57)	(0.84-2.43)
	NR	6(35.29)	6(35.29)	5(29.42)		
	Total	190(30.06)	231(36.55)	211(33.39)		
NR-General (n=94)		23(24.46)	22(23.41)	49(52.13)		
TOTAL 2788 (100)						

CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit; NR = Not Responded; OR = Odds Ratio; ARG = Argentina; BRA = Brazil; PAR = Paraguay; V = Victims; A = Aggressors; V/A = Victims and Aggressors; NVNA = Not Victims and Not Aggressors

Table 5 - Characterization of adolescents who participated in violence due to alcohol consumption per country: Argentina, Brazil and Paraguay, 2013

Consumption of Beverages Alcoholic drinks		Country			ODDS/ Country	
		ARG	BRA	PAR	ARG/BRA	PAR/BRA
		n(%)	n(%)	n(%)	OR(IC95%)	OR(IC95%)
V	Yes	217(32.72)	306(46.13)	141(21.15)	0.93	0.57
	No	108(29.58)	143(39.16)	114(31.26)	(0.69-1.27)	(0.42-0.79)
	NR	12(63.16)	7(36.84)	0(0)		
	Total	337(32.12)	457(43.57)	255(24.31)		
A	Yes	41(36.94)	39(35.14)	31(27.92)	0.75	0.49
	No	7(35)	5(25)	8(40)	(0.22-2.56)	(0.14-1.67)
	NR	2(66.67)	1(33.33)	0(0)		
	Total	50(37.30)	45(33.60)	39(29.10)		
V/A	Yes	339(48.22)	255(36.27)	109(15.51)	1.02	0.45
	No	67(40.61)	60(36.36)	38(23.03)	(0.69-1.51)	(0.31-0.67)
	NR	8(66.66)	2(16.67)	2(16.67)		
	Total	414(47.04)	317(36.02)	149(16.94)		
NVNA	Yes	105(34.20)	126(41.04)	76(24.76)	1.19	0.67
	No	82(25.71)	101(32.06)	133(42.23)	(0.81-1.74)	(0.42-1.07)
	NR	3(33.33)	4(44.44)	2(22.23)		
	Total	190(30.06)	231(36.55)	211(33.39)		
NR-General (n=94)		23(24.47)	22(23.40)	49(52.13)		
TOTAL 2788 (100)						

CI = confidence interval; LL = Lower Limit; UL = Upper Limit; NR = Not Responded; OR = Odds Ratio; ARG = Argentina; BRA = Brazil; PAR = Paraguay

Discussion

This is the first population-based study with a school survey among adolescent students aged 12 to 18 years residing in the border cities of Argentina, Brazil and Paraguay and the results suggest an association between drug and alcohol consumption and the increase in the

probability of producing violence among adolescents in the three cities/countries. It highlights that adolescent males show the highest odds for illicit drug use, while adolescent females showed higher percentages for consumption of alcoholic beverages.

Among the most consumed licit drugs, tobacco ranks first with adolescents in all cities/countries, and

Argentina has the highest percentage rate. And, per gender, the predominance is male, disagreeing with another study that states that the prevalence (22.3%) of tobacco consumption is female, with a mean age of 16 years⁽⁵⁾. It is known that tobacco use is a public health problem in the world, with annual report of 25% of the population, that is, 5 million deaths worldwide due to diseases caused by tobacco consumption⁽⁹⁾.

The second drug most consumed by adolescents with a predominance of male individuals in the three cities/countries and in the world, is marijuana (*cannabis*)⁽⁵⁾. Emphasis is given to the fact that in Argentina personal consumption of marijuana is allowed and Paraguay is currently the largest producer of marijuana in Latin America⁽⁹⁾.

Cocaine seems to be the third drug most consumed by adolescents in Brazil and Argentina in the last thirty days. Other psychoactive substances, such as anabolic steroids, ecstasy and crack are more in demand, since their consumption has doubled in the world market, between 2009 and 2013. There is an increasing concern in Latin America and the Caribbean⁽⁵⁾.

About six million people (4% of the adult population) have experienced cocaine or smoked drug: crack and oxy, at least once. Among adolescents, 442,000 (3% around 14 and 18 years of age) have also had experience with some type of drug substance (1,11). In South America, especially in Brazil, cocaine use and trafficking have increased⁽⁵⁾. In the last decade, seizures by federal police in Foz do Iguaçu (Brazil) have shown an increase in drug trafficking such as cocaine and crack, and more recently synthetic drugs on the triple border. Marijuana has become less important in the ranking of drugs that enter the Brazilian territory via Foz do Iguaçu, Paraguay's border to Brazil (14).

In the present study, female gender showed preference for the consumption of weight loss medicine, with amphetamines and tranquilizers being the most commonly used. It is said that worldwide the number of users of these drugs was between 125 and 203 million people, representing a rate of 2.8% to 4.5% prevalence. It is indicated that the preference for the use of amphetamines occurs due to their popularity, as well as their relative ease of production and availability in the cities/countries, which would facilitate their acquisition and experimentation (9) and a greater propensity to start early, evolving into dependence (1: 10-11).

In this sense, the present study and others confirm that the consumption of legal and illegal drugs has been increasing in the Brazilian population and in Argentina in general. Especially for male individuals, in addition to their association with several health problems⁽⁴⁻⁵⁾.

The present study also showed significant data about the consumption of alcohol by the female

individuals. This diverges from other researchers who conducted national and international studies that report the predominance of male gender in the use of alcohol and licit and illicit drugs^(2,10,12). However, studies corroborate when confirming that alcohol consumption is of a significant prevalence among girls⁽⁴⁾. But the results shown here in percentages coincide with other studies for quoting the preference of adolescents of both genders for tobacco and alcohol consumption^(4-5,9,14). It is also highlighted that alcohol is the psychotropic substance considered legal drug most used by adolescents in Brazil and worldwide. Its consumption in this research is worrisome, both due to the greater tendency to impulsivity and risk activities in this phase of life, as well as for the damage to the brain development in adolescence, determining repercussions during adult life⁽⁵⁾.

The results presented here also suggest that adolescents in Brazil who participate in violence as victims and victims/aggressors consume more alcoholic beverages than the adolescent victims and victims/aggressors of Paraguay. And Paraguayan adolescents who participate in violence as victims are more likely to use licit and illicit drugs than adolescents in Argentina and Brazil.

These are a worrisome findings confirmed by a study also conducted in schools, in which adolescents show greater aggressiveness and inattention during classes due to the use of alcohol and other drugs. It is suggested that the consumption of alcohol and other drugs makes them susceptible to the influences of friends and involvement in other risk behaviors. The use/consumption feeds back the violence practiced by both genders⁽⁴⁾.

Thus, the indication is to conduct preventive interventions aimed at adolescents regarding alcohol and drug use and vulnerabilities and/or risky behaviors, in order to provide them with emergency guidelines on how to deal with the problem and develop appropriate strategies.

The results of the logistic regression analysis show that the association between alcohol consumption and other drugs is a vulnerability factor that interferes statistically in the participation in violence. This highlights the negative impact on individual and collective health, both for male and female genders.

Data from the World Health Organization (WHO)⁽⁵⁾ reveal the magnitude of the social problem: 25% of all deaths among youths from 15 to 19 years of age are cause by alcohol consumption. These statistics reflect the pattern of alcohol consumption in adolescents⁽⁸⁾ who recognize the risks between alcohol consumption, behavioral changes and violence, with a higher prevalence and risk for females^(2,14).

In addition to that, confirmed data suggest that Brazilian adolescents presented higher chances of consuming drugs in comparison to Argentine adolescents, but Paraguayan adolescents stood out with a greater chance of using illegal and licit drugs and alcoholic beverages in comparison to adolescents from Brazil.

In order to better understand the results found about the participation in violence involving adolescent as victims, aggressors, victims/aggressors or neither victims nor aggressors, both in the scenarios of Brazil of Paraguay and Argentina it is suggested that even without obtaining statistically verifiable results, all of them have the chance to consume drugs and alcohol and to participate in violence. This association has been confirmed by other studies that show an increase in violence due to drug and alcohol use^(1,5,13).

It is noted that the consumption of drugs and alcoholic beverages by the adolescents of the three cities/countries is a worrisome factor, especially regarding the high rates of alcohol consumption in the last 30 days, which interfere and increase the vulnerability of adolescents as participants in violence. This evidence contradicts the fact that, because it is a border region, the prevalence of illicit drug use would be significant.

Conclusion

It was observed that the data presented here reinforce that the border region between Brazil and Paraguay constitutes an important area for drug trafficking, which is an activity that potentiates the use/consumption of drugs and crime, forming a complex illegal network in this territory. However, contrary to what was expected, it was clear that, despite the fact that adolescents live in frontier cities with a high rate of drug seizure, trafficking and crime, they showed a lower rate of illicit drug use and a statistically significant association with the consumption of alcohol and tobacco, low cost legal drugs and facilitated access to them, which favors social acceptance. These adolescents participate in violence in the triple border.

Given the data analyzed, it can be said that it is necessary to intervene with health education actions and the inclusion of these themes in the core curriculum of schools for prevention. If drug use and the production of violence receive the necessary attention from teachers and health professionals, as prominent factors in the tri-national conception aggravated in specific contexts in which cultural diversities, inequalities, inequities, neglect and failure of governments to strengthen science-politics bonds so that promising research findings are effectively identified, synthesized, and communicated to politicians and the public in an effective way, disrupting the image

that adolescence violence is something common and expected.

This study has some limitations regarding its analyses due to the sample selected according to the participation in violence and the consumption of alcohol and other drugs. Thus the results may refer only to the patterns of behavior of this sample. However, it is important to consider that the study was carried out in three frontier cities and thus one should consider the geographical and social differences in this area.


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