

Binge drinking in Brazilian adolescents: results of a national household survey

Consumo excessivo de álcool em adolescentes
brasileiros: resultados de uma pesquisa
domiciliar nacional

Consumo excesivo de alcohol en adolescentes
brasileños: resultados de una encuesta
domiciliaria nacional

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Abstract

This study aimed to estimate the prevalence of binge drinking and other alcohol consumption patterns and analyze the sociodemographic characteristics associated with binge drinking among Brazilian adolescents aged 15 to 17 years. A cross-sectional household survey including 2,315 adolescents from the 2019 Brazilian National Health Survey who answered a questionnaire on alcohol consumption (weekly frequency, average amount consumed in a drinking day, and binge drinking). A descriptive analysis of alcohol consumption by sociodemographic characteristics and a multivariable logistic regression model were performed. The prevalence of binge drinking (past 30 days) was 8.1% (95%CI: 6.2-10.3). Adolescents who did not attend school (OR = 2.8; 95%CI: 1.6-5.0) had greater odds of binge drinking than adolescents attending school. Higher socioeconomic status (measured via wealth score) was also associated with higher odds of binge drinking compared with lower socioeconomic status (e.g., 5th quintile vs. 1st quintile: OR = 2.9; 95%CI: 1.1-7.7). Girls had lower odds of binge drinking (OR = 0.5; 95%CI: 0.2-0.8) than boys. The prevalence of binge drinking among adolescents, especially boys, who did not attend school and had higher socioeconomic status was high. Monitoring alcohol consumption patterns in adolescents may provide important information on policies or actions to prevent binge drinking.

Alcohol; Binge Drinking; Adolescent; Health Surveys

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Introduction

Binge drinking – or heavy episodic drinking – is an important health and social problem characterized by the consumption of five or more doses of alcohol in a drinking event ¹. It is associated with harmful health and social outcomes, such as higher risk of violence, school absenteeism, unsafe sexual intercourse, and severe intoxication ². The prevalence of binge drinking among adolescents aged 15 to 19 years worldwide was 13.6% in 2016 ³.

In this study, we estimated the prevalence of binge drinking and other patterns of alcohol consumption among Brazilian adolescents using data from a large, nationally representative household survey, the 2019 *Brazilian National Health Survey* (PNS).

Considering the increasing number of publications on binge drinking among Brazilian adolescents, this study adds knowledge on the prevalence of binge drinking and its distribution according to sociodemographic characteristics in a nationally representative sample of Brazilian adolescents. Our findings may be useful for the implementation of more effective public policies to prevent alcohol consumption by adolescents.

Methods

The PNS aimed to understand the determinants, conditions, and health needs of the Brazilian population. The 2019 PNS was approved by the Brazilian National Ethics Research Committee (CONEP; n. 3,529,376). PNS complex multistage sampling strategy included three stages: (1) selection of census sectors (primary sample units – PSUs); (2) selection of households; (3) and individuals aged ≥ 15 years based on the list of residents. A total of 8,036 PSUs and 108,525 households were selected. Considering a 13.2% non-response rate, 94,114 households with individuals aged ≥ 15 years were interviewed. Details on the sampling and weighting process are available elsewhere ⁴. In this study, 2,315 adolescents aged 15 to 17 years were included.

Assessment of alcohol consumption

Adolescents answered a questionnaire on their frequency of alcohol consumption, average frequency of consumption per week, average amount consumed in a drinking day, binge drinking in the past month, average amount consumed when binge drinking, drink-driving, alcohol consumption and abandonment of daily activities, number of times that they could not remember what happened after drinking, excessive alcohol consumption reported by close people. This study considered binge drinking as the consumption of five or more doses of alcohol in a drinking event in the past 30 days.

Sociodemographic characteristics

Data on age (15 to 17 years), sex (boys or girls), race/skin color (white, black/mixed-race, or other), school attendance (yes or no), and socioeconomic status (wealth score quintiles) were collected via the questionnaire. The wealth score was estimated by principal component analysis (PCA), according to Barros & Victoria ⁵. PCA included in its model the number of rooms, restrooms, televisions, microwaves, cars, motorcycles, computers, landlines, refrigerators, washing machines, and the household income. The wealth index was categorized as quintiles: the first quintile (Q1) referred to the poorest 20% and the fifth quintile (Q5) the wealthiest 20%.

Statistical analysis

Sociodemographic data and alcohol consumption among adolescents were summarized using prevalence and 95% confidence intervals (95%CI), mean, and standard deviation (SD). Simple and multivariable logistic regression models were used to estimate unadjusted and adjusted odds ratios (OR) for the association between sociodemographic factors and binge drinking. All analyses were performed using the Stata 17.0 software (<https://www.stata.com>).

Results

Table 1 shows the characteristics of adolescents according to binge drinking. About 51% of adolescents were boys and 37% were 17 years old. About 60% were black/mixed-race and 87% attended school. The proportion of black/mixed-race boys who did not attend school was higher and the wealth score of adolescents who practiced binge drinking was lower compared with adolescents who did not practice binge drinking.

About 77.6% (95%CI: 74.2-80.0) of adolescents did not drink. The prevalence of binge drinking in the past 30 days was 8.1% (95%CI: 6.2-10.3). Almost all adolescents (98.6%; 95%CI: 97.7-99.2) who consumed alcohol did not stop performing their daily activities. Only 2.6% (95%CI: 1.7-3.9) of adolescents reported not remembering what happened after drinking once a month or less. About 3.4% (95%CI: 2.0-5.4) drank so much that close people asked them to stop drinking more than once (Table 2).

Girls had odds of binge drinking 50% lower than boys (OR = 0.5; 95%CI: 0.2-0.8). The odds of adolescents who did not attend school was 2.8 times greater compared with adolescents who attended school (OR = 2.8; 95%CI: 1.6-5.0). Adolescents with higher socioeconomic status had higher odds of binge drinking. Compared with adolescents in the first wealth score quintile, the OR of binge drinking was 2.1 (95%CI: 1.4-4.1) for adolescents in the second quintile, 3.9 (95%CI: 2.0-7.8) for adolescents in the third quintile, 1.5 (95%CI: 0.7-3.3) for adolescents in the fourth quintile, and 2.9 (95%CI: 1.1-7.7) for adolescents in the fifth quintile (Table 3).

Table 1

Sociodemographic characteristics of Brazilian adolescents, according to binge drinking, 2019 (N = 2,315).

Characteristics	Total (n = 2,315)			Binge drinking (n = 178; 8.1%)			Did not practice binge drinking (n = 2,137; 91.9%)		
	n	%	95%CI	n	%	95%CI	n	%	95%CI
Sex									
Boys	1,137	50.7	50.7-50.7	109	67.1	54.3-77.6	1,028	49.3	48.0-50.4
Girls	1,178	49.3	49.2-49.2	69	32.9	22.3-45.6	1,109	50.7	49.5-51.9
Race/Skin color									
White	724	37.2	34.7-40.3	48	28.5	18.9-40.7	676	38.0	34.8-41.3
Black/Mixed-race	1,561	60.6	57.5-63.6	128	70.0	57.8-79.9	1,433	59.7	56.5-62.9
Other	29	2.2	0.9-4.4	2	1.5	0.2-6.8	27	2.3	0.9-4.7
School attendance									
Yes	1,966	86.7	84.0-88.9	118	69.1	52.6-81.7	1,848	88.3	85.6-90.4
No	349	13.3	11.0-15.9	60	30.9	18.3-47.3	289	11.7	9.5-14.3
Wealth score (quintile)									
Q1 (poorest)	714	21.2	19.1-23.5	50	13.2	19.1-23.5	664	21.9	19.6-24.4
Q2	414	15.7	13.6-18.1	39	17.2	13.6-18.1	375	15.6	13.4-18.1
Q3	473	21.3	18.4-24.2	45	34.9	18.4-24.2	428	19.9	17.3-22.7
Q4	345	16.8	14.6-19.3	23	11.5	14.6-19.3	322	17.3	14.9-20.0
Q5 (richest)	369	25.0	22.3-28.2	21	23.2	22.0-28.2	348	25.3	22.0-28.5
Age (years)									
15	707	29.3	26.1-32.3	32	25.9	13.2-44.7	675	29.4	26.5-32.4
16	756	34.1	31.0-37.4	52	19.5	12.3-29.0	704	35.4	32.2-38.8
17	852	36.6	33.4-40.1	94	54.6	40.2-68.3	758	35.2	31.8-38.5

95%CI: 95% confidence interval.

Source: Brazilian Institute of Geography and Statistics 4.

Table 2

Alcohol consumption pattern among adolescents in Brazil, 2019 (N = 2,315).

Alcohol consumption pattern	n	%	95%CI
Frequency of consumption			
Does not drink at all	1,879	77.6	74.2-80.0
Less than once a month	192	8.6	6.8-10.7
At least once a month	244	13.8	11.3-16.9
Average consumption per week in days (mean±SD)		0.18±0.27	
Average amount consumed in a day * (mean±SD)		3.73±0.15	
Binge drinking in the past month	178	8.1	6.2-10.3
Average amount when binge drinking (mean±SD)		11.05±0.22	
Drink-driving	20	1.32	0.4-3.6
Consumed alcohol and failed to perform activities			
Never	2,282	98.6	97.7-99.2
Once a month or less	27	1.1	0.6-2.1
Twice a month or more	6	0.3	0.05-0.40
How many times after drinking did you not remember what happened?			
Never	2,246	96.8	95.3-97.9
Once a month or less	55	2.6	1.7-3.9
Twice a month or more	14	0.6	0.2-1.2
Drinking so much that close people asked to stop drinking			
No	2,209	95.1	93.0-96.5
Yes, once	29	1.5	0.8-2.7
Yes, more than once	77	3.4	2.0-5.4

95%CI: 95% confidence interval; SD: standard deviation.

Source: Brazilian Institute of Geography and Statistics 4.

* The result refers to the entire sample (N = 2,315).

Discussion

In this study, the prevalence of binge drinking was 8.1% among Brazilian adolescents. Adolescents with higher wealth score and who did not attend school were more likely to practice binge drinking. Girls had lower odds of binge drinking than boys. These results are important for the prevention of alcohol consumption among adolescents, considering that few studies evaluated factors associated with binge drinking based on a Brazilian national household survey.

In a recent school-based survey in Brazil, the prevalence of binge drinking in the past 30 days was 6.9% among adolescents aged 13 to 17 years 6. The 2019 *European School Survey Project on Alcohol and Other Drugs* (ESPAD; <http://www.espad.org/>) showed that the prevalence of binge drinking in the past 30 days was 13% among adolescents aged 15 to 16 years from 35 European countries 2. Alcohol consumption, especially binge drinking, by adolescents is an important global health problem and several studies have already reported its consequences, such as risky sexual behavior, violence, and blackout 7.

In our study, the odds of binge drinking for girls was 50% lower compared with boys. Other studies found similar results 8. Boys are at increased risk of practicing binge drinking compared with girls 9. This difference can be related to social and cultural norms and historical conditions that built the concepts of man and woman 10. The discriminatory idea of the role of man frequently presumes that alcohol consumption/binge drinking is an expression of masculinity 11. In-depth studies are important to evaluate the risks for each sex and enable the development of interventions and preventive actions to reduce alcohol consumption more effectively.

Table 3

Sociodemographic characteristics associated with binge drinking a Brazilian adolescents, 2019 (N = 2,315).

Characteristics	Binge drinking (yes)		Unadjusted			Adjusted *		
	%	95%CI	OR	95%CI	p-value	OR	95%CI	p-value
Sex								
Boys	10.71	7.57-14.94	Reference			Reference		
Girls	5.42	3.67-7.94	0.4	0.2-6.8	0.013	0.5	0.2-0.8	0.020
Race/Skin color								
White	6.21	3.99-9.54	Reference			Reference		
Black/Mixed-race	9.37	6.88-12.66	1.5	0.8-2.7	0.129	1.6	0.8-3.1	0.150
Other	5.26	0.89-25.52	0.8	0.1-5.3	0.853	1.1	0.2-6.7	0.860
School attendance								
Yes	6.45	4.90-8.44	Reference			Reference		
No	18.88	10.5-31.59	3.3	1.5-7.2	0.002	2.8	1.6-5.0	< 0.010
Wealth score (quintile)								
Q1 (poorest)	5.04	3.53-7.14	Reference			Reference		
Q2	8.84	5.46-13.99	1.8	0.9-3.4	0.006	2.1	1.4-4.1	0.010
Q3	13.37	7.92-21.68	2.9	1.4-5.7	0.002	3.9	2.0-7.8	< 0.010
Q4	5.49	3.06-9.66	1.0	0.5-2.2	0.800	1.5	0.7-3.3	0.250
Q5 (richest)	7.54	4.20-13.17	0.05	0.7-3.1	0.240	2.9	1.1-7.7	0.020
Age (years)								
15	7.22	3.45-14.51	Reference			Reference		
16	4.59	3.00-6.97	0.6	0.2-1.5	0.290	0.5	0.2-1.1	0.100
17	12.06	9.04-15.92	1.7	0.7-4.1	0.190	1.5	0.7-3.3	0.220

95%CI: 95% confidence interval; OR: odds ratio.

Source: Brazilian Institute of Geography and Statistics 4.

* Adjusted for other sociodemographic characteristics presented in the table.

Wealthier adolescents had greater odds of binge drinking compared with adolescents with lower wealth scores. Some studies showed a similar relationship between higher socioeconomic status and higher alcohol consumption among adolescents¹². Other studies, however, showed a positive and inverse association between socioeconomic status and binge drinking¹³. Adolescents with higher socioeconomic status have more financial resources to purchase alcohol and attend parties that may favor binge drinking¹². For adolescents with higher socioeconomic status, the “permissions” of parents that do not monitor and talk about alcohol consumption probably influence adolescents to spend more money in social activities, including buying more alcohol, which reinforces the need to invest more in public policies aimed at the taxation of alcohol, as convincing evidence have show that this action plays a central role in the prevention of alcohol consumption and abuse¹⁴.

Our findings also showed that adolescents who did not attend school were more vulnerable to binge drinking. An United Nations Children’s Fund (UNICEF) study performed in Brazil with adolescents aged 15 to 17 years found that the three main reasons for school absenteeism were: lack of interest in studying (38.2%); working or seeking employment (14.6%); and pregnancy (11.4%)¹⁵. Given the particularities of the social, economic, and cultural context in Brazil⁴, regional differences, even between states of the same region, regarding alcohol consumption and binge drinking may exist. In this study, we aimed to provide the national scenario of binge drinking among adolescents, considering that each region and state require a detailed analysis and interpretation of the findings, which would not be possible in a short report. However, we encourage future studies to analyze regional differences to identify trends and local particularities of binge drinking in Brazil.

Risky behaviors in adolescence can perpetuate throughout adulthood¹; thus, developing actions to prevent alcohol consumption at school age is important¹⁶. Evidence shows that the association

between binge drinking and school absenteeism has been mutually reinforcing effects (bidirectional). Lower school performance may lead vulnerable adolescents to binge drinking and binge drinking may promote a poor school performance and increase the probability of school dropout¹⁷. These findings raised concern, considering the importance of school performance to adolescents' future opportunities¹⁷. On the other hand, for adolescents who do not attend school, promoting environmental interventions, such as strengthening the prohibition of the sale of alcohol to adolescents, regulating drinking parties, and reducing alcohol availability in the neighborhood, is essential¹⁸.

Our study has some limitations. Alcohol consumption was self-reported and, therefore, susceptible to measurement error. Participants tend to omit risk behaviors, which lead to an underestimated prevalence of binge drinking and other alcohol consumption patterns. We did not perform analyses by Brazilian region and state, considering that Brazil has a continental dimension, was another limitation. Although this was a descriptive study and associations aimed to identify groups of adolescents more exposed to binge drinking, we could not evaluate the temporal relationship between school attendance and socioeconomic status and binge drinking due to the cross-sectional data. Despite these limitations, the PNS have a great methodological rigor and generalizing its results is safe for national estimates.

Conclusion

About 8% of Brazilian adolescents reported recent binge drinking. Boys, adolescents with higher socioeconomic status, and adolescents who did not attend school were more likely to binge drinking. These findings suggest the need for interventions and public policies beyond schools to reach the adolescents at higher risk.

Contributors

P. F. P. Medeiros contributed to the study conception, data analysis and interpretation, and writing of the article, besides being responsible for all aspects of the study regarding ensuring its accuracy and the completeness of all parts, and approved the final version to be published. J. Y. Valente contributed to the study conception, data analysis and interpretation, and writing of the article, besides being responsible for all aspects of the study regarding ensuring its accuracy and the completeness of all parts, and approved the final version to be published. L. F. M. Rezende contributed to the writing of the article and the critical review of its intellectual content, and approved the final version to be published. Z. M. Sanchez contributed to the study conception, data analysis and interpretation, and writing of the article, besides being responsible for all aspects of the study regarding ensuring its accuracy and the completeness of all parts, and approved the final version to be published.

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Resumo

Os objetivos deste estudo foram descrever a prevalência de consumo excessivo de álcool (binge drinking) e outros padrões de consumo e analisar as características sociodemográficas associadas ao consumo excessivo de álcool em adolescentes brasileiros de 15 a 17 anos. Nesta pesquisa domiciliar transversal, 2.315 adolescentes da Pesquisa Nacional de Saúde de 2019 responderam a um questionário sobre o consumo excessivo de álcool (frequência semanal, dose média consumida em um dia e consumo excessivo de álcool). Foram realizados uma análise descritiva do consumo de álcool por características sociodemográficas e um modelo de regressão logística multivariável. A prevalência de consumo excessivo de álcool nos últimos 30 dias foi de 8,1% (IC95%: 6,2-10,3). Os adolescentes que não frequentavam a escola (OR = 2,8; IC95%: 1,6-5,0) apresentaram maiores chances de consumo excessivo de álcool do que os alunos que frequentavam a escola. Um maior nível socioeconômico (medido por meio do escore de riqueza) também foi associado a maiores chances de consumo excessivo de álcool em comparação com adolescentes com menor nível socioeconômico (por exemplo, quintil 5 vs. quintil 1: OR = 2,9; IC95%: 1,1-7,7). Meninas tiveram menores chances (OR = 0,5; IC95%: 0,2-0,8) de consumo excessivo de álcool do que meninos. Observou-se uma alta prevalência de consumo excessivo de álcool entre adolescentes, principalmente entre meninos, que não frequentam a escola e com maior nível socioeconômico. O monitoramento de padrões de consumo de álcool em adolescentes pode fornecer informações importantes sobre políticas e ações para prevenção do consumo excessivo de álcool.

Álcool; Consumo Excessivo de Bebidas Alcoólicas; Adolescente; Inquéritos Epidemiológicos

Resumen

Los objetivos de este estudio fueron describir la prevalencia del consumo excesivo de alcohol (binge drinking) y otros niveles de consumo, así como analizar las características sociodemográficas asociadas al consumo excesivo de alcohol por adolescentes brasileños de entre los 15 y los 17 años. La encuesta domiciliar transversal aplicó un cuestionario sobre consumo excesivo de alcohol (frecuencia semanal, dosis promedio consumida al día y consumo excesivo de alcohol) a 2.315 adolescentes de la Encuesta Nacional de Salud de 2019. Se realizaron un análisis descriptivo del consumo de alcohol desde las características sociodemográficas y un modelo de regresión logística multivariada. La prevalencia de consumo excesivo de alcohol en los últimos 30 días fue del 8,1% (IC95%: 6,2-10,3). Los adolescentes que no asistían a la escuela (OR = 2,8; IC95%: 1,6-5,0) tenían más probabilidades de consumir alcohol en exceso que los estudiantes que asistían a la escuela. El mayor nivel socioeconómico (medido por la escala de riqueza) también se asoció con mayores probabilidades de consumir alcohol en exceso en comparación con los adolescentes con un nivel socioeconómico más bajo (por ejemplo, quintil 5 vs. quintil 1: OR = 2,9; IC95%: 1,1-7,7). Las mujeres tenían menos probabilidades (OR = 0,5; IC95%: 0,2-0,8) de consumir alcohol en exceso que los varones. Se encontró una alta prevalencia de consumo excesivo de alcohol entre los adolescentes, especialmente entre los varones, que no asistían a la escuela y con un nivel socioeconómico más alto. El seguimiento de los niveles de consumo de alcohol en adolescentes puede aportar información importante para las políticas o acciones destinadas a la prevención del consumo excesivo de alcohol.

Alcohol; Consumo Excesivo de Bebidas Alcoólicas; Adolescente; Encuestas Epidemiológicas

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