

Harmful alcohol consumption and associated factors in riverine communities

Consumo prejudicial de álcool e fatores associados em populações ribeirinhas

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ABSTRACT

Objective: to identify the prevalence of harmful alcohol consumption and its associated factors among residents of riverine communities in the state of Paraíba, Brazil. **Method:** cross-sectional, analytical study of 250 residents of riverine communities in Paraíba, from June to October 2019. Bivariate and multiple logistic regression was used for data analysis. **Results:** the prevalence of harmful alcohol consumption (AUDIT ≥ 8) was 30.4% (95%CI 24.7-36.1). The residents of riverine communities who were most likely to harmful use of alcohol were those who use illicit drugs (OR=3.70; 95%CI 1.97-6.96) and tobacco (OR=2.80; 95%CI 1.51-5.21). **Conclusion:** residents of riverine communities had a high prevalence of harmful alcohol consumption, which brings the need to adopt prevention and health promotion strategies regarding the harmful use of alcohol and its consequences for the health of this population.

Descriptors: Alcohol Drinking; Prevalence; Vulnerable Populations; Risk Factors; Cross-Sectional Studies.

RESUMO

Objetivo: identificar a prevalência do consumo prejudicial de álcool e seus fatores associados entre os ribeirinhos do estado da Paraíba, Brasil. **Método:** estudo transversal e analítico realizado com 250 moradores de comunidades ribeirinhas da Paraíba, no período de junho a outubro de 2019. Regressão logística bivariada e múltipla foi utilizada para análise dos dados. **Resultados:** a prevalência do consumo prejudicial de álcool (AUDIT ≥ 8) foi de 30,4% (IC95% 24,7-36,1). Ribeirinhos com maiores chances de apresentarem um uso prejudicial de álcool foram os que fazem uso de drogas ilícitas (OR=3,70; IC95% 1,97-6,96) e de tabaco (OR=2,80; IC95% 1,51-5,21). **Conclusão:** os ribeirinhos apresentaram uma alta prevalência de consumo prejudicial de álcool, o que torna necessária a adoção de estratégias de prevenção e promoção da saúde quanto ao seu uso nocivo e a suas consequências à saúde da população ribeirinha.

Descritores: Consumo de Bebidas Alcoólicas; Prevalência; Populações Vulneráveis; Fatores de Risco; Estudos Transversais.

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INTRODUCTION

Excessive alcohol consumption represents a public health concern worldwide, as it is considered an important risk factor for the increase in disabilities and the mortality rate⁽¹⁾. Worldwide, the harmful use of alcohol causes three million deaths a year, representing 5.3% of all deaths, and about 5.1% of the global burden of disease and injuries⁽²⁾. In addition, it can cause damage in the social, labor and economic spheres, such as violence, homicide, traffic and work accidents⁽³⁾.

According to the latest global report on alcohol and health⁽¹⁾, the frequency of heavy episodic drinking (consumption of 60g of pure alcohol on a single occasion) in the entire world population decreased from 22.6% in 2000 to 18.2% in 2016. However, in sub-Saharan countries, Australia and some South American countries such as Brazil, excessive alcohol consumption occurs at high rates (45-60%) compared to other locations.

In Brazil, the National Health Survey carried out in 2019 showed a prevalence of alcohol abuse of 17.1%, occurring mainly in capital cities (19.1%)⁽⁴⁾. In a national survey carried out in the 27 capitals through the Surveillance of Risk Factors and Protection for Chronic Diseases by Telephone Survey (Portuguese acronym: VIGITEL), a frequency of alcohol abuse of 18.8% in 2019 was found⁽⁵⁾.

In this context, given the different patterns of alcohol consumption and the damage they cause to the health of individuals if used in excess, the World Health Organization (WHO) defines three types of alcohol consumption patterns: risky use, harmful and addictive. They are characterized, respectively by consumption that increases the possibility of harm to users, by ingestion that results in physical or mental damage, and by a severe consumption pattern characterized by the presence of physiological, behavioral and cognitive signs and symptoms arising from excessive consumption⁽⁶⁾.

Furthermore, there have been more studies on the pattern of alcohol consumption, as it is essential to recognize the variability of ways of drinking in different socioeconomic contexts and specific population segments, especially in vulnerable populations⁽⁷⁾. This vulnerability is linked to social, economic and cultural factors that result in social inequalities and make individuals and groups exposed to certain health problems⁽⁸⁾ by the adoption of risky behaviors. Vulnerable populations have unfavorable sociodemographic and economic characteristics that increase the risks or effects of harmful alcohol consumption^(3,7), such as low access to information and resources or difficulty in adopting protective behaviors.

Residents of riverine communities who have an urban way of life stand out among vulnerable populations. Their houses are located on the banks of rivers that cut through cities in a space of subnormal agglomerates⁽⁹⁾. These people face multidimensional restrictions related to low education,

low income, poor housing and basic sanitation conditions, in addition to restricted access to health services⁽¹⁰⁾. Therefore, they face factors that contribute to the practice of health risk behaviors, including alcohol consumption.

However, data on alcohol consumption in riverine communities are incipient. In the meantime, knowing the pattern of alcohol consumption in this group and identifying potential social, economic and behavioral factors associated with the harmful and dangerous use of alcohol can favor the planning of health interventions and preventive actions to reduce this harmful use and the damages especially among vulnerable populations.

Thus, the aim of the present study was to identify the prevalence of harmful alcohol consumption and its associated factors among residents of riverine communities in the state of Paraíba, Brazil.

METHODS

Cross-sectional, analytical study conducted with residents of riverine communities in the state of Paraíba (Brazil), who have their homes located on the banks of the main rivers that cut through the urban area, arranged in subnormal agglomerate occupations.

A population of 11,498 inhabitants of riverine communities was considered for sample calculation, with a 95% confidence interval, a desirable margin of error of 5.9% and an estimated prevalence of harmful use of alcohol of 35.2% among this population⁽¹¹⁾. Thus, the sample needed to compose the study was of 247 individuals. Considering the possible losses, the sample was completed in 250 residents of riverine communities.

The following inclusion criteria were adopted: residents of riverine communities aged 18 years or over, excluding those who had more than one residence, at least one of which was not located in the riverine community investigated. The selection of participants was by convenience (non-probabilistic).

The operationalization of the study was coordinated through family health teams of the community with support of Community Health Agents (CHA). These professionals made prior contact with all eligible residents of riverine communities inviting them to participate in the study. Those who accepted to participate were informed about the importance of the study, the objectives, risks and benefits of participation, and about the freedom to withdraw at any time. In this context, from June to October 2019, data were collected in a support place structured within the community itself or at the Family Health Center.

Information was collected through individual interviews in a private environment by previously trained postgraduate and undergraduate students and health professionals (nurses). A structured instrument developed by the researchers,

containing questions about sociodemographic data, habits related to smoking and use of illicit drugs, and history of imprisonment was used in the interview, in addition to the Alcohol Use Disorders Identification Test (AUDIT).

The AUDIT is an instrument developed by the WHO⁽⁶⁾ with a validation process in Brazil⁽¹²⁾. It is used to measure the pattern of alcohol use by an individual in the prior 12 months, that is, if it is an experimental, sporadic, frequent and heavy use, up to the degree of dependence. The AUDIT consists of ten questions with a margin of 0 to 4 and a final score of 0 to 40 points. According to the scores achieved, there is a subdivision into four patterns of alcohol consumption: low-risk use (0 to 7 points); excessive use (8 to 15 points); harmful use (16 to 19 points) and likely dependence (20 or more points). Residents of riverine communities who obtained scores from 0 to 7 were considered low-risk consumers, and those with results equal to or above 8 were considered as harmful and dangerous alcohol consumers, including those with a problematic use and/or dependence.

The harmful alcohol consumption according to the AUDIT score (AUDIT \geq 8 points) was considered as dependent variable. The following were considered as independent variables: sex (male and female), age (18 to 39 years, 40 to 59 years, \geq 60 years), education (up to eight years of study and over eight years of study), marital status (married/common-law marriage and single/divorced/widowed), monthly income (up to one minimum wage and above one minimum wage), use of illicit drugs in the prior 12 months (yes and no), current smoker (yes and no) and history of prison (yes and no).

Collected data were entered into a Microsoft Excel 2010 spreadsheet and imported into the SPSS version 20.0 to perform statistical analyzes. Descriptive analysis was performed by means of absolute and relative frequency distribution. The prevalence of harmful alcohol consumption was calculated with a 95% confidence interval (95% CI) using the binomial proportion method.

The bivariate analysis of the logistic regression model was used to estimate the Odds Ratio (OR) with 95% CI in order to investigate the association between the variables; those that presented $p < 0.25$ were simultaneously included in the logistic regression model by the stepwise method. The Variance Inflation Factor (VIF) test was used to check multicollinearity. A significance level of $p \leq 0.05$ was adopted.

All steps of the study were in accordance with the ethical precepts that guide research involving human beings as established in Resolution number 466/2012 of the National Health Council of Brazil. For all individuals who wished to participate, the Informed Consent form was presented for reading and signing. The study was approved by the Research Ethics Committee of the Universidade Federal da

Paraíba under opinion number 3.340.273/2019 and CAAE: 13419819.3.0000.5188.

RESULTS

Two hundred fifty (250) residents of riverine communities participated in the study, among which the female sex (68.0%), age between 18 and 39 years (43.2%), mean age of 43 years (SD=15 .8), married or in a common-law marriage (64.0%), with up to eight years of study (62.0%) and a monthly family income of up to one minimum wage (51.2%) predominated (Table 1).

Table 1. Sociodemographic characteristics of residents of riverine communities in Paraíba, Brazil, 2019 (n=250).

Variables	n	%
Sex		
Male	80	32.0
Female	170	68.0
Age (years)		
18 to 39	108	43.2
40 to 59	98	39.2
\geq 60	44	17.6
Marital status		
Married/common-law marriage	160	64.0
Single/divorced/widowed	90	36.0
Schooling (years)		
\leq 8 years of study	155	62.0
$>$ 8 years of study	95	38.0
Monthly income		
\leq 1 minimum wage	172	68.8
$>$ 1 minimum wage	78	31.2
Total	250	100.0

Source: survey data, 2019.

The prevalence of harmful alcohol consumption, AUDIT score category \geq 8 points (Zone II to IV), was 30.4% (95%CI 24.7-36.1). The mean AUDIT score was 4.9 and the extreme ranged from 0 to 27 points. The pattern of alcohol consumption presented by residents of riverine communities is shown in Table 2.

In bivariate analysis, sex, use of illicit drugs and smoking were the variables statistically associated with harmful alcohol consumption ($p \leq 0.05$; AUDIT \geq 8; Zones II to IV), as shown in Table 3.

In the multiple analysis model, residents of riverine communities who use illicit drugs (OR=3.70; 95%CI 1.97-

6.96; $p < 0.001$) and smoke (OR=2.80; 95%CI % 1.51-5.21; $p = 0.001$) are approximately four and three times more likely to harmful alcohol consumption, respectively, as shown in Table 4.

DISCUSSION

In urban riverine communities, people live on the banks of rivers and are characterized by a space of subnormal agglomerates arranged in minimal housing conditions⁽⁹⁾. Among study participants, there was a predominance of female residents of riverine communities aged between 18 and 39 years with up to eight years of study and income of up to one minimum wage per month.

Table 2. Classification of alcohol use by residents of riverine communities in Paraíba, Brazil, according to AUDIT, 2019 (n= 250).

AUDIT	n	%	IC 95%
Zone I (low risk use)	174	69.6	59.3-79.9
Zone II (excessive/risky use)	49	19.6	14.3-24.9
Zone III (harmful use)	15	6.0	3.2-8.8
Zone IV (probable dependence)	12	4.8	2.4-7.2
Total	250	100,0	

Source: survey data, 2019.

Notes: 95%CI: 95% confidence interval.

Table 3. Association between harmful alcohol consumption according to the AUDIT, and socioeconomic and behavioral variables of residents of riverine communities in Paraíba, Brazil, 2019 (n= 250).

Variables	Alcohol consumption pattern		p-value	Odds Ratio	95% CI
	AUDIT ≥ 8 n(%)	AUDIT < 8 n(%)			
Sex					
Male	33 (41.2)	47 (58.8)	0.011*	2.07	1.18-3.64
Female	43 (25.3)	127 (74.7)		1	
Age (years)					
18 to 39 years	37 (34.3)	71 (65.7)	0.014*	0.30	0.11-0.78
40 to 59 years	33 (33.7)	65 (66.3)	0.017*	0.31	0.11-0.81
≥ 60 years	6 (13.6)	38 (86.4)		1	
Schooling					
≤ 8 years of study	44 (28.6)	111 (71.6)	0.377	0.78	0.45-1.35
> 8 years of study	32 (33.7)	63 (66.3)		1	
Marital status					
Married/common-law marriage	46(28.8)	114(71.2)	0.450	0.80	0.46-1.40
Single/separated/widowed	30(33.3)	60(66.7)		1	
Monthly income					
≤ 1 minimum wage	53(30.8)	119(69.2)	0.830	1.06	0.59-1.91
> 1 minimum wage	23(29.5)	55(70.5)		1	
Use of illicit drugs in the prior 12 months					
Yes	34(55.7)	27(44.3)	<0.001*	4.40	2.39-8.11
No	42(22.2)	147(77.8)		1	
Smoking					
Yes	34(50.7)	33(49.3)	<0.001*	3.45	1.91-6.24
No	42(23.0)	141(77.0)		1	
History of imprisonment					
Yes	6(37.5)	10(62.5)	0.520	1.40	0.49-4.01
No	70(29.9)	164(70.1)		1	

Source: survey data, 2019.

Notes: 95%CI: 95% confidence interval. * $p \leq 0.05$.

Table 4. Multiple logistic regression analysis for harmful alcohol consumption in residents of riverine communities in Paraíba, Brazil. 2019.

Variables	Adjusted Odds Ratio	95% CI	p-value
Use of illicit drugs*^a			
Yes	3.70	1.97-6.96	<0.001**
No	1		
Smoking*^b			
Yes	2.80	1.51-5.21	0.001**
No	1		

Source: survey data, 2019.

Notes: 95%CI: 95% confidence interval. *Adjusted for sex, age, illicit drug use and smoking. ** $p \leq 0.05$; aVariance Inflation Factor (VIF): 1.269; bVariance Inflation Factor (VIF): 1.114.

These individuals are marked by socioeconomic inequality and health-related vulnerabilities, mainly due to the presence of risks for the use of alcohol and other drugs⁽¹⁰⁾. Given the weakness and scarcity of studies on alcohol consumption in this vulnerable group, research involving other vulnerable populations were considered for comparative analysis.

The study showed a high prevalence of harmful alcohol consumption in the riverine community, 30.4% (95%CI 24.7-36.1) compared to the general population and other vulnerable populations in Brazil. It is estimated that 4.2% of Brazilians meet criteria for disorders related to alcohol use and that 19.4% have the frequency of heavy episodic drinking⁽¹⁾. Furthermore, the National Health Survey carried out in 2019 showed a prevalence of alcohol abuse of 17.1%⁽⁴⁾.

The study of 1,697 individuals from a rural community in a municipality in the state of Rio Grande do Sul showed a prevalence considered to be low, 8.4% (AUDIT ≥ 8)⁽¹³⁾, compared to the population in the present study. The prevalence of 18.7% for harmful alcohol consumption identified in 270 individuals living in the hinterland of the state of Bahia⁽¹⁴⁾ was also lower than figures in the present study.

On the other hand, in a study of 340 residents of riverine communities in the municipality of Coari, Amazon region, was observed a prevalence of 35.2%⁽¹¹⁾, similar to that found in the present study.

Some investigations show that social and economic factors, such as low educational level and low income can be strongly associated with harmful and dangerous alcohol consumption⁽¹⁵⁻¹⁶⁾. This can be observed in the results of the present study, as most residents of riverine communities have up to eight years of study and a monthly income of up to one minimum wage. We can infer that this relationship

is associated with less access to information and resources. Thus, unconscious and inconsequential use can contribute to a greater consumption of alcohol and, consequently, more harmful effects on health.

As for the harmful consumption of alcohol and its association with the use of illegal drugs by residents of riverine communities, higher chances of harmful use were identified (OR=3.70; 95%CI 1.97-6.96; $p < 0.001$). Note that marijuana (21.6%), cocaine (7.2%) and crack (4.0%) were the most self-reported drugs, which can be attributed to their greater availability, mainly of marijuana.

In the same direction, a study of individuals from fishing communities in Uganda also found an association between harmful alcohol consumption and the use of illicit drugs (OR=2.54; 95%CI:1.00-6.41)⁽¹⁷⁾. These studies show that individuals who use illicit drugs tend to have a potentially high risk for alcohol consumption^(15,17).

Such justification may be related to the sensation of neurological effects caused by the multiple use of psychoactive substances such as marijuana, cocaine and alcohol⁽¹⁸⁾. Contextual factors can also be related, such as living conditions, social inequality, conflicts and drug use by family members, as well as the availability of substances⁽¹⁹⁻²⁰⁾. The combination of these psychoactive drugs can contribute to higher chances of dependence, dysfunctional social and family relationships and the practice of violent behavior⁽²⁰⁾.

Another associated behavior seen as a risk factor for harmful alcohol consumption is smoking. The results of the study showed that among residents of riverine communities, being a smoker increases by approximately three times (OR=2.80; 95%CI 1.51-5.21; $p = 0.001$) the chances of harmful use of alcoholic beverages. Similarly, studies of 797 *quilombola* populations in Brazil⁽²¹⁾ and of 1,281 people from fishing communities in Uganda⁽¹⁷⁾ also showed a strong association between alcohol consumption and smoking, (OR=4.79; 95%CI 3, 38-6.78) and (OR=4.45; 95%CI 2.84-6.97), respectively.

The use of alcohol and tobacco is seen as a socially accepted and pleasurable association all over the world, so much so that in Brazil, advertisements of alcoholic beverages are constantly shown and there is easy access to these two legal drugs. Environmental, cultural and social characteristics can be considered common causes for this addiction as well. Research indicates that groups experiencing vulnerabilities such as low education, unemployment, homelessness and financial stress have the highest rates of smoking and excessive alcohol consumption⁽²²⁾.

Furthermore, seasonal variations such as river floods⁽²³⁾ can influence alcohol consumption behaviors in the study population. Before the rainy season, men from urban riverine communities begin collective work in which they lift the furniture and try to reinforce the structure of the houses so

as to have greater safety and less material loss. This work can encourage social relationships, changes in daily life, financial stress, and the use of alcoholic beverages and other substances.

The actions to combat alcohol must be known and applied considering the consumption patterns of the population and their life context. In this study, around 30.4% consume alcohol in a harmful way, and strategies such as health education, monitoring of these individuals and careful assessment of probable dependence should be implemented. In this context, we highlight the importance of taking social and environmental characteristics into account for an effective health intervention. In the scope of primary health care, nurses have a fundamental role in actions of diagnosis, assessment and monitoring of individuals regarding the use of alcoholic beverages and other substances.

Thus, for the effectiveness of any type of prevention program, access and interaction between health services and the population must be promoted, which can represent the greatest challenge for primary health care professionals when discussing the living conditions of residents of riverine communities.

Some methodological limitations may be indicated: the cross-sectional study does not allow establishing causal relationships, which requires caution when interpreting data; a possible memory, response and underestimation bias in the reference to alcohol consumption, especially regarding the intake of high doses, given the social and moral restriction regarding this behavior. Interviews were performed individually in a private environment with the guarantee of data confidentiality in order to reduce this bias.

CONCLUSION

The results showed a high prevalence of harmful alcohol consumption among residents of riverine communities and that using illicit drugs and tobacco increased the chances of these individuals adopting a dangerous use. Thus, it is necessary to assess the impact of public policies and prevention programs related to the use of alcohol in different population groups, especially in vulnerable populations.

Residents of riverine communities need comprehensive care in the context of prevention and health promotion actions regarding the risky consumption of alcohol and its health consequences, especially greater attention from professional nurses, given the need for individual and context assessment of alcohol users in vulnerable areas and populations.

We reinforce the need for the active and coordinated involvement of civil society, managers, researchers, professionals and health services in order to achieve the World Health Organization's target of reducing by 10% the harmful consumption of alcoholic beverages until 2025.

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