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Research Article

Use of alcohol associated with mental disorders in adult men

Uso de álcool associado aos transtornos mentais em homens adultos

Uso de alcohol asociado con trastornos mentales en hombres adultos

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Abstract

Introduction: From the point of view of public health, the adult male population is vulnerable to alcohol use and its consequences. Early detection and the search for associated factors are necessary, and the Family Health Units are important places for this approach. **Objective:** This study aimed to identify the use of alcohol in adult men and to verify its association with socioeconomic and demographic factors and mental disorders (major depressive episode and generalized anxiety disorder). **Methods:** A cross-sectional analytical study was carried out on adults aged 20 to 59 years in the city of Piracicaba, Brazil, registered in Family Health Units in the year 2018. After descriptive analyses, variables with p<0.20 in simple analyses were studied in multiple negative binomial regression models. According to the final model, the adjusted ratios of means were estimated with 95% confidence intervals. **Results:** There was a high prevalence of alcohol consumption (26.9%) in the study population. Alcohol Use Disorders Identification Test (AUDIT) score increased with age (ratios of means – RoM=1.02; confidence interval – 95%CI 0.99–1.03). Concerning religion, Protestants and Evangelicals had an average AUDIT score lower than other religions (RoM=1.78; 95%CI 1.14–2.79). People with mental disorders have an average AUDIT score higher than those without disorders (RoM=2.30; 95%CI 1.28–4.11). **Conclusions:** The authors conclude that alcohol in the adult male population is prevalent, with consumption increasing with age; religion has a protective effect, and people with depression and anxiety are more likely to use it. Taking this into consideration, it is worth highlighting the importance of Family Health Units in the development of strategies to monitor the risk conditions of its population as well as the discussion and approach of interventions.

Keywords: Alcohol; Adult; Primary Health Care; Depression; Anxiety.

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Resumo

Introdução: Do ponto de vista da saúde pública, a população masculina adulta mostra-se vulnerável ao uso de álcool e as suas consequências. A detecção precoce, assim como a busca por fatores associados são necessárias e as unidades de Saúde da Família são importantes locais para esta abordagem. **Objetivo:** Este estudo teve como objetivo identificar o uso de álcool em homens adultos e verificar sua associação com fatores socioeconômicos, demográficos e transtornos mentais (episódio depressivo maior e transtorno de ansiedade generalizada). **Métodos:** Foi realizado um estudo transversal em adultos de 20 a 59 anos do município de Piracicaba, cadastrados nas Unidades de Saúde da Família (USF) no ano 2018. Após análises descritivas, as variáveis com p<0,20 nas análises simples foram estudas em modelos de regressão binomial negativa múltipla. Pelo modelo final, estimaram-se as razões de médias ajustadas com os intervalos de 95% de confiança. **Resultados:** Observou-se prevalência de 26,9% de consumo de álcool na população estudada. O escore do *The Alcohol Use Disorders Identification Test* (AUDIT) apresentou relação direta com a idade (razões de médias — RM=1,02; intervalo de confiança — IC95% 0,99–1,03). Quanto à religião, protestantes e evangélicos apresentaram escore médio de AUDIT menor que os demais (RM=1,78; IC95% 1,14–2,79). Pessoas com transtorno mental apresentam escore médio de AUDIT maior que os sem transtorno (RM=2,30; IC95% 1,28–4,11). **Conclusões:** Concluímos que o consumo de álcool na população adulta masculina é bastante prevalente, que seu consumo aumenta com a idade, que a religião tem efeito protetor e que pessoas com depressão e ansiedade apresentam maior propensão ao uso. Com base nesses dados, destacamos a importância da USF no desenvolvimento de estratégias que rastreiem as condições de risco de sua população, bem como discutam abordagens e possíveis intervenções.

Palavras-chave: Álcool; Adulto; Atenção primária; Depressão; Ansiedade.

Resumen

Introducción: Desde el punto de vista de la salud pública, la población masculina adulta es vulnerable al consumo de alcohol y sus consecuencias. La detección precoz, así como la búsqueda de factores asociados son necesarios y las unidades de Salud de la Familia son lugares importantes para ese abordaje. **Objetivo:** Este estudio tuvo como objetivo identificar el uso de alcohol en hombres adultos y verificar la asociación con trastornos socioeconómicos, demográficos y mentales (episodio depresivo mayor y trastorno de ansiedad generalizada). **Métodos:** Se realizó un estudio analítico transversal en adultos de 20 a 59 años de edad en la ciudad de Piracicaba registrados en las Unidades de Salud Familiar en el año 2018. Después de los análisis descriptivos, se estudiaron las variables con valor p<0,20 en análisis simples en modelos de regresión, binomio negativo múltiple. El modelo final estimó las razones medias ajustadas con los intervalos de confianza del 95%. **Resultados:** Hubo una alta prevalencia de consumo de alcohol, 26,9%. El puntaje AUDIT aumentó con la edad (RM=1,02; IC95% 0,99–1,03). Los protestantes y los evangélicos tuvieron un puntaje promedio de AUDIT más bajo que otras religiones (RM=1,78; IC95% 1,14–2,79). Las personas con trastornos mentales tienen un puntaje AUDIT promedio más alto que aquellos sin trastornos (RM=2,30; IC95% 1,28–4,11). **Conclusiones:** Concluimos que el alcohol en la población masculina adulta es prevalente, con la edad hay un aumento en el consumo, la religión tiene un efecto protector y que las personas con depresión y ansiedad tienen más probabilidades de usarlo, destacando la importancia de la USF en el desarrollo de estrategias que rastrean las condiciones población, así como la discusión y el enfoque de las intervenciones.

Palabras clave: Alcohol; Adultos; Atención primaria; Depresión; Ansiedad.

INTRODUCTION

From the point of view of public health, the global burden related to alcohol consumption, in terms of morbidity and mortality, is considerable in most of the world, accounting for 58.3 million years lost due to ineptitude and 3.3 million deaths, in addition to 5.9% of the overall mortality due to diseases attributable to alcohol intake.[1]

Alcohol is the main risk factor for death in men aged 15 to 59 years, accounting for 7.6% of deaths.[2] On average, alcohol consumption in the American continent is 50% higher than the global level of consumption. Countries, such as Brazil, Chile, and Mexico, have a relatively high proportion of teetotalers, but the per capita consumption rate of drinkers is considerably higher than the world's population average.[3]

It is estimated that 43% of the population consumed alcoholic beverages in the last 12 months. In Brazil, among the 40% of Brazilians who drank in the last 12 months, men are the majority (54% versus 27.3% of women).[1] More comprehensive epidemiological studies on alcohol use in the Brazilian population were conducted by the Brazilian Center for Information on Psychotropic Drugs (Centro

Brasileiro de Informações sobre Drogas Psicotrópicas – CEBRID). In the 1st Household Survey, in 2001, the prevalence of alcohol dependence in the general population was 11.2%, and even higher for men, 17.1%.[4] In the 2nd Household Survey, in 2005, the estimation of alcoholics was 12.3%, being 19.5% among men.[5] Regarding the regular consumption of alcoholic beverages (minimum of three times a week, including those who drink daily), 9.1% of men and 1.7% of women do so, totaling 5.2% as for the number of individuals who drink regularly.[6] Alcohol abuse, defined as the consumption of four or more alcoholic drinks for women and five or more drinks for men, on the same occasion, in the last 30 days, presented a rate of 17.9%, being more frequent in men (26%).[7] Overall, there is a causal relationship between alcohol consumption and more than 60 types of diseases and injuries. Alcohol is estimated to account for 20 to 30% of the causes of esophageal and liver cancer, homicides, and accidents worldwide.[2] Researches of the Epidemiologic Catchment Area Study (ECA) have shown that about half of individuals diagnosed with alcohol dependence and dependence on other substances, according to criteria of the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV), have an additional psychiatric diagnosis: 26% have mood disorders; 28%, anxiety disorder; 18%, antisocial personality disorders; and 7%, schizophrenia. There is a clear and consistent association between alcohol dependence and depressive disorders. One of the greatest difficulties in approaching patients with these comorbidities is the differential diagnosis, as there is a superposition of symptoms. One disorder can exacerbate or mask the other.[8]

Considering this scenario, in which the adult male population is vulnerable to alcohol use and its consequences, early detection, as well as the search for associated factors, are necessary. The aim of this study was to identify alcohol use in adult men and to verify the association with socioeconomic variables and mental disorders (major depressive episode and generalized anxiety disorder).

METHODS

The study was conducted in accordance with the Ethical Standards and Guidelines of Resolution No. 510/2016 of the National Health Council of the Brazilian Ministry of Health, and it was submitted to the Research Ethics Committee (CEP) of the School of Dentistry at Piracicaba from Universidade Estadual de Campinas. After approval by the CEP, the research was initiated upon signing of the Informed Consent Form (ICF), under the number of the Certificate of Presentation for Ethical Appreciation (CAAE): 86700618.7.0000.5418.

A cross-sectional study was conducted with adult men, aged 20 to 59 years, registered in the coverage areas of the Family Health Units (FHU) of a medium-sized municipality in the state of São Paulo, Brazil. The population of the municipality consists of approximately 339,419 inhabitants, among them 103,810 men aged 20 to 59 years (IBGE, 2010). According to a technical note from the Department of Primary Health Care, the public health network is composed of 52 FHU, with coverage of 68% of the population. First, ten ICF were sent to the FHU, totaling 520. Men were randomly invited to participate, on a voluntary basis and with the right to withdraw from the research at any time. The participants were approached by the FHU teams on their way to the units, where they were invited to participate in the research and, upon accepting to participate, they would fill out the ICF. Subsequently, with the telephone numbers reported in the ICF, contacts were made for the application of the questionnaires. The research was carried out only by telephone, in a single step, corresponding to data collection, with the application of three research instruments. Initially, a pilot

study was conducted at the Chapadão FHU to train and calibrate the two researchers who assisted in the research.

For the socioeconomic and demographic context, data from the modified socioeconomic questionnaire of Meneghim et al.,[9] with data on age, marital status, education level, housing, profession of the head of the family, family economic status, employment status, patient with chronic disease under follow-up, use of healthcare service, and religion were used.

The alcohol use pattern was assessed by the Alcohol Use Disorders Identification Test (AUDIT). This instrument presents four classification levels indicative of the severity of the habit, also called "risk" zones:

1. Zone I (scores 0–7): abstinence/low-risk drinking;
2. Zone II (8–15): hazardous alcohol use;
3. Zone III (16–19): harmful alcohol use; and
4. Zone IV (20–40): possible alcohol dependence.[10-12]

AUDIT scores above 8 were considered.[13]

The major depressive episode and generalized anxiety disorders were diagnosed using the Mini-International Neuropsychiatric Interview (MINI), a brief standardized diagnostic interview, compatible with the criteria of the DSM-III-R/IV and the International Classification of Diseases (ICD-10), which initially contains the filter questions corresponding to the main criteria of the disorder, and other criteria that can be considered to make the diagnosis.[14]

A total of 252 ICF were signed and had telephone contact information. The final sample consisted of 227 participants, as there was a sample loss due to withdrawal from participation in the research or telephone contacts with incorrect numbers or that were disconnected.

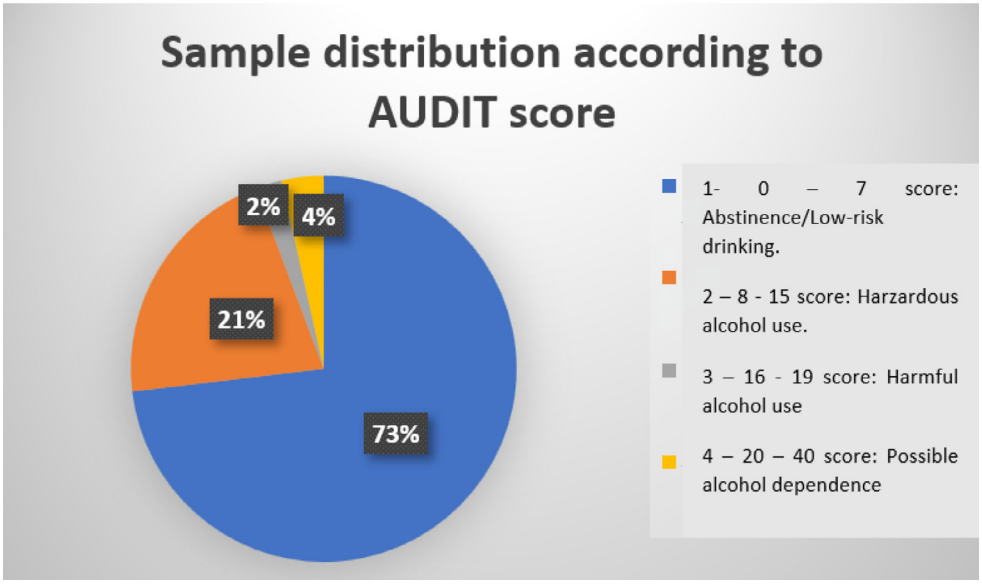
A *post hoc* analysis was performed considering this sample, with 5% significance level (α=0.05%) and 11 independent variables, resulting in test power above 80% (β=0.20) for the independent variable "presence of disorder" (effect size=0.33). This sample size also met the need for 15 to 20 participants per independent variable in the multiple regression model. The estimations were performed with the aid of the R and GPower programs.

Initially, descriptive analyses of the data were performed. Subsequently, the relationships between each independent variable and the outcome variable (alcohol consumption by AUDIT) were analyzed by simple negative binomial regression models, estimating the crude ratios of means with the 95% confidence intervals. Variables with $p<0.20$ in simple analyses were studied in multiple negative binomial regression models. According to the final model, the adjusted ratios of means were estimated with 95% confidence intervals. The model adjustment was evaluated by the Akaike Information Criterion (AIC). The analyses were performed in the R program.

RESULTS

Of the 227 participants, 61 had an AUDIT score above 8 (hazardous use, harmful use, and likelihood of alcohol dependence), i.e., the prevalence was 26.9%. The distribution according to the AUDIT score is presented in Graph 1.

Table 1 shows that 66.1% of men were married and most had education level up to high school (86.4%) and income up to BRL 2,811.00 (63.9%). The mean age of the sample was 40.7 years, with a standard deviation of 12.1 years. According to the diagnosis by MINI, 36.1% had depression, anxiety, or both.



AUDIT: Alcohol Use Disorders Identification Test
Graph 1. Sample distribution according to the Alcohol Use Disorders Identification Test score.

Table 1. Descriptive analysis of the sample profile.

Variable	Category	n (%)
Marital status	Single	60 (26.4)
	Married	150 (66.1)
	Widower	2 (0.9)
	Separated/Divorced	15 (6.6)
People in the family	Up to 2	52 (22.9)
	3	75 (33.0)
	4	63 (27.8)
	5	29 (12.8)
	6	6 (2.6)
	Over 6	2 (0.9)
Education level	Illiterate	3 (1.3)
	1st to 4th grade of Elementary School	29 (12.8)
	5st to 8th grade of Elementary School	68 (30.0)
	High School degree	96 (42.3)
	Some college	14 (6.2)
	College degree	10 (4.4)
	Specialization Degree	7 (3.1)
Housing	Own house, payed off	144 (63.4)
	Own house, with home loan	26 (11.4)
	Granted by parents or relatives	8 (3.5)
	Granted in exchange for work	1 (0.4)
	Rented house	47 (20.7)
	Granted for having no place to live	1 (0.4)

Continue…

Table 1. Continuation.

Variable	Category	n (%)
Occupation	Self-employed professional and medium-sized business owner	5 (2.2)
	Employee in higher-level occupations	9 (4.0)
	Small-sized business owner	13 (5.7)
	Employee in mid-level occupations	58 (25.6)
	Freelance professional	25 (11.1)
	Operational freelance professional	64 (28.2)
	Employee in auxiliary occupations	40 (17.6)
	Itinerant worker, seasonal harvester, temporary job	13 (5.7)
Family income	Up to BRL 937.00	24 (10.6)
	From BRL 937.00 to BRL 1,874.00	60 (26.4)
	From BRL 1,874.00 to BRL 2,811.00	61 (26.9)
	From BRL 2,811.00 to BRL 5,622.00	66 (29.1)
	From BRL 5,622.00 to BRL 7,496.00	8 (3.5)
	From BRL 7,496.00 to BRL 9,370.00	1 (0.4)
	Over BRL 9,370.00	7 (3.1)
Employment status	Unemployed	47 (20.7)
	Temporary job	51 (22.5)
	CLT employment contract	98 (43.2)
	Retired/BPC	31 (13.7)
Chronic disease	No	143 (63.0)
	Yes	84 (37.0)
Has used healthcare services	No	56 (24.7)
	Yes	171 (75.3)
Religion	Catholic	119 (52.4)
	Protestant/Evangelical	79 (34.8)
	Spiritist	2 (0.9)
	Other	4 (1.8)
	No religion	23 (10.1)
Disorder (MINI)	Negative	145 (63.9)
	Depression	13 (5.7)
	Anxiety	41 (18.1)
	Both	28 (12.3)
	Mean (standard deviation)	Median (minimum and maximum)
Age	40.7 (12.1)	41.0 (16.0–59.0)
AUDIT	4.4 (5.9)	2.0 (0.0–-36.0)

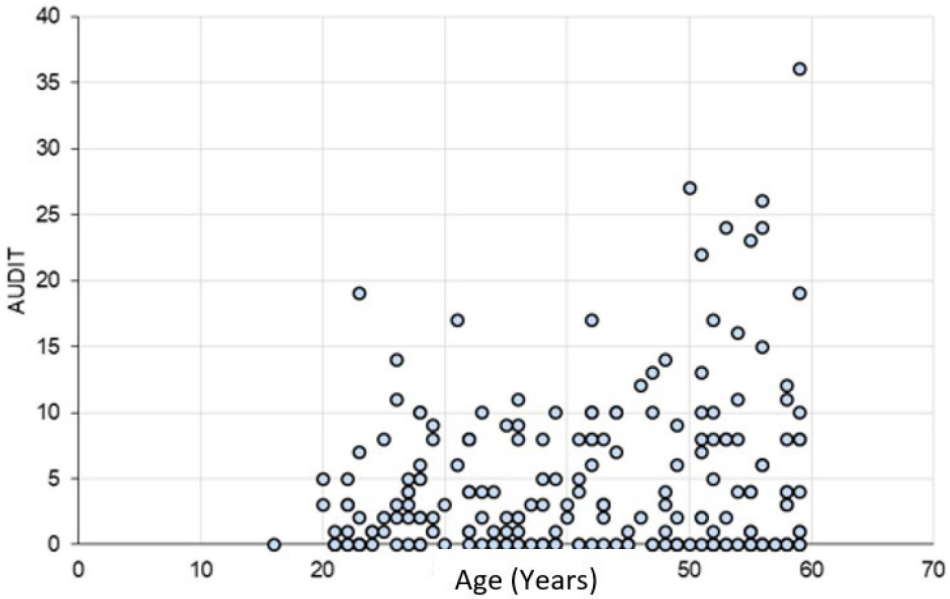
CLT: Brazilian Labor Regulations; BPC: Continuous Cash Benefit Program; MINI: Mini-International Neuropsychiatric Interview; AUDIT: Alcohol Use Disorders Identification Test

In Table 2 it can be observed that the AUDIT score increases with age (ratios of means — RoM=1.02; confidence interval — 95%CI 0.99–1.03) (Figure 1). Protestants and Evangelicals have an AUDIT score lower than followers of other religions. Catholics have an average AUDIT score higher than Protestants and Evangelicals (RoM=1.78; 95%CI 1.14–2.79), and adherents of other religions, such as Spiritists and those who follow religions other than Catholicism or who declare themselves as having no religion, also have an average AUDIT score higher than Protestants and Evangelicals (RoM=3.03; 95%CI 1.61–5.71) (Figure 2). In addition, people with depression and anxiety have a higher average AUDIT score than those without disorders (RoM=2.30; 95%CI 1.28–4.11) (Figure 3).

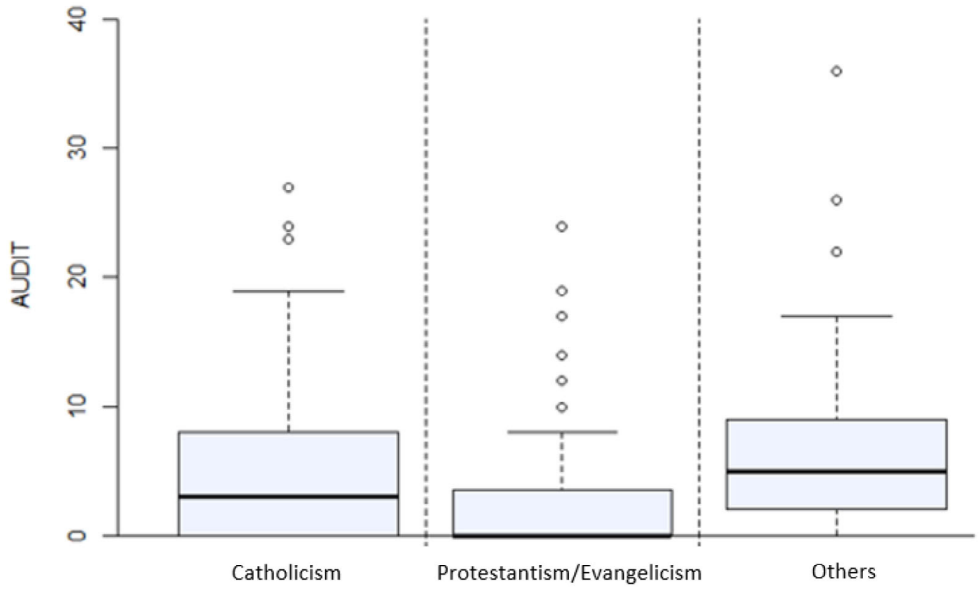
Table 2. Results of simple and multiple negative binomial regression analyses for alcohol consumption (according to the Alcohol Use Disorders Identification Test) and independent variables.

Variable	Category	Crude RoM (95%CI)	p-value	Adjusted RoM (95%CI)	p-value
Age		1.02 (1.01–1.04)	0.0027	1.02 (0.99–1.03)	0.0540
Marital status	Married	Ref			
	Single	1.25 (0.82–1.91)	0.2928		
People in the family		1.04 (0.87–1.25)	0.6603		
Education level		0.86 (0.73–1.02)	0.0952		
Housing	Own house, payed off	1.06 (0.70–1.61)	0.7657		
	Other	Ref			
Family income		1.06 (0.92–1.24)	0.4118		
Employment status	CLT employment contract	Ref			
	Other	1.26 (0.84–1.88)	0.2646		
Chronic disease	No	1.36 (0.90–2.06)	0.1382		
	Yes	Ref			
Has used healthcare services	No	Ref			
	Yes	1.04 (0.65–1.65)	0.8823		
Religion	Catholic	1.73 (1.12–2.66)	0.0128	1.78 (1.14–2.79)	0.0117
	Protestant/Evangelical	Ref		Ref	
	Others	2.74 (1.46–5.14)	0.0017	3.03 (1.61–5.71)	0.0006
Disorder (MINI)	Negative	Ref		Ref	
	Depression	1.72 (0.74–4.01)	0.2101	2.05 (0.89–4.74)	0.0925
	Anxiety	1.35 (0.80–2.29)	0.2622	1.46 (0.88–2.40)	0.1393
	Both	1.94 (1.06–3.54)	0.0319	2.30 (1.28–4.11)	0.0051

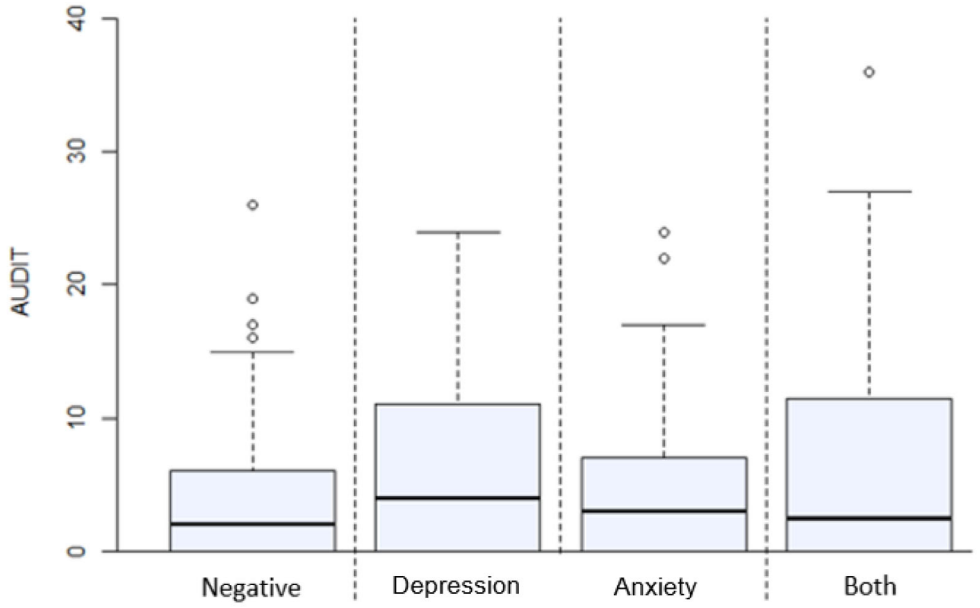
RoM: ratios of means; CI: confidence interval; Ref=reference category of independent variables; CLT: Brazilian Labor Regulations; MINI: Mini-International Neuropsychiatric Interview. Empty model (AIC=1,134.26); adjusted final model (AIC=1,119.65).



AUDIT: Alcohol Use Disorders Identification Test.
Figure 1. Scatter plot of the Alcohol Use Disorders Identification Test score (alcohol consumption) as a function of age.



AUDIT: Alcohol Use Disorders Identification Test.
Figure 2. Box plot of the Alcohol Use Disorders Identification Test score (alcohol consumption) as a function of religion.



AUDIT: Alcohol Use Disorders Identification Test.
Figure 3. Box plot of the Alcohol Use Disorders Identification Test score (alcohol consumption) as a function of disorders (Mini-International Neuropsychiatric Interview).

DISCUSSION

In the present study, a high prevalence of alcohol consumption (26.9%) was observed compared with other studies conducted on Brazilian adults who use Primary Health Care (PHC), which, for AUDIT scores greater than 8, had a prevalence of 22[15-17] to 17,6%.[18,19] Studies conducted in European countries to identify alcohol use of users of PHC services verified prevalence values between 15 and 17% in Italy, 8% in France, and 20% in the United Kingdom.[17]

The results showed an association between alcohol consumption and age, in which the AUDIT score increases over the years — a finding compatible with other studies in PHC that used the AUDIT instrument, considering the adult population.[4,15] In a survey conducted in the United States of America, which compared Latino men with Americans, the former have more freedom to drink, highlighting the difference of Latin American cultures. In Latin cultures, drinking is generally more integrated with activities and festivities and, mainly, the norms allow men to drink more.[3]

As for religion, the results showed that Catholics, Spiritists, followers of religions other than Evangelicism, and people who declare having no religion have an average AUDIT score higher than Protestants and Evangelicals. Regarding religious belief, studies have shown prevalence of alcohol abuse and dependence considerably lower among Evangelicals when compared with Catholics.[19] Religious practice can exert a protective effect on risk and dependence behavior, especially when related to cults that impose strict norms against the habit of drinking; hence, Protestant cults act as a protective factor when compared with the absence of religious affiliation.[20-22]

People with mental disorders have an average AUDIT score higher than those without disorders. Excessive alcohol consumption has been associated with a multitude of mental health conditions and a decline in quality of life among compulsive drinkers.[23-25] A study conducted in PHC found that mild to moderate alcohol consumption at the beginning of the research was associated with a lower incidence of depression and generalized anxiety disorder compared with abstinence, while excessive alcohol consumption was associated with a higher incidence of depression.[26] Excessive alcohol use is associated with an increased incidence of anxiety in men, but moderate use decreases this incidence in the general population.[27]

The current state of literature suggests that individuals with depression have lower quality of life and higher AUDIT scores than individuals without depression.[17] A study conducted on young French people demonstrated that alcohol is used to deal with depression, without predicting problems related to its use.[28]

Anxiety disorders can be a cause or consequence of alcohol dependence. The occurrence of comorbidities, such as depression, is associated with greater severity, disability, and worse response to alcohol dependence treatment.[29] According to the Brazilian guidelines for studies on alcohol and other drugs (*Associação Brasileira de Estudos do Álcool e outras Drogas* – ABEAD), there is a hypothesis that anxious individuals end up using alcohol as a form of self-medication, which in turn aggravates the primary anxiety disorder. Thus, premorbid anxiety disorders are deemed risk factors for the development of substance abuse and dependence; likewise, anxiety is a symptom that is part of abstinence syndrome and intoxication.[30]

As a limitation of this study, the cross-sectional design is highlighted; it is not possible to establish any type of causal relationship, which generates difficulty affirming whether the presented associations precede or follow the occurrence of the result. It is also worth highlighting the difficulties in the approach of users to the topic, the men's adherence to healthcare services, and the search for preventive care.

CONCLUSION

The authors conclude that alcohol use has a high prevalence in the adult male population. The increase in alcohol use is associated with both mental disorder and age, as well as religion, which acts as a protective factor. This knowledge is important for FHU to plan intervention strategies and actions to control consumption.

CONFLICT OF INTERESTS

Nothing to declare.

AUTHORS' CONTRIBUTIONS

CRM: Project administration, Data curation, Writing – original draft, Investigation. KLCM: Formal analysis, Conceptualization, Writing – review & editing, Methodology, Resources, Software, Supervision, Validation, Visualization. JVB: Project administration, Formal analysis, Conceptualization, Data curation, Writing – review & editing, Supervision, Validation, Visualization. LMG: Writing – review & editing, Supervision, Validation, Visualization. MCM: Formal analysis, Conceptualization, Methodology, Validation. ACP: Conceptualization, Methodology, Validation, Visualization.

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