Short communication

Alcohol consumption in late-life — The first Brazilian National Alcohol Survey (BNAS)

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ABSTRACT

To investigate the alcohol consumption in later life in Brazil and its association with socio-demographic characteristics. This study was a cross-sectional analysis of nationally representative survey data. A multistage cluster sampling procedure was used to select 3007 individuals of 14 years of age and older from the Brazilian household population. In this study we analyzed data from all 400 participants who were over 60 years old. Alcohol Abuse and Dependence Syndrome was established according to DSM-IV and Risky Drinking was defined in two ways: heavy drinkers (>7 drinks/week) and as binge drinkers (>3 drinks/one occasion). Twelve percent of participants reported heavy drinking behavior while 10.4% and 2.9% were binge drinkers and alcohol dependent respectively. In the adjusted logistic regression only gender was associated with heavy drinking behavior. Males, the youngest and the wealthiest were more likely to report binge drinking behaviors. In conclusion, alcohol related-problems are common but underecognized among older adults. Health professionals should be aware that common definitions of alcohol abuse and dependence may not apply as readily to older people, who have had biological changes for alcohol tolerance and its effects on the Central Nervous System.

1. Introduction

The prevalence of alcohol related disorders and binge drinking peak in early adulthood and decrease with age (Greenfield & Rogers, 1999; Grant et al., 2004). Patterns of alcohol consumption among the elderly tend to be less clinically expressed, with less public order offences, road traffic accidents and work related consequences (O'Connell, 2003). Nevertheless, there is growing evidence that alcohol use disorders are a significant public health problem for the elderly, they contribute to elevated mortality, morbidity and related health care costs (Moos, B. P., Schutte, & Moos, 2004). Recognition of alcohol abuse or dependence in the elderly provides a special challenge. As the body ages, tolerance to alcohol decreases and its effect on the central nervous system increases and recommended safe levels of alcohol intake for adults may be inappropriately used for the elderly (Johnson, 2000).

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Very few national representative samples have been conducted to study in detail patterns of alcohol consumption worldwide, particularly in developing countries. This study describes, for the first time, the pattern of alcohol consumption among elderly Brazilians using data from the first Brazilian National Alcohol Survey (BNAS).

2. Methods and analysis

2.1. Sample, setting and procedures

Brazil is the largest country in Latin America with a population of 169 million (www.ibge.gov.br/censo/divulgacao.shtm) (8.6% are aged 60 years and over). The BNAS was conducted by the Federal University of Sao Paulo's Unidade de Estudos de Alcool e Outras Drogas (UNIAD), between November 2005 and April 2006. A multistage cluster sampling procedure was used to select 3007 individuals of 14 years of age and older from the Brazilian household population. The sampling involved 3 stages: 1) selection of 143 counties using probability proportional to size methods (PPS); 2) selection of 2 census sectors for each county, with the exception of the 14 biggest selected counties, totaling 325 census sectors, also using PPS and 3) within each census sector 08 households were selected by simple random sampling, followed by the selection of a household member to be interviewed using the "the closest future birthday" technique. One-hour face to face interviews were conducted in the respondents home by trained interviewers using a standardized questionnaire. A total of 3007 interviews were carried out (response rate=66.4%). The analysis for this study is restricted to 400 participants who were 60 years and over. The Ethics Committee of the UNIFESP approved the project. All respondents granted their informed consent.

2.2. Measures

Alcohol Abuse and Dependence Syndrome was established according to DSM-IV using the Brazilian version of Composite International Diagnostic Interview (CIDI version 2.1) (Quintana, A. S., Jorge, Gastal, & Miranda, 2004). *Risky Drinking*: participants

Table 1
Characteristic of participants aged 60 and over (BNAS, 2006)

Variables	N (%) (n=400)
Socio-demographic	
Sex	
Male	161 (44.1)
Female	239 (55.8)
Age (years)	
60–69	245 (63.5)
70 and over	155 (36.5)
Marital status	
Single	30 (6.1)
Married	196 (59.8)
Widow	122 (24.8)
Separated/divorced	52 (9.3)
Education level	
Illiterate/primary school	353 (87.3)
Secondary school and above	47 (12.7)
Income (minimum salary)[a]	
<1.00	188 (73.6)
1.00 to 2.99	137 (21.0)
≥3.00	41 (5.4)
mv=36	
Cities (inhabitants)	
<200,000	327 (81.0)
≥200,000	73 (19.0)
Depression (CES-D)	
<16	183 (48.3)
≥16	202 (51.7)
mv=15	
Patterns of alcohol consumption	
Risky drinking	
Heavy drinker	44 (12.4)
Binge drinker	34 (10.4)
Alcohol dependency	10 (2.9)
Patterns of specific-beverage consumption (at least once a week)[b]	
Beer	35 (9.5)
Wine	19 (5.6)
Spirit	23 (7.2)

[a]Minimum salary (R$:380.00), mv: missing value.
[b]At least once or twice per week.

were classified according to their pattern of drinking as *heavy drinkers* (>7 drinks/week) and as *binge drinkers* (>3 drinks/one ocassion). These are considered Risky Drinking according to the Clinical Guideline for alcohol use disorders in older adults by the American Geriatrics Society(The American Geriatrics Society, 2003) Detailed information on patterns of alcohol drinking and type of beverages was also obtained. *Socio-demographic characteristics*: information on gender, age, education level, monthly personal income and living in cities. *Depression* was assessed using the Brazilian validated version of 20-item Center for Epidemiological Studies Depression Scale (CES-D), using the score 16 as the cut off point(Fleck et al., 2002).

2.3. Statistical analysis

Statistical analyses were conducted using STATA 9.2. Given the multistage stratified sampling design, all analyses were weighted to take account of differing selection probabilities at each stage. Appropriate STATA survey commands were used to generate robust standard errors. Unadjusted and adjusted odds ratios (OR) with 95% confidence intervals (CI) were calculated for the associations between the socio-demographics and depression with risky drinking and alcohol dependence.

3. Results

The mean age of participants was 67.9 (CI 95%: 67.2–68.7), most were women (55.8%), and married (59%). The mean age of drinking onset was 29.2 (CI 95%: 24.2–34.0). Regarding patterns of alcohol consumption, 12% were heavy drinkers, 10.4% binge drinkers and prevalence of alcohol dependence was 2.9%. Consumption of beer and spirits was higher than wine (Table 1).

In the univariate analysis, both heavy and binge drinking were more frequent among males. Binge drinking was more common among the young age groups (OR: 0.28; CI 95%: 0.11–0.68), those with higher educational level (OR: 3.00, CI 95%: 1.25–7.17) and with higher income (OR: 13.66, CI 95%: 4.23–44.10). Heavy drinking was more common among those who were single (OR: 0.13, CI 95%: 0.02–0.63). Participants with alcohol dependence were all men aged between 60 and 69 years and wealthier (OR=9.98; CI 95% 1.35–73.57 comparing those earning 3 or more minimum wages against those with less than one). Results from the adjusted logistic regression models showed that only gender was associated to heavy drinking behavior (Table 2). Gender, age and income were independently associated to binge drinking. Males, the youngest and the wealthiest were more likely to report binge drinking behaviors. Interestingly, depression was not independently associated to any risk drinking behaviors. Regarding alcohol dependence, there is an association with income equal or higher than 3.00 minimum wages (OR: 33.11; CI 95%: 1.26–86.45) and depression (OR: 6.97; CI 95%: 1.09–44.47).

Table 2
Adjusted logistic regression between risky drinking and socio-demographic characteristics and depression among participants aged 60 and over (BNAS, 2006)

| | Risky drinking[a] | |
	Heavy drinking	Binge drinking
Sex		
Female	1.00	1.00
Male	6.66 (2.40–18.44)	3.22 (1.29–8.03)
Age (years)		
60–69	1.00	1.00
≥70	0.69 (0.29–1.62)	0.34 (0.12–0.96)
Marital status		
Single	1.00	1.00
Married	1.14 (0.33–3.92)	0.89 (0.17–4.73)
Widow	0.26 (0.04–1.38)	0.43 (0.06–2.89)
Divorced/separated	0.86 (0.19–3.90)	0.47 (0.07–3.08)
Educational level		
Illiterate/primary school	1.00	1.00
Secondary school and above	1.82 (0.43–7.57)	2.22 (0.60–8.15)
Income (minimum wage)		
<1.00	1.00	1.00
1.00 to 2.99	0.70 (0.21–2.31)	1.13 (0.31–4.17)
≥3.00	4.32 (0.83–22.26)	12.83 (2.66–61.87)
Depression (CES-D)≥16		
No	1.00	1.00
Yes	0.59 (0.27–1.31)	1.72 (0.69–4.28)
City (habitants)		
<200,000	1.00	1.00
≥200,000	1.07 (0.33–3.49)	1.68 (0.51–5.52)

[a]Both heavy and binge drinking were adjusted mutually by gender, age, educational level, personal income, depression.

4. Discussion

This study shows that there is a high prevalence of alcohol dependence among Brazilians 60 years of age or older, and a substantial proportion of those in this age group engage in patterns of alcohol consumption that exceed suggested guidelines. Binge drinkers were more common among those aged 60 to 69 compared to those aged 70 and over and also among those with a better income. Interestingly, depression was associated with alcohol dependence but not associated with those engaged in risky drinking.

Prevalence of alcohol dependence in this study was higher than that found in recent epidemiological surveys in other countries, such as Ethiopia (Kebede and A. A., 1999), United States (Hasin, S. F., Ogburn, & Grant, 2007) and Finland (Pirkola, P. K., & Lonnqvist, 2006). Binge drinking prevalence among the elderly in the US is 3.1% (Naimi et al., 2003) and in a previous Brazilian study comparing urban and rural areas it was 15.4% and 5.7% respectively (Prais, Firmo, Lima-Costa, & Uchoa, 2008). Both studies have used a different definition of binge drinking: 5 drinks on one occasion rather than more than 3 drinks on one occasion suggested by the American Geriatrics Society and applied in our study. However, a recent study of the American Medicare Current Beneficiary Survey (MCBS) (Merrick et al., 2008), which used the same definition of binge drinking found a much lower prevalence (2.2%) than that reported in our study.

Previous studies have strongly demonstrated that male gender is associated with heavy drinking (Guerrini & Guazzelli, 2006) and binge drinking (Naimi et al., 2003) in the elderly, and age is inversely correlated with binge drinking. The present study supports this trend. Association with other socio-economic indicators and binge drinking seems to be inconsistent among the elderly (Ruchlin, 1997; Moore, Greendale, Damesyn, & Reuben, 1999). Ruchlin et al. (Ruchlin, 1997) observed that living in a large metropolis and having high level of schooling were positively associated with binge drinking among the elderly in the US.

Alcohol related-problems are common but underecognized among older adults. It can mimic symptoms of normal aging processes and exacerbate those that are part of age, such as difficulty in memory, social impairment and mental health concerns about anxiety and depression. Measures to increase detection of the problem in clinical setting are necessary. Health professionals should be aware that common definitions of alcohol abuse and dependence may not apply as readily to older people.

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