

Factors associated with alcohol consumption among public maintenance workers

Fatores associados ao consumo de álcool entre trabalhadores públicos da manutenção
Factores asociados al consumo de alcohol entre empleados públicos de mantenimiento

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Keywords

Alcohol-related disorders; Alcohol drinking; Workers; Occupational health; Occupational health nursing

Descritores

Transtornos relacionados ao uso de álcool; Consumo de bebidas alcoólicas; Trabalhadores; Saúde do trabalhador; Enfermagem do trabalho

Descriptores

Trastornos relacionados con alcohol; Consumo de bebidas alcohólicas; Trabajadores; Enfermería del trabajo

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Abstract

Objective: To analyze alcohol consumption among public maintenance workers and identify the associated sociodemographic factors.

Methods: This is a quantitative cross-sectional study conducted with the public maintenance workers of a university in the state of São Paulo, Brazil. Data were collected using a sociodemographic questionnaire and the Alcohol Use Disorders Identification Test (AUDIT).

Results: It was found that 78% of the workers had consumed alcoholic beverages in the last 12 months. Of these workers, 43% were low-risk consumers, 50% were heavy drinkers, and 7% showed a pattern of consumption that is indicative of dependency. Moreover, 54% reported they had four or more drinks and 82% reported they were binge drinkers. The factors associated with consumption were years of schooling, position, gender, income, and skin color, and the consumption of four or more doses was associated with the position of manual laborer.

Conclusion: It was identified that the prevalence of workers with "hazardous use" or "dependence symptoms" was greater (in descriptive terms) than the prevalence identified in a major national survey. Years of schooling was the most relevant demographic factor since the chances of "hazardous use" or "dependence symptoms" increased by 20% as each year of schooling decreased.

Resumo

Objetivo: Analisar o consumo de álcool entre trabalhadores públicos da manutenção e identificar os fatores sociodemográficos associados.

Métodos: Estudo quantitativo transversal, realizado com trabalhadores públicos da manutenção de uma universidade do interior do estado de São Paulo. Foi utilizado um questionário de dados sociodemográficos e o Teste para Identificação de Problemas Relacionados ao uso de Alcool (AUDIT).

Resultados: Identificou-se que 78% dos trabalhadores consumiram bebidas alcoólicas nos últimos 12 meses. Dentre os participantes não abstêmios, 43% apresentaram consumo de baixo risco, 50% eram bebedores abusivos e 7% se encontravam no padrão de consumo indicativa de dependência. Destaca-se que 54% referiram o consumo de quatro doses ou mais quando bebiam e 82% dos participantes referiram consumo em binge. Os fatores associados ao consumo foram anos de estudo, função, gênero, renda e cor e o consumo de quatro doses ou mais foi associado com a função de trabalhador braçal.

Conclusão: Identificou-se que a prevalência do consumo de trabalhadores no padrão "consumo abusivo ou provável dependência" foi maior (em termos descritivos) do que a identificada em um dos principais levantamentos nacionais. Os anos de estudo foi o fator sociodemográfico de maior relevância, uma vez que, cada ano a menos de estudo aumentava cerca de 20% as chances de "consumo abusivo ou provável dependência".

Resumen

Objetivo: Analizar el consumo de alcohol entre empleados públicos de mantenimiento e identificar los factores sociodemográficos asociados.

Métodos: Estudio cuantitativo transversal, con empleados públicos de mantenimiento de universidad del interior del Estado de São Paulo. Se aplicó cuestionario sociodemográfico y Prueba de Identificación de Trastornos Relacionados con el Consumo de Alcohol (AUDIT).

Resultados: El 78% de los empleados consumieron alcohol en los últimos 12 meses. Entre los no abstemios, 43% presentaba consumo de bajo riesgo, 50% abusaba de la bebida y 7% estaban registrados como dependientes del alcohol. El 54% refirió consumir 4 dosis o más cuando bebían, 82% informó el consumo en *binge*. Los factores asociados al consumo fueron años de escolarización, función, sexo, ingresos y color, y el consumo de 4 o más dosis estuvo asociado a la función de jornalero.

Conclusión: La prevalencia del consumo en empleados registrados como de "consumo abusivo o probable dependencia" fue mayor (descriptivamente) que la identificada en un importante relevamiento nacional. La escolarización fue el factor sociodemográfico más relevante, toda vez que cada año menos de estudio incrementó aproximadamente 20% las chances de "consumo abusivo o probable dependencia".

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Introduction

The consumption of alcohol as a strategy to cope with stress has been associated with some individual attributes, such as a lack of psychosocial resources to appropriately respond to tense situations and suffering.⁽¹⁾ Moreover, alcohol may be consumed to relieve work-related stress due to its pharmacological effects (soothing, exhilarating, stimulating, relaxing, sleep inducer, anesthetic and antiseptic).⁽²⁾

Consequently, people engaged in productive activities are increasingly resorting to daily alcohol consumption, which eventually causes decreased productivity, changes in work, interpersonal, social, and family relations, and damage to their health.^(1,3)

Several authors have conducted studies to identify professions with working conditions that promote alcohol consumption, such as gravediggers, nurses, truckers, street cleaners, and self-employed workers.^(3,4-6) In addition, socially under-privileged activities, work in dry, hot or polluted locations, and positions that cause mental or physical fatigue leading to burnout have been associated with the use of alcohol as relief for tension and suffering.⁽³⁻⁶⁾

Some researchers have investigated the sociodemographic factors associated with alcohol use among workers;^(7,8) however, studies with the specific population of maintenance workers were not identified. Most prior studies on alcoholism among workers^(1,4,9-13) chiefly consider hazardous use or dependence symptoms without specifically analyzing factors such as frequency of consumption or binge drinking. According to the World Health Organization, binge drinking, also known as heavy episodic drinking, is the consumption of high levels (60 grams or more) of alcohol on a single occasion.⁽¹⁴⁾ In view of the specificities of gender in relation to drinking, binge drinking has been characterized as the consumption of four or more doses for women and five or more doses for men on a single occasion.^(15,16)

Binge drinking is an important indicator of consumption, regardless of whether the individual meets the criteria of dependency, as it may indicate frequent involvement in health or safety risk situations.

Thus, the aim of this study was to analyze alcohol consumption among public maintenance work-

ers and identify sociodemographic factors associated with the different facets of alcohol consumption (frequency, typical quantity, binge drinking, and pattern).

Methods

This is a quantitative cross-sectional study conducted with the public maintenance workers of a university in the state of São Paulo, Brazil.

The sector has 112 employees. The inclusion criterion was individuals who have been working in the sector for at least one year. The exclusion criterion was workers on holiday, leave or on a trial period during data collection. All the workers met the inclusion criteria and five fell into the criterion for exclusion. All the eligible workers were invited in person and 35 refused to participate in the study, resulting in a sample of 72 workers.

This study observed the ethical requirements specified in resolution 466/2012 of the National Health Council (approval 22074313.5.0000.5393).

Data were collected by an undergraduate nursing student trained to apply the instrument, in a private room at the participants' workplace, at a time scheduled with the head of the sector. The data collection instruments were a sociodemographic questionnaire and the Alcohol Use Disorders Identification Test (AUDIT) validated for use in Brazil.⁽¹⁷⁻¹⁹⁾

Consumption was analyzed according to the following variables: frequency (based on question one of the AUDIT), typical quantity (based on question two of the AUDIT), binge drinking,⁽¹⁴⁻¹⁶⁾ (considered in this study as five or more doses in a single event with some frequency over the past 12 months, based on question three of the AUDIT), and consumption pattern (from the total score classification of the AUDIT). In this study, on average and according to the previous recommendations⁽¹⁷⁾ one dose was a 350 ml can or glass of beer, a 90 ml glass of wine, a 30 ml dose of distilled beverage, a can or a small bottle of any iced drink; that is, each standard dose contains approximately 10-13 g of alcohol.

The Mann Whitney test was used to analyze the difference in consumption frequency (score of question one - ordinal classification) between the groups, based on the sociodemographic factors - gender, color, marital status, religion, and family income.

Pearson's chi-squared test and Fisher's exact test were used to analyze the association between typical quantity, binge drinking, and the sociodemographic variables. In this analysis, the variable typical quantity was divided into "three doses or less" or "more than three doses" and the variable binge drinking was divided into "yes" or "no".

In relation to age (which showed normal distribution, Kolmogorov-Smirnov test, $p=0.295$), the Student's t-test was used according to the following groups: a) typical quantity (three doses or less/more than three doses), b) binge drinking (yes/no), and c) consumption pattern (low-risk consumption/hazardous use or dependence symptoms).

In relation to the years of study (which did not show normal distribution, Kolmogorov-Smirnov test, $p=0.002$) the Mann Whitney test was used considering the groups a) typical quantity, b) binge drinking, and c) consumption pattern.

Additionally, multiple logistic regression analysis was performed using the consumption pattern as outcome variable. The analyzed independent variables were age (years), gender, color, marital status, schooling (years), religion, number of children (up to 1 child/2 or more children), position, and family income. SPSS version 22 was used for the analyses.

Based on the strategy of associations between the studied dimensions (sociodemographic characteristics), three explanatory models of binary logistic regression were drafted to introduce the variables in block form. Only the variables with a statistical significance ($p<0.05$) in the previous model were transferred to the subsequent model. The exit criterion for all the variables introduced in each model was $p<0.20$. The final regression model contained only the variables with the greatest statistical significance. The forward stepwise method was adopted to introduce the variables into the models. The level of

significance was $p<0.05$ and the confidence interval (CI) was 95 % with calculation of the adjusted odds ratios. The analyses were carried out with the help of a statistician.

Results

As shown in table 1, most of the participants were white, male, manual workers; 43.1% were in the 46 to 55 age group; and 80.6% had a partner. The average (\bar{x}) years of schooling of the participants was 10 years and the standard deviation (σ) was 3.35 years.

Only 16(22%) workers had been teetotalers in the last 12 months and 56(78%) workers had consumed alcoholic beverages during this period. Figure 1 shows the consumption pattern of the participants. As observed in the Figure, the individuals with a hazardous use pattern ($n=28$) or with dependency symptoms ($n=4$) totaled 32(44%).

Table 2 shows typical quantity, binge drinking, consumption pattern, and frequency with the associated sociodemographic factors.

Table 1. Sociodemographic data of the public maintenance workers ($n=72$)

Characteristics	n(%)
Gender	
Male	67(93)
Female	5(7)
Age group	
25 to 35 years	8(11.1)
36 to 45 years	14(19.4)
46 to 55 years	31(43.1)
56 to 66 years	19(26.4)
Skin color	
White	43(59.7)
Brown	22(30.6)
Black	6(8.3)
Olive	1(1.4)
Religion	
Catholic	42(58.3)
Evangelical/	15(20.8)
Protestant	3(4.2)
Spiritualist	3(4.2)
Other	9(12.5)
None	
Marital status	58(80.6)
With partner	14(19.4)
Without partner	
Position	62(86.1)
Manual laborers	10(13.9)
Administrative	
Family income (minimum wages)	
1 to 5	28(38.9)
Over 5	44(61.1)

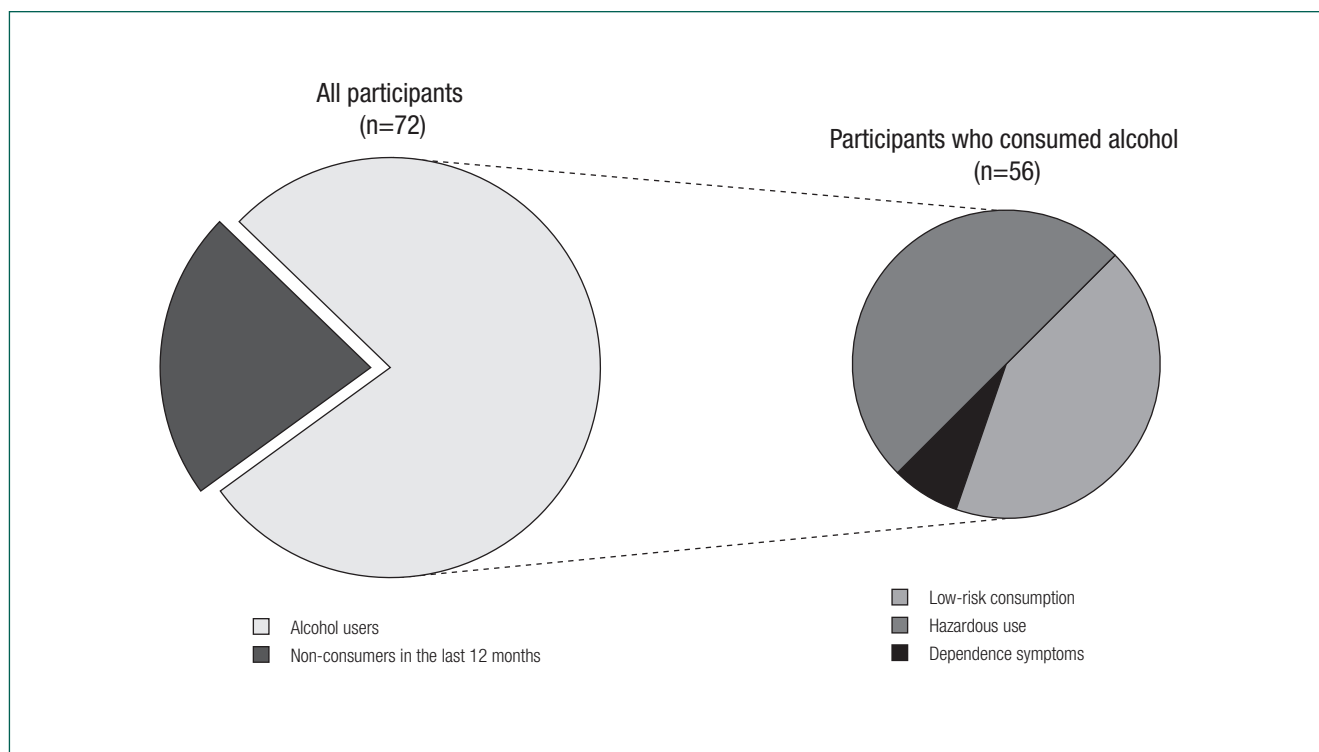


Figure 1. Distribution of public maintenance workers according to the pattern of consumption (n=72)

The typical quantity was significantly associated with the workers' position: 96.7% of those who consumed four or more drinks were manual laborers.

In terms of frequency, a statistically significant difference was identified between workers of different

income ranges, suggesting the lower-income individuals drank more often. There was a statistically significant difference in the frequency of consumption between the male and female workers, suggesting the males consumed alcohol more

Table 2. Sociodemographic data and the relationship with the alcohol consumption pattern of the public maintenance workers (n=72)

Characteristics	Alcohol use							
	Typically more than 3 doses		Binge drinking		Hazardous use or dependency symptoms		Frequency (ordinal)	
	n(%)	p-value	n(%)	p-value	n(%)	p value	n (rank \bar{x})	p-value
Gender								
Male	30(42)	0.094	45(63)	0.079	32(44)	0.061	53(29.6)	0.028
Female	0(0)		1(1)		0(0)		3(9.2)	
Skin color								
White	17(24)	0.505	27(38)	0.724	19(26)	0.957	34(25.1)	0.042
Black/Brown	13(18)		19(26)		13(18)		22(33.8)	
Religion								
Yes	24(33)	0.481	37(51)	0.189	26(36)	0.173	47(27.0)	0.085
No	6(8)		9(13)		6(8)		9(36.8)	
Income (minimum wages)								
1 to 5	11(15)	0.642	17(24)	0.467	14(19)	0.449	19(34.5)	0.040
Over 5	19(26)		29(40)		18(25)		37(25.4)	
Marital status								
With partner	25(35)	0.738	35(49)	0.183	24(33)	0.287	45(27.5)	0.344
Without partner	5(7)		11(15)		8(11)		11(32.5)	
Position								
Manual laborers	29(40)	0.019	41(57)	0.143	30(42)	0.169	48(30.0)	0.079
Administrative	1(1)		5(7)		2(3)		8(19.5)	

frequently. A statistically significant difference was also identified in the frequency among white or black/brown-skinned workers, indicating black/brown-skinned workers consumed alcoholic beverages more frequently.

In addition, binge drinking was not associated with any of the studied variables (Table 2).

The variable years of schooling showed a statistically significant difference between workers with different patterns of consumption (\bar{x} rank: “low-risk consumption”, 43.3 and “hazardous use or dependence symptoms”, 28; $p=0.001$). The final logistic regression model also pointed out this variable as a factor associated with the consumption of alcohol; that is, the chances of hazardous use or dependence symptoms increased by 20.4% as each year of schooling decreased (odds ratio=0.796; CI 95% - 0.676-0.939; $p=0.007$; estimated error=0.084). The other variables showed no significant association with the outcome variable.

No age difference was found between the studied groups, namely a) typical quantity (“three doses or less” or “more than three doses”), b) binge drinking (“yes” or “no”), and c) consumption pattern (“low-risk consumption” or “hazardous use or dependence symptoms”).

Discussion

Considering one of the aims of this study was to identify the sociodemographic factors associated with alcohol use, it is understood that several subjective issues may permeate this phenomenon; however, due to the adopted method, these issues were not taken into account. Further studies designed to enter the universe of meanings of public maintenance workers who consume alcohol can shed valuable light on this phenomenon. Some important limitations are the sample size and the numbers of workers who refused to participate in this study. Moreover, the comparison between the sample and the general population was restricted to one of the national surveys, since the different indicators used in the other studies prevented a comparison between the prevalence of alcohol use in adults and patterns of alcohol use.

Nevertheless, this study provides new insight into the various factors associated with alcohol use among workers considering the different facets of this consumption. It also provides specific data on this population of public maintenance workers.

In relation to alcohol use in the studied population, a high prevalence of users (77.8%; $n=56$) was detected in relation to the average presented in one of the main national surveys (50%).⁽²⁰⁾ Consequently, the prevalence of workers with “hazardous use or dependence symptoms” was also high (57.1% of users; $n=32$), almost five times greater than the average presented in a major national survey (17 %).⁽²⁰⁾

Specifically in relation to the pattern of hazardous use or dependence symptoms, 44% ($n=32$) of the participants ($n=72$) fell into this consumption pattern. This percentage is greater than the percentage identified in previous studies among general workers (13.4% for migrant workers in Florida⁽²¹⁾ and 13.7% for industry workers in Tanzania⁽²²⁾) and among public officials in Brazil (12.7% for health workers⁽¹⁰⁾ and 13.5% for transport workers).⁽¹¹⁾ These studies, however, were not specifically designed for maintenance workers. Thus, this result suggests this group is probably more susceptible to risk or dependency.

In this study, 35.7% ($n=20$) of public maintenance workers drank at least once a week, below the findings of the last national survey, in which 53% of the population consumed alcohol at least once a week.⁽²⁰⁾ The sample of the national survey covered the entire population, without specificity or schooling, and included teenagers, which evidently interferes with any comparisons between these results.

However, according to the results, 46.4% of the public maintenance workers stated they typically consume three doses or less, and 82.1% ($n=46$) reported they typically have five or more drinks on a single occasion, characterizing binge drinking, which is considered an important health risk factor and is strongly related to violent behavior.^(14-16,23) Binge drinking makes users tolerant to many of the effects of alcohol and may cause problems to their health and work, family, and social relations.^(14-16,23)

In this study, an association was detected between typical quantity and position; 96.7% (n=29) of the participants who consumed four or more doses in a single occasion were manual laborers, corroborating previous research.^(7,12,24) This behavior can involve specific work-related risks, since one of the responsibilities of these workers is to operate machinery and equipment, which requires a lot of attention and dexterity. In this regard, 20% to 25% of work-related accidents worldwide involve people who are under the influence of alcohol or other drugs. In addition, hazardous alcohol use has been known to reduce productivity and increase absenteeism.⁽⁸⁾

Furthermore, studies on the subjective aspects of alcohol use are critical for planning resolute awareness strategies. In this regard, some studies have found peer pressure, climatic conditions of the workplace, and even the use as a way to support work, influence the consumption of high doses of alcohol.⁽²⁵⁻²⁷⁾ Future studies could further investigate these issues.

In terms of frequency, in this study, the workers with a higher income drank less frequently, which diverges from the results of previous studies showing lower frequencies in sectors with lower income.^(28,29) This result and the evident differences between the risk and protection factors among these workers stress the need to investigate the specific characteristics of the different groups of workers. It should be noted that most studies examined general alcohol use without specifically considering “frequency” as one of the facets of use, resulting in possible divergences in the results comparisons.

Also in relation to frequency, a significant difference was detected between the male and female workers, suggesting male workers consume alcohol more frequently. This result corroborates the findings of previous studies that addressed the variables frequency and quantity together.^(10,24,25,30)

The higher use of alcohol by men has been pointed out in studies conducted in different regions of the world.^(10,21,22,31) This tendency is attributed to some cultural and physiological aspects.⁽³¹⁾ The culture of male domination and the

association of alcohol with leisure and relaxation greatly influence the maintenance of this pattern of consumption.^(31,32)

Moreover, the profile of the analyzed sample is mostly male (93%), and this result may reflect the cultural assumption that maintenance work is mostly masculine. This finding was also identified in previous studies.^(13,25)

The relationship between workers with a lower risk of consumption and more years of schooling corroborates some previous studies and diverges from others due to differences between the studied populations (men/women; adults/youths; unemployed workers/students, among others) and the categories used to identify schooling among individuals.^(28,29,32)

In this study, 27.8% of participants had eight years of schooling or less. This result may be the consequence of the greater stability of public university workers in general and the fact that higher education does not imply career progression in some positions. Moreover, manual laborers (the position of most of the study participants) may not feel motivated to improve their education since their work requires less intellectual complexity.

The results also show a higher frequency of consumption among people who stated they were black/brown-skinned, unlike other studies conducted with adult health workers^(33,34) and transport workers.⁽¹¹⁾ These studies included the item race/color in the sociodemographic analysis but they did not identify an association between this characteristic and alcohol use.^(11,33,34)

Thus, the result of this study certainly points to a specificity of maintenance workers. Historically, black and brown-skinned people are more susceptible to conditions of socioeconomic vulnerability and alcohol use can become an escape valve for the adversities of everyday life.⁽³⁵⁾ Studies indicate inequalities in health indicators related to race/color refer to the social determinants of health as an influential factor in the worse health conditions of black people compared to white people.⁽³³⁾ Studies that observe this issue are recommended to understand the specificities of this population and its marked

social inequality. Thus, studies with a specific methodological design for these issues are also important to address the problem of alcohol use.

A brief intervention consists of a set of risk level screening practices and actions performed by professionals according to the identified consumption pattern.⁽³⁶⁾ Furthermore, a brief intervention identifies problems related to alcohol consumption and provides individual counselling to prevent hazardous use and/or encourage treatment.⁽³⁶⁾

It is a simple, low cost resource that can be applied by professionals of various fields.^(37,38) In particular, nurses are trained to provide critical health awareness actions and promote the quality of life of the population,^(37,38) which makes them key elements in brief interventions in different settings.

In view of the promising results of prior studies with workers,⁽³⁷⁾ and the characteristics of alcohol use in the studied sample, a brief intervention is an important tool for nurses in health services⁽³⁸⁾ and organizational environments to cause shifts in the drinking behavior of these workers.

Conclusion

The prevalence of alcohol consumption among the public maintenance workers was greater than the results found in a major national survey. These findings stress the importance of targeted prevention strategies for maintenance workers and promoting studies and alternative techniques to cope with stress. The planning of preventive actions for this group of workers should consider criteria of dependence and binge drinking, which is common even among drinkers who are not in the hazardous use pattern and, according to this study, is highly prevalent among the public maintenance workers. The regular use of screening tools and brief intervention strategies can complement preventive actions in this setting. Future studies should investigate the subjective factors associated with alcohol use, including qualitative data and studies with a research design that enables a deeper analysis of the race/color factor and psychosocial differences related to the position of these workers.

Collaborations

Oliveira JL and Souza J declare they contributed with the project design, analysis, and interpretation of data, redaction of the article, a critical review of the intellectual content, and final approval of the version for publication.

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