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Original Research

Alcohol-induced risk behaviors among Brazilian nightclub patrons: a latent class analysis

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ABSTRACT

Objective: The aim of this study is to identify risk behavior profiles associated with alcohol consumption among patrons during or just after departure from nightclubs in São Paulo, Brazil.

Study design: Cross-sectional survey.

Methods: The study used a two-stage cluster sampling survey design. Data were collected on a probabilistic sample of nightclub patrons. Overall, 2422 patrons were interviewed at the entrance of 31 nightclubs. Latent class analysis (LCA) was used to identify risk behavior profiles with an emphasis on risky driving, fights, alcoholic blackouts, and harm and unsafe sex.

Results: A 3-class LCA model was selected, with classes consisting of low (43%), medium (33%), and high (24%) risk patrons. Compared to patrons in the low-risk class, patrons in the medium- and high-risk classes were more likely to be men (odds ratio [OR] = 2.2, 95% confidence interval {CI} [1.2–4.0] and OR = 3.2, 95% CI [1.8–5.8], respectively), to have engaged in binge drinking during the last year (OR = 15.0, 95% CI [7.2–31.3] and OR = 14.3, 95% CI [9.4–21.8]), to be in the highest socioeconomic stratum (OR = 2.6, 95% CI [1.3–5.1] and OR = 2.0, 95% CI [1.2–3.5]) and to have been interviewed at a hip-hop music nightclub (OR = 2.8, 95% CI [1.1–6.8] and OR = 3.7, 95% CI [1.5–9.1]).

Conclusions: Risk behaviors were not equally distributed among nightclubs. Individual- and environmental-level characteristics are associated with higher risk. Alcohol harm reduction, such as the implementation of a responsible drinking service, should be implemented in São Paulo nightclubs.

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Introduction

Alcohol use affects brain chemistry by altering the levels of the neurotransmitters that control behaviors and emotional processes.[1] After using alcohol, cognitive and physical functioning are affected, reducing self-control and the ability to process information, increasing impulsiveness, making people more likely to engage in risk behaviors.[2] Several studies have found an association of alcohol use or alcohol intoxication with physical and sexual violence, increasing the likelihood of sexual risk behavior, traffic accidents, unintentional injuries, and periods of amnesia, also known as alcohol-induced blackouts.[3–9]

However, the severity of the consequences of alcohol use depends on the frequency and amount consumed.[10] A risky consumption behavior that has aroused interest in recent years is called 'binge drinking' (BD)[11] or 'heavy episodic drinking',[12] which is defined as the consumption of four or more and five or more servings of alcoholic beverages on one occasion for women and for men, respectively.[13] These episodes of acute alcohol abuse not only have an influence on overall mortality but also contribute to an increasing risk of all the acute consequences previously described.

The abuse of alcohol has been reported to be directly associated with the recreational context of the nightclub setting,[14] thereby contributing to increased risk behaviors in regular nightclub patrons.[15] Nightclubs are places frequented mainly by youths and young adults, who seek different forms of entertainment in these locations, with the use of alcohol acting as an important mediator.[16] According to population data, in Brazil, nightclubs are the places of choice for binge drinking,[17,18] which increases concerns regarding the risks to which patrons of these venues are exposing themselves. Moreover, compared to other highly populous countries, Brazil is ranked as having the second highest rate of major complications resulting from alcohol consumption, according to disability-adjusted life years lost.[19]

Given the aforementioned considerations, the objectives of this article were to evaluate how alcohol-induced risk behaviors are grouped among nightclub patrons by the use of latent class analysis (LCA) and to explore how these different patterns of risk behaviors are associated with sociodemographic factors, binge drinking, and music style of the venue at which the patrons were interviewed.

Methods

Sampling

Nightclubs were defined as establishments that have controlled entry and exit of patrons, sell alcoholic beverages, and have a dance floor. A cross-sectional survey was conducted in nightclubs in the city of São Paulo during the first half of 2013. Cluster sampling was performed in two stages; the selection of nightclubs (first stage) constituted identifying a probabilistic sample of nightclubs, each with an inclusion probability proportional to the maximum capacity of the club. The second stage involved a systematic sampling of every third person in the selected nightclub's entrance queue.[20]

To guarantee that we would have at least 30 nightclubs participate in the survey, we contacted the original 40 selected nightclubs and seven replacements, resulting in an acceptance rate of 66% (31/47). A target sample size of 1600 nightclub patrons was calculated considering an absolute precision of 5%, a 95% confidence interval (CI), the use of two-stage cluster sampling, and a design effect of two.[21] Taking into account a possible refusal rate of 30% and a maximum loss at follow-up from entrance to exit of 40%,[22] it was calculated that 2912 nightclub patrons should initially be approached.

Sampling weights for nightclubs and patrons were calculated to correct for losses, and details of this process are presented in a supplementary file of the study conducted by Carlini et al.[23] Details regarding the sampling procedure have been presented by Santos et al.[24]

Instruments and data collection

Patrons participated in entrance and exit interviews based on a questionnaire and received a bracelet with a unique numeric code to identify them at the nightclub exit. Initial interviews at the nightclub entrances investigated sociodemographic variables, patterns of alcohol and drug use, and risk behaviors in nightclubs during the year preceding the survey. For the present study, only entrance interview data were used. Data were registered in a tablet device.

Variables

The following aspects were evaluated as explanatory variables: sociodemographic characteristics (gender, age, education, marital status, and socioeconomic status [SES]), history of BD during the past year (five servings of alcohol for men and four servings of alcohol for women consumed over period of 2 h—a serving was defined as a 5-oz glass of wine, a 12-oz can of beer, or a 1.5-oz shot of liquor, and examples of equivalence were presented to the interviewee in a figure), and the type of nightclub where the interview occurred, classified by musical style.

Each respondent was asked about his or her history of risk behaviors practiced inside or shortly after leaving the nightclub. A binary response to each of the questions served as the basis for generating the latent classes. Questions, presented in the Supplementary File, numbered one to three were grouped and named 'Risky Driving'. Questions number four and five were named 'Fights' and 'Blackouts', respectively. The questions numbered six and seven were grouped under the name 'Physical Harm'. The questions numbered eight to ten were grouped together and called 'Risky Sex'. The eleventh question was named 'Sexual Intercourse Under the Influence of Alcohol'.

SES was evaluated using a standardized index known as the 'Brazilian Economic Classification' (ABEP).[25] This scale was used to classify participants into subgroups 'A' to 'E' (where A corresponded to the highest SES). C/D/E SES groups showed low frequencies, then they were combined.

Musical styles were categorized into eclectic (plays several musical styles on the same night), country, funk, electronic, dance-pop, rock, hip-hop, and forró according to the type of music played in the nightclubs and recorded by field staff during data collection.