

# **Environmental characteristics associated with alcohol intoxication among patrons in Brazilian nightclubs.**

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## **Abstract**

**INTRODUCTION:** Few studies have investigated the association between environmental factors and patrons' binge drinking in nightclubs, and such studies are rare in developing countries.

**OBJECTIVE:** To identify environmental factors associated with binge drinking among patrons in nightclubs in São Paulo, Brazil, using a mixed-methods design.

**METHOD:** The study used a two-stage cluster sampling survey design. Two levels of data were collected: observational data and portal survey data. Individual-level data were collected by a portal survey of 2422 subjects at the entrance and 1822 subjects at the exit of 31 nightclubs. Weighted multilevel analysis was used to investigate the association between patrons' binge drinking (as measured by breath alcohol concentration  $\geq 0.38$  mg L<sup>-1</sup>) at nightclub exit, with environmental-level variables collected through observation and controlled for individual-level data.

**RESULTS:** Pre-drinking was the variable most strongly associated with binge drinking BrAC levels when exiting the venue [adjusted odds ratio (aOR) = 5.98, 95% confidence interval (CI) [4.37, 8.17],  $P < 0.001$ ]. The environmental variables significantly associated with binge drinking were 'all you can drink' service (aOR = 2.44, 95% CI [1.03, 0.79];  $P = 0.043$ ), two or more dance floors (aOR = 1.92, 95% CI [1.16, 3.18];  $P = 0.011$ ), and higher sound levels (aOR = 1.04 per each decibel increased, 95% CI [1.01, 1.08];  $P = 0.048$ ). Data triangulation showed an association between lower alcohol intoxication and ketamine use in three LGBT nightclubs.

**DISCUSSION:** Pre-drinking showed that individual-level characteristics could be more important in binge drinking than the venues' environmental characteristics. Previous studies failed to include pre-drinking in environmental analysis.

**CONCLUSION:** Environmental control interventions, isolated from individual-level approaches, may have limited efficacy in the prevention of alcohol abuse in nightclubs.

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