



Does beverage type and drinking context matter in an alcohol-related injury? Evidence from emergency department patients in Latin America



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ABSTRACT

Background: Previous studies have already substantiated alcohol's causal role in injuries. Yet the role that alcoholic beverage preferences and the drinking context play in the risk for injury is still under-investigated. In this study, a cross-national comparison of the association between alcohol and injury focusing on beverage type preference and the drinking context is reported.

Methods: Emergency department (ED) injured patients were interviewed in eight countries from the Latin American and Caribbean (LAC) region. Data on the type of alcoholic beverage, total alcohol volume, and the place where the injury occurred were obtained from patients who reported any alcohol consumption within 6 h prior to being injured. Patients who did not drink prior to injury were also asked about their typical drinking pattern and the injury place. Differences within- and between-groups were evaluated regarding patients' typical drinking and drinking before injury.

Results: Beer was the most prevalent beverage type usually consumed among injured patients across countries, however, patients who drank before injury had a higher typical consumption of spirits than those not drinking prior to injury. The total alcohol volume typically consumed and drinking in public settings were also found to be positively associated with alcohol-related injury.

Conclusions: A similar beverage-specific association with alcohol-related injury was found across LAC countries, mainly attributed to beer consumption, and spirits drinkers seem to have a greater chance of becoming involved in injury events. Future prevention strategies should inform the public about harms from drinking associated with the context in which drinking takes place.

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1. Introduction

Substantial knowledge on the negative health and social consequences of the harmful use of alcohol, both at the individual and community level, has accumulated over the last decades, and currently alcohol consumption is considered a causal factor in many types of injuries (World Health Organization, 2011). Injuries alone comprise 46% of all deaths attributable to alcohol globally and 60%

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in the Americas (Ezzati et al., 2004), making it a major alcohol-related burden for the Latin American and Caribbean (LAC) region (Pan American Health Organization, 2007).

Previous studies conducted in emergency departments (EDs) corroborate that recent alcohol consumption has a high prevalence (varying from 12.8% up to 32%) among injured patients in LAC countries, but much is still unknown regarding the role that alcoholic beverage preference and social-contextual factors play in the risk of injury for this region (Andreuccetti et al., 2012).

There is a growing body of evidence on beverage type and risk of injury, with the majority of studies showing that spirits drinkers present higher rates of violence-related injuries, compared to drinkers of beer or wine (Smart, 1996; Gustafson, 1999; Stickley and Razvodovsky, 2012). On the other hand, drinkers who prefer beer are more likely to drink heavily and to be involved in

drinking-driving injuries (Smart, 1996; Jensen et al., 2002), while wine drinking has not shown a significant association with the occurrence of alcohol-related injuries (Smart, 1996; Watt et al., 2004).

The hypotheses underlying such findings are diverse, but this may occur as the result of differing expectations regarding the effects of alcoholic beverages, whether individual or cultural, rather than due to the actual alcohol content of specific beverages (Gustafson, 1999; Rossow, 2001; Schmid et al., 2003; Watt et al., 2004). There is also evidence that the place where the injury occurs is related to both injury type and beverage choice (Hijar et al., 2002; Norström, 2002; Gawryszewski et al., 2008). However, no studies report cross-national comparisons of the association between alcohol and injuries taking into account the drinking context (defined here as all social-contextual factors involved in a given drinking session such as the place where an alcohol-related injury occurred) and beverage type across all injury types.

Our goal, therefore, was to further examine the association of beverage choice and the drinking context with alcohol-related injuries in patients admitted to EDs in eight LAC countries, testing the hypothesis that injuries related to the consumption of different beverage types may reflect cross-cultural differences in drinking, as well as individual characteristics such as the type of beverage typically consumed. In order to account for other factors influencing the association between alcohol and injuries, the volume of alcohol typically consumed and the place where the injury occurred were also examined in relation to differences that might exist between the patients' typical drinking and drinking before injury.

2. Methods

2.1. Sample and procedures

Data were derived partly from ED injured patients interviewed in the World Health Organization (WHO) Collaborative Study on Alcohol and Injuries during the period of 2000–2002, in three LAC countries: Argentina ($N=443$), Brazil ($N=484$) and Mexico ($N=453$). In addition, samples of ED injured patients were included from a study conducted under the auspices of the Pan American Health Organization (PAHO) during 2008–2010, in five countries: the Dominican Republic ($N=497$), Guatemala ($N=513$), Guyana ($N=485$), Nicaragua ($N=518$) and Panama ($N=490$).

Data in all ED sites were collected using a similar methodology (Cherpitel, 1989). Probability samples of patients aged 18 and older admitted to the ED within 6 h of an injury event were selected to provide an equal representation of each shift for each day of the week. In Argentina, the patient sample was weighted to ensure patients' equal representation due to disproportional sampling.

Trained interviewers at each site administered a standard 25-min questionnaire after the patients agreed and signed an informed consent to participate in the study. Patients were interviewed regarding socio demographic characteristics, reason for the ED visit, place where the injury occurred, preferred beverage choice prior to injury and on a typical drinking occasion during the last year, among other items.

Response rates averaged 93% across countries. Reasons for non-interviews included refusal, incapacitation, fatal injury, patient under police custody, and leaving prior to completing the interview.

2.2. Measurements

Drinking before injury was assessed by self-reports of drinking within six hours prior to the injury event, and those who reported drinking during this time were asked about the type(s) of alcohol beverage consumed and the beverage-specific volume in equivalent units (mL). All injured patients were asked about the type(s) of alcohol beverage usually consumed and beverage-specific volume on a typical drinking occasion during the last year. In some countries, small modifications were made to the questionnaire in order to reflect the local context (e.g., local beverages).

Those who drank only beer, wine or distilled spirits before injury and/or on a typical drinking occasion were grouped separately, with those who reported any combination of these types of alcohol constituting a fourth group. The place where the injury occurred (whether in a private or public setting) was also obtained, as well as the place where the patients reported they were at the same time exactly one week before the injury event and whether they were drinking or not during this period.

2.3. Data analysis

Data on alcohol consumption (beverage type and drinking volume) for patients who reported any alcohol consumption within six hours prior to an injury event were used to compare their drinking before injury with their typical drinking behavior. Place of injury was also compared with where the patient was exactly one week prior to injury. Patients who reported not drinking before the injury event (injured non-drinkers) were compared to those who reported drinking (injured drinkers) regarding typical drinking occasions and the injury place.

For some countries, variations occurred between the number of patients initially sampled and those who actually had provided complete answers for the variables of interest. These missing data were randomly distributed within countries and can be mainly attributed to unanswered questions and difficulties in filling out the questionnaires in the busy ED scenario.

Country-specific analyses are performed, as well as across all the countries combined. For the combined analysis regarding the injury place, only those who also reported drinking at the same time the week prior to the injury event were considered in order to account for the influence of the drinking place during this time period. This comparison was not possible for the country-specific analysis due to the small sample size of those individuals who were also drinking one week before the injury event in each country.

Cross-tabulations were performed and the Stuart–Maxwell test was applied to assess the significance of within-group differences in proportions for categorical variables with more than two categories, while the McNemar's test was used for binary variables. Between-group differences were evaluated by Chi-square tests. The Student's paired t -test was used for comparing mean values of alcohol volume within and between groups, taking gender into account. Differences with $p < 0.05$ were considered statistically significant and all analyses were performed using STATA, Version 11.

2.4. Ethics

The study protocol was approved by the Ethics Review Board of each participating institution from the countries that have collaborated to this study as well as by the Pan American Health Organization Ethics Review Committee.

3. Results

The prevalence estimates for drinking before injury ranged from 12.5% in Brazil to 21.5% in Nicaragua. Beer was the beverage type most commonly reported in most countries, both before the injury event and on a typical drinking occasion among injured patients. Exceptions were found in Argentina (wine), Guyana (spirits) and Nicaragua (spirits), where the most commonly consumed beverage type in each country was also the most prevalent among injured drinkers (Table 1).

The consumption of spirits and combinations of beverages appeared to be higher before the injury event compared with the typical drinking occasions among injured drinkers, but wine (Argentina, Brazil and Guyana) and beer (Nicaragua) also presented a higher frequency before injury compared to the typical drinking occasion among this group. Within-group differences were significant ($p < 0.05$) only for Brazil, the Dominican Republic and Guatemala (Table 1).

Injured drinkers were more likely to report higher consumption of spirits on a typical drinking occasion than injured non-drinkers, with the exceptions of Argentina (wine), Mexico (beer) and Panama (beer and spirits). These differences were found to be statistically significant ($p < 0.05$) for all countries, except in Argentina and Guatemala (Table 1). In addition, the mean total alcohol volume reported on a typical drinking occasion was higher for injured drinkers compared with injured non-drinkers, with this difference being statistically significant ($p < 0.05$) for all the countries except the Dominican Republic (Table 2).

For most countries the total alcohol volume consumed before the injury was smaller than the amount reported during typical drinking occasions among injured drinkers (except in Argentina and Guatemala, where the opposite was observed). However, only in Brazil, Nicaragua and Panama were these differences statistically significant ($p < 0.05$). Moreover, the mean alcohol volume consumed prior to injury and as part of a typical drinking occasion was higher among males than females across countries (except in

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