Published in final edited form as:

Drug Alcohol Depend. 2014 April 1; 137: 90–97. doi:10.1016/j.drugalcdep.2014.01.010.

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 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 hours 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.

Keywords

Alcoholic Beverage; Drinking; Emergency Department; Injuries; Latin America

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% 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, 2008).

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 hours 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-minute 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 Guyana, where women who drank before injury reported a higher alcohol volume typically consumed compared to men) (Table 2).

In all the countries, injured drinkers were more likely to report being in public settings when the injury occurred, while their location at the same time exactly one week before the injury event was more likely to be a private setting; differences were significant ($p<0.05$) for all countries except in Panama (Table 3). Injured non-drinkers also presented a greater frequency in public settings during the injury event, with no significant differences in comparison with injured drinkers (except in Argentina, where injured drinkers presented a higher frequency in public locations than injured non-drinkers; $p<0.05$).

Results derived from the grouped country analysis were similar to those in the country-specific analysis regarding beverage choice and the mean total alcohol volume reported both before the injury event and during a typical drinking occasion among injured drinkers (Table 4). Spirits presented the largest difference among the beverages consumed before an injury event compared to those reported during a typical drinking occasion by injured drinkers (an estimated difference of 4.4% between these two periods). Also, injured drinkers reported a higher frequency of spirits consumption during a typical drinking occasion compared with injured non-drinkers (an estimated difference of 12.5% between these groups).

In the grouped analysis, injured drinkers were significantly ($p<0.05$) more likely to report the injury occurring in public locations (69.8%) compared to drinking in that same location the week before the injury event (57.7%). In addition, although not statistically significant, injured drinkers were also more likely to be drinking in public settings during the last week (57.7%) than injured non-drinkers who reported drinking in public locations during this period (46.8%).

4. Discussion

Although LAC countries studied here reflect large social-cultural differences in drinking and preferred beverage choice, a similar beverage-specific association with alcohol-related injuries was found for the majority of the countries. Similar associations were also found for total alcohol volume typically consumed and the injury setting, corroborating the hypothesis that the context of drinking may have an important role in determining the relationship of drinking with injury events.

The only countries where beer did not prevail as the preferred beverage type consumed by injured drinkers were exactly those where the most prominent beverage type consumed at the national level was the same as the most commonly consumed by these patients. Similar beverage-specific effects have been observed in Europe and other countries for violent behavior (Rossow, 2001) and drunkenness episodes (Schmid et al., 2003) that seemed to vary across countries according to the beverage type dominating total alcohol consumption.

Our data also suggest a beverage-specific association with alcohol-related injuries across LAC countries studied that might vary according to the preferred beverage type at the national level, as demonstrated by the countries where the dominant beverage type was the same as the most consumed by injured drinkers. Therefore, the contextual role of each beverage type within different drinking cultures seems to be more important than the alcohol content of beverages in this association.

However, it should be noted that rather than a divergent pattern related to cross-cultural differences in preferred alcoholic beverages expected for a region with such a diverse drinking culture, the present findings are more indicative of a consistent beverage-specific effect on injuries, mainly attributed to the consumption of beer in the LAC region as a whole.

Also noteworthy, the higher consumption of spirits typically consumed among injured drinkers compared to injured non-drinkers supports the possibility that drinking in the event may be influenced by specific person-characteristics, such as beverage preference and the amount of alcohol typically consumed. This finding is supported by earlier studies in other countries in which individuals who consume spirits had a greater likelihood of being involved in injuries (Norström et al., 2012; Stickley and Razvodovsky, 2012).

It can also be argued that either the expectations from spirits consumption (Smart, 1996) or the higher frequency of drunkenness among spirits drinkers (Schimid et al., 2003; Siegel et al., 2011) may expose them to a greater risk of incidents related to alcohol consumption compared to consumers of other alcoholic beverages. At the population-level, Kerr and Ye (2011) have confirmed that spirits sales were predominately associated with alcohol-related mortality in the U.S., which supports the differential treatment given to spirits in terms of taxation and availability policies compared to beer or wine in this country. Furthermore, as the authors point out, these policies should be tailored to make the cheapest spirits more costly to consumers than other beverages, which might also be an appropriate recommendation for LAC countries in light of the findings presented in this paper.

We also found that mean alcohol volume consumed both in the event and on a typical drinking occasion followed a similar pattern of association with alcohol-related injuries across the LAC countries studied. In general, country-specific analysis showed a decreased tendency in the total alcohol volume consumed before an injury event compared to the volume typically consumed among injured drinkers, which was also observed when all countries were examined together. In light of these findings, it can be hypothesized that even smaller quantities of alcohol than that usually consumed may predispose individuals to high-risk situations resulting in an injury event or, alternatively, may be related to the fact that the injury terminated their ability to continue drinking.

In addition, the finding that injured drinkers consumed greater quantities of alcohol on a typical drinking occasion than injured non-drinkers supports previous research in the ED setting showing that both total alcohol volume usually consumed and frequent heavy drinking are important predictors of an alcohol-related injury (Cherpitel et al., 2012). This, together with the fact that male patients reported a higher alcohol volume typically consumed, as well as before the injury event, than females, provide further support for the possibility that drinking context influenced by individual characteristics such as drinking pattern and gender may be an important contributor to the risk of an alcohol-related injury (Graham et al., 2011).

It was also interesting to observe, albeit expected, that public settings were more likely to be the scenario for an alcohol-related injury than private places across countries, when injured drinkers were used as their own controls in relation to where they were at the moment of the injury event one week earlier.

These results suggest that the drinking setting might be an important variable in predicting the occurrence of all-cause injuries in the LAC region, and not only for specific causes as has been previously reported for this region (Hijar et al., 2002; Gawryszewski et al., 2008). It is also possible that alcohol-related injuries which occur in private places such as at home

might be less likely to result in a visit to the ED due to social stigma, cultural reasons, or access barriers to health services than injuries in public settings.

Nevertheless, considering that the majority of the countries studied here have a low level of sanctions and enforcement towards the regulation of alcohol policies, the data provided suggest that the context of drinking in public locations should be seen as of preeminent importance in prevention strategies aimed at controlling alcohol-related injury.

As well, the fact that sustaining a heavy drinking habit and a preference for specific alcoholic beverages (beer and spirits in the case of LAC) are associated with the occurrence of an alcohol-related injury offers us the opportunity to think how to better shape alcohol policies such as those based on differential taxation or advertisement restrictions of specific alcoholic beverages in the region.

For instance, the least taxed beverages in the U.S. (Rogers and Greenfield, 1999) and Australia (Stockwell et al., 2008), beer and cask wine respectively, are exactly those considered most associated with alcohol-related harms in each country. Moreover, in the LAC region, alcohol-advertising restrictions are commonly distinguished by beverage types but are not grounded on the scientific evidence available on the harmful effects of each type of alcoholic beverage (Pechansky et al., 2006).

In this sense, it seems more reasonable to take into consideration the evidence linking different beverage types to harms from drinking, such as injuries, and not the circumstance that favors beverages due to national identity or any other market-driven interest (Edwards, 1997).

4.1. Limitations

First, it should be noted that the results here did not allow for generalization beyond the specific EDs in which the data were collected, although samples from each ED were representative of that ED's clientele. However, all the EDs were based on public health facilities and represented the most common type of emergency service delivery system in each country. Additionally, all the countries used the same methodology and sampling strategy, providing the opportunity for a cross-national analysis at the ED-level.

Secondly, the information on alcohol's association with injuries provided by the current study is only valid for patients treated in the ED, with those treated elsewhere or who go untreated not being covered by the sampling strategy applied here. Also, those sustaining a fatal injury or incapable of providing reliable information due to severe injuries were not included in this study, which might result in a more conservative estimate of alcohol's association with injury among individuals with less severe injuries and who were more likely to fall into our sample.

Another issue to be taken into account is that self-report was used as the measure of alcohol's involvement in injuries, and other measures such as BAC estimates were not considered. Although the validity of patient reports of drinking prior to injury obtained at the time of ED admission has been demonstrated compared to BAC estimates up to about 7 drinks (approximately 105 ml of pure alcohol) (Bond et al., 2010), the fact that the total alcohol volume consumed before the injury was smaller than the amount reported during typical drinking occasions might be a result of a bias towards under-reporting the amount of alcohol consumed prior to injury (e.g. in order to avoid a prosecution or a lawsuit regarding alcohol's involvement in injury offenses).

On the other hand, by using usual drinking based on alcohol consumption reported during the last year might have also underestimated patients' usual drinking compared to alcohol consumption within six hours before injury (Zeisser et al., 2013).

Ultimately, the small sample size available for each country did not allow a more detailed analysis of beverage-specific effects on injury risk, including risk estimates controlling for other confounders (e.g. drinking patterns and sociodemographic characteristics). And although we do not believe the missing data have influenced the study findings at the country level, some countries did present larger missing data proportions than others, which might have biased the results from the combined country analysis.

5. Conclusion

Findings from this research contribute to extending knowledge on the influence of social-contextual factors on alcohol's association with injuries, providing new local evidence on hazardous drinking behaviors and beverage-specific effects that may be highly relevant to reducing the high rates of alcohol-related injuries in LAC countries. It is also important to emphasize that due to the paucity of data regarding the effects of different beverages types on alcohol-related injuries, particularly in the LAC region, results reported here have potential for evaluating current alcohol policies and the development of future policies in these countries.

In summary, this is the first analysis of the influence of different beverage type on all-cause injuries in the LAC region, providing empirical data suggesting that most of the alcohol-related injuries occurring among ED patients in LAC countries can be attributed to beer consumption. Moreover, the present findings support the hypothesis that specific person characteristics (e.g. heavy drinking habit and preferred beverage choice) and the drinking context (e.g. drinking in public settings) are important factors in the association between alcohol and injuries for the LAC region, since the pattern of association with injuries involving these variables was pretty consistent among countries with diverse drinking cultures.

Finally, LAC countries should also reflect upon implementation of alcohol policies distinguished by beverage type in an evidence-based manner, being aware that the contextual role of each beverage type within a particular drinking culture seems to be more important than the alcohol content of beverages.

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Type of alcoholic beverage consumed typically and before the injury event among injured patients classified according to the consumption of alcohol 6 hours prior to being injured within each LAC country.

Table 1

Type of alcoholic beverage	Argentina ^a				Brazil				Dominican Republic				Guatemala			
	Injured non-drinkers (n=253)		Injured drinkers (n=101)		Injured non-drinkers (n=273)		Injured drinkers (n=51)		Injured non-drinkers (n=263)		Injured drinkers (n=82)		Injured non-drinkers (n=184)		Injured drinkers (n=106)	
	Last year	Last year	Before injury	Before injury	Last year ^c	Last year	Before injury ^b	Before injury ^b	Last year ^c	Last year	Before injury ^b	Before injury ^b	Last year	Last year	Before injury ^b	Before injury ^b
Type of alcoholic beverage	Only beer	41.2%	41.3%	32.0%	62.6%	47.1%	35.3%	73.8%	53.7%	52.4%	66.3%	63.2%	57.6%			
	Only wine	37.4%	41.6%	46.7%	16.1%	0.0%	3.9%	1.9%	4.9%	2.4%	3.3%	1.9%	0.0%			
	Only spirits	5.0%	5.2%	3.5%	7.3%	19.6%	31.4%	8.4%	22.0%	36.6%	22.3%	29.3%	35.9%			
	All other combinations	16.4%	12.0%	17.8%	13.9%	33.3%	29.4%	16.4%	19.5%	8.5%	8.2%	5.7%	6.6%			
Type of alcoholic beverage	Guyana				Mexico				Nicaragua				Panama			
	Injured non-drinkers (n=260)		Injured drinkers (n=97)		Injured non-drinkers (n=231)		Injured drinkers (n=75)		Injured non-drinkers (n=125)		Injured drinkers (n=104)		Injured non-drinkers (n=232)		Injured drinkers (n=90)	
	Last year ^c	Last year	Before injury	Before injury	Last year ^c	Last year	Before injury	Before injury	Last year ^c	Last year	Before injury	Before injury	Last year ^c	Last year	Before injury	Before injury
Type of alcoholic beverage	Only beer	70.0%	44.3%	37.1%	47.6%	70.7%	65.3%	71.2%	41.4%	43.3%	69.0%	74.4%	73.3%			
	Only wine	6.2%	5.2%	7.2%	1.7%	1.3%	0.0%	0.8%	1.0%	0.0%	3.5%	1.1%	0.0%			
	Only spirits	15.4%	43.3%	44.3%	32.0%	21.3%	21.3%	16.8%	45.2%	46.2%	5.2%	12.2%	18.9%			
	All other combinations	8.5%	7.2%	11.3%	18.6%	6.7%	13.3%	11.2%	12.5%	10.6%	22.4%	12.2%	7.8%			

^a Weighted sample

^b Stuart-Maxwell test (P<0.05)

c Chi-square (P<0.05)

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Table 2

Mean total alcohol volume consumed typically and before the injury event among injured patients classified according to the consumption of alcohol 6 hours prior to being injured within each LAC country.

	Argentina ^a			Brazil			Dominican Republic			Guatemala		
	Injured non-drinkers (n=254)	Injured drinkers (n=100)	Injured non-drinkers (n=273)	Injured non-drinkers (n=273)	Injured drinkers (n=51)	Injured non-drinkers (n=237)	Injured drinkers (n=75)	Injured non-drinkers (n=184)	Injured drinkers (n=106)			
	Last year	Before injury	Last year	Last year	Last year	Last year	Last year	Last year	Last year	Last year	Last year	Before injury
Mean total alcohol volume in ml (SE)												
Female	29.7 (2.93) ^b	67.4 (26.40)	49.6 (14.23)	30.5 (2.52) ^b	56.2 (13.52)	62.0 (18.42)	146.8 (35.07)	147.6 (32.98)	152.1 (50.38)	68.8 (19.58)	104.9 (24.14)	86.9 (16.41)
Male	76.7 (16.67)	90.6 (12.58)	97.0 (19.91)	77.3 (5.22) ^b	142.9 (22.84)	104.6 (23.55) ^b	273.5 (40.02)	383.4 (67.18)	347.2 (53.72)	112.4 (8.43) ^b	149.3 (11.41)	157.0 (16.00)
Total	62.5 (11.76) ^b	86.6 (11.40)	88.8 (16.78)	64.4 (4.04) ^b	134.4 (20.93)	100.5 (21.36) ^b	250.4 (33.51)	345.7 (57.47)	316.0 (46.48)	104.8 (7.82) ^b	145.5 (10.68)	151.1 (14.82)
	Guyana			Mexico			Nicaragua			Panama		
	Injured non-drinkers (n=260)	Injured drinkers (n=96)	Injured non-drinkers (n=231)	Injured non-drinkers (n=231)	Injured drinkers (n=72)	Injured non-drinkers (n=120)	Injured drinkers (n=97)	Injured non-drinkers (n=232)	Injured drinkers (n=87)			
	Last year	Before injury	Last year	Last year	Last year	Last year	Last year	Last year	Last year	Last year	Last year	Before injury
Mean total alcohol volume in ml (SE)												
Female	70.3 (10.20) ^b	250.1 (100.13)	70.3 (20.42) ^b	49.5 (4.92) ^b	116.9 (30.05)	95.5 (22.96)	82.4 (14.00) ^b	207.5 (80.53)	187.5 (37.10)	69.9 (8.34)	101.1 (18.05)	65.8 (11.03) ^b
Male	119.5 (16.16) ^b	187.5 (35.72)	146.7 (18.99)	107.0 (7.07)	132.6 (20.81)	129.1 (16.89)	248.9 (36.84) ^b	602.2 (67.56)	439.4 (54.62) ^b	186.2 (16.55)	229.4 (23.06)	173.6 (19.42) ^b
Total	106.6 (12.30) ^b	192.8 (33.70)	140.3 (17.60)	85.3 (5.11) ^b	130.6 (18.55)	124.9 (15.07)	221.1 (31.28) ^b	577.8 (64.26)	423.9 (51.65) ^b	160.1 (13.23) ^b	219.1 (22.05)	162.8 (17.73) ^b

^aWeighted sample

$b_{\text{Paired t-test (P<0.05)}}$

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Table 3

The place where the injury occurred and the place where injured patients reported they were at the same time exactly one week before the injury event according to the consumption of alcohol 6 hours prior to being injured within each LAC country.

Argentina ^a				Brazil		Dominican Republic		Guatemala			
Injury place	Injured non-drinkers (n=328)	Injured drinkers (n=104)	Injured non-drinkers (n=418)	Injured drinkers (n=56)	Injured non-drinkers (n=327)	Injured drinkers (n=87)	Injured non-drinkers (n=182)	Injured drinkers (n=105)			
	Before injury ^c	Week Before injury ^b	Before injury	Week Before injury ^b	Before injury	Week Before injury ^b	Before injury	Week Before injury ^b			
Private	33.5%	68.4%	19.4%	58.9%	12.5%	50.5%	66.7%	49.4%	25.3%	63.8%	27.6%
Public	66.6%	31.6%	75.2%	41.1%	87.5%	49.5%	33.3%	50.6%	74.7%	36.2%	72.4%
Injury place	Guyana		Mexico		Nicaragua		Panama				
	Injured non-drinkers (n=267)	Injured drinkers (n=94)	Injured non-drinkers (n=375)	Injured drinkers (n=76)	Injured non-drinkers (n=163)	Injured drinkers (n=101)	Injured non-drinkers (n=271)	Injured drinkers (n=91)			
	Before injury	Week Before injury ^b	Before injury	Week Before injury ^b	Before injury	Week Before injury ^b	Before injury	Week Before injury ^b			
Private	32.6%	68.1%	43.6%	38.4%	27.6%	35.6%	61.4%	33.7%	46.5%	60.4%	52.8%
Public	67.4%	31.9%	56.4%	61.6%	72.4%	64.4%	38.6%	66.3%	53.5%	39.6%	47.3%

^aWeighted sample

^bMcNemar's test (P<0.05)

^cChi-square (P<0.05)

Table 4

Type of alcoholic beverage, mean total alcohol volume and the drinking place related or not to an injury event (typical drinking habit or drinking-in-the-event) among injured patients classified according to the consumption of alcohol 6 hours prior to being injured for all the LAC countries grouped together.

	Injured non-drinkers (n=1,821)	Injured drinkers (n=706)	
	Last year ^b	Last year	Before injury ^a
Type of alcoholic beverage			
Only beer	62.3%	54.8%	50.1%
Only wine	9.8%	7.1%	7.2%
Only spirits	13.1%	25.6%	30.0%
All other combinations	14.8%	12.5%	12.6%
	Injured non-drinkers (n=1,791)	Injured drinkers (n=684)	
	Last year	Last year	Before injury
Mean total alcohol volume in ml (SE)			
Female	58.8 (4.07) ^c	125.7 (15.86) ^c	92.5 (10.56)
Male	146.0 (7.74) ^c	246.5 (15.68) ^c	205.4 (12.63)
Total	123.8 (5.90) ^c	233.8 (14.10) ^c	193.2 (11.33)
	Injured non-drinkers (n=109) ^d	Injured drinkers (n=182) ^d	
	Week Before	Week Before	Before injury ^e
Injury place			
Private	53.2%	42.3%	30.2%
Public	46.8%	57.7%	69.8%

^aStuart-Maxwell test (P<0.05)

^bChi-square (P<0.05)

^cPaired t-test (P<0.05)

^dOnly those who also reported drinking at the same time the week prior to the injury event

^eMcNemar's test (P<0.05)