Alcohol use and misuse in urban Mexican men and women: An epidemiologic perspective

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Abstract:

Consumption patterns and misuse of alcohol were examined in adults sampled from three cities in Mexico ($n = 1933$). The sample was divided into groups of persons who abstained from alcohol, drank but endorsed no misuse, or drank and endorsed at least some misuse of alcohol. Half of the entire sample was categorized as drinkers (12 or more drinks in lifetime). Mexican men drank more per occasion and reported more problems with alcohol rather than did Mexican women. Low socioeconomic resources, not being married, and female gender were related to whether Mexicans abstained from alcohol rather than drank without misuse. Lifetime posttraumatic stress disorder (PTSD) or depression increased the likelihood of misusing alcohol versus drinking without misuse, as did greater amount of drinks consumed per occasion and male gender. Younger age and not being married were also related to misuse, although this was true mostly for women. The number of traumatic experiences in childhood and lower socioeconomic resources also predicted misuse, although mostly for men. Specific traumatic experiences and their relationship to alcohol use and misuse were also examined.

Keywords: Alcohol misuse | Abuse and dependence | Mexico | Epidemiology | Drinking | Latino | Hispanic | AUDs

Article:

1. Introduction

Problems related to alcohol use can be considered by examining the prevalence of alcohol use disorders (AUDs), specifically *dependence*, defined as continuing use despite significant

substance-related problems, often including tolerance, withdrawal, compulsive use, and change in activities or roles, and *abuse*, manifested by recurrent and significant adverse consequences without dependence (American Psychiatric Association, 1994).

Problem drinking can also be considered by examining social, legal, psychological, and physical consequences (Caetano, 1997). More drinks consumed leads to more alcohol problems (Ely et al., 1999,Caetano, 1997, Brienza and Stein, 2002, Glanz et al., 2002 and Galvan and Caetano, 2003), yet overall, only 15‑20% of the variance in problematic drinking is accounted for by demographics and consumption amount (Caetano, 1997). Even average alcohol consumption leads to increased risk for a variety of health problems (Rehm et al., 2003) and marital difficulties (Marshal, 2003).

In this paper we focus on drinking behavior in Mexico. Because most research has been conducted in the developed world, our understanding of alcohol use and misuse in developing countries, such as Mexico, is limited. To create a frame of reference, we briefly review findings on alcohol misuse in the developed world, particularly in Hispanics, a diverse ethnic category in the U.S. composed of Mexican Americans, Puerto Ricans, and Cubans, among others, which was the fastest growing ethnic group in the U.S. between 1990 and 2000 (U.S. Census Bureau, 2000). We also review research on misuse of alcohol in Mexico and then review some of the findings on alcohol consumption in these various settings.

1.1. Alcohol misuse

Overall, research indicates the presence of demographic differences in patterns of alcohol misuse. Men drink more and have more alcohol related problems than women (Nolen-Hoeksema, 2004 and Glanz et al., 2002). The reasons for these gender differences remain unclear (Glanz et al., 2002, Kessler et al., 1997 and Nolen-Hoeksema, 2004), and for heavy consumers, this sex difference disappears (Caetano, 1997). Most alcohol-related problems occur in early adulthood, during the 20s, and problem drinking is worse for those low in income (Caetano, 1997). Sex differences in alcohol-related behavior are also strong among Hispanics. Hispanic men have more problems with alcohol than do Hispanic women, and this holds true for Mexican Americans (Vega et al., 2003, see also Caetano, 1997 and Nolen-Hoeksema, 2004). Among Mexican women, the prevalence of alcohol-related disorders has been found to be minimal (Amaro et al., 1990). Men of Mexican origin continue to have problems with alcohol well beyond their youth and have more alcohol-related disease (Caetano, 1997). In Hispanic men, those with less education and with incomes greater than $20,000 were more at risk for problems (Caetano, 1997). Traumatic life experiences are also related to misuse of alcohol, such as childhood abuse (Kilpatrick et al., 2000 and Felitti et al., 1998), life threatening accidents, serious assault, rape, and witnessing severe injury (McFarlane, 1998).

Evidence is mixed regarding the prevalence of alcohol related problems in Hispanics compared to other ethnic groups. Kessler et al. (1994) found no differences between non-Hispanics and

English-speaking Hispanics, but other researchers have reported that Hispanics have a higher incidence of problems than do non-Hispanic Whites (Caetano, 1997), as well as higher prevalence of AUDs (Turner and Gil, 2001). The prevalence of AUDs is higher among Mexican Americans than among non-Mexican Americans (Burnam et al., 1987 and Vega et al., 1998), but also higher among Mexican Americans born in the U.S. (22%) than among those born in Mexico (9.4%) (Caetano and Clark, 2003 and Grant et al., 2004b).

In the U.S., the 12-month prevalence of alcohol misuse ranges from 1.3 to 3.8% for dependence and 3.1 to 4.7% for abuse (Grant et al., 2004a). In Mexico, the 12-month prevalence of any substance use disorder is 2.5% (WHO World Mental Health Survey Consortium, 2004). Lifetime prevalence in the U.S. is 5.4% for alcohol dependence and 13.2% for abuse (Kessler et al., 2005a and Kessler et al., 2005b). Lifetime prevalence for Mexican Americans is 11% for dependence (4.6% for women, 16.9% for men) and 3% for abuse (2.1% for women, 4.4% for men) (Vega et al., 1998). Lifetime prevalence in Mexico City was 8.2% for alcohol dependence and 3.1% for alcohol abuse (Vega et al., 1998) and in the Mexican National Survey on Psychiatric Epidemiology alcohol dependence was 5.9% (Medina-Mora et al., 2003).

1.2. Alcohol consumption patterns

Alcohol use is highly prevalent. Defined liberally as ever having one drink or more, rates are 83% in the U.S. (SAMHSA, 2004), 78–89% in Europe (Hupkens et al., 1993), and 67–84% throughout developed countries (World Health Organization, 1995). In the U.S., women drink less often than men (Nolen-Hoeksema, 2004), with 46% of women and 62% of men using alcohol within the past month (SAMHSA, 2004). However, 80% of women but 59% of men are light drinkers, consuming fewer than 3 drinks per week (National Center for Health Statistics, 2004). In the U.S., consumption peaks in young adulthood, but worldwide it appears to continue to increase with age (Glanz et al., 2002, World Health Organization, 1995). Socioeconomic status is also related to amount of alcohol consumed. Light-to-moderate drinking is the most prevalent consumption pattern in the middle and upper classes, but abstinence is the most prevalent pattern in the lower classes in Europe (see Van Oers et al., 1999).

Although Hispanic adults are more likely to abstain from alcohol than are non-Hispanic White adults (Galvan and Caetano, 2003), wide variations in alcohol consumption have been reported among Hispanic subgroups, with Mexican Americans showing higher prevalence than do Hispanics of Caribbean origin (Vega et al., 2003). The pattern of drinking in Mexican Americans appears to shift toward U.S. norms after only five years of being in the U.S. (Caetano and Medina-Mora, 1988).

In Mexico the legal drinking age is 18 years old. Compared to Mexican American men Mexican men tend to drink less often but more per occasion (Caetano and Medina-Mora, 1988), a pattern sometimes called "fiesta drinking" (Medina-Mora et al., 2000). Drinking and excessive drinking are less distinct (Medina-Mora, 1993, as cited in Medina-Mora et al., 2000). Women

drink less than men, and at least half abstain (64% in a 1989 study, 55% in a 1998 study; Medina-Mora et al., 2000). Abstinence is also common in rural Mazahua women (Nance, 2004).

Here we describe alcohol consumption and misuse in a probability sample from three diverse cities in Mexico. We test if alcohol-related behavior in our sample is consistent with existing research: if men drink more alcohol and have more problems with alcohol than do women, if abstinence is prevalent among those low in socioeconomic resources and among women, and if childhood abuse and other potentially traumatic events (PTEs) are related to alcohol misuse. We describe the profile of various groups defined by their drinking behavior and examine predictors. This information may foster greater cultural understanding and could potentially help reduce the prevalence of AUDs in Mexico and neighboring countries.

2. Methods

2.1. Sampling and interviewing procedures

Details of the sampling procedures for this study have been presented elsewhere (Norris et al., 2003). A multi-stage probability sampling design was used. Of the total tracts in each city 10% were randomly selected and then household units in numbers proportional to the population size of the tract area were chosen. Of eligible households (noneligible units were vacant lots or businesses) the male or female head of the household was asked if the household would participate in the study, and those that agreed completed a one hour sociodemographic interview about all members of the household. From this initial census, one adult was randomly selected for a 2-h, in-depth, psychological interview. Interviews were completed in private by trained, local interviewers in the respondent's home.

The complete normative study included four cities, but because the measure of alcohol use was not included in Oaxaca, three cities were included in this report. Data were collected in 1999 from Guadalajara, Mexico's second largest city, located in the central region. It is a modern, industrial city and an important commercial center ($n = 713$; response rate = 82%). Data were collected in 2001 from Hermosilla, located in the northwestern region in close proximity to the United States with a strong North American flavor ($n = 618$; response rate = 76%), and Mérida, a city with a rich colonial history located in the Yucatan Peninsula ($n = 602$; response rate = 70%). Study procedures were approved by institutional review boards in the United States and Mexico and were reviewed for adherence to federal (U.S.) guidelines for conducting research in international settings.

The proportion of women in the study (64%) was higher than it should have been (55%) according to the most recent Mexican census data. The bias appeared to occur at the point of selection for the psychological interview, but the reason for this was not clear. Fieldwork supervisors reviewed audiotapes of each interview and verified that the interviewer selected the appropriate adult (the one with the most recent birthday), regardless of who gave the

sociodemographic interview or who was home at that time. Analyses of the household demographic data indicated that female participants were quite representative of the larger population of women, but male participants underrepresented younger, lower-income, less-educated men. With effect sizes (d) in the range of .09 to .12, the magnitude of the bias appeared to be very small. For analyses of the total sample (men and women combined), weights were applied to correct the sex distribution to a 55:45 female to male ratio.

2.2. Measures

Alcohol abuse/dependence was assessed by using a 12-item measure used routinely at the University of Guadalajara Psychology Clinic. This measure has a *yes‑no* response format. The first item screened for use (12 or more drinks in lifetime) and remaining items were scored or skipped and coded *no* for persons who reported having less than 12 drinks in their lives. The scale also contains an item asking how many drinks, on average, the person consumes on one occasion: 1‑2, 3‑5, or more than 5. The total scale had an alpha coefficient of .79. The Guadalajara measure focuses on current alcohol-related problems and does not date their onset or yield a formal DSM-IV (American Psychiatric Association, 1994) diagnosis. Yet the scale does tap many indicators of AUDs.

Lifetime posttraumatic stress disorder (PTSD), general anxiety disorder (GAD), and major depressive disorder (MDD) were measured by using the Composite International Diagnostic Interview (CIDI), developed and translated into Spanish by the World Health Organization (World Health Organization, 1997). The PTSD module begins with a list of 10 potentially traumatic events that "sometimes happen to people". Measures of trauma exposure were computed by counting how many of the events happened to the respondents in their lifetimes, before they were 16, and before they were 12. Single and multiple occurrences of the same event were counted as one.

Demographic variables were also assessed. In the absence of reliable income data, an indicator of socioeconomic resources was created by combining a measure of material goods (showers, televisions, etc.) with education (after standardization). Personal possessions are related to the quality of living conditions in Mexican households, and education and material goods were highly correlated, r (1927) = .44,p < .001.

2.3. Data analysis strategy

Chi-square and one-way analyses of variance tests were conducted to test differences between groups of interest on alcohol consumption and misuse, using independent chi-squares or contrasts to interpret specific group differences. Multinomial logistic regression was used to test for predictors of alcohol use and misuse, as well as to compare the association of different traumatic experiences to alcohol use patterns.

Proxies for alcohol abuse and dependence were created. In an exploratory factor analysis of alcohol use data, varimax orthogonal rotation led to three factors, but the third factor was weak. When a two-factor solution was forced, two non-overlapping factors emerged (KMO statistic .82) that appeared conceptually to correspond to abuse and dependence. Five items loaded onto an abuse factor ($\alpha = .72$) that described adverse consequences of drinking, and six items loaded onto a dependence factor ($\alpha = .65$) that described consumption patterns (see Table 3). Because the scale lacked some DSM criteria (legal issues connected to drinking, time spent on alcohol thoughts and consumption), prevalence of alcohol related disorders could not be assessed yet descriptive data are presented for alcohol abuse and dependence factors.

3. Results

3.1. Sample characteristics

Women made up 64% of the sample, and the gender distribution was similar across cities. Age ($M = 40$, S.D. = 16, range 18‑92) and education ($M = 9$ years, S.D. = 5) did not differ between women and men. This level of education is somewhat higher that the national average (7.6 years) for Mexicans aged 15+ (INEGI, 2001). Education varied across cities, with Guadalajara averaging one year less than the other cities, $F(2, 1926) = 7.59$, $p < .001$, Tukey HSD p's < .05, and decreased with age, $r(1937) = -.36$. The index of socioeconomic resources (education and material goods combined) was normally distributed in all cities, but slightly higher in Hermosilla than Guadalajara, $F(2, 1924) = 12.27$, $p < .01$, Tukey HSD $p < .05$. Approximately 61% of the sample was married.

The average number of PTEs experienced during youth (through age 16) was higher for men (0.6) than for women (0.4), $t(1938) = 3.73$, $p < .001$. Sizable percentages of the sample met criteria for lifetime PTSD (men 8.2%, women 12.8%) and lifetime MDD (men 8.2%, women 15.1%), with greater prevalence in women than men for both disorders, $\chi^2(1, n = 1934) = 28.66$, and $\chi^2(1, n = 1933) = 22.41$, p's < .001. The percentages of men and women who had lifetime GAD did not differ (men 1.7%, women 2.9%).

3.2. Alcohol consumption in Mexico

A greater percentage of Mexican men (76.9%) than women (34.0%) had 12+ drinks in their lifetime (53.8% combined). Men also consumed more drinks per occasion than did women, $\chi^2(3, n = 1914) = 498.10$, $p < .001$. Men were more likely than were women to consume 3‑5 drinks per occasion (24.0% versus 12.0%) and especially more likely to consume over 5 drinks per occasion (35.5% versus 4.6%), single-d.f. χ^2 tests all p's < .001. Average consumption per occasion was inversely related to age, $r(1993) = -.13$, $p < .001$, for both men and women. Across age groups, the proportions of men and women who abstained from alcohol remained

stable, χ^2 (5, $n = 896$) = 8.29, n.s., and χ^2 (5, $n = 1043$) = 9.19, n.s., respectively. Levels of abstinence were also similar across cities, χ^2 (2, $n = 1941$) = 0.62, n.s.

3.3. Alcohol-related problems in Mexico

Drinking behavior was classified as (1) *abstinence*, having fewer than 12 drinks over the course of one's life ($n = 902$), (2) *drinking without misuse*, consuming 12+ drinks with no evidence of abuse or dependence ($n = 452$), or (3) *misuse*, consuming 12+ drinks and endorsing at least one indicator of alcohol abuse or dependence ($n = 577$). Cities did not differ in the distribution of this variable, χ^2 (2, $n = 1941$) = 0.85, n.s. Among men, 23% abstained, 28% drank but did not misuse, and 49% misused. Among women, 66% abstained, 20% drank but did not misuse, and 14% misused. Demographic profiles of men and women categorized by drinking behavior are displayed in Table 1.

Table 1
Profiles of groups defined by gender and drinking behavior

Variable		Abstain Men ($n=201$) Women ($n=701$) M (S.D.)	Drink ($n=242$) ($n=210$) M (S.D.)	Misuse ($n=426$) ($n=151$) M (S.D.)	Omnibus F/χ^2
Age	Men	39.14 (18.67)	39.82 (15.81)	38.49 (15.78)	
	Women	41.27 (16.89)[b]	42.34 (14.66)[b]	35.14 (14.10)[a]	12.13***
Education	Men	9.39 (4.43)[a]	10.91 (4.74)[b]	9.70 (4.57)[a]	6.12**
	Women	8.36 (4.48)[a]	9.45 (4.51)[b]	9.48 (4.27)[b]	8.39***
Material goods	Men	16.89 (5.80)[a]	19.20 (5.61)[b]	18.08 (5.97)[a]	7.06***
	Women	17.29 (5.77)	18.36 (5.71)	18.38 (6.14)	–
# Traumatic events Lifetime	Men	1.90 (1.80)[a]	2.18 (1.88)[a]	3.06 (2.06)[b]	24.48***
	Women	1.48 (1.61)[a]	1.77 (1.60)[a]	2.43 (1.95)[b]	24.01***
# Traumatic events Youth	Men	0.49 (0.91)	0.40 (0.81)[a]	0.72 (0.97)[b]	8.38***
	Women	0.38 (0.73)[a]	0.40 (0.77)[a]	0.68 (1.03)[b]	10.49***
# Traumatic events Child	Men	0.21 (0.54)	0.24 (0.65)	0.32 (0.68)	–
	Women	0.23 (0.56)[a]	0.26 (0.65)	0.47 (0.97)[b]	9.55***

Variable		Abstain Men ($n=201$) Women ($n=701$) %	Drink ($n=242$) ($n=210$) %	Misuse ($n=426$) ($n=151$) %	Omnibus F/χ^2
Married	Men	50.0	68.6	62.9	–
	Women	61.9	66.5	49.3	–
Lifetime PTSD	Men	5.5	2.9	7.5	–
	Women	10.6[a]	12.9[a]	23.0[b]	15.25***
Lifetime MDD	Men	8.0	5.4	9.9	–
	Women	13.0[a]	14.4[a]	25.2[b]	12.94***
Lifetime GAD	Men	2.5	0.8	1.6	
	Women	2.7	2.4	4.6	
Drinks per occasion					
1–2	Men	–	28.8	18.2	31.43***
	Women	–	66.8	29.1	57.43***
3–5	Men	–	41.1	26.1	
	Women	–	27.4	46.4	
>5	Men	–	30.1	55.6	
	Women	–	5.8	24.5	

$a < b$, $p < .001$, for individual χ^2 tests of percentages or contrasts for tests of mean differences.
** $p < .01$.
*** $p < .001$ for omnibus tests.

3.4. Predicting drinking behavior and potential alcohol problems in Mexico

A multinomial logistic regression was conducted in which sex, marital status (*unmarried* = 0, *married* = 1), age, socioeconomic resources, number of youth PTEs, lifetime psychological problems and two interaction terms for PTSD and MDD with sex were regressed onto drinking status. Persons who abstained and those that misused alcohol were compared to those who drank without misuse. The model was significant, $\chi^2(20) = 524.94$, $p < .001$, Cox and Snell pseudo $R^2 = .24$. Persons were more likely to abstain than to drink (without misuse) if they were female, not married, or lower in socioeconomic resources. Persons were more likely to misuse alcohol than to drink without misuse if they were male, had experienced more PTEs in their youth, had a history of PTSD or MDD, were younger, or had lower socioeconomic resources.

Because sex differences were large, logistic regressions were also conducted separately for men and women, omitting the interaction terms. Both models were significant; for men, $\chi^2(12, n = 695) = 67.13, p < .001$; for women, $\chi^2(12, n = 1197) = 79.72$, $p < .001$. Each explained 7% of the variance. Results were similar to the original model (see Table 2) with some additional findings for women. Women were less likely to abstain than to drink without misuse the older they were but more likely to misuse than to drink without misuse the younger they were. There was a trend for women who were depressed to be more likely to misuse ($p = .07$). In addition, women were more likely to misuse if they were not married.

Table 2
Multinomial logistic regression predicting drinking behavior

Predictor	Men		Women	
	B (S.E.)	OR (95% CI)	B (S.E.)	OR (95% CI)
Abstinence vs. drinking without misuse (reference group)				
Age	−0.002 (0.01)	1.00 (0.99–1.01)	−0.011 (.01)*	0.99 (0.98–1.00)
Socioeconomic resources	−0.259 (0.06)***	0.77 (0.68–0.87)	−0.193 (.05)***	0.82 (0.75–0.91)
# Traumatic events youth	0.086 (0.13)	1.09(0.85–1.40)	−0.046 (.11)	0.96 (0.77–1.19)
Married	−0.763 (0.21)***	0.47 (0.31–0.71)	−0.253 (.17)	0.78 (0.56–1.08)
Lifetime PTSD	0.429 (0.50)	1.54 (0.58–4.09)	−0.287 (.25)	0.75 (0.46–1.24)
Lifetime MDD	0.111 (0.39)	1.12 (0.51–2.44)	−0.143 (.23)	0.87 (0.55–1.36)
Lifetime GAD	1.260 (0.82)	3.52 (0.71–17.38)	0.201 (.51)	1.22 (0.45–3.01)

Predictor	Men		Women	
	B (S.E.)	OR (95% CI)	B (S.E.)	OR (95% CI)
Misuse vs. Drinking without misuse (reference group)				
Age	−0.003 (0.01)	1.00 (0.99–1.01)	−0.033 (0.01)**	0.97 (0.95–0.98)
Socioeconomic resources	−0.158 (0.05)**	0.85 (0.77–0.94)	−0.073 (0.07)	0.93 (0.81–1.07)
# Traumatic events youth	0.363 (0.10)***	1.44 (1.18–1.76)	0.168 (0.13)	1.18 (0.91–1.54)
Married	−0.125 (0.19)	0.88 (0.61–1.27)	−0.703 (0.23)*	0.50 (0.32–0.77)
Lifetime PTSD	0.684 (0.43)	1.98 (0.85–4.60)	0.431 (0.31)	1.54 (0.84–2.83)
Lifetime MDD	0.486 (0.33)	1.63 (0.85–3.12)	0.510 (0.28)	1.67 (0.96–2.90)
Lifetime GAD	0.515 (0.77)	1.67 (0.37–7.60)	0.641 (0.61)	1.90 (0.58–6.24)

* $p < .05$.
** $p < .01$.
*** $p < .001$.

Because amount of alcohol consumed is highly related to drinking problems, we ran two additional models including average consumption per occasion as a predictor, excluding non-drinkers. The models were significant for men, χ^2 (9, $n = 533$) = 77.05, $p < .001$, and women, χ^2 (9, $n = 411$) = 89.45, $p < .001$, and explained 11% and 22% of the variance, respectively. For men, heavy drinking was related to misuse, OR = 3.24, 95% CI (2.07‑5.08); lower socioeconomic resources still predicted misuse rather than drinking in this model, but number of youth PTEs did not. For women, both heavy drinking, OR = 7.82, 95% CI (3.54‑17.27), and moderate drinking, OR = 3.74, 95% CI (2.22‑6.30) were related to misuse, as were younger age, not being married, lifetime PTSD, and lifetime MDD.

3.5. Drinking and traumatic life events

The association of drinking status with various PTEs was examined by using logistic regression. The relationship between lifetime PTEs and alcohol use/misuse can be reciprocal in nature; many men reported that alcohol had caused them to incur some type of accident or injury. Therefore, youth as well as lifetime PTEs were examined because it is more likely that the former occurred before the use/misuse.

Lifetime PTEs that had a frequency of less than 7% were excluded or combined into categories. For each of the six categories of trauma that resulted (rape, physical assault, accident, loved ones event, witnessing an event, and bereavement), dummy variables were created and entered as independent variables. Because of the large sex differences in drinking behavior and event frequencies (Norris et al., 2003) regressions were conducted separately for men and women.

Both models were significant for lifetime exposure: for men, χ^2 (12, $n = 695$) = 87.42, $p < .001$, Cox and Snell pseudo $R^2 = .10$; for women, χ^2 (12, $n = 1197$) = 64.16, $p < .001$, pseudo $R^2 = .06$). Men who experienced physical assault in their lifetime were more likely to drink rather than to abstain, OR = .43, $p < .001$, and were 1.7 times more likely to misuse alcohol than to drink without misuse, $p < .01$. Men who had experienced sexual assault/molestation were 1.8 times more likely to misuse, $p < .05$. Women who had experienced an accident/disaster/fire in their lifetime were less likely than were other women to either abstain, OR = .62, $p < .01$, or misuse alcohol, OR = .62, $p < .05$. Women who had experienced sexual assault/molestation or traumatic bereavement were more likely than other women to misuse alcohol, OR = 2.74 and 1.95, respectively, p's < .01.

We repeated the analyses for youth PTEs, combined into similar groups: sexual/physical assault (combined due to low frequencies of occurrence), accident/disaster/fire, witnessing, and traumatic bereavement. Both models were significant: for men χ^2 (8, $n = 695$) = 20.07, $p < .05$, for women χ^2 (8, $n = 1197$) = 18.74, $p < .05$. The likelihood of men and women misusing alcohol was related to sexual/physical assault in childhood, OR = 3.80 and 2.85,

respectively, p's $< .01$. For women, traumatic bereavement during childhood made them 2.7 times as likely to misuse alcohol, $p < .05$.

3.6. Alcohol abuse and dependence

Table 3 presents descriptive data on abuse and dependence for participants who endorsed at least one misuse item. Abuse was more prevalent than was dependence, $t(1028) = 7.40$, $p < .001$. There were no differences in alcohol misuse total scores across the three cities, $F(2, 1928) < 1$, or on Dependence or Abuse scores (statistics not reported). Men endorsed more problems with alcohol than did women, $t(352.6) = 5.19$, $p < .001$, but this was true more for Abuse, $t(284.0) = 6.01$, $p < .001$, than for dependence.[1]

Table 3
Abuse and dependence among men and women who endorsed at least one misuse problem

	Statistic	Men	Women	χ^2
Total # indicators	M (S.D.)	2.92* (1.96)	2.14 (1.46)	
Abuse				
# Indicators	M (S.D.)	1.77* (1.22)	1.12 (1.13)	
Guilt over actions	%	65.7	57.0	n.s.
Forget things	%	49.2*	31.1	15.05
Family problems	%	29.3*	11.3	22.05
Accident or injury	%	23.0*	6.6	23.22
Lost friend	%	9.9	5.3	n.s.
Dependence				
# Indicators	M (S.D.)	1.16 (1.25)	1.02 (.94)	
Have several, not intending	%	31.3	29.8	n.s.
Drink more than before	%	25.4	33.1	n.s.
Drink faster than others	%	20.9	23.0	n.s.
Drink to calm self	%	16.0	13.2	n.s.
Drink to cure hangover	%	15.5*	2.0	25.67
Uneasy when not available	%	6.6*	0.7	11.50

* $p < .001$.

4. Discussion

Mexicans in these three cities are somewhat less likely to drink (54%) than are persons from developed countries (67–84%, World Health Organization, 1995). Although 77% of Mexican men in this sample drank, only 34% of the women had consumed more than 12 drinks in their lives, and of those women, 58% did not endorse a single item on the alcohol abuse/dependence scale. The level of women's abstinence in our study seems slightly higher than others reported, even though abstinence was defined over the lifetime in our study rather than for the past year, as

in Medina-Mora's (2000) study. As found in other research, the number of drinks consumed per occasion was related to misusing alcohol rather than to just drinking.

Our results are consistent with previous findings on gender differences (Medina-Mora et al., 2003, Nance, 2004 and Amaro et al., 1990) suggesting that Mexican women are more likely to abstain from alcohol than are Mexican men. Consistent with previous findings, our results indicate that Mexican men drink more per occasion and report more problems with alcohol than do Mexican women. Men endorsed more items related to both alcohol abuse and dependence than did women. These results are consistent with cultural norms in this country, that drinking is less acceptable for women except on special occasions (Medina-Mora, 2000).

Several demographic variables were related to drinking status in this sample. Low socioeconomic resources were related to abstinence, suggesting that in Mexico, drinking alcohol might be influenced by affordability. Men of higher resources were also more likely to drink without misuse than to misuse alcohol, a finding consistent with research revealing that higher education is related to less alcohol dependence and problems (Caetano, 1997 and Glanz et al., 2002). Traditional sex roles and women's greater care-giving responsibilities may explain why married men were more likely than unmarried men to drink than to abstain, whereas unmarried women were more likely than married women to misuse, if they drank. The average age of misusers was in the mid 30's, older than the norm in developed countries, but consistent with other findings showing that, for Mexican men, problems continue well beyond youth (Caetano, 1997). Advancing age was associated with consuming fewer drinks per occasion. For women, being older was associated with drinking without misuse, rather than abstaining or misusing.

Mexicans from these three cities were more likely to misuse alcohol if they had a history of PTSD or MDD. The number of youth PTEs was also related to misuse, especially for men. Taking average amount consumed per occasion into account decreased the predictive utility of the number of traumatic events on misuse of alcohol, suggesting that men may drink excessively to cope with previous trauma. As in the U.S. and Australia (Felitti et al., 1998, Kilpatrick et al., 2000, McFarlane, 1998 and Stewart, 1996), certain types of trauma were especially likely to be related to potential alcohol misuse. Consistent with previous findings (McFarlane, 1998 and Brienza and Stein, 2002), experiencing physical or sexual assault was related to some degree of alcohol misuse. Witnessing severe injury has previously been related to drinking problems (McFarlane, 1998) but was not here. These differences could be due to differential wording in the various trauma measures, or to cultural factors. Although it has been demonstrated that alcohol use often precedes violence-related injury in Mexico (Borges et al., 2004), the specific nature of the problems related to alcohol use must be further explored.

Perhaps due to the reciprocal nature of the relationship between adult traumatic experience and alcohol (e.g. drinking men may be more likely to participate in physical confrontations) drinking behavior was differentially related to youth and adult trauma. Youth trauma was not related to drinking as opposed to abstaining. Yet, sexual or physical assault during youth predicted misuse

of alcohol for both men and women, and traumatic bereavement in childhood also predicted misuse for women.

This study is somewhat limited because the alcohol scale administered did not capture frequency as well as quantity of alcohol consumed, nor did it address the particulars of drinking on special occasions that is found in Mexico (Medina-Mora, 2000). The scale was not diagnostic therefore the specific prevalence of AUDs in Mexico could not be assessed. However, some controversy exists over the consistency in structure of DSM-IV alcohol dependence for persons from the U.S. versus Mexico (Caetano et al., 1999) including differences between Mexicans and Mexican Americans in treatment (Caetano and Clark, 1999).

The design of this study was also cross sectional, and longitudinal research is needed to determine causality for certain relationships revealed. Although our study is limited by the strictly urban nature of the sample, 75% of Mexico's population lives in urban areas (Central Intelligence Agency, 2002). As noted, the sample may slightly underrepresent younger, less educated, low income men.

The study revealed several groups at risk for alcohol-related problems. Overall, men appear more at risk than women for alcohol-related problems. The results suggest that Mexican women may drink more responsibly than Mexican men, yet more research is needed to understand these sex differences. This research is consistent with previous findings that the prevalence of alcohol related problems increases with amount of alcohol consumed (Ely et al., 1999). This information may be of value to clinicians who aim to prevent and treat alcohol problems. Educational efforts need to communicate the adverse effects of heavy drinking and inform the public that brief interventions by health care professionals can reduce consumption and health problems in non-dependent "at risk" drinkers (Babor and Grant, 1992 and Kristenson et al., 1983), including in Mexico (Ayala et al., 1998 and Ayala et al., 1995).

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