Availability and consumption of different alcoholic beverages and use of drinking contexts among adolescents in three Mexican cities

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Abstract: Despite high rates of youth drinking in Mexico, little is known about the availability and consumption of specific types of alcoholic beverages within this population or the contexts in which alcohol is consumed.

Objectives: This descriptive study examined alcohol consumption, perceived availability, and purchase of different types of alcoholic beverages (i.e., beer, wine, tequila, other spirits, pre-mixed cocktails, alcohol energy drinks, homemade alcohol), and drinking contexts.

Methods: The sample comprised 594 students aged 12–17 in three cities in central Northeastern Mexico, where the legal drinking age is 18.

Results: Over half had consumed alcohol in the past year. Of past-year drinkers, almost 57% had consumed alcohol in the past 30 days. Over half of these students reported that they or their friends had purchased alcohol at an off-premise establishment for their personal consumption, and 40% had consumed it at an on-premise establishment. Beer, which almost 60% of the study’s adolescents thought was either fairly or very easy to get, was the most commonly consumed type of alcoholic beverage.

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PUBLIC INTEREST STATEMENT
This study examined availability and consumption of different types of alcoholic beverages and drinking contexts in a sample of 628 adolescents in three northeastern Mexico cities. Of 200 adolescents who drank alcohol in the past 30 days, 52% reported buying some type of alcohol at an off-premise establishment for their personal consumption, and 40% had consumed it at an on-premise establishment. Beer, which almost 60% of the study’s adolescents thought was either fairly or very easy to get, was the most commonly consumed type of alcoholic beverage.

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alcoholic beverage in the past 30 days. The majority of youth (70%) reported that their last drinking location was at home, someone else’s home, or a public place. Importantly, however, 39% of young drinkers reported that the last time they consumed alcohol was at an on-premise establishment, and most of these youth (90%) did so in the absence of their parents.

**Conclusions/Importance**: The findings suggest the need to implement and enforce measures to decrease retail and social alcohol availability to Mexican youth.

**Subjects**: Public Health Policy and Practice; Community Health; Epidemiology

**Keywords**: Mexico; youth; alcohol; availability; consumption; drinking contexts

The use of alcohol by underage youth represents a worldwide problem, with potential consequences that include impaired cognitive development, drink driving, violence and other forms of delinquency, risky sexual behavior, and dependence and misuse (National Research Council and Institute of Medicine, 2004; World Health Organization, 2014). There is consistent evidence of the association between alcohol availability and consumption among youth (e.g., Edwards et al., 1999; Gruenwald, 2011; Jones-Webb et al., 1997; Paschall, Grube, & Kypri, 2009), and of the effects of reducing availability—through policies such as raising the minimum legal drinking or purchase age—on consumption and related harms (Paschall et al., 2009; Wagenaar & Toomey, 2002; Wechsler & Nelson, 2010).

Despite efforts to reduce its availability, a majority of young people in many countries find alcohol easy to secure. For example, results of the 2015 European School Survey Project on Alcohol and Other Drugs indicated that, on average, 78% of 15-year-old students across 33 European countries reported that alcohol was either fairly or very easy to get (Kraus et al., 2016). In a recent study of youth in Caribbean and Latin American countries (but not Mexico), those who obtained alcohol from a store, shop, or street vendor were three times as likely to engage in heavy drinking as those who obtained alcohol only from their homes (Probst et al., 2018). These statistics demonstrate the need to implement and evaluate interventions to reduce alcohol availability to underage youth.

Less is known about underage access to alcohol in middle-income countries such as Mexico than in high-income countries. Among students in Mexico aged 12–17, the prevalence of past-30-day alcohol use rose steadily from 7.1% in 2002, to 11.5% in 2008, and then to 14.5% in 2011, the latest year for which national data are available (Medina-Mora et al., 2012).

The contexts in which youth drink alcohol can have implications for both the availability of alcohol and risks for alcohol misuse and related harms. Research in the U.S. indicates that underage youth often obtain alcohol from social sources (e.g., friends over 21 years old) at parties in private settings, where they may be unsupervised by adults (Paschall et al., 2009). Such contexts may increase the likelihood of heavy drinking and consequences such as blackouts, physical fighting, sexual assaults, and drink-driving (Grüne et al., 2017; Huckle, Gruenewald, & Ponicki, 2016; Mair, Lipperman-Kreda, Gruenewald, Bersamin, & Grube, 2015). Much less is known about drinking contexts among Mexican adolescents.

In this descriptive study, we investigate alcohol consumption, perceived availability, and purchase of different types of alcoholic beverages (beer, wine, tequila, other spirits, pre-mixed alcohol cocktails, alcohol energy drinks, and homemade alcohol) and the most recent drinking context among youth aged 12–17 in three cities in central Mexico, where the legal drinking age is 18 years. We also examine the extent to which alcohol availability and drinking contexts vary by age and sex. This study expands the knowledge base concerning the availability and consumption of alcoholic beverages among Mexican youth as well as the contexts in which they consume alcohol.
The findings may inform the development of interventions to prevent alcohol use and related problems for this population.

1. Methods

1.1. Overview and study sample

The data reported here were collected using a school-based survey conducted in 2016 in Zacatecas, Aguascalientes, and Guadalupe—all cities in northeastern Mexico. The survey was funded by Grupo Modelo and coordinated by the Comisión Nacional Contra las Adicciones (CONADIC), which had technical leadership over the development and administration of the survey. The mission of CONADIC, which is part of the Mexican Department of Health, is to support the prevention and treatment of addictions (Comisión Nacional Contra las Adicciones (CONADIC), 2018). A total of 628 surveys were collected in 10 schools. The anonymous self-administered survey took about 30 min to complete. Participating schools assumed responsibility for securing parents’ permission for their children to participate. At the beginning of the survey, students were informed that their participation was entirely voluntary and they did not have to complete it. This study is based primarily on a subsample of 350 students who reported drinking alcohol on one or more occasions in the past year.

1.2. Measures

1.2.1. Alcohol use

All students were asked “On how many occasions (if any) have you drunk any alcoholic beverage during the last 12 months?” using seven response options ranging from “None” to “40 or more times.” Of the 628 students, 594 (95%) provided valid responses to this question, and 350 (59%) reported using alcohol in the past year.

Students who reported alcohol use in the past year were then asked, “Thinking back over the past 30 days, on how many occasions (if any) have you had any of the following to drink . . . (a) beer, (b) wine, (c) tequila, (d) spirits (rum, vodka, whiskey, brandy), (e) drinks like Sky Blue, (f) alcoholic drinks mixed with energy drinks like Red Bull or Monster, (g) homemade alcoholic drinks?” Response options ranged from “None” to “40 or more.” We created a dichotomous variable for each type of alcoholic beverage to represent any consumption of that beverage type during the past 30 days.

1.2.2. Perceived availability of alcohol

All students were asked, “In your opinion, how difficult do you think it would be to get each of the following, if you wanted to . . . (a) beer, (b) wine, (c) tequila, (d) spirits (rum, vodka, whiskey, brandy), (e) drinks like Sky Blue, (f) alcoholic drinks mixed with energy drinks like Red Bull or Monster?” Five possible responses included “impossible,” “very difficult,” “fairly difficult,” “fairly easy,” and “very easy.” We created dichotomous variables indicating whether each type of alcoholic beverage was perceived as easy (fairly or very easy) or difficult (fairly or very difficult) to get.

1.2.3. Alcohol availability from off-premise commercial sources

Students who reported past-year alcohol use were asked, “Thinking back again over the last 30 days, on how many occasions have you (or one of your friends) bought the following types of alcoholic beverages in a store (grocery store, liquor store, kiosk, gas station, etc.) for your own consumption (off-premises) . . . (a) beer, (b) wine, (c) tequila, (d) spirits (rum, vodka, whiskey, brandy), (e) drinks like Sky Blue, (f) alcoholic drinks mixed with energy drinks like Red Bull or Monster, (g) homemade alcoholic drinks?” Six possible response options ranged from “None” to “20 or more.” We created a dichotomous variable for each type of alcoholic beverage to indicate whether it had been obtained from an off-premise establishment in the past 30 days.

1.2.4. Alcohol availability from on-premise commercial sources

Students who reported past-year alcohol use were asked, “Thinking back again over the last 30 days, on how many occasions (if any) have you drunk the following types of alcoholic beverages
in a pub, bar, restaurant or disco (on premises) ... (a) beer, (b) wine, (c) tequila, (d) spirits (rum, vodka, whiskey, brandy), (e) drinks like Sky Blue, (f) alcoholic drinks mixed with energy drinks like Red Bull or Monster, (g) homemade alcoholic drinks?". Six possible response options ranged from “None” to “20 or more.” We created a dichotomous variable indicating whether a respondent reported drinking each type of beverage in an on-premise establishment in the past 30 days.

1.2.5. Drinking contexts
Students were asked, “Where were you the last time you drank an alcoholic beverage?” Six possible responses included (a) “At home,” (b) “At someone else’s home,” (c) “On the street, in the park, on the beach, or any other public place,” (d) “In a bar,” (e) “In a club,” and (f) “In a restaurant.” They were also asked “Who were you with the last time you drank an alcoholic beverage?” Possible responses included (a) “Partner,” (b) “Older friends,” (c) “Younger friends,” (d) “Friends of the same age,” (e) “Older brothers and/or sisters,” (f) “Younger brothers and/or sisters,” (g) “Parents,” (h) “Other adult family members,” (i) “Family members of the same age,” and (j) “Other.” Respondents could select more than one of these responses.

1.2.6. Demographic characteristics
Students reported their age and sex. Because the age range was 12–17, we created a dichotomous variable to represent two age groups: 12- to 14-year olds and 15- to 17-year-olds.

All survey items included “Don’t know” and “I’d rather not say” as response options. We treated these responses as missing. All surveys were administered in Spanish. A copy of the survey instrument is available upon request from the first author.

1.3. Data analysis
We first examined characteristics of past-year drinkers and non-drinkers for the total sample of students. We then examined prevalence rates for consumption and availability of the different types of alcoholic beverages and the most recent drinking contexts for the sub-sample of past-year drinkers, and then separately for age groups and sex. We assessed age group and sex differences in prevalence rates for consumption and availability of the different types of alcoholic beverages and drinking contexts, using multi-level logistic regression analyses to account for nesting of students within schools. We conducted these analyses using HLM version 7.01 software (Raudenbush, Bryk, Cheong, Congdon, & Du Tait, 2011).

2. Results

2.1. Sample characteristics
The mean age of the sample of 594 students who responded to the survey was 14.7 (range: 12-17) and about 45% of the sample was male (Table 1). Overall, 59% of the students reported any alcohol use in the past year and 62% thought alcohol would be either fairly or very easy to get if they wanted it. Of 350 students who drank in the past year, 57% reported any alcohol use in the past 30 days. Students who drank in the past year were significantly older than non-drinkers (14.9 years vs. 14.5 years), and a higher percentage of past-year drinkers were male (47% vs. 41%), although this difference was not statistically significant. A significantly higher percentage of past-year drinkers thought alcohol would be fairly or very easy to get (78%) compared to non-drinkers (39%).

2.2. Alcohol use and availability
Table 2 shows the percentages of past-year drinkers who reported (a) consuming each type of alcoholic beverage at least once in the past 30 days, (b) that they or a friend had obtained each type of alcoholic beverage at an off-premise establishment at least once in the past 30 days, (c) drinking each type of alcoholic beverage at an on-premise establishment at least once in the past 30 days, and (d) stating that each type of alcoholic beverage would be either fairly or very easy to get if they wanted it. As this table indicates, in the past 30 days about 52% of these students bought alcohol at an off-premise establishment, and 40% had consumed alcohol at an on-premise...
establishment. The most prevalent type of alcohol that students drank in this period was beer (50%). Fifty-nine percent reported that beer was fairly or very easy to get, 46% reported that they or their friends had bought beer at an off-premise establishment, and 34% had consumed beer at an on-premise establishment.

The next most prevalent types of alcohol consumed were tequila (27%) and other spirits (23%), while about 35% reported drinking any type of spirits in the past 30 days. About 42% indicated that tequila was either fairly or easy to get, as were wine and pre-mixed cocktails. Although the prevalence of past-30-day use of alcohol and energy drinks was limited, more than half of respondents said they were readily available.

2.3. Age group comparisons
Table 3 shows age group comparisons for consumption and perceived availability of different types of alcoholic beverages among past-year drinkers. The prevalence of past-30-day consumption of any type of alcohol increased markedly from early (41%) to late adolescence (65%). This increase was particularly notable for beer, wine, tequila, and other spirits. Consumption of premixed cocktails, alcohol and energy drinks, and homemade alcohol did not increase significantly with age. The percentage of adolescent drinkers who purchased alcohol, at both on- and off-premise establishments, also increased significantly with age. This was true for all types of alcohol except premixed cocktails, alcohol and energy drinks, and homemade alcohol. Similarly, the availability of alcohol increased significantly with age. This was true for all types of alcohol except alcohol mixed with energy drinks, for which availability rose from 45% at 12–14 to 56% at 15–17, although the difference was not statistically significant.

2.4. Comparisons by sex
As shown in Table 4, male and female past-year drinkers did not differ significantly with respect to consumption of any of the different types of alcoholic beverages in the past 30 days. Male and female drinkers were also similar with respect to purchasing different types of alcoholic beverages at off-premise establishments and consuming different types of alcoholic beverages at on-premise establishments. The perceived availability of different types of alcoholic beverages was also similar for male and female drinkers, though males were somewhat more likely to believe that beer and alcohol energy drinks would be fairly easy or very easy to get.

2.5. Drinking contexts
Table 5 shows that the majority of drinkers reported being at someone else’s home, their own home, a public place (street, park, beach, or other public place), or a party the last time they drank an alcoholic beverage. Smaller percentages reported drinking at a bar, club, restaurant, ranch, or some other location. Though not reported in Table 5, students were most likely to report drinking with friends the same age (50.6%), older friends (37.7%), parents (18.3%), and older siblings (16.9%). Only about 10% of students whose last drink was at a bar, club, or restaurant indicated that parents were present.

Table 1. Sample characteristics, mean (SD) or percent

| Variable                              | Total sample (N = 594) | Past-year drinkers (n = 350) | Non-drinkers (n = 244) |
|---------------------------------------|------------------------|-----------------------------|-----------------------|
| Age                                   | 14.7 (1.4)             | 14.9 (1.4)                  | 14.5 (1.5)**          |
| Male (%)                              | 44.6                   | 47.4                        | 40.6                  |
| Past-year alcohol use (%)             | 58.9                   |                             |                       |
| Past-30-day alcohol use (%)           | —                      | 56.6                        | —                     |
| Alcohol is fairly easy or very easy to get (%) | 62.0              | 78.0                        | 38.9**                |

**p < .01.
Table 2. Among past-year drinkers (n = 350), percentage reporting past-30-day use and availability of alcohol at commercial establishments, and perceived availability of alcohol, by beverage type

| Variable                             | Beer | Wine | Tequila | Spirits other than tequila | Any spirits | Pre-mixed cocktails | Alcohol and energy drinks | Homemade alcohol | Any alcohol |
|--------------------------------------|------|------|---------|------------------------------|-------------|----------------------|--------------------------|------------------|-------------|
| Past-30-day use                      | 49.7 | 23.7 | 27.4    | 23.4                         | 35.1        | 20.0                 | 21.7                     | 11.4             | 56.6        |
| Bought at off-premise establishment  | 46.0 | 20.3 | 20.9    | 20.0                         | 26.9        | 17.1                 | 20.0                     | 7.7              | 51.7        |
| Drank at on-premise establishment    | 34.3 | 13.4 | 16.0    | 15.4                         | 20.9        | 12.0                 | 9.7                      | 5.1              | 40.3        |
| Fairly easy or very easy to get      | 59.1 | 38.5 | 42.2    | 31.7                         | 46.9        | 40.9                 | 52.1                     | —                | 78.0        |
| Variable                        | Age group  | Beer | Wine | Tequila | Spirits other than tequila | Any spirits | Pre-mixed cocktails | Alcohol and energy drinks | Homemade alcohol | Any alcohol |
|--------------------------------|------------|------|------|---------|-----------------------------|-------------|---------------------|--------------------------|-----------------|-------------|
| **Past-30-day use**            | 12–14      | 32.8 | 15.5 | 20.7    | 13.8                        | 24.1        | 15.5                | 21.6                     | 12.1            | 40.5        |
|                                | 15–17      | 58.1 | 27.8 | 30.8    | 28.2                        | 40.6        | 22.2                | 21.8                     | 11.1            | 64.5        |
| **OR**                         |            | 2.85** | 2.09* | 1.70*   | 2.45**                      | 2.15**      | 1.55                | 1.01                     | 0.91            | 2.67**      |
| Bought at off-premises         | establishment | 12–14 | 27.6 | 13.8    | 11.2                        | 12.9        | 14.7                | 12.1                     | 18.1            | 6.9         |
|                                | 15–17      | 55.1 | 23.5 | 25.6    | 23.5                        | 32.9        | 19.7                | 20.9                     | 8.1             | 60.3        |
| **OR**                         |            | 3.22** | 1.92  | 2.73**  | 2.07*                       | 2.86**      | 1.78                | 1.20                     | 1.19            | 2.88**      |
| Drank at on-premises           | establishment | 12–14 | 22.4 | 12.1    | 9.5                         | 6.0         | 10.3                | 9.5                      | 9.5             | 28.4        |
|                                | 15–17      | 40.2 | 14.1 | 19.2    | 20.1                        | 26.1        | 13.2                | 9.8                      | 4.7             | 46.2        |
| **OR**                         |            | 2.32** | 1.19  | 2.27*   | 3.91**                      | 3.06**      | 1.46                | 1.04                     | 0.77            | 2.16**      |
| Fairly easy or very easy to get| 12–14      | 40.2 | 25.2 | 22.8    | 15.9                        | 28.4        | 21.7                | 45.2                     | —               | 65.5        |
|                                | 15–17      | 68.3 | 45.0 | 51.7    | 39.5                        | 56.0        | 50.7                | 55.7                     | —               | 84.2        |
| **OR**                         |            | 3.20** | 2.43** | 3.63**  | 3.44**                      | 3.20**      | 3.69**              | 1.52                     | —               | 2.80**      |

*12–14 is the referent age group.
*p < .05, **p < .01.
Table 4. Comparisons by sex of past-30-day use and availability of alcohol at commercial establishments, and perceived availability of alcohol among past-year drinkers, by beverage type, percentage and odds ratio (OR)

| Variable                        | Sex | Beer | Wine | Tequila | Spirits other than tequila | Any spirits | Pre-mixed cocktails | Alcohol and energy drinks | Homemade alcohol | Any alcohol |
|---------------------------------|-----|------|------|---------|----------------------------|-------------|----------------------|--------------------------|-----------------|-------------|
| **Past-30-day use**             |     |      |      |         |                            |             |                      |                          |                 |             |
| Female                          | 50.5| 21.7 | 26.1 | 22.8    | 33.7                       | 21.2        | 22.3                 | 10.3                     | 56.0            |             |
| Male                            | 48.8| 25.9 | 28.9 | 24.1    | 36.7                       | 18.7        | 21.2                 | 12.7                     | 57.2            |             |
| OR                              | 0.97| 1.21 | 1.15 | 1.09    | 1.14                       | 0.88        | 0.95                 | 1.26                     | 1.07            |             |
| **Bought at off-premises**      |     |      |      |         |                            |             |                      |                          |                 |             |
| Female                          | 45.1| 18.5 | 20.7 | 18.5    | 23.9                       | 17.9        | 19.6                 | 7.1                      | 50.5            |             |
| Male                            | 47.1| 22.3 | 21.1 | 21.7    | 30.1                       | 16.3        | 20.5                 | 8.4                      | 53.0            |             |
| OR                              | 0.95| 1.25 | 1.05 | 1.25    | 1.14                       | 0.88        | 1.14                 | 1.21                     | 1.19            |             |
| **Drank at on-premises**        |     |      |      |         |                            |             |                      |                          |                 |             |
| Female                          | 32.6| 13.0 | 15.8 | 15.8    | 21.7                       | 14.7        | 10.3                 | 3.8                      | 39.1            |             |
| Male                            | 36.1| 13.9 | 16.3 | 15.1    | 19.9                       | 9.0         | 9.0                  | 6.6                      | 41.6            |             |
| OR                              | 1.22| 1.07 | 1.07 | 1.00    | 0.93                       | 0.93        | 0.91                 | 1.79                     | 1.15            |             |
| **Fairly easy or very easy to get** |     |      |      |         |                            |             |                      |                          |                 |             |
| Female                          | 56.4| 37.9 | 41.8 | 33.3    | 46.7                       | 40.0        | 47.8                 | —                        | 77.7            |             |
| Male                            | 62.1| 39.0 | 42.7 | 29.9    | 47.0                       | 41.9        | 57.0                 | —                        | 78.3            |             |
| OR                              | 1.42| 1.06 | 1.13 | 0.97    | 1.09                       | 1.13        | 1.47                 | 1.09                     |                 |             |

*Female is the referent group.*
2.6. Age and sex comparisons

Among past-year drinkers, older students were significantly less likely than younger students to report drinking at home and were significantly more likely to report drinking at a bar or club. Males were significantly more likely than females to report drinking in a public place, but were less likely than females to report drinking at a club.

3. Discussion

In a sample of 594 students aged 12–17 in two urban areas in central Mexico, we found that over half had consumed alcohol in the past year, and that of these past-year drinkers, almost 57% had consumed alcohol in the past 30 days. In addition, over half of students who drank alcohol in the past year reported that they or their friends had purchased alcohol at an off-premise establishment for their personal consumption and 40% had consumed it at an on-premise establishment, almost always in the absence of their parents. Further, over three-quarters of past-year drinkers reported that alcohol was fairly or very easy to get from either a commercial or social source, a significantly higher percentage than non-drinkers.

This study also provides a preliminary indication of the relative use and availability of different types of alcoholic beverages among young drinkers in Mexico. Beer was the most prevalent type of alcoholic beverage consumed in the past 30 days, with half of the past-year drinkers reporting drinking it. Almost 60% of the past-year drinkers thought it was fairly or very easy to get. We found that a higher percentage of adolescents obtained beer from off- than on-premise establishments. Notably, most beer retailers in this area of Mexico are independently operated.

We also found that 35% of the past-year drinkers consumed spirits, and in particular tequila, in the 30 days prior to the survey. Almost half the sample considered spirits readily accessible, and one-quarter had purchased them from off-premise establishments. The prevalence of past-30-day use of other types of alcoholic beverages was somewhat lower, as was their accessibility from both on- and off-premise establishments.

In an effort to reduce youth access to alcohol, a major beer producer has launched a mystery shopper program targeting off-premise purchases in Zacatecas and Aguascalientes.

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Table 5. Most recent drinking location among past-year drinkers, by age group and sex, percentage and odds ratio (OR)

| Location             | Past-year drinkers | 12–14 | 15–16 | OR\(^a\) | Female | Male | OR\(^b\) |
|----------------------|--------------------|-------|-------|----------|--------|------|---------|
| Home                 | 19.8               | 27.0  | 16.3  | 0.54*    | 20.2   | 19.4 | 0.89    |
| Someone else’s home  | 30.8               | 33.3  | 29.5  | 0.72     | 34.8   | 26.2 | 0.72    |
| Public place         | 20.4               | 23.4  | 18.9  | 0.77     | 12.9   | 28.7 | 2.7**   |
| Bar                  | 7.7                | 0.9   | 11.0  | 14.5*    | 7.3    | 8.1  | 1.18    |
| Club                 | 5.9                | 0.9   | 8.4   | 10.2*    | 8.4    | 3.1  | 0.34*   |
| Restaurant           | 2.1                | 0.9   | 2.6   | 3.03     | 2.8    | 1.2  | 0.44    |
| Party                | 11.2               | 10.8  | 11.5  | 1.36     | 12.4   | 10.0 | 0.73    |
| Ranch                | 1.2                | 1.8   | 0.9   | 0.59     | 0      | 2.5  | —       |
| Other                | 0.9                | 0.9   | 0.9   | 0.99     | 1.1    | 0.6  | 0.55    |

\(^a\)12–14 is the referent age group.  
\(^b\)Female is the referent group.  
\(^*p < .05, **p < .01.\)
The program deploys underage shoppers to try to buy alcohol and sanctions vendors that sell to them. If this strategy is successful in reducing youths’ perceptions of alcohol availability, future research should look for a tipping point at which access difficulty begins to reduce consumption. Because student drinking rates and contexts did not differ by sex, the mystery shopper program is using both male and female shoppers. A responsible beverage service or mystery shopper intervention is also needed for on-premise vendors. Study findings suggest that these vendors are generally serving youth who are unaccompanied by a parent.

Enforcement by law enforcement agencies constitutes another potential intervention strategy. While resource-intensive, the use of law enforcement to cite or otherwise penalize vendors who sell to minors could curb sales to this population. If coupled with media reports of increased enforcement, adolescents’ perception of ease of purchase could change.

Finally, about 22% of the 12- to 14-year-old drinkers in this sample had purchased and drunk alcohol and energy drinks in the 30 days prior to the survey, and fully half of these younger adolescents considered them fairly or very easy to get. This finding is of concern given the multiple risky behaviors associated with consumption of these drinks (Brache & Stockwell, 2011; Pennay & Lubman, 2012). Further, 11% of the past-year drinkers had consumed home-made alcohol. This finding is also concerning because of the lack of control over its production, quality, and content.

3.1. Study limitations
This study has several limitations. The two most prominent of these are its cross-sectional nature, which precludes any causal attributions in this descriptive paper, and the non-random sample of students recruited for the survey. In addition, FLACSO did not report participation rates by the schools that were asked to take part in the survey. Similarly, parental consent and youth assent rates were not reported by school and classroom, so that the degree to which the sample is representative of participating schools and students is not known. These students were also enrolled in public schools, which are typically attended by adolescents from lower socioeconomic backgrounds. It is not known how availability and consumption patterns may differ among students from higher socioeconomic communities. It is also the case that the survey did not include youth not in school, who may well have different access and drinking patterns. It is also unclear if our findings apply to other cities and states in Mexico. The only specific alcohol type included on the survey was tequila; it might be helpful to know more about youths’ preferences concerning specific alcohol types (and even brands). For example, Corona is brewed in Zacatecas and dominates the beer market there. Finally, although anonymous, responses to the survey questions may have been subject to social desirability bias (e.g., under-reporting alcohol use) and recall error.

4. Conclusions
Our findings suggest that alcoholic beverages, particularly beer, are perceived by students in the sample as easy to obtain. They are readily available to underage drinkers from commercial sources in these central Mexican cities. These findings strongly indicate that preventive interventions are needed to reduce youths’ access to both on- and off-premise commercial sources of alcohol in Mexico. Potential interventions include increased enforcement of underage sales laws through compliance checks, mystery shopper or Reward and Reminder programs that use minors or apparent minors as purchasers and provide feedback on staff performance (Erickson, Smolenski, Toomey, Carlin, & Wagenaar, 2013; Flewelling et al., 2013; Moore et al., 2012; Toomey et al., 2008); and responsible beverage sales and service programs. This study should be replicated on a larger scale in Mexico to determine if the consumption patterns and availability of different types of alcoholic beverages are similar in the general population of Mexican adolescents.
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Competing Interest
The authors declare no competing interests.

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