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## Knowledge about health risks and drinking behavior among Hispanic women who are or have been of childbearing age <sup>1</sup>

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### Abstract

In this study, 99 Mexican American women colonia residents who are or had been of childbearing age were assessed for English language skills, alcohol use, beliefs about health risks related to drinking, and awareness of warning labels on alcohol beverage containers. English language skills significantly predicted participants' ability to remember health warnings on beverage containers whereas greater awareness of nutritional information on labels was associated with lesser amounts of alcohol consumed. Beliefs that drinking during pregnancy is helpful and not associated with liver and cognitive problems were significantly associated with higher alcohol consumption, and beliefs that drinking helps when pregnant along with a reported history of drinking during a previous pregnancy significantly predicted self-reported drinking during a most recent pregnancy. The study represents a first step toward understanding how beliefs about drinking risks may be associated with alcohol use among Hispanic women.

### Keywords

alcohol; Hispanic; women; health warning labels; pregnancy

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Women have increased risks for health problems associated with alcohol misuse such as breast cancer (Tavani et al., 1999), infertility (Hruska et al., 2000), and complications with pregnancies (e.g., Connor & Streissguth, 1996). In addition, health problems such as diabetes and heart disease, which have high prevalence rates in Hispanic women, and liver diseases, which are the tenth leading cause of death among this group, have been associated with alcohol misuse (Carlsson et al., 2005; Centers for Disease Control and Prevention, 2002; Rehm et al., 2003). One report found that less than one-third of the Hispanics were aware of warning labels on liquor bottles (NIAAA, 1997). The aim of this study was to investigate the knowledge of Mexican origin women living in colonias about potential health risks related to drinking behavior.

### Method

#### Participants

Ninety-nine Hispanic women participants ages 15–67 ( $M = 36.01$  years;  $SD = 13.05$ ) constituted the sample. Mean years of education for this sample was 11.40 years ( $SD = 3.05$ ). All participants were American citizens of Mexican origin with 23 born in Mexico. Two

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participants also reported indigenous roots and one participant reported El Salvadoran descent. Seventy participants reported being pregnant at least once.

## Measures

The measures used in the study were selected after consultation with promotoras (i.e., community health educators) and interviews were conducted in the preferred language of the participant. Demographic variables such as age, years of residence in the residence in U.S. divided by age (for a percentage of life time lived in U.S. score), and education level were obtained. Age and variables related to exposure to U.S. culture were used as control variables in subsequent analyses. All participants completed a test of English language competence known as the Basic English Skills Test (BEST; Center for Applied Linguistics, 1988) scored on a scale of 0–40. The Form 90 Steady Pattern Chart (Miller, 1996) was used to determine total alcohol consumption over the 90 day period immediately preceding the assessment period. In addition, participants were asked about their knowledge of health risks subsequent to alcohol use and drinking behavior during pregnancy (see Table 1 for the questions). Finally, the participants were asked questions about what they remembered from the labels on alcoholic beverage bottles by means of an Alcohol Beverage Label Interview (ABLI). During the pre-label exposure condition, participants first were prompted three times to recall everything they remembered being printed or written on a liquor label bottle, like a beer bottle, wine bottle, or a tequila bottle. If a participant freely recalled a pregnancy health risk warning on labels during this part of the interview, then the response was coded “1.” For the post-exposure portion of the ABLI, participants were handed an empty beer bottle with a label in English that included a pregnancy warning on it and asked to describe everything they saw on the labels. Identifying a warning label during exposure to the bottle condition was coded as “2” whereas those who did not identify a warning were coded as “3.” In addition, any responses that were made by participants with regard to nutrition information and/or calories on alcohol beverage labels were noted as well and responses coded similarly: “1” for free recall, “2” for recognition when exposed to the label, and “3” for never identifying nutrition information and/or calories on beverage labels.

## Procedure

Participants were recruited at primary health care clinics and central neighborhood locations such as convenience stores. After obtaining informed consent, participants completed the sociodemographic questions; BEST; the Form 90; survey questions about knowledge regarding potential health risks related to alcohol consumption and about drinking during pregnancy; and the ABLI, and were compensated with a \$25 gift card to a local market (for greater details on study methods, please contact the first author). Community, university, and clinic IRBs approved the study.

## Results

Forty percent of participants completed the interview in Spanish. Mean total alcohol consumption by participants during the 90 day period preceding the study assessment was 256.02 ( $SD = 367.94$ ) standard drinks, and the mean total BEST score was 35.38 ( $SD = 11.89$ ). Because of wide ranging distribution of results for total alcohol consumption and BEST scores, square root transformations were conducted and used for subsequent analyses. ANOVA indicated significant mean score differences by how the warnings about drinking while pregnant were remembered ( $F(2, 96) = 21.43, p < .001$ ). A post hoc Scheffé test (Table 2) revealed significantly lower mean BEST scores for those who never remembered the warning labels than for participants who were able to free recall or remembered the labels when prompted with the bottle. A second ANOVA found no significant differences for total

transformed alcohol consumption scores by how pregnancy warning labels on beverage bottles were recalled ( $F(2, 96) = 0.93$ ).

Using multiple regression (Table 3), stronger beliefs that drinking can help when pregnant and lesser beliefs that chronic drinking can contribute to cognitive and liver problems were found to significantly predict greater transformed alcohol consumption rates ( $R^2 = .33$ ;  $F(9, 88) = 4.76$ ;  $p < .001$  for the full model). Using multiple regression again (Table 4), younger age and a smaller percentage of years living in the United States and lesser recall of nutrition labels significantly predicted greater transformed alcohol consumption scores ( $R^2 = .14$ ;  $F(4, 93) = 3.87$ ;  $p < .01$  for the full model) whereas of pregnancy warning labels was not found to be predictors in the model. Finally, another multiple regression analysis (Table 5) found beliefs that larger amounts of drinking may be required to harm an unborn child, greater beliefs that drinking can help when pregnant, and greater drinking during a previous pregnancy were associated with greater numbers of drinking events during pregnancy ( $R^2 = .61$ ;  $F(7, 62) = 14.00$ ;  $p < .001$ ).

## Discussion

The study results support the hypothesis that English skills may be associated with awareness of content of labels on alcohol beverage containers. However, increased awareness of nutritional information and not health warnings related to pregnancy was found to significantly predict lesser amounts of drinking. Concerns about nutrition and calories may provide motivation to consume less alcohol among Hispanic women, but this hypothesis needs to be tested in future research. In addition, beliefs that drinking during pregnancy is not harmful and perhaps could be helpful may promote risky drinking during that time. On the other hand, increased certainty that chronic heavy drinking can cause cognitive and liver problems predicted lower alcohol consumption.

Results of this cross sectional study should be interpreted with caution because of design limitations and sample selection for the study may have inadvertently been biased toward more highly acculturated Mexican origin women. In addition, the assessment of various drinking beliefs was limited by subjective participant responses. The study represents a first step toward understanding how beliefs about the potential health risks of chronic drinking and how awareness of label information on alcohol beverage containers may be associated with drinking behavior among Mexican origin women.

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**Table 1**Questions concerning knowledge of health risks associated with alcohol misuse and alcohol use during pregnancy

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1. Drinking alcohol can hurt an unborn child
  2. Drinking alcohol can help you when you are pregnant
  3. Drinking lots of alcohol for many years may cause breast cancer and other cancers
  4. Drinking lots of alcohol for many years may cause heart problems
  5. Drinking lots of alcohol for many years may cause problems with how you think
  6. Drinking lots of alcohol for many years may cause problems with your liver
  7. Drinking lots of alcohol for many years may affect the amount of sugar in your blood
- Note: Range of scores for above questions (0 = disagree; 1 = unsure; 2 = agree).*
8. How much alcohol can hurt an unborn child? (0 = does not hurt child; 1 = one drink; 2 = several drinks)
  9. Drinking alcohol can help you when you are pregnant (0 = never; 1 = sometimes; 2 = frequently)
  10. I drank alcohol when pregnant (0 = never; 1 = sometimes; 2 = frequently)
- A curandero (i.e., community folk healer) said that drinking alcohol might help me during pregnancy (0 = never; 1 = sometimes; 2 = frequently)
11. My family said that drinking alcohol would help me during pregnancy (0 = never; 1 = sometimes; 2 = frequently).
  12. How many times did you drink alcohol during your most recent pregnancy (0 = did not drink; 1 = 1 time; 2 = 2 times; 3 = 3 times; 4 = 4 times; 5 = 5 times; 6 = 6 or more times).
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**Table 2**  
Group mean differences for transformed BEST test scores by level of recall for pregnancy warning labels

Groups compared	Mean Differences	SE
No recall vs. free recall	-2.13 <sup>***</sup>	.43
No recall vs. recognition	-2.42 <sup>***</sup>	.37

Notes: Comparisons analyzed using the Scheffé test.

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 $p < .001$

**Table 3**

Regression model predicting square root of total alcohol consumption for 90 days (N = 98)

Predictor Variable(s):	Beta	t	95% C. I.
Age	-.174	-1.83	-.24, .01
Percentage of years living in US	-.169	-1.73	-11.72, .80
Drinking can hurt fetus	-.009	-0.01	-3.62, 3.28
Drinking can help pregnancy	.290	2.96**	3.11, 15.82
Drinking may cause cancers	-.058	-0.57	-3.84, 2.14
Drinking may cause heart problems	.052	0.49	-2.37, 3.91
Drinking may cause cognitive problems	-.220	-2.24*	-7.75, -.47
Drinking may cause liver problems	-.287	-3.04**	-18.50, -3.88
Drinking may cause glucose problems	.005	0.06	-2.86, 3.02

Notes:  $R^2 = .33$ ;  $F(9, 88) = 4.76$ ;  $p < .001$  for the full model. Betas, t values, and 95% confidence intervals for each regression coefficient listed are for the full model. \* $p < .05$ ; \*\* $p < .01$ .

**Table 4**  
Regression model predicting square root of total alcohol consumption for 90 days (N = 98)

Predictor Variable(s):	Beta	t	95% C. I.
Age	-.251	-2.47 <sup>*</sup>	-.30, -.03
Percentage of years living in US	-.286	-2.86 <sup>**</sup>	-15.79, -2.84
When Ss Remembered Nutrition Label	-.235	-2.42 <sup>*</sup>	-11.75, -1.16
When Ss Remembered Warning Labels	.114	1.16	-1.05, 4.01

Notes:  $R^2 = .14$ ;  $F(4, 93) = 3.87$ ;  $p < .01$  for the full model. Betas, t values, and 95% confidence intervals for each regression coefficient listed are for the full model.

\*  $p < .05$ ;

\*\*  $p < .01$ . Ss = Subjects of the study.



**Table 5**  
Regression model predicting number of drinking events during most recent pregnancy (N = 70)

Predictor Variable(s):	Beta	t	95% C. I.
Age	-.026	-0.33	-.02, .02
Percentage of years living in US	-.011	-0.14	-.68, .60
How much alcohol hurts fetus?	.201	2.47*	.09, .88
Drinking alcohol helps when pregnant	.392	2.73**	.42, 2.73
Drank alcohol when pregnant before	.356	4.19***	.48, 1.34
A curandero suggested drinking	.174	1.16	-.51, 1.91
Family suggested drinking	-.031	-0.37	-.70, .48

Notes:  $R^2 = .61$ ;  $F(7, 62) = 14.00$ ;  $p < .001$  for the full model. Betas, t values, and 95% confidence intervals for each regression coefficient listed are for the full model.

\*  $p < .05$ ;

\*\*  $p < .01$ ;

\*\*\*  $p < .001$ .