Published in final edited form as:

Addict Behav. 2017 December ; 75: 36–39. doi:10.1016/j.addbeh.2017.06.023.

Translation and Psychometric Properties of a Spanish Version of the College Alcohol Problems Scale

Brian E. McCabe^a, Ernesto R. Escoto^b, Luis G. Cruz-Ortega^c, Derby Munoz-Rojas^d, and Karina Gattamorta^a

^aSchool of Nursing and Health Studies, University of Miami

^bCounseling and Wellness Center, University of Florida

^cCounseling and Consultation Service, The Ohio State University

^dSchool of Nursing, University of Costa Rica

Abstract

Hispanic and Spanish-speaking college students are under-represented in alcohol intervention and prevention research. There is a need for brief, empirically validated Spanish versions of measures related to alcohol use and consequences. The objective of this study was to translate the 8-item College Alcohol Problems Scale (CAPS) into Spanish and evaluate the psychometric properties of this measure compared to the original English. Bilingual experts in interventions for Hispanic college students and youth used a translation back-translation process. 125 Hispanic undergraduate students from a large southeastern public university completed the CAPS and a heavy drinking measure in Spanish. The two-factor model had acceptable model fit in Spanish, $\chi^2 (df=19) = 27.60, p = .091$; CFI = .966; RMSEA = .060. Internal consistency of the personal problems subscale was .76, and the social problems subscale was .73. The two latent factors explained 24 – 66% of variability in items. Personal problems and social problems were both significantly correlated with heavy drinking, $r = .61, p < .001$, $r = .59, p < .001$, respectively. This Spanish version of the CAPS is a reliable and valid measure of consequences of alcohol use, and has similar psychometric properties to the original English version. This measure may be useful for future research, intervention, and prevention with samples of U.S. Hispanic college students or Spanish-speaking students in other nations.

Keywords

alcohol; college; Hispanics; Spanish; measurement

Correspondence concerning this article should be addressed to Brian E. McCabe, School of Nursing and Health Studies, P.O. Box 248153, University of Miami, Coral Gables, Florida 33124. bmccabe@miami.edu.

Conflict of interests

None of the authors have conflicts to disclose.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

1. Introduction

Risky drinking is a serious public health problem for college students, with estimates for 2014 that show U.S. adults 18–22 years old have higher rates of binge drinking than any other age group, with college students even higher than their same-age peers (33% vs. 38%; Substance Abuse and Mental Health Services Administration [SAMHSA], 2016). Rates of alcohol use disorders for adults 18–22 years old are about twice other ages (SAMHSA, 2016). Binge drinking increases risks for many adverse consequences, including blackouts, physical injuries, and unprotected sex (American College Health Association [ACHA]). Further, about 5,000 people under 21 die every year from alcohol (White & Hingson, 2013), and alcohol problems are estimated to cost up to \$62 billion/year (Miller et al., 2006). Extreme binge drinking (typically defined as 10+ and/or 15+ drinks per occasion), likely confers even greater risks (Hingson & White, 2013), and is also higher for 18–22 year-old college students than any other life stage (12% vs. 5%, respectively; Johnston et al., 2015)

Binge drinking rates for Hispanic college students 18–22 years old are second-highest, only to non-Hispanic whites (SAMHSA, 2016). Hispanics are also the second largest ethnic group, and fastest-growing minority group, in U.S. colleges (National Center for Education Statistics [NCES], 2015). Although matriculation in a U.S. college generally requires English proficiency, some U.S. Hispanic students may prefer to speak Spanish. Spanish measures will usually be required for research with college students in Latin America. Levels of heavy drinking for Latin American college students appear to be similar to those in the U.S. (Karam, Kypri & Salamoun, 2007). Although the heterogeneity of Latin American nations limits generalizations, college enrollment in this region appears to be growing rapidly, with one estimate of over 40% increase from 2001 to 2011 (United Nations Educational, Scientific, and Cultural Organization [UNESCO], 2014). Despite these increases, there is relatively little research or prevention programs designed for U.S. Hispanic or Spanish-speaking college students in Latin America. Research, prevention, and intervention with this growing group of college students, including U.S. Hispanics and people across Latin America, requires measures, e.g., of alcohol-related consequences, in English and Spanish.

There are four widely-used measures of alcohol problems or consequences in college students (e.g., Ham & Hope, 2003). The Rutgers Alcohol Problems Index (RAPI, White & Labouvie, 1989) is a 23-item, self-report measure originally developed for adolescents, and later modified for college students. The Young Adult Alcohol Problems Screening Test (YAAPST; Hurlbut and Sher, 1992) is a 27-item scale of problems developed specifically for college students. The Young Adult Alcohol Consequences Questionnaire (YAACQ; Read, Kahler, Strong, & Coldeer, 2006) is a 48-item multi-scale self-report measure with a brief 24-item short-form (Kahler, Strong, & Read, 2005). Although these three measures have empirically supported Spanish translations (Lopez-Nunez, Fernandez-Artamendi, Fernandez-Hermida, Alvarez, & Secades-Villa, 2012; Gonzalez, Riveros, Uribe, & Luna, 2006; Pilatti, Read, & Caneto, 2016), the 8-item revised College Alcohol Problems Scale (CAPS; Maddock, Laforge, Rossi, & O'Hare, 2001), does not have a Spanish translation, which could be a problem if time is a limiting factor in assessment. Consistent with the CAPS original purpose to create a brief measure of alcohol consequences, this study aimed

to 1) translate the original English CAPS into Spanish, and 2) assess reliability, factor structure (i.e., two factors), and validity of the Spanish translation in a sample of Hispanic college students in the U.S.

2. Methods

2.1 Participants and Design

Participants completed all measures in Spanish after completing a consent form. They received course credit for participation in this study, which was combined with another survey-based study. Participants were 125 Hispanic undergraduate college students at a large, southeastern public university. To be eligible students had to be enrolled in a psychology course, self-identify as Hispanic, understand Spanish, and be 18–25 years old. Alcohol consumption was not an inclusion criterion.

2.2 Translation Process

According to established protocols for the translation and adaptation of instruments, the CAPS was first translated from its original English version to Spanish by two bilingual, Spanish/English, mental health professionals with experience working with Hispanic youth and families. Each separately translated the English items into Spanish, and then discussed the meanings of their translations, and agreed on a Spanish version. The translated Spanish version of the instrument was then forwarded to two bilingual (Spanish/English) mental health professionals with experience with Hispanic college students for a back-translation into English. Each separately back-translated the Spanish measure, discussed differences in their translations, and agreed on a final back-translation. The final back-translation was then compared to the original English by the first author. The Spanish and English proficiencies of all translators are equivalent to that of native speaker with at least college level of education.

2.3 Measures

College Alcohol Problems Scale (CAPS; Maddock et al, 2001) is an 8-item scale developed for college students. Items are about common problems related to alcohol abuse. Students respond to each item to describe the frequency of each problem on a scale from *never* (1) to *10 or more times* (6) over a period of 3 months. A student who never drank alcohol would have a score of one for each item, i.e., consequence never occurred, with a score of four on either subscale. The original English version of the CAPS has two subscales, Personal Problems and Social Problems, supported by CFA with a large study of college students. Personal problems are emotional difficulties, e.g., anxiety or irritability. Social problems refers are risky behaviors, e.g., drinking and driving. The CAPS has been linked to alcohol use and attitudes about alcohol in college students. Items in Spanish and English are shown in Table 2.

Heavy Drinking was measured with the Alcohol Use Disorders Identification Test Consumption (AUDIT-C; Bradley et al., 2007). This scale has the first three consumption items from the full 10-item AUDIT (Babor, Higgins-Biddle, Dauser, Higgins, & Burleson, 2005). Each item was scored on a five-point scale from 0 to 4, with a total score ranging

from 0 to 12 points. A total score greater than three is one commonly-used cutoff for heavy drinking in men, and two for women (Bradley et al., 2007; Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998). The AUDIT-C was available from the developers in Spanish and English.

3. Results

3.1 Characteristics of Participants

Participants were, on average, just under legal drinking age in the U.S. ($M = 20.81$, $SD = 1.74$). There were a high proportion of heavy drinkers (82%) in this sample. About half (48%) of the students were born outside the U.S. Those born outside the U.S. had spent on average about 12 years in the U.S., ($M = 12.30$, $SD = 5.87$). Table 1 shows participants' characteristics.

3.2 Factor Structure

CFA in Mplus 7.2 (Muthen & Muthen, 2012) tested whether the two-factor found with the original English CAPS (Maddock et al., 2001) explained variation in items in the Spanish translation. Model fit was evaluated with three indices: χ^2 , CFI, and RMSEA. A non-significant χ^2 test indicates good fit. The CFI values .90 indicated good fit; RMSEA values .06 indicated good fit (Bentler, 1990; Hu & Bentler, 1999). The two-factor model had acceptable model fit in Spanish, $\chi^2 (df = 19) = 27.60$, $p = .0914$; CFI = .966 RMSEA = .060 (see Table 2). The personal problems latent factor explained 25 – 66% of the variation in items in the Spanish version. The social problems latent factor explained 24 – 65% of the variation in items on the Spanish version.

3.3 Reliability and Validity

We next tested internal consistency of the two subscales using Cronbach's alpha. Internal consistency of the personal problems subscale was .76 and for the social problems subscale was .73. We tested validity with the correlation between each subscale and heavy drinking using the AUDIT-C total score. Personal problems was significantly correlated with heavy drinking, $r = .61$, $p < .001$. Social problems was also significantly correlated with heavy drinking, $r = .59$, $p < .001$. As a follow-up, we examined correlations between the CAPS subscales and each AUDIT-C item. Personal problems was significantly correlated with frequency of drinking, $r = .44$, $p < .001$, typical quantity, $r = .27$, $p < .001$, and frequency of heavy drinking, $r = .33$, $p < .001$. Social problems was significantly correlated with frequency of drinking, $r = .48$, $p < .001$, typical quantity, $r = .37$, $p < .001$, and frequency of heavy drinking, $r = .43$, $p < .001$.

4. Discussion

This study is the first to examine the factor structure of the CAPS, a self-report measure of alcohol-related consequences for college students, in Spanish with Hispanic undergraduate college students or college students who live in Spanish-speaking nations. Subject matter experts used a translation-back translation approach to ensure that item meanings were equivalent in the Spanish version and original English version. Findings supported the original two-factor solution (one Personal Problems subscale and one Social Problems

subscale) in the Spanish version. Both subscales had good internal consistency, and the correlations to heavy drinking provided evidence of validity, for the Spanish language measure.

The specific results of this study are consistent with the original English CAPS study (Maddock et al., 2001). There were some differences in the samples, e.g., the Spanish sample had greater heterogeneity in school year (61% first-year students in original vs. 25% in the current study), more women (61% vs 78%, respectively). The model fit was similar in both samples and the standardized loadings for items were in a similar ranges (.59 – .84, original; .49 – .81, current). Internal consistency of the subscales was nearly equal (.73 and .79, original; .73 and .76, current). Relationships between subscales and alcohol consumption were also similar, if slightly higher with the Spanish sample ($r_s = .59$ to $.61$), than the original English sample ($r_s = .25$ to $.57$). It should be noted that the heavy drinking measures were not identical in the two studies—Maddock and colleagues (2001) used single- item drinking frequency measures, and this study used the AUDIT-C—which may explain some differences.

There were several limitations to the study that should be considered. The sample was not randomly selected or allocated, so participants may not be representative of Spanish-speaking students in all colleges in the U.S. or Latin America. Hispanics in the U.S. are a heterogeneous group of individuals from many national backgrounds, and Latin America is a large, heterogeneous area with many nations, so results of this study may have limited generalizability to other groups. We recommend that the factor structure be examined with Spanish speakers in other locations, including nations outside the U.S. Although the original factor structure was replicated in the Spanish language version, we recommend that future work examine differences in item responses between English and Spanish respondents. Further, our sample was nearly 80% women, which limited an examination of invariance by gender. We recommend future work test the measure's performance for men and women. Although the correlations to one heavy drinking measure did support validity, future studies should examine the performance of this measure with other measures of alcohol-related problems or consequences. There are a number of biases to self-report measures, including a recall bias which may limit student's ability to accurately recall events over time (e.g., Ekholm, 2004; Gmel & Daepfen, 2007). Although this study used a shorter recall window than the original CAPS (three months vs. one year), it is possible that students did not accurately remember consequences related to alcohol. We recommend future work examine the effects of time period for recall of alcohol consequences with observational measures to address the possibility of recall bias on this measure. In conclusion, the study described the process of translation and validation of the CAPS into Spanish, and provided preliminary evidence that this measure may be used with Spanish-speaking college students in the U.S. or Latin American in research or intervention settings.

Acknowledgments

Support for this research was received from the Center of Excellence for Health Disparities Research: El Centro, National Institute of Minority Health and Health Disparities grant 2P60MD002266 (Victoria B. Mitrani, Principle Investigator) and The University of Miami School of Nursing and Health Studies. The authors are solely

responsible for this article's content and do not necessarily represent the official views of the National Institutes of Health or the University of Miami.

References

- American College Health Association [ACHA]. American College Health Association-National College Health Assessment II: University of California Merced Executive Summary Spring 2011. Linthicum, MD: American College Health Association; 2011.
- Babor TE, Higgins-Biddle J, Dauser D, Higgins P, Burleson JA. Alcohol screening and brief intervention in primary care settings: implementation models and predictors. *Journal of studies on alcohol*. 2005; 66(3):361–368. [PubMed: 16047525]
- Bentler PM. Comparative Fit Indexes in Structural Models. *Psychological Bulletin*. 1990; 107:238–246. <http://dx.doi.org/10.1037/0033-2909.107.2.238>. [PubMed: 2320703]
- Bradley KA, DeBenedetti AF, Volk RJ, Williams EC, Frank D, Kivlahan DR. AUDIT-C as a brief screen for alcohol misuse in primary care. *Alcoholism: Clinical and Experimental Research*. 2007; 31(7):1208–1217.
- Bush K, Kivlahan DR, McDonell MB, Fihn SD, Bradley KA. The AUDIT alcohol consumption questions (AUDIT-C): an effective brief screening test for problem drinking. *Archives of internal medicine*. 1998; 158(16):1789–1795. [PubMed: 9738608]
- Ekhholm E. Influence of the recall period on self-reported alcohol intake. *European Journal of Clinical Nutrition*. 2004; 58:60–63. [PubMed: 14679368]
- González MCT, Riveros MMP, Uribe JI, Luna SM. Validación de la prueba Young Adult Alcohol Problems Screening Test, YAAPST, en un grupo de estudiantes universitarios de la Pontificia Universidad Javeriana de Bogotá. *Universitas Psychologica*. 2006; 5(1):175–190.
- Gmel G, Daeppen JB. Recall bias for seven-day recall measurement of alcohol consumption among emergency department patients: Implications for case-crossover designs. *Journal of Studies on Alcohol and Drugs*. 2007; 68:303–310. [PubMed: 17286350]
- Ham LS, Hope DA. College students and problematic drinking: A review of the literature. *Clinical psychology review*. 2003; 23(5):719–759. [PubMed: 12971907]
- Hingson RW, White A. Trends in extreme binge drinking among US high school seniors. *JAMA Pediatrics*. 2013; 167(11):996–998. [PubMed: 24042186]
- Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*. 1999; 6:1–55. DOI: 10.1080/10705519909540118
- Hurlbut SC, Sher KJ. Assessing alcohol problems in college students. *Journal of American College Health*. 1992; 41(2):49–58. [PubMed: 1460173]
- Johnston, LD., O'Malley, PM., Bachman, JG., Schulenberg, JE., Miech, RA. Monitoring the Future national survey results on drug use, 1975–2014: Volume 2, College students and adults ages 19–55. Ann Arbor: Institute for Social Research, The University of Michigan; 2015.
- Kahler CW, Strong DR, Read JP. Toward efficient and comprehensive measurement of the alcohol problems continuum in college students: The Brief Young Adult Alcohol Consequences Questionnaire. *Alcoholism: Clinical and Experimental Research*. 2005; 29(7):1180–1189.
- Karam E, Kypri K, Salamoun M. Alcohol use among college students: an international perspective. *Current Opinion in Psychiatry*. 2007; 20:213–221. [PubMed: 17415072]
- López-Núñez C, Fernández-Artamendi S, Fernández-Hermida JR, Álvarez AC, Secades-Villa R. Spanish adaptation and validation of the Rutgers Alcohol Problem Index (RAPI) 1. *International Journal of Clinical and Health Psychology*. 2012; 12(2):251.
- Maddock JE, Laforge RG, Rossi JS, O'Hare T. The college alcohol problems scale. *Addictive behaviors*. 2001; 26(3):385–398. [PubMed: 11436930]
- Miech RA, Johnston LD, O'Malley PM, Bachman JG, Schulenberg JE. Monitoring the Future national survey results on drug use, 1975–2015. 2016; I
- Miller TR, Levy DT, Spicer RS, Taylor DM. Societal costs of underage drinking. *Journal of Studies on Alcohol*. 2006; 67(4):519–528. [PubMed: 16736071]
- Muthén, LK., Muthén, BO. Mplus user's guide. 7. Los Angeles: Author; 2012.

- National Center for Education Statistics [NCES]. Digest of Education Statistics. U.S. Department of Education: Institute of Education Sciences; 2015.
- Pilatti A, Read JP, Caneto F. Validation of the Spanish Version of the Young Adult Alcohol Consequences Questionnaire (S-YAACQ). *Psychological assessment*. 2016; 28:e49. [PubMed: 26302103]
- Patten, E. The Nation's Latino Population Is Defined by Its Youth. Washington, D.C: Pew Research Center; 2016.
- Read JP, Kahler CW, Strong DR, Colder CR. Development and preliminary validation of the young adult alcohol consequences questionnaire. *Journal of studies on alcohol*. 2006; 67:169–177. [PubMed: 16536141]
- Substance Abuse and Mental Health Services Administration [SAMHSA]. Center for Behavioral Health Statistics and Quality. National Survey on Drug Use and Health, 2014. ICPSR36361-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor]; 2016. 2016-03-22. <http://doi.org/10.3886/ICPSR36361.v1>
- White A, Hingson R. The burden of alcohol use: excessive alcohol consumption and related consequences among college students. *Alcohol Research*. 2013; 35:201–218. [PubMed: 24881329]
- White HR, Labouvie EW. Towards the assessment of adolescent problem drinking. *Journal of studies on alcohol*. 1989; 50:30–37. [PubMed: 2927120]
- UNESCO. Regional report about education for all in Latin America and the Caribbean. 2014. Retrieved from: http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ED/ED_new/pdf/LAC-GEM-2014-ENG.pdf
- U.S. Bureau of the Census. Statistical abstracts of the United States: 2012. 131. Washington, DC: 2014. Retrieved from <http://www.census.gov/compendia/statab/>

Highlights

- Describes Spanish translation of College Alcohol Problems Scale
- Two-factor model, Social problems and Personal problems, as in English measure
- Two subscales had acceptable internal consistency (.73 – .76)
- Subscales had medium-size correlations ($r_s = .59$ and $.61$) with heavy drinking
- Measure appropriate for research or clinical work with Spanish-speaking students

Table 1

Characteristics of Hispanic College Student Sample.

<i>Characteristic</i>	<i>N</i>	<i>%</i>
Women	97	78%
Born in U.S. (not Puerto Rico)	65	52%
Heavy Drinking	102	82%
Year in College		
1 st year	116	25%
Sophomore	83	18%
Junior	130	28%
Senior or beyond	129	28%
	<i>M</i>	<i>SD</i>
Age, years	20.81	1.74
Years in College	2.87	2.00
Years in U.S., if born elsewhere	12.30	5.87

Note. Heavy drinking defined as high score (> 2 women; >3 men) on the AUDIT-C.

Table 2

Standardized Loadings for CAPS Items (Spanish and English items shown).

<i>Ítem en Español</i>	β	<i>SE</i>	<i>Item in English</i>
<i>Problemas Personales</i>			<i>Personal Problems</i>
Sentirse triste, depresivo o melancólico	.81***	0.05	Feeling sad, blue, or depressed
Nerviosismo, irritabilidad	.70***	0.06	Nervousness, irritability
Causó que usted se sintiera mal consigo mismo	.65***	0.07	Caused you to feel bad about yourself
Problemas con el apetito o el sueño	.50***	0.08	Problems with appetite or sleeping
<i>Problemas Sociales</i>			<i>Social Problems</i>
Se involucró en alguna actividad sexual no planificada	.80***	0.06	Engaged in unplanned sexual activity
Manejó bajo los efectos del alcohol	.49***	0.08	Drove under the influence
No usó protección al tener relaciones sexuales	.70***	0.06	Did not use protection when engaging in sex
Actividades ilegales relacionadas con el uso de drogas	.55***	0.08	Illegal activities associated with alcohol/drug use

Note. Model fit: χ^2 ($df = 19$) = 27.60, $p = .091$; CFI = .966 RMSEA = .060.