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Depressive Symptom Domains and Alcohol Use Severity among Hispanic Emerging Adults: Examining Moderating Effects of Gender

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Abstract

Objective—A limited amount of research has examined the effects of unique depressive symptom domains on alcohol use behavior among Hispanics of any developmental stage. This study aimed to (a) examine the respective associations between depressive symptom domains (e.g., negative affect, anhedonia, interpersonal problems, and somatic complaints) and alcohol use severity among Hispanic emerging adults, and (b) examine if gender moderates each respective association.

Method—181 Hispanic emerging adults (ages 18–25) completed an anonymous cross-sectional online survey. Participants completed a demographic questionnaire, the Alcohol Use Disorder Identification Test, and the Center Epidemiological Studies Depression Scale. Hierarchical multiple regression was used to estimate respective associations of negative affect, anhedonia, interpersonal problems, and somatic complaints in relation to alcohol use severity. Moderation tests were also conducted to examine if gender functioned as an effect modifier between respective depressive symptom domains and alcohol use severity.

Results—Findings indicated higher levels of anhedonia were associated with higher alcohol use severity ($\beta = .20, p = .02$). Moderation analyses indicated that somatic complaints ($\beta = -.41, p = .$

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Contributors

Miguel Ángel Cano conceptualized the study, conducted statistical analyses, and led writing efforts of the first draft of the manuscript. Marcel A. de Dios and Virmarie Correa Fernández assisted with writing some sections of the manuscript. The remaining authors contributed to the literature review and revising portions of the manuscript.

Conflict of interest

All authors declare that they have no conflicts of interest.

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02) and interpersonal problems were associated with greater alcohol use severity among men ($\beta = -.60, p < .001$), but not women.

Conclusions—Findings underscore the need to examine the relationship between specific depressive symptom domains and alcohol use; and the importance of accounting for potential gender differences in these associations.

Keywords

alcohol; depression; Hispanics; emerging adults; gender

Epidemiological studies indicate that *emerging adulthood*, spanning the ages of 18 to 25, is a developmental period with the highest prevalence of current alcohol use (59.6%), binge drinking (37.7%), and heavy drinking (10.8%; Substance Abuse and Mental Health Services Administration [SAMHSA], 2015a). These alcohol use behaviors are relatively similar to those enrolled in college full-time [current alcohol use (60.1%), binge drinking (39.0%), and heavy drinking (13.2%)] and part-time [current alcohol use (56.4%), binge drinking (35.5%), and heavy drinking (10.4%; SAMHSA, 2016a)]. Although descriptive epidemiological data specific to Hispanic emerging adults is scarce—one study found that 47.5% of Hispanic emerging adults enrolled in college engaged in binge drinking (Venegas, Cooper, Naylor, Hanson, & Blow, 2012). Furthermore, Hispanics (compared to non-Hispanic ethnic groups) are more likely to experience alcohol-related disparities that include higher rates of injury, chronic liver disease, and legal problems for driving under the influence of alcohol (Keyes, Liu, & Cerda, 2012; National Institute on Alcohol Abuse and Alcoholism, 2013). From a clinical and public health perspective, identifying and understanding modifiable determinants of alcohol use in this population is increasingly important to prevent the risk of developing alcohol use disorders and to reduce alcohol-related disparities. Accordingly, the primary aim of this study was to examine the respective relationships between depressive symptom domains (e.g., negative affect, anhedonia, interpersonal problems, and somatic complaints) and alcohol use severity among Hispanic emerging adults.

Depressive Symptomatology, Depressive Symptom Domains, and Alcohol

Depressive symptomatology is the presence of one or more depressive symptoms not meeting diagnostic criteria for a depressive disorder (Ingram & Siegle, 2009). It is estimated that 10.3% of emerging adults in the United States experienced depressive symptomatology in the past year—the highest rate of any adult age group (SAMHSA, 2016b). Furthermore, only 46.8% of emerging adults who reported depressive symptomatology sought out treatment—the lowest rate of any adult age group (SAMHSA, 2016b). A meta-analysis also indicated that Hispanics, compared to non-Hispanic Whites, report higher levels of depressive symptomatology (Mendelson, Rehkopf, & Kubzansky, 2008). Hispanics also report the lowest rate of any ethnic group of utilizing any form of mental health services (7.3%; SAMHSA, 2015b).

The distribution of depressive symptomatology and the underutilization of mental health services is highlighted because several theoretical models have proposed that depressive

symptomatology is a risk factor and motive of alcohol use and other substances (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004; Niaura, 2000; MacAndrew, 1982). A common factor shared by these theories is the role of negative reinforcement, whereby an individual is thought to use alcohol as a mechanism to alleviate depressive symptomatology or other undesired mood/emotional states (Baker et al., 2004). Empirical research findings lend support to these theoretical models because higher depressive symptomatology has been found to be associated with higher alcohol use among emerging adults (Gonzalez, Reynolds, & Skewes, 2011), including emerging adults of Hispanic heritage (Cano et al., 2015).

To our knowledge, all published studies that have examined the association between depressive symptomatology and alcohol use behavior have measured depressive symptomatology as a single factor/construct. However, literature suggests that a single factor of depressive symptomatology can be separated into multiple and distinct depressive symptom domains (Leventhal et al., 2008; Radloff, 1977; Schnoll, Leone, & Hitsman, 2013). A *depressive symptom domain* is operationalized as a unique cluster/factor of depressive symptoms that is empirically supported—for instance via confirmatory factor analysis. Some established and common depressive symptom domains are *negative affect* (e.g., sadness), *anhedonia* (lack of positive affect or reduced experience of pleasure), *interpersonal problems* (e.g., difficulty with interpersonal relationships), and *somatic complaints* (difficulty sleeping; Radloff, 1977; Leventhal et al., 2008; Schnoll et al., 2013).

Examining the relationship of depressive symptomatology as a single factor limits the ability to identify *if* and *how* specific depressive symptom domains are associated with alcohol use. The subfield of nicotine and tobacco research may offer some insight into the unique effects of depressive symptom domains and substance use. Findings from studies in this area suggest that multiple unique depressive symptom domains may have statistically significant associations with smoking; however, anhedonia may be the strongest predictor (Cook, Spring, McChargue, & Doran, 2010; Leventhal, Piper, Japuntich, Baker, & Cook, 2014; Leventhal et al., 2008). This line of research highlights that accounting for the heterogeneity of depressive symptomatology in smoking interventions may be clinically significant because it may inform the design of targeted intervention strategies, and in turn, improve treatment outcomes (Leventhal et al., 2014).

Depressive Symptom Domains and Hispanics

Elucidating the effects of unique depressive symptom domains on alcohol use may help advance the design of tailored interventions for Hispanic emerging adults. However, more investigations are needed among under-researched ethnic groups such as Hispanics because previous research suggests that the presentation of depressive symptom domains may differ between racial/ethnic groups (Huang, Chung, Kroenke, Delucchi, & Spitzer, 2006; Rao, Poland, & Lin, 2012). For instance, some studies have found that relative to other ethnic groups, Hispanics endorsed higher levels of anhedonia and somatic complaints (Hernandez & Sachs-Ericsson, 2006; Huang et al., 2006; Lewis-Fernández, Das, Alfonso, Weissman, & Olfson, 2005; Vega, Rodriguez, & Ang, 2010). To the best of our knowledge, no prior published studies have investigated the relationship between depressive symptom domains and alcohol use among Hispanics in emerging adulthood or any other developmental stage.

Gender

A second aim of this study is to examine if gender moderates the association between depressive symptom domains and alcohol use severity. Investigations on gender differences in relation to a single factor of depressive symptomatology and alcohol use indicate that men are more likely than women to drink alcohol when they experience depressive symptomatology (Foster et al., 2014; Geisner, Mallett, & Kilmer, 2012; Goldstein, 2006; Martin, Neighbors, & Griffith, 2013; NIMH, 2015). However, presently there are no published studies that have examined if gender moderates associations of unique depressive symptom domains with alcohol use among Hispanics (or any other ethnic minority group).

It is plausible that the effects of depressive symptom domains on alcohol use behavior vary between gender for multiple reasons. For instance, in comparison to men, women report higher depressive symptomatology (SAMHSA, 2014), including among Hispanic women (Mendelson et al., 2008; Bandiera et al., 2015). With regard to depressive symptom domains, men are less likely than women to report negative affect symptoms (Martin et al., 2013; National Institute of Mental Health [NIMH], 2015). This difference may be explained in part because negative affect symptoms often conflict with social norms of masculinity (Martin et al., 2013). Furthermore, men are more likely than women to report somatic complaints (NIMH, 2015). In contrast to women, men report higher levels of heavy drinking (SAMHSA, 2015a), including among Hispanic emerging adults (Venegas et al., 2012). Furthermore, men are more likely than women to use alcohol to manage or alleviate depressive symptomatology (Goldstein, 2006; Martin et al., 2013; NIMH, 2015). This link may be particularly pertinent in Hispanic populations because drinking norms for Hispanic women tend to be more conservative than those of Hispanic men (Caetano & Clark, 2003).

Present Study

Based on the review of the existing literature, the following hypotheses were proposed. *Hypothesis one*, higher levels of each depressive symptom domain (negative affect, anhedonia, interpersonal problems, and somatic complaints) will be associated with higher levels of alcohol use severity. *Hypothesis two*, gender will moderate the associations between depressive symptom domains and alcohol use severity. It is expected that each depressive symptom domain will have a stronger adverse effect on the drinking behavior of men as compared to women.

Methods

Procedure and Participants

The sample included 181 Hispanic emerging adults. Participants were recruited via an email that described study aims and procedures. The recruitment announcement was distributed via national email listservs geared toward Hispanic college students. An example, of a targeted student organization was the *Movimiento Estudiantil Chicano de Aztlán* (Chicano Student Movement of Aztlán). Eligible participants had to be 18 years of age or older, self-identify as Hispanic or Latina/o, and be enrolled in an institution of higher education. Participants provided voluntary consent to participate in the study by checking an electronic

informed consent form. Data were collected between October 2007 and April 2008 via an anonymous online survey developed in *QuestionPro*. The survey took approximately 30 minutes to complete and no compensation was provided for participation. This study was approved by the Institutional Review Board of a university in Texas.

Measures

Demographic Variables—Demographic variables included age, gender, (0=male, 1=female), partner status (0=single, 1= married/living with partner), Hispanic heritage (0=Mexican, 1=non-Mexican), nativity (0=immigrant, 1=non-immigrant), mother's level of education (0=less than high school, 1=high school or higher), and father's level of education. Existing literature suggests that these demographic variables are linked with alcohol use behavior and depressive symptomatology (Alegría et al., 2007; 2008; Gfroerer & De la Rosa, 1993; SAMHSA, 2015a); thus, they were included in the regression analyses to reduce potential confounding effects.

Depressive Symptom Domains—A single factor of depressive symptomatology was measured with the total score of the 20-item Center Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). Respondents reported how they felt during the past week on a four-point Likert-type scale with choices ranging from *Rarely or none of the time* (0) to *Mostly or almost all of the time* (3). While the CES-D is not a diagnostic instrument for a major depressive episode, it has been found to be a valid and reliable measure of depressive symptomatology among diverse Hispanic subgroups (Gloria, Castellanos, Kanagui-Muñoz, & Rico, 2012; Roberts, 1980). Total sum scores range from 0 to 60 with higher scores indicating higher symptomatology. The reliability coefficient for the total score of the CES-D was $\alpha = .91$.

Depressive symptom domains of negative affect, anhedonia, interpersonal problems, and somatic complaints were measured with corresponding subscales of the CES-D (Radloff, 1977). Responses for each subscale were summed with higher scores indicating higher symptomatology for that respective domain. Consistent with prior research, scores for positive affect were reversed scored to be interpreted as anhedonia (Carleton et al., 2013; Leventhal, Ramsey, Brown, LaChance, & Kahler, 2008; Schnoll et al., 2013). The negative affect subscale included five items and a sample item is "I had crying spells." The anhedonia (absence of positive affect) subscale included four items and a sample item is "I enjoyed life." The interpersonal problems subscale included two items and a sample item is "I felt that people disliked me." The somatic complaints subscale included nine items and a sample item is "My sleep was restless." Reliability coefficients for depressive symptom domains were the following: negative affect ($\alpha = .83$), anhedonia ($\alpha = .82$), interpersonal problems ($\alpha = .76$), and somatic complaints ($\alpha = .80$).

Alcohol Use Severity—Alcohol use severity was measured with the Alcohol Use Disorder Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 1993). The AUDIT is a 10-item self-report measure with varied response choices on a Likert-type scale ranging from 0 to 4. It is the most widely-used measure of alcohol severity and has strong psychometric properties that have been established with a variety of subpopulations

including Hispanics and young adults (Reinert & Allen, 2002). Summed scores range from 0 to 40 with higher scores indicating higher alcohol use severity. A sample item is, “How often during the last year have you found that you were not able to stop drinking once you had started?” The reliability coefficient for the AUDIT was $\alpha = .85$.

Analytic Plan

To assess potential multicollinearity between the subscales of the CES-D we estimated tolerance levels and variance inflation factors (VIF). Our analysis indicated that we met the recommendations for acceptable levels (Cohen, Cohen, West, & Aiken, 2003). The associations of depressive symptom domains with alcohol use severity were estimated using hierarchical multiple regression (HMR). Variables were entered into the HMR model in a specified order so that each predictor contributed to the explanatory variance of the outcome variable (i.e., alcohol use severity) after controlling for the variance explained by the previous variables (Cohen, et al., 2003). Accordingly, demographic variables were entered in the first block and depressive symptom domains were entered in the second and final block of the HMR model to determine the extent to which they uniquely predicted alcohol use severity above and beyond the other predictors.

In separate analyses using PROCESS v2.13 (Hayes, 2013), four moderation tests were conducted with 50,000 bootstraps to examine if gender influenced the direction and/or strength of associations between respective depressive symptom domains and alcohol use severity. In the present study, PROCESS tested moderation by (a) performing a multiple regression to replicate the variance explained by the predictor variables included in the HMR model, (b) estimating an interaction term between gender and each respective depressive symptom domain, and (c) estimating conditional effects between men and women to compare associations of each respective depressive symptom domain and alcohol use severity. It should be noted that PROCESS only estimates confidence intervals for unstandardized regression coefficients. All moderation analyses controlled for demographic variables and depressive symptom domains not used in the interaction term.

Using the same analytic strategy, an additional HMR model and moderation tests were conducted to compare the effects of multiple depressive symptom domains with those of a single factor of depressive symptomatology (e.g., CES-D total score).

Results

Descriptive Analyses

The mean participant age was 20.54 ($SD = 2.10$) and most were women ($n = 126$, 69.9%). A majority of the participants were born in the United States ($n = 137$, 75.7%), reported being of Mexican heritage ($n = 135$, 74.6%), and reported being single ($n = 161$, 89.0%). Participants attended schools across 12 states in the United States, most campuses were located in Texas ($n = 72$, 39.8%), California ($n = 72$, 39.8%), and New York ($n = 9$, 5.0%). Means, standard deviations, and frequencies are presented by gender in Table 1.

Hierarchical Multiple Regression

Table 2 presents the standardized coefficients from the HMR model with a single factor of depressive symptomatology (CES-D total score). Results indicate that 15.0% of the variance of alcohol use severity was explained by all predictor variables entered in the HMR model. The first block of the model included demographic variables that accounted for 8.1% of the variance of alcohol use severity, $R^2 = 8.1$, $F(7, 167) = 2.14$, $p = .04$. The second and final block added the CES-D total score which accounted for 6.9% of the variance of alcohol use severity $R^2 = 6.9$, $F(1, 166) = 13.49$, $p = .001$. Standardized coefficients from the final regression model indicate that gender ($\beta = -.31$, $p = .001$) and the CES-D total score ($\beta = .27$, $p = .001$) had statistically significant associations with alcohol use severity.

Table 3 presents the standardized coefficients from the HMR model with depressive symptom domains. Results indicate that 17.5% of the variance of alcohol use severity was explained by all predictor variables entered in the HMR model. The first block of the model included demographic variables that accounted for 8.1% of the variance of alcohol use severity, $R^2 = 8.1$, $F(7, 167) = 2.14$, $p = .04$. The second and final block added depressive symptom domains which accounted for 9.4% of the variance of alcohol use severity $R^2 = 9.4$, $F(4, 163) = 4.66$, $p = .001$. Standardized coefficients from the final regression model indicate that gender ($\beta = -.31$, $p = .001$) and anhedonia ($\beta = .20$, $p = .02$) had statistically significant associations with alcohol use severity.

Moderation Analyses

Figure 1 demonstrates that gender moderated the association between the single factor of depressive symptomatology (CES-D total score) and alcohol use severity ($\beta = -.44$, $p = .01$, $b = -.19$, 95% CI $[-.34, -.04]$). This interaction effect added 3.1% to the total explained variance above and beyond the HMR [$R^2 = 3.1$, $F(1, 163) = 6.18$, $p = .01$]. The conditional effects indicate that higher CES-D scores were associated with higher alcohol use severity among men ($\beta = .60$, $p < .001$, $b = .26$, 95% CI $[.13, .39]$), but not among women ($\beta = .17$, $p > .05$, $b = .07$, 95% CI $[-.01, .14]$).

Additional moderation analyses indicated that gender did not moderate respective associations between negative affect and anhedonia in relation to alcohol use severity. However, Figure 2 demonstrates that gender had a statistically significant interaction effect on interpersonal problems in relation to alcohol use severity ($\beta = -.60$, $p < .001$, $b = -1.72$, 95% CI $[-2.68, -.78]$). This interaction effect added 6.0% to the total explained variance above and beyond the HMR [$R^2 = 6.0$, $F(1, 160) = 12.68$, $p = .001$]. The conditional effects indicate that higher levels of interpersonal problems were associated with higher alcohol use severity among men ($\beta = .57$, $p = .001$, $b = 1.57$, 95% CI $[.68, .2.46]$), but not among women ($\beta = -.03$, $p > .05$, $b = -.15$, 95% CI $[-.77, .48]$).

Figure 3 demonstrates that gender also had a statistically significant interaction effect with somatic complaints in relation to alcohol use severity ($\beta = -.41$, $p = .02$, $b = .37$, 95% CI $[-.67, -.06]$). This interaction effect added 2.8% to the total explained variance above and beyond the HMR [$R^2 = 2.8$, $F(1, 160) = 5.73$, $p = .02$]. The conditional effects indicate that higher levels of somatic complaints were associated with higher alcohol use severity among

men ($\beta = .41, p = .02, b = .36, 95\% \text{ CI } [.04, .66]$), but not among women ($\beta = -.01, p > .05, b = -.01, 95\% \text{ CI } [-.25, .23]$).

Discussion

Studies have previously established a strong link between a single factor of depressive symptomatology and alcohol use among emerging adults (Foster et al., 2014; Geisner et al., 2012). Our study's unique contribution focused on *multiple* depressive symptom domains and their respective associations with alcohol use among an understudied population of Hispanic emerging adults. Key findings can be summarized as follows. Of the four domains of depressive symptoms that were examined, only higher levels of anhedonia were associated with higher alcohol use severity across gender. However, moderation analyses indicated that higher levels of somatic complaints and interpersonal problems were associated with higher alcohol use severity among men only.

The association between anhedonia and alcohol use found in the current study is consistent with previous studies demonstrating a significant relationship between increased alcohol use and anhedonia (also referred to as low positive affect or low hedonic capacity) (Caldwell et al., 2002; Corral-Frías et al., 2015; Mezquita, Ibáñez, Moya, Villa, & Ortet, 2014). Prior research suggests that people with high levels of anhedonia may be motivated to use substances (e.g., nicotine and alcohol) to facilitate the ability to enjoy activities and experience pleasure (Leventhal et al., 2014; Marra et al., 1998). Using alcohol to increase hedonic capacity may be developmentally pertinent among emerging adults because many in this population may hold the belief that this stage in their life should be marked by high positive affect due to increased autonomy and opportunities for personal advancement (Arnett, 2000; National Institute on Alcohol Abuse and Alcoholism, 2006).

Unexpectedly, negative affect was not associated with alcohol use severity. One explanation is that men reported low levels of negative affect in our sample and may not have had difficulty with this particular depressive symptom domain. Consequently, the low levels of negative affect did not activate maladaptive coping responses (Lazarus & Folkman, 1984). Although women reported higher levels of negative affect than men its link with alcohol use was not statistically significant. One explanation is that Hispanic women are nearly twice as likely to utilize mental health services (SAMHSA, 2015b); and thus, may not resort to maladaptive coping responses to manage negative affect. Lastly, the associations of somatic complaints and interpersonal problems might not have been statistically significant because their respective effects may be gender specific as discussed in the following section.

Gender Differences

Our findings underscore the need to consider gender with respect to the effects of depressive symptom domains on alcohol use among Hispanic emerging adults. In our moderation analyses, higher levels of interpersonal problems and somatic complaints were found to be associated with higher alcohol use severity in men, but not women. We have considered several explanatory factors that may have contributed to these findings. First, as previous studies have noted, there is a heightened sense of stigma regarding depression/depressive symptomatology and more broadly, psychiatric disorders among Hispanics (Interian, Ang,

Gara, Rodriguez, & Vega, 2011; Vega et al., 2010). Although somatic complaints and interpersonal problems are common features of depression (Radloff, 1977), such symptoms may not necessarily equate with having a depressive disorder or other psychiatric disorders. Thus, it is possible that for males in our study, endorsing the physical manifestations of depression and interpersonal problems may provide a means for acknowledging and expressing depressive symptoms that they are experiencing, yet partially circumventing the stigma associated with having a mental illness.

Furthermore, in comparison to women, men may be more likely to have positive alcohol expectancies and use alcohol to seek relief from depressive symptoms (Kenney, Jones, & Barnett, 2015; Martin et al., 2013; NIHM, 2015). This potential coping mechanism might not be used frequently among women because drinking norms for Hispanic women tend to be more conservative than those of Hispanic men (Caetano & Clark, 2003). Another explanation may be that, compared to Hispanic men, Hispanic women tend to have larger social networks (Alcántara, Molina, & Kawachi, 2015) and are more likely to seek out social support as a coping strategies (Araújo & Borrell, 2006). This would be beneficial to women because higher levels of social support among Hispanics may function as a protective factor against excessive alcohol use (Cano et al., in press; De La Rosa & White, 2001).

Strengths and Limitations

Some strengths of the present study include the utilization of widely used and validated measures of depressive symptom domains and alcohol use severity. In addition, the study's sample focused on groups (e.g., Hispanic emerging adults) that have been historically under-researched, but may experience a disproportionate prevalence of depressive symptomatology and alcohol use. Lastly, the study also focused on modifiable determinants of alcohol use with the aim that findings from this study may be more relevant to the design and/or modification of intervention programs.

The limitations of the current study must be considered when interpreting our findings. This study used non-probability sampling and a cross-sectional study design. Secondly, this study relied on volunteers that were not compensated, which could have increased the possibility of self-selection bias. Thirdly, self-reported measures were used, which can be inaccurate due to error or participant misrepresentations. However, self-reports of alcohol use have been shown to converge well with biological measurement approaches among the general population (Del Boca & Darkes, 2003) and Hispanics (Dillon, Turner, Robbins, & Szapocznik, 2005). Fourthly, Hispanics are highly heterogeneous with wide ranging characteristics that vary according to national heritage, race, U.S. region, and immigration experience. Due to our restricted sample size, we were unable to conduct subgroup analysis to address such unique distinctions that may impact the relationships we examined. Lastly, our sample consisted of Hispanic emerging adults in college and there was a disproportionate amount of women in our sample. Thus, the generalizability of our findings were weakened by our sample and future studies are needed in order to explore whether our findings generalize to the broader Hispanic population.

Conclusion

Despite methodological limitations, the current study demonstrated the value of accounting for multiple domains of depressive symptoms and examining their respective relationships with alcohol use severity. Although our results need to be replicated before considering translating and implementing them into clinical interventions, these findings may have clinical implications that inform the design of new or adapted interventions for Hispanic emerging adults. For instance, clinical interventions may benefit from placing more emphasis on anhedonia because this depressive symptom domain may be the driving factor in the link between a single factor of depressive symptomatology and alcohol use. Similarly, moderation analyses suggest that somatic complaints and interpersonal problems may be key determinants of alcohol use among men, but not women. Future studies should attempt to minimize the limitations discussed above and begin to examine variables (e.g., social support, coping strategies) that may mitigate the adverse effects of depressive symptom domains on alcohol use behavior.

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Highlights

- Anhedonia was associated with higher alcohol use severity across gender.
- Interpersonal problems were associated with higher alcohol use severity among men only.
- Somatic complaints were associated with higher alcohol use severity among men only.

Figure 1.

Two-way interaction with gender moderating the association between CES-D total score and alcohol use severity.

Note. Estimates are based on setting covariates to their sample means. CES-D = Center Epidemiological Studies Depression Scale.

Figure 2.

Two-way interaction with gender moderating the association between somatic complaints domain and alcohol use severity.

Note. Estimates are based on setting covariates to their sample means.

Figure 3.

Two-way interaction with gender moderating the association between interpersonal problems domain and alcohol use severity.

Note. Estimates are based on setting covariates to their sample means.

Table 1

Descriptive Statistics for Study Variables

Variable	Men 55 (30.4)	Women 126 (69.6)	
	<i>n</i> (%)	<i>n</i> (%)	χ^2
Partner Status			
Single	48 (88.9)	113 (89.7)	.03
Nativity			
U.S. Born	37 (67.3)	100 (79.4)	3.04
Hispanic Heritage			
Mexican	48 (87.3)	87 (69.0)	6.71 **
Mother Education			
< High School	29 (53.7)	76 (61.3)	.90
Father Education			
< High School	31 (57.4)	67 (54.9)	.09
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>t</i> value
Age	20.67 (1.97)	20.48 (2.16)	.55
CES-D Total Score	14.57 (10.01)	18.36 (12.26)	-2.18 *
Negative Affect	2.91 (3.12)	4.09 (3.61)	-2.11 *
Anhedonia	3.40 (3.22)	4.09 (3.29)	-1.31
Interpersonal Problems	.99 (1.58)	1.25 (1.64)	-.97
Somatic Complaints	7.27 (5.05)	8.93 (5.57)	-1.89
Alcohol Use Severity	5.35 (5.51)	3.38 (3.88)	2.34 **

Note: CES-D = Center Epidemiological Studies Depression Scale;

* $p < .05$;

** $p < .01$

Table 2

Final Model with CES-D Total Score Regressed on Alcohol Use Severity (n = 181)

Variable	<i>b</i>	<i>SE</i>	β
<i>Block 1</i>			
Age	.07	.18	.03
Gender	−3.49	.81	−.32 [*]
Partner Status	.56	1.21	.03
Nativity	.81	.86	.07
Hispanic Heritage	1.06	.87	.09
Mother Education	.32	.81	.03
Father Education	−.19	.79	−.02
<i>Block 2</i>			
CES-D Total Score	.12	.03	.27 [*]

Note: $R^2 = 8.1$ for Block 1; $R^2 = 6.9$ for Block 2; CES-D = Center Epidemiological Studies Depression Scale;

^{*}
 $p < .001$

Table 3

Final Model with Depressive Symptom Domains Regressed on Alcohol Use Severity (n = 181)

Variable	<i>b</i>	<i>SE</i>	β
<i>Block 1</i>			
Age	.05	.18	.02
Gender	−3.43	.81	−.31***
Partner Status	.54	1.22	.03
Nativity	.68	.86	.06
Hispanic Heritage	1.18	.87	.10
Mother Education	.08	.82	.01
Father Education	.24	.81	.02
<i>Block 2</i>			
Negative Affect	−.17	.18	−.12
Anhedonia	.31	.14	.20*
Interpersonal Problems	.44	.29	.14
Somatic Complaints	.12	.12	.13

Note: $R^2 = 8.1$ for Block 1; $R^2 = 9.4$ for Block 2;

* $p < .05$;

** $p < .001$