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## Associations of Ethnic Discrimination with Symptoms of Anxiety and Depression among Hispanic Emerging Adults: A Moderated Mediation Model

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### Abstract

**Background and Objectives**—Emerging adulthood is often marked with elevated symptoms of anxiety and depression. Hispanic emerging adults may face cultural stressors such as ethnic discrimination that further increase levels of anxiety and depression symptoms. The study aims were to examine if (a) self-esteem mediated effects of ethnic discrimination on symptoms of anxiety and depression, and (b) if gender moderated the indirect effects of discrimination.

**Design**—The study design was cross-sectional self-report.

**Method**—Two moderated mediation models were tested, with 1,084 Hispanic emerging adults (ages 18–25) enrolled in institutions of post-secondary in the U.S.

**Results**—Results indicated that (a) higher ethnic discrimination was associated with higher anxiety symptoms ( $\beta = .05, p = .04$ ), higher depression symptoms ( $\beta = .06, p = .02$ ), and lower self-esteem ( $\beta = -.30, p < .001$ ); (b) self-esteem mediated the associations of ethnic discrimination with anxiety and depression symptoms; and (c) gender moderated the indirect effects of discrimination, whereby self-esteem was a stronger mediator among men than women.

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Each moderated mediation model explained 26% of variability in symptoms of anxiety and depression, respectively.

**Conclusions**—Findings suggest that the mediating effects of self-esteem linking ethnic discrimination with symptoms of anxiety and depression vary between gender.

### Keywords

Hispanics; emerging adults; ethnic discrimination; anxiety; depression; self-esteem

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*Emerging adulthood* is a developmental stage marked as a time of transition spanning the ages of 18 to 25 years – that corresponds with post-secondary education for many (Arnett, 2000; U.S. Department of Education, 2015). Epidemiological research in the United State (U.S.) indicates that for many this period presents with elevated symptoms of anxiety and depression due in part to normative stressors associated with this developmental stage (National Institute of Mental Health, 2011; Rudolph, 2009; Zivin, Eisenberg, Gollust, & Golberstein, 2009). Yet, Hispanic emerging adults may also encounter added social risk factors such as *ethnic discrimination* (i.e., being treated unfairly or negatively based on one's ethnic background; Williams, Neighbors, & Jackson, 2003) that may further increase the risk of poor mental health outcomes (Patel, Flisher, Hetrick, & McGorry, 2007). Research among Hispanics in the U.S. indicates that higher levels of ethnic discrimination are associated with higher symptoms of anxiety and depression (Alamilla, Kim, & Lam, 2010; Hwang & Goto, 2008; Lee & Ahn, 2012; Moradi, & Risco, 2006; Umaña-Taylor & Updegraff, 2007). It should be noted that the effects of ethnic discrimination on symptoms of anxiety have been examined to a lesser extent compared to effects on symptoms of depression.

### Self-esteem

Studies on clinically mutable mechanisms linking ethnic discrimination with anxiety and depression symptoms are limited (Williams & Mohammed, 2009). Thus, more research is needed to identify and understand mediating mechanisms in the associations of ethnic discrimination with symptoms of anxiety and depression. Prior research suggests that intrapersonal factors such as self-esteem may function as a mediator of ethnic discrimination and internalizing symptoms. One explanation is that ethnic discrimination may lower self-esteem because it may lead some individuals to perceive that their respective ethnic group has low social status and is being rejected from the boarder society (Armenta & Hunt, 2009). Further, higher self-esteem has been consistently associated with lower levels of anxiety and depressive symptoms because it hypothesized to decrease sensitivity to adverse stressors (Sowislo & Orth, 2013). Indeed some studies have found that self-esteem mediates the association between ethnic discrimination and depressive symptoms (Moradi & Risco, 2006; Umaña-Taylor & Updegraff, 2007). Although, no published study has examined if self-esteem mediates the association between ethnic discrimination and anxiety symptoms it is plausible that it may have a similar mediating effect because symptoms of anxiety and depression are highly correlated (Sowislo & Orth, 2013).

## Gender

Ethnic discrimination may also impact anxiety and depression symptoms differently among men and women. Some research suggests that Hispanic men may encounter experiences of ethnic discrimination more often than women (Pérez et al., 2008). One explanation for this difference in exposure is that, Hispanic women may be perceived as exotic, whereas Hispanic men may be perceived as threatening (Bailey, 2013). However, it is not known whether differential exposure to ethnic discrimination may exert a distinct predictive effect on anxiety and depression symptoms among Hispanics. Further, Hispanic women may be affected to a lesser degree by ethnic discrimination because they are more likely than men to use constructive coping strategies (e.g., seek social support) that may buffer the adverse effects on mental health and mediating mechanisms (Araújo & Borrell, 2006). Thus, more research needed to investigate *whether* and *how* gender might moderate associations of ethnic discrimination with anxiety and depression symptoms.

## Present Study

This study aimed to advance the understanding of the associations of ethnic discrimination with symptoms of anxiety and depression among Hispanic emerging adults in the U.S. Two explanatory models were tested to examine the extent to which self-esteem mediated associations of ethnic discrimination with anxiety and depression symptoms; and test if gender moderated the direct and indirect effects (via self-esteem) of ethnic discrimination on both outcomes.

Based on the body of work reviewed above, the following hypotheses were proposed: (a) higher levels of ethnic discrimination are directly associated with lower levels of self-esteem; (b) higher levels of self-esteem are directly associated with lower levels of anxiety and depression symptoms; (c) higher levels of ethnic discrimination are directly associated with higher levels of anxiety and depression symptoms; (d) ethnic discrimination is *indirectly* associated with anxiety and depression symptoms via self-esteem; and (e) gender significantly moderates the direct and indirect effects of ethnic discrimination on both outcomes.

## Method

### Participants

The sample for the present analyses included 1,084 Hispanic emerging adults (ages 18–25) enrolled in post-secondary educational institutions across the United States. Data were from a cross-sectional, national collaborative study. The parent study focused on cultural constructs (e.g., acculturation) and their respective relationships with mental health and health risk behaviors among emerging adults. In the parent study, no exclusion criteria were set and the only inclusion criteria was current enrollment in an undergraduate program in post-secondary education. To increase the geographic diversity of the sample, six sites were located in the Northeast, seven in the Southeast, six in the Midwest, three in the Southwest, and eight in the West. The study received IRB approval at each of the 30 (universities) study sites. A waiver of signed consent was obtained at each study site so that participants could

provide consent online. Prospective participants read the consent document and checked a box to indicate that they agreed to voluntarily participate in the study. Participants completed a confidential online survey and received course or research credit for their participation. Additional details concerning study participants and procedures can be found in Weisskirch et al. (2013).

## Measures

**Demographics**—Self-reported demographic information include age, gender (dummy coded 0 = male, 1 = female), annual family income (0 < \$30,000, 1 = \$30,000), partner status (0 = single, 1 = not single), immigrant status (0 = U.S. born, 1 = immigrant), and heritage (0 = Mexican, 1 = not Mexican).

**Anxiety Symptoms**—Symptoms of anxiety were measured using the 18-item Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988). Higher summed scores indicated higher levels anxiety symptoms. The Cronbach's alpha was .95.

**Depression Symptoms**—Symptoms of depression were measured using the 20-item Center for Epidemiological Studies Depression Scale (Radloff, 1977). Higher summed scores indicated higher levels of depressive symptoms. The Cronbach's alpha was .87.

**Self-esteem**—Self-esteem was measured using the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1979). Higher summed scores indicated higher levels self-esteem. The Cronbach's alpha was .89.

**Ethnic Discrimination**—Ethnic discrimination was measured using the corresponding nine-item subscale from the Scale of Ethnic Experience (Malcarne, Chavira, Fernandez, & Liu, 2006). Higher mean scores indicated higher perceptions of ethnic discrimination. The Cronbach's alpha was .83.

## Analytic Plan

First, two moderation models with 10,000 bootstrap iterations were tested with PROCESS v2.13 (Hayes, 2013) to examine whether gender significantly moderated the associations of ethnic discrimination with symptoms of anxiety and depression.

Second, two moderated mediation models were tested with PROCESS v2.13, also using 10,000 bootstrap iterations. Figure 1 depicts the conceptual moderated mediation models that were tested. An *index of moderated mediation* was used to examine whether the conditional indirect effects were significantly different for men than for women. The index of moderated mediation is an inferential test to evaluate whether the extent of moderated mediation is statistically different from zero (Hayes, 2015). Measures of depressive symptoms, anxiety symptoms, self-esteem, ethnic discrimination, and age were transformed into *z*-scores to produce standardized regression coefficients.

One moderated mediation model estimated the direct effect of ethnic discrimination on self-esteem (*a*-path), direct effect of self-esteem on anxiety symptoms (*b*-path), direct effect of ethnic discrimination on anxiety symptoms (*c*-path), and the indirect effect of ethnic

discrimination on anxiety symptoms through self-esteem ( $c'$ -path). A second moderated mediation model estimated the direct effect of ethnic discrimination on self-esteem ( $a$ -path), direct effect of self-esteem on depression symptoms ( $b$ -path), direct effect of ethnic discrimination on depression symptoms ( $c$ -path), and the indirect effect of ethnic discrimination on depression symptoms ( $c'$ -path).

Both moderated mediation models tested gender as a moderator of the  $a$ -path and  $b$ -path. All moderated mediation controlled for age, annual family income, partner status, immigrant status, and Hispanic heritage group. Missing data were treated using listwise deletion; thus, 80 cases were deleted from the moderated mediation analyses.

## Results

The mean participant age was 19.73 ( $SD = 1.70$ ) and most were U.S. born 78.5%. Among participants who reported their or their families' countries of origin, the most common responses were Mexico (18.2%) and Cuba (17.3%). Approximately half reported being single 51.6% and 27.5% reported an annual family income below \$30,000. Means, standard deviations, and frequencies are presented by gender in Table 1. No statistically significant differences were found between men and women in relation to ethnic discrimination, self-esteem, depression symptoms, or anxiety symptoms. Table 2 shows bivariate correlations for all variables used in moderated mediation analyses.

### Anxiety Symptoms

Results indicated that gender did not moderate the direct effect of ethnic discrimination on anxiety symptoms. Findings from the first moderated mediation model indicated that predictor variables accounted for 26% of variability in anxiety symptoms. Higher ethnic discrimination was directly associated with higher levels of anxiety symptoms ( $\beta = .05, p = .04$ ) and lower levels of self-esteem ( $\beta = -.30, p < .001$ ). Higher self-esteem was directly associated with lower levels of anxiety symptoms ( $\beta = -.53, p < .001$ ). No other covariates had a statistically significant association with anxiety symptoms; however, age ( $\beta = .21, p = .04$ ) and partner status ( $\beta = .13, p < .001$ ) had statistically significant associations with self-esteem.

Gender moderated the association between ethnic discrimination and self-esteem ( $\beta = .20, p < .01, 95\% \text{ CI } [.06, .35]$ ), indicating that ethnic discrimination was more strongly and negatively linked with self-esteem among men ( $\beta = -.29, 95\% \text{ CI } [-.43, -.17]$ ), than women ( $\beta = -.10, 95\% \text{ CI } [-.17, -.04]$ ). Gender did not moderate the association between self-esteem and anxiety symptoms.

Tests of conditional indirect effects suggest that ethnic discrimination had a statically significant indirect effect on anxiety symptoms via self-esteem for both men and women. However, the indirect effect was stronger among men ( $\beta = .16, 95\% \text{ CI } [.08, .24]$ ) compared to women, ( $\beta = .05, 95\% \text{ CI } [.01, .08]$ ). The index of moderated-mediation (index =  $-.11, 95\% \text{ CI } [-.20, -.02]$ ) suggests that the difference in indirect effects between men and women was statistically significant.

## Depressive Symptoms

Results indicated that gender did not moderate the direct association between ethnic discrimination and depressive symptoms. Findings from the second moderated mediation model indicated that the predictor variables accounted for 26% of variability in depressive symptoms. Higher ethnic discrimination was directly associated with higher levels of depressive symptoms ( $\beta = .06, p = .02$ ) and lower levels of self-esteem ( $\beta = -.30, p < .001$ ). Higher self-esteem was directly associated with lower levels of depressive symptoms ( $\beta = -.49, p < .001$ ). No other covariates had a statistically significant association with depressive symptoms; however, age ( $\beta = .21, p < .01$ ), partner status ( $\beta = .13, p < .001$ ), and immigrant status ( $\beta = .14, p < .05$ ) had statistically significant associations with self-esteem.

Gender did not moderate the association between self-esteem and depressive symptoms. However, conditional indirect effects indicate that ethnic discrimination had statistically significant indirect effects on depressive symptoms via self-esteem for both men and women. Again, the indirect effect was stronger among men ( $\beta = .15, 95\% \text{ CI } [.08, .23]$ ), than women ( $\beta = .05, 95\% \text{ CI } [.01, .08]$ ). The index of moderated-mediation (index =  $-.10, 95\% \text{ CI } [-.19, -.02]$ ) indicated that gender functioned as a statistically significant moderator of the indirect effect.

## Discussion

The present study provides some advances in our understanding of the link between ethnic discrimination and mental health among Hispanics in the U.S. Key findings can be summarized as follows: (a) higher levels of ethnic discrimination were associated with higher levels of anxiety and depression symptoms, and with lower levels of self-esteem; (b) ethnic discrimination was indirectly associated with symptoms anxiety and depression via self-esteem; and (c) gender did not moderate direct associations of ethnic discrimination with symptoms anxiety and depression, but did moderate the indirect effects on both outcomes.

These findings are of public health significance because they provide some evidence that ethnic discrimination is a sociocultural determinant that may be associated with elevated anxiety and depression symptoms among Hispanics. Testing the mediating role of self-esteem also addressed a gap in the literature by offering one explanation of *how* ethnic discrimination may function as a risk factor for anxiety and depression symptoms. As discussed in the following section, identifying factors, such as self-esteem, that may serve as clinical targets could provide some guidance in the design and delivery of preventive and treatment interventions. Although men and women reported similar levels of ethnic discrimination in this sample, results highlight how mediating mechanisms such as self-esteem function differently between men and women in relation to anxiety and depression symptoms. Potentially, self-esteem may have been a stronger mediator among men than women because ethnic discrimination may threaten notions of masculinity and may confer lower perceptions of social status and power (Gorman, Read, & Krueger, 2010; Kulis, Marsiglia, & Nieri, 2009). Further, compared to Hispanic men, Hispanic women may be affected to a lesser extent by ethnic discrimination because they are more likely to have larger and more diverse social networks (Alcántara, Molina, & Kawachi, 2015); and utilized

their social support networks (Araújo & Borrell, 2006). Unfortunately, the current study did not include measures of social support. Therefore, future studies may examine if social support mitigates the effect of ethnic discrimination on self-esteem, and in turn, the indirect effects of ethnic discrimination on internalizing symptoms via self-esteem.

### **Clinical Implications**

Findings from this study may have some clinical implications with regard to symptoms of anxiety and depression among Hispanics. Levels of self-esteem and the effects of ethnic discrimination on anxiety and depression symptoms may be weakened by directly addressing ethnic discrimination through active coping strategies such as reflecting, problem solving, emotional expression, cognitive restructuring, and distraction (Edwards & Romero, 2008). Some research also suggests that promoting a positive *ethnic identity* (e.g., high level of ethnic pride, active participation in ethnic practices, and commitment to the heritage group; Phinney, 1992) may increase levels of self-esteem, and mitigate the adverse effect of ethnic discrimination on self-esteem (Edwards & Romero, 2008; Umaña-Taylor & Updegraff, 2007). This could be especially beneficial to men because some literature suggests that a positive ethnic identity may increase perceptions of higher social status, and in turn, protect against adverse effects of ethnic discrimination (Tajfel, 1981). Another strategies may be to encourage Hispanic emerging adults to increase and effectively utilize their social support networks may help buffer the deleterious effects of ethnic discrimination (Cobb & Xie, 2015; Finch & Vega, 2003). This may be particularly helpful for men given that they tend to have smaller social networks and are less likely to utilize social support as a resource.

### **Limitations**

Although the present study provides some important advances, some limitations should be considered when interpreting the findings. First, due to the cross-sectional design, causal inferences cannot be drawn. Perhaps, the most effective method to reduce this limitation is to implement a longitudinal research design. Second, the sample was limited to Hispanic emerging adults in post-secondary education. Since it has been suggested that institutions of post-secondary education in the U.S. often reflect the values, beliefs, and behaviors of Eurocentric culture (Castillo et al. 2006), Hispanic college students may perceive or encounter ethnic discrimination more frequently, compared to the general Hispanic population. Thus, additional studies are needed with more diverse participants that reflect the broader Hispanic population and other stages of development. Third, Hispanics were treated as a single pan-ethnic group because of insufficient sample sizes. Lastly, self-report measures are vulnerable to participant misrepresentation or error.

### **Conclusion**

Despite these and other limitations, the present study suggests that ethnic discrimination was associated with elevated symptoms of anxiety and depression, and that self-esteem may function as a mediator in this relationship. Further, results suggest that self-esteem was a stronger mediator in relation to both outcomes among men than women. It is therefore important to design and implement gender-specific interventions to offset the effects of ethnic discrimination on Hispanic emerging adults.

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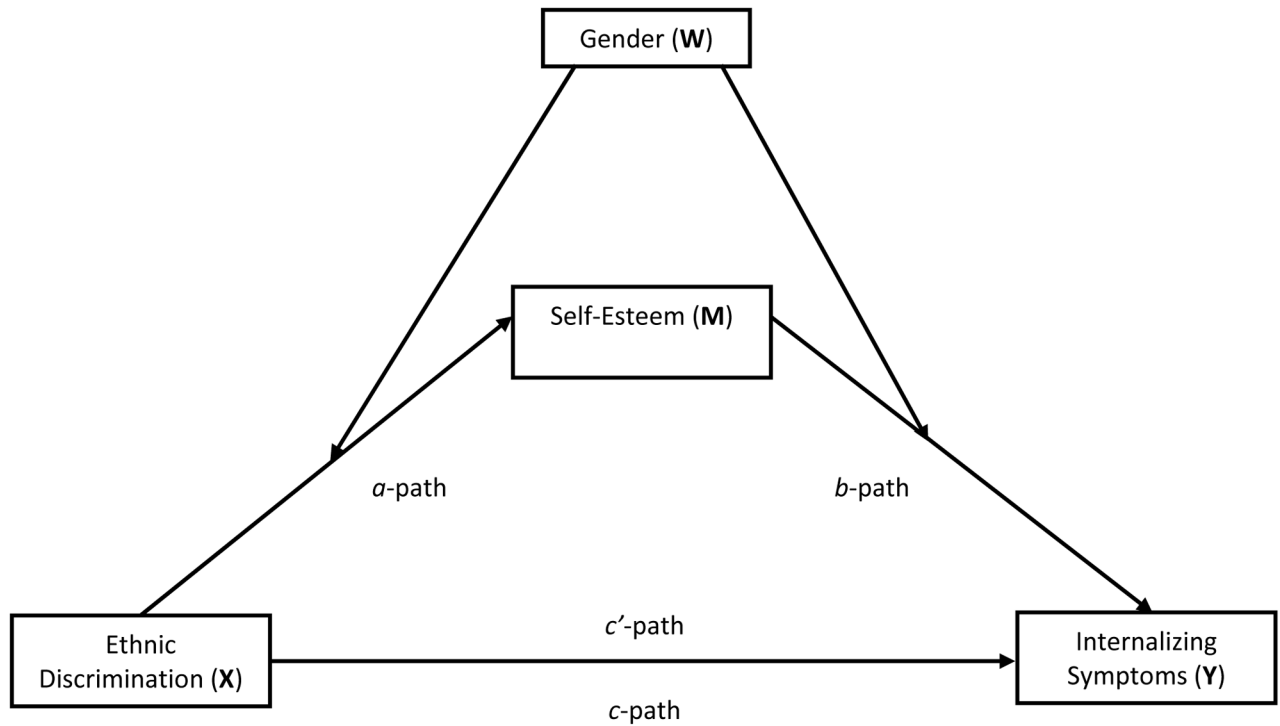
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**Figure 1.**

Conceptual moderated mediation model.

*Note:* X = predictor; M = mediator; Y = outcome; W = moderator. Two separate models were tested: one model tested symptoms of depression as the outcome, the other tested symptoms of anxiety as the outcome. Both model controlled for age, annual family income, partner status, immigrant status, and Hispanic heritage group.

**Table 1**

## Descriptive Statistics for Study Variables

	<b>Men n (%)</b>	<b>Women n (%)</b>	<b><math>\chi^2</math></b>
Annual Family Income			
\$30,000	61 (23.3)	235 (59.9)	9.78**
Partner Status			
Single	168 (63.2)	386 (47.8)	28.18***
Immigrant Status			
U.S. Born	211 (79.0)	633 (78.1)	.09
Heritage			
Mexican	47 (17.5)	147 (18.1)	.24
	<i>M (SD)</i>	<i>M (SD)</i>	<i>t value</i>
Age	19.75 (1.74)	19.72 (1.72)	.25
Ethnic Discrimination	2.93 (.75)	3.04 (.82)	-1.85
Self-esteem	37.96 (7.82)	38.68 (7.01)	-1.40
Depressive Symptoms	54.79 (13.69)	54.87 (12.76)	-.08
Anxiety Symptoms	40.94 (16.60)	42.04 (16.44)	-.97

Note: Percentages only reflect participants that responded to the measure;

\*  $p < .05$ ;

\*\*  $p < .01$ ;

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

Table 2

Bivariate Correlations for Variables Used in Moderated Mediation Analyses (n = 1,084)

Variable	1	2	3	4	5	6	7	8	9	10
1. Age	-	-.01	-.11 <sup>***</sup>	.22 <sup>***</sup>	.04	.05	.04	.12 <sup>**</sup>	-.09 <sup>**</sup>	-.07 <sup>*</sup>
2. Gender		-	-.09 <sup>**</sup>	.14 <sup>**</sup>	.01	.01	.06	.04	.00	.03
3. Annual Family Income			-	-.07 <sup>*</sup>	-.12 <sup>**</sup>	-.05	-.18 <sup>**</sup>	.01	-.01	-.04
4. Partner Status				-	-.01	.08	.03	.16 <sup>**</sup>	-.06 <sup>*</sup>	-.05
5. Immigrant Status					-	-.01	-.04	.07 <sup>*</sup>	-.05	-.05
6. Heritage						-	.09 <sup>**</sup>	-.02	.03	.04
7. Ethnic Discrimination							-	-.14 <sup>**</sup>	.13 <sup>**</sup>	.14 <sup>**</sup>
8. Self-esteem								-	-.47 <sup>**</sup>	-.50 <sup>**</sup>
9. Depressive Symptoms									-	.83 <sup>**</sup>
10. Anxiety Symptoms										-

\*  $p < .05$ ;\*\*  $p < .01$