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The Differential Role of Anxiety Sensitivity and its Components in the Relation between Emotional Nonacceptance and Anxiety and Depressive Symptoms and Disorders among Latinos in Primary Care

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Abstract The present investigation examined anxiety sensitivity (AS) in the relation between emotional nonacceptance (unwillingness to experience unwanted emotions) and mood and anxiety symptoms among Latinos seeking health services at a primary healthcare facility. Participants included 267 adult Latinos (85.4% female; *M*age = 38.8 years, *SD* = 10.7, and 95.9% used Spanish as their first language). Results indicated that emotional nonacceptance was indirectly related to number of mood and anxiety disorders, anxious arousal, social anxiety, and depressive symptoms through AS. The observed effects were evident above and beyond the variance accounted for by gender, age, marital status, educational status, employment status, years living in the United States, and negative affectivity. Using a multiple mediation model revealed that the AS cognitive, physical, and social concerns demonstrated unique incremental explanatory effects (above and beyond the other two AS sub-scales) for depressive, anxious arousal, and social anxiety symptoms, respectively. Thus, specific sub-scales of AS were uniquely related with the expression of particular affective symptom domains. Overall, the present findings suggest that there is merit in focusing further scientific attention on the interplay between nonacceptance and AS in regard to better understanding and intervening to reduce anxiety/depressive vulnerability among Latinos in primary care.

Keywords Emotional nonacceptance · Anxiety sensitivity · Multiple mediation · Latino · Primary care setting · Depression · Anxiety

Introduction

Latinos are the second fastest growing ethnic minority group in the United States (Stepler and Brown 2016). Strikingly, this group experiences significant mental health disparities (USDHHS 2001). Past work suggests that rates of depression and anxiety symptoms among Latinos may be as much as double those among non-Latino White Americans (Alegría et al. 2006), whereas other work finds no differences between Latinos and other racial/ethnic groups (Asnaani et al. 2010). Elevated depression and anxiety symptoms and disorders among Latinos are associated with numerous adverse health problems (Zimmerman et al. 2009), such as cardiovascular disease (Wassertheil-Smoller et al. 2014), diabetes (Fisher et al. 2012), and substance use (SAMHSA 2014). Yet, Latinos are less likely to access treatment (Alegría et al. 2008) and receive evidence-based care for anxiety or depression compared to non-Latino Whites (Lagomasino et al. 2005).

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Primary care medical settings are the most common service domain for Latinos to seek healthcare (Vega and Lopez 2001). Researchers have explored with some success the clinical utility of interventions delivered in primary care for depression (e.g., Miranda et al. 2003; Muñoz et al. 1995) and anxiety disorders (e.g., Chavira et al. 2014) among Latinos, yet, major gaps exist in terms of scientific knowledge about risk factors for anxiety and depressive symptoms and disorders among Latinos in primary care, including a need for a better understanding of explanatory underlying processes of anxiety and depressive problems among the Latino population in primary care.

One underlying construct of potential explanatory relevance to anxiety and depressive psychopathology is emotional nonacceptance (Gratz and Roemer 2004). Emotional nonacceptance is a relatively stable individual difference construct defined as the unwillingness to experience unwanted emotions (Gratz et al. 2007, p. 257). Emotional nonacceptance is often conceptualized as a sub-component of emotion dysregulation, which is defined as the inability to manage one's emotions (Gratz and Roemer 2004). Theoretically, maladaptive reactions toward negative emotional symptoms, such as anxiety or depression, can maintain or exacerbate such symptoms through fear/avoidance (Hofmann, Sawyer, Fang, & Asnaani, 2012). Consistent with such a perspective, among non-Latino samples, emotional nonacceptance is associated with significantly greater levels of anxiety (Brandt et al. 2013; Mennin et al. 2005; Roemer et al. 2009; Tull et al. 2011) and depressive symptoms (Bakhshaie et al. 2014; Liverant et al. 2008; Prigerson and Maciejewski 2008). Although no empirical research has been conducted among Latinos, in this population, due to cultural values such as emotional restraint and perceptions of emotional expression as a sign of weakness (Guarnaccia et al. 1996), emotional nonacceptance could be expected to play a major role in development and maintenance of mood and anxiety problems among this population.

Despite the observed association between emotional nonacceptance and negative mood states and problems among non-Latino samples, there is little understanding of possible factors that may explain the association between this construct and anxiety/depressive symptoms in general and among Latinos in particular. Anxiety sensitivity (AS), reflecting the extent to which individuals believe anxiety and anxiety-related sensations have harmful consequences (McNally 2002; Reiss and McNally 1985), is a relatively stable, yet malleable, cognitive vulnerability that predisposes individuals to the development and maintenance of anxiety and depressive psychopathology (Hayward et al. 2000; Li and Zinbarg 2007; Maller and Reiss 1992; Marshall et al. 2010; Schmidt et al. 2010; Schmidt et al. 1997, 1999;

Schmidt et al. 2006). Such sensitivity to aversive internal cues may be one explanatory mechanism for emotional nonacceptance associations with depressive and anxiety symptoms. Specifically, if individuals are unwilling to experience negative emotions, such a process could contribute to beliefs about their potential threat and sensitivity toward them, exacerbating emotional symptoms. In line with this perspective, Bakhshaie et al. (2014) found that AS accounted for the relation between emotional nonacceptance and symptoms of depression, social anxiety, and anxious arousal among treatment-seeking smokers. This pathway requires particular attention among Latinos, as in addition to higher rates of emotional nonacceptance, Latinos also report higher levels of somatic sensitivities, including cardiovascular presentations of anxiety problems, compared to other non-Hispanic groups (Canino et al. 1999; Pina and Silverman 2004; Varela et al. 2007).

The present investigation sought to re-examine and extend the Bakhshaie et al. (2014) findings in three key ways. First, we sought to evaluate whether emotional nonacceptance was indirectly related to anxiety and depressive symptoms and disorders through AS among Latinos in primary care. Such a test would offer a direct evaluation of the generalizability of the model to a health disparity group and provide insight into sociocultural applicability of the explanatory process. Second, the previous study did not examine the purported explanatory pathway for presence of "emotional disorders." Through investigating the pathways from emotional nonacceptance to "emotional disorders" the scope of knowledge regarding the psychopathological processes will be extended to the clinically-diagnosed psychiatric conditions. Third, the previous study focused on the general AS factor, leaving unclear whether the observed effects could be accounted for by one of the specific sub-scales. Some work suggests AS lower-order factors maintain unique associations with particular types of depressive and anxiety symptoms. Specifically, AS cognitive concerns has been most frequently related to depressive and suicidal symptoms (Capron et al. 2015; Mitchell et al. 2014; Naragon-Gainey 2010; Norr et al. 2015; Olthuis et al. 2014), whereas AS physical concerns has demonstrated stronger associations to anxious arousal (Allan et al. 2014; Olthuis et al. 2014; Taylor et al. 2007), and AS social concerns with social anxiety symptoms (Naragon-Gainey 2010; Olthuis et al. 2014; Taylor et al. 2007).

The current study tested the hypothesis that, among Latinos in primary care, AS would explain the associations between emotional nonacceptance and symptoms of anxious arousal, social anxiety, depression as well as greater number of mood/anxiety disorders. Moreover, it was hypothesized that when included as co-mediators, each of the three AS lower-order factors (sub-scales) would maintain explanatory specificity to affect content.

Specifically, AS physical concerns were expected to mediate the association between nonacceptance and anxious arousal while AS cognitive concerns were expected to mediate nonacceptance and depressive symptoms, and AS social concerns were expected to mediate nonacceptance and social anxiety symptoms.

Method

Participants

Participants included 267 adult Latinos (85.4% female; M_{age} = 38.8, SD = 10.7 and 95.9% reported Spanish as their first language) who attended a community-based primary healthcare clinic in Houston, Texas. In terms of ethnic background, 5.7% of participants identified as American/Born in America, 55.7% identified as Mexican/Mexican American, 1.6% identified as Cuban, 4.4% identified as South American, 0.3% identified as Puerto Rican, 30.1% identified as Central American, and 2.2% identified as "Other."

Regarding education, 5.3% of participants had less than 6 years of education, 46.2% had 6–11 years of education, 26.7% had 12 years of education (completion of high school), and 19.2% had more than 12 years of education. Nearly half (48.1%) of the participants were married, 15.6% were living with partner, 27.7% were single, 7% were divorced, and 1.6% were widowed. Approximately one third (33.0%) of participants were employed full-time (40 h a week), 14.3% were employed part-time (20 h a week), 9.3% were employed less than 20 h a week, 33.7% were unemployed, and 9.8% were looking for employment. The reasons for attendance to the clinic were as follows: family medicine (11.6%), dental (24.6%), psychiatric/psychological (5.1%), and lab test, physical exam, or other reasons (41.3%).

As determined by the baseline Mini International Neuropsychiatric Interview 6.0 (MINI; Sheehan et al. 2009), 38.3% of the sample met criteria for current (past year) Axis I psychopathology. Among participants with current psychopathology, the average number of diagnoses per participant was 0.94 (SD = 1.1). The most common diagnoses were major depressive disorder (23.2%), agoraphobia (5.8%), obsessive-compulsive disorder (5.8%), generalized anxiety disorder (5.1%), and post-traumatic stress disorder (5.8%).

The inclusion criteria included: ability to read, write and communicate in Spanish and being between 18 to 64 years old. Participants were excluded based on the following criteria: limited mental competency and inability to provide informed, voluntary, written consent; endorsement of current or past psychotic-spectrum symptoms via structured interview screening.

Measures

Demographics Questionnaire

Demographic information collected included gender, age, race, education level, marital status, employment status, and years living in the U.S. These data were used for descriptive purposes, as well as controlling for their effects on the proposed models.

MINI International Neuropsychiatric Interview (MINI 6.0; Sheehan et al. 2009)

Diagnostic assessments were performed using the MINI. The MINI provides reliable DSM diagnoses within a short time frame which is applicable to research settings (MINI 6.0; Sheehan et al. 2009. The MINI has demonstrated sound inter-rater and test-retest reliability and validity (Sheehan et al. 1997). The interviews were administered by Spanish-speaking staff who were trained on DSM-based diagnosis and MINI interviewing, and supervised by an independent doctoral-level rater. Approximately 12% of randomly selected interviews were checked (audio and in-person) through a trainer-review process; no cases of diagnostic coding disagreement were noted. For this study, the total number of current mood and anxiety disorders per MINI for each individual was used as a criterion variable (range = 0 to 9).

Difficulties in Emotion Regulation Scale (DERS; Gratz and Roemer 2004)

The DERS is a 36 item self-report questionnaire, used to assess characteristics of emotion regulation. Respondents rate items on a scale from 1 ("almost never") to 5 ("almost always"). The DERS measures emotion regulation on six sub-scales and has demonstrated good internal consistency and construct validity (Gratz et al. 2006). It has been successfully utilized among samples of Spanish-speakers (Hervás and Jódar 2008). For the present study, the emotional nonacceptance sub-scale (DERS-NON) was utilized. This sub-scale consists of items reflecting the tendency to experience secondary negative emotions in reaction to feeling negative emotions (e.g., "When I'm upset, I feel guilty for feeling that way"). In the present investigation, this sub-scale was utilized as a primary predictor variable; internal constancy was excellent (Cronbach's α = .93).

Anxiety Sensitivity Index-III (ASI-III; Taylor et al. 2007)

The ASI-III is an 18-item measure, based in part upon the original Anxiety Sensitivity Index (ASI; Reiss et al. 1986), in which respondents indicate the extent to which they are concerned about possible negative consequences of anxiety-

related symptoms (e.g., "It scares me when my heart beats rapidly"). Responses are rated on a 5-point Likert scale ranging from 0 (*very little*) to 4 (*very much*) and summed to create a total score. The ASI-III has strong and improved psychometric properties relative to previous measures of the construct (Taylor et al. 2007). Additionally, the factor structure and psychometric properties of the AS construct has been supported with a variety of Latino samples (Cintron et al. 2005; Sandin et al. 1996; Zvolensky et al. 2003). In the present investigation, the total score was utilized as the proposed mediator variable; internal constancy was excellent for the total and subscale scores (Cronbach's α range = .84–.94 for total and sub-scales score).

Inventory of Depression and Anxiety Symptoms (IDAS; Watson et al. 2007)

The IDAS is a 64-item self-report instrument that assesses distinct affect symptom dimensions within the past two weeks. The IDAS contains a rich pool of affective content, including 10 specific symptom sub-scales for suicidality, lassitude, ill temper, well-being, insomnia, appetite loss, appetite gain, anxious arousal, social anxiety, and traumatic intrusions, and two broad sub-scales of general depression and dysphoria. Items are answered on a 5-point Likert scale ranging from "*not at all*" to "*extremely.*" The IDAS sub-scales show strong internal consistency, convergent and discriminant validity with psychiatric diagnoses and self-report measures; and short-term retest reliability ($r = 0.79$) with both community, and psychiatric patient samples (Watson et al. 2007 & Watson et al. 2008). The present study used the anxious arousal sub-scale (8 items; e.g. "I felt a pain in my chest"), the general depression sub-scale (20 items; e.g. "I felt exhausted" or "I did not have much of an appetite"), and the social anxiety sub-scale (5 items; e.g. "I found it difficult to make eye contact with people") as criterion variables. As in past work among Latinos (Zvolensky et al. 2014), these three sub-scales demonstrated good level of internal consistency among the present sample (Cronbach"s α = .91,.95,.78 for anxious arousal, general depression, and social anxiety sub-scales, respectively).

Positive and Negative Affect Scale (PANAS; Watson et al. 1988)

The PANAS is a self-report measure asking participants to rate the extent to which they experience each of 20 different feelings and emotions (e.g., interested, nervous) based on a Likert scale that ranges from 1 ("very slightly or not at all") to 5 ("extremely"). The PANAS has been successfully used among Spanish-speaking populations in past work (Zvolensky et al. 2015a, 2015b). The measure yields two factors (negative and positive affectivity) with strong documented psychometric properties (Watson et al. 1988). The negative affectivity sub-scale (PANAS-NA) was used in the present investigation (Cronbach's α = .89).

Procedure

Participants were attendees at a community-based primary care integrated healthcare clinic that provides services to economically disadvantaged population. Recruitment sources included fliers in bulletin boards of the clinic. Individuals interested in participating in the research study, first were examined for eligibility, and then completed various demographic, and psychological assessments. Specifically, following written informed consent, participants were interviewed using the MINI (conducted in Spanish by research assistants) and then completed the self-report measures. All the interviews took place in a private visiting room to maintain confidentiality. All instruments were administered in Spanish by trained clinical research assistants. The study protocol was approved by the Institutional Review Board at the University of Houston. Each participant was paid $20 upon completion of participation.

Data Analytic Strategy

First, descriptive statistics and bivariate correlations were calculated for all study variables. False Discovery Rate (FDR) method was used to control for familywise error rate (Benjamini and Hochberg 1995). Then, the proposed analysis was conducted using bootstrapping techniques (5000 resamples) through PROCESS Macro (Hayes and Preacher 2013), a computational tool for observed variable analysis using IBM SPSS version 19.0 (SPSS, Inc., Chicago, IL). As a non-parametric method, bootstrapping estimates the sampling distribution of an estimator based on resampling with replacement. The indirect effect was computed for each of the samples, resulting in an empirically generated sampling distribution (Hayes and Preacher 2013). Separate analyses were conducted for each outcome variable, with emotional nonacceptance as the predictor and AS as the proposed explanatory variable in each analysis (see Fig. 1). Each analysis was run in two steps: in the first step no covariate was included. In the second step the same model was examined after controlling for a set of theoretically-relevant covariates. Covariates included gender, age, marital status, educational status, employment status, years living in the U.S., and negative affectivity.[1] These covariates were chosen on a priori basis due to their association with anxiety and depressive symptoms in past work among Latinos (Alegría et al. 2007; Fava et al. 2004;

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[1] All mediation models were also tested with an alternative set of covariates that included all the originally proposed covariates except negative affectivity. The pattern of the results for these analyses also stayed the same.

Fig. 1 Proposed model: Anxiety sensitivity as the proposed mediator of the relationship between emotional nonacceptance and mood and anxiety symptoms and disorders. *Note*: a = Effect of X on M; b = Effect of M on Y_i; c = Total effect of X on Y_i; c' = Direct effect of X on Y_i controlling for M; a*b = Indirect effect of M
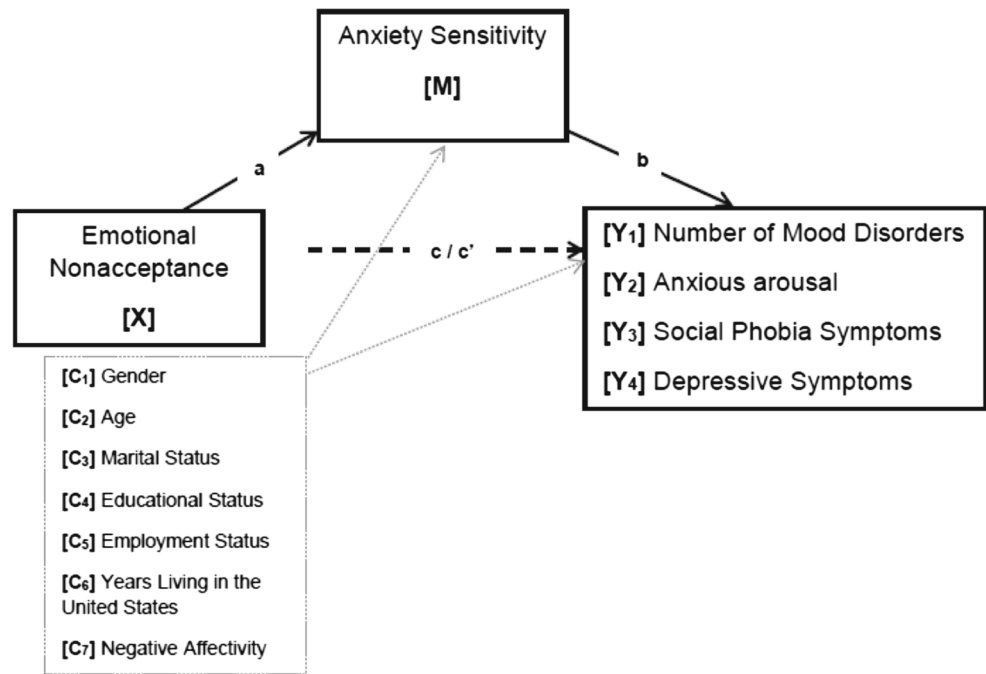
Note: a = Effect of X on M; b = Effect of M on Y_i; c = Total effect of X on Y_i; c' = Direct effect of X on Y_i controlling for M; a*b = Indirect effect of M.

Camacho et al. 2015; Revollo et al. 2011; Sandin et al. 1996; Zvolensky et al. 2015a, 2015b). Five thousand bootstrap re-samplings were conducted to detect the indirect effects of the proposed predictor on dependent variables through AS (i.e., the product of the beta coefficients of path A and path B; see Fig. 1).

In order to minimize parametric assumptions (Preacher and Hayes 2004), bias corrected (BC) confidence intervals were used. A bootstrap-confidence interval that does not include zero provides evidence of a significant indirect effect (Preacher and Hayes 2008). It is generally agreed that a significant indirect effect, from the independent variable, through the mediator, to the dependent variable, is the only requirement necessary to demonstrate mediation (Preacher and Hayes 2008; Zhao et al. 2010). Kappa-squared effect size indicators (k^2; Preacher and Kelley 2011), which represent the proportion of maximum possible indirect effect that could have been obtained (given the variables' scales), were also presented for each significant indirect pathway (Preacher and Kelley 2011). Furthermore, the theoretical models for each outcome variable were compared with two alternative models. First, the predictor and mediator were reversed, such that emotional nonacceptance was tested as a mediator of the associations between AS and each outcome variable. Second, each outcome variable was treated as a mediator of the association between emotional nonacceptance and AS, an approach recommended in the absence of a prospective study design (Kraemer et al. 2008; Judd and Kenny 2010; Preacher and Hayes 2008). Finally, to determine the unique mediating

effects for each AS sub-scale, four multiple mediation models were conducted including all three ASI-3 sub-scales (Preacher and Hayes 2008). See Fig. 2.

Results

Descriptive Data

Descriptive data and correlations of the all variables included in the models are presented in Table 1. Both emotional non-acceptance and AS and as well as the three AS sub-scales were related to the dependent measures (*r*"s range: .32–.62; all *p*'-s < .01) (Table 2).

Mediation Analysis

Regarding the number of mood and anxiety disorders, bootstrap analysis revealed a significant positive indirect effect in the proposed model (point estimate = .06, BC 95% CI: [.03 to .08]; k^2 = .24). After inclusion of covariates, the indirect effect remained significant (point estimate = .09, BC 95% CI: [.004 to .20]; k^2 = 0.09; Fig. 1). Moreover, results for both of the alternative models revealed non-significant indirect effects (point estimate = .008, BC 95% CI: [−.06 to .07]; point estimate = .02, BC 95% CI: [−.007 to .07]).

Bootstrap analysis revealed a significant positive indirect effect in the proposed model for anxious arousal (point estimates = .27, BC 95% CI: [.16 to .39]; k^2 = .25). This

Fig. 2 Multiple mediation models: incremental explanatory role of each anxiety sensitivity sub-scale for relationship between emotional nonacceptance and its respective theoretically –relevant anxiety or depressive symptom. *Note*: AS cog, AS phy, AS soc. = anxiety sensitivity cognitive, physical, and social sub-scales
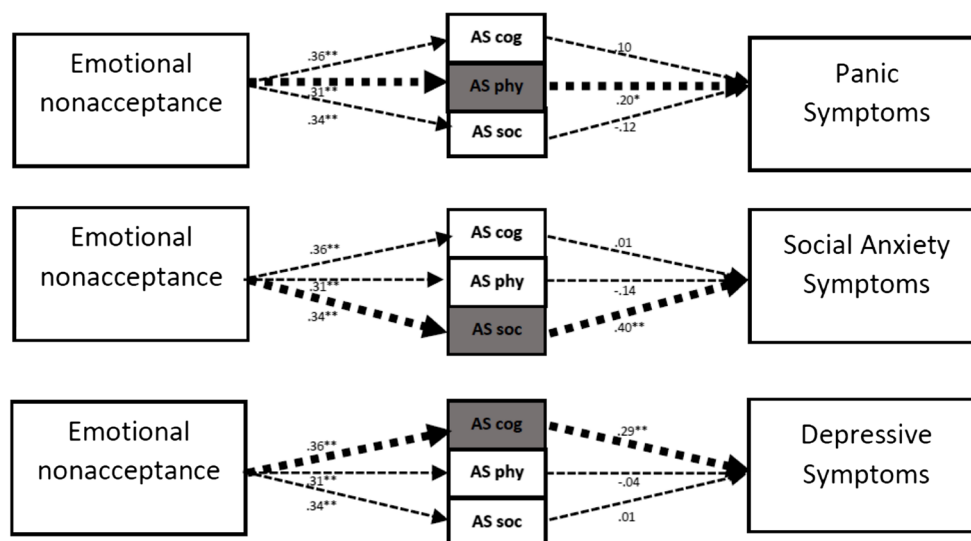
Note: AS cog, AS phy, AS soc = Anxiety Sensitivity Cognitive, Physical, and Social Sub-scales.

indirect effect stayed significant after inclusion of the covariates (point estimates = .12, BC 95% CI: [.06 to .18]; k^2 = 0.06; Fig. 1). Bootstrap analysis of both alternative models yielded non-significant indirect effects (point estimate = − .005, BC 95% CI: [−.06 to .06]; point estimate = .008, BC 95% CI: [−.02 to .04]).

In terms of social anxiety symptoms, bootstrap analysis revealed a significant positive indirect effect in the proposed model (point estimate = .18, BC 95% CI: [.10 to .26]; k^2 = .27), which was also significant after inclusion of covariates (point estimate = .09, BC 95% CI: [.03 to .17]; k^2 = 0.10; Fig. 1). Results of the bootstrap analysis of the alternative models demonstrated non-significant indirect effects (point estimate = − .03, BC 95% CI: [−.09 to .03]; point estimate = .004, BC 95% CI: [−.03 to .04]).

Regarding depressive symptoms, bootstrap analysis revealed a significant positive indirect effect in the proposed model (point estimate = .65, BC 95% CI: [.42 to .87]; k^2 = .28). The indirect effect remained significant after inclusion of the covariates (point estimate = .09, BC 95% CI: [.03 to .15]; k^2 = 0.09; Fig. 1). Bootstrap analysis of the alternative models revealed a non-significant indirect effect for the mediatory role of DERS nonacceptance (point estimate = .03, BC 95% CI: [−.02 to .07]); however, the second alternative model (using depressive symptoms as the mediator of the relationship between ASI-3 and DERS nonacceptance) yielded a statistically significant indirect effect (point estimate = .05, BC 95% CI: [.08 to .11]).

Finally, the post-hoc multiple mediation models revealed significant incremental explanatory effects of ASI-3 Physical, Social, and Cognitive, mediating the relation between the DERS nonacceptance sub-scale and IDAS- anxious arousal (point estimate = .15, 95% BC CI [.06, .25]), IDAS-Social Anxiety (point estimate = .11, 95% BC CI [.03, .21]), and

IDAS-Depression (point estimate = .52, 95% BC CI [.16, .91]) respectively. This pattern of the results stayed the same after inclusion of the covariates, with the significant explanatory role of ASI-3 Physical, Social, and Cognitive, in the relation between the DERS nonacceptance sub-scale and IDAS-anxious arousal (point estimate = .07, 95% BC CI [.02, .13]), IDAS-Social Anxiety (point estimate = .14, 95% BC CI [.05, .25]), and IDAS-Depression (point estimate = .10, 95% BC CI [.01, .22]) respectively. Please see Fig. 2.

Discussion

The overall pattern of results that emerged was consistent with expectation. Namely, after controlling for gender, age, marital status, educational status, employment status, years living in the U.S., and negative affectivity, AS was found to explain the relations between emotional nonacceptance and all dependent variables: social anxiety, anxious arousal, depressive symptoms, and number of mood/anxiety disorder diagnoses. Thus, the observed effects were incremental in nature and cannot be attributed to these other factors. Importantly, the indirect effects for these models were of medium size (k^2 ranged from .06–.10). The results indicate that AS may, at least partially, explain the relations between emotional nonacceptance and anxiety/depressive symptoms and disorders among Latinos. Specifically, among Latinos proneness to higher levels of emotional nonacceptance (Guarnaccia et al. 1996; Markus and Kitayama 1991; Shea and Yeh 2008) could be related to more fearful and aversive responding to negative internal states, and such sensitivity, in turn may be related to greater degrees of anxious arousal, social anxiety, and depressive symptoms and psychopathology. This type of finding is in line with extant theories on higher levels of internalizing

Table 1 Descriptive statistics and bivariate correlations between study variables

	Sex	Age	Marital	Edu	Employ	Yrs-US	NA	DERS	AS	AS cog	AS phys	AS soc	N-DX	Anx	Social	Dep	Mean(SD) or %
Sex [a]	1	0.06	0.04	-0.02	-.39 * **	-0.03	0.02	-0.01	0.11	0.11	0.11	0.08	0.08	0.08	0.07	0.07	85.4% female
Age [a]		1	.13	-0.01	-0.03	.44 **	-0.05	-0.04	-0.07	0.04	-0.03	-0.06	0.01	-0.02	-0.03	-0.02	39.4 yrs
Marital [a]			1	-.19 *	-.15 *	-0.01	-0.08	-.16 **	-0.12	-0.03	-0.1	-.13 *	-0.08	-0.08	-0.07	-.15 *	63.7% with partner
Edu [a]				1	.18 *	-0.01	0.05	-0.01	-0.08	-0.04	-0.06	-0.04	-0.1	-0.09*	-0.049	-0.04	80.6% =12 yrs. more
Employ [a]					1	0.02	0.07	-0.04	-0.11	-.15 *	-0.12	-0.06	-0.03	0.01	-0.02	-0.02	46.7% employed
Yrs- US [a]						1	-0.08	-0.11	-0.05	0.01	-0.01	-0.01	0.02	-0.01	0.02	-0.01	19.95 yrs
NA [a]							1	.52 **	.55 **	.45 **	.53 **	.45 **	.55 ***	.62 ***	.56 ***	.69 ***	17.32 (8.26)
DERS [b]								1	.54 **	.48 **	.54 **	.45 **	.33 **	.35 **	.32 **	.50 **	12.69 (6.29)
AS [c]									1	.72 **	.91 **	.78 **	.51 **	.52 **	.48 **	.62 **	33.13 (17.25)
AS cog [c]										1	.90 **	.72 **	.39 ***	.50 **	.36 **	.48 **	8.96 (4.83)
AS phys [c]											1	.91 **	.50 ***	.53 **	.49 **	.58 **	10.77 (5.45)
AS soc. [c]												1	.45 **	.41 **	.51 **	.48 **	10.03 (4.82)
N-DX [d]													1	.51 **	.55 ***	.65 ***	.94 (1.4)
Anx [d]														1	.64 **	.71 **	11.97 (6.48)
Social [d]															1	.66 **	7.31 (3.88)
Dep [d]																1	37.49 (14.09)

N = 267; ** p < .01, * p < .05. a Covariate; b Predictor; c Explanatory Variable; d Outcome. Sex: 1 = Male and 2 = Female; Age = age in years; Yrs- US = Number of Years living in US; NA = Positive and Negative Affect Scale-Negative Affectivity sub-scale; DERS = Emotional nonacceptance sub-scale of Difficulties in Emotion Regulation Scale; AS, AS cog, AS phys, AS soc. = Anxiety Sensitivity total score and its three sub-scales; N-DX = Number of Mood and Anxiety disorders from M.I.N.I. International Neuropsychiatric Interview; Anx, Social, Dep = Anxious Arousal, Social Phobia, and Depressive symptoms Per relevant sub-scales of Inventory of Depressive and Anxiety Symptoms. False Discovery Rate (FDR) method was used to control for familywise error rate (Benjamini and Hochberg 1995)

Table 2   Regression models

Y	Model	b	SE	t	p	Lower CI (lower)	Upper CI (upper)
Number of Mood and Anxiety Disorders	EN ➜ AS (a)	.38	.06	5.91	<.001	.24	.48
	AS ➜ NDXmood (b)	.23	.06	3.52	.002	.10	.37
	EN ➜ NDXmood (c)	.07	.06	1.12	.32	-.05	.20
	EN ➜ NDXmood (c')	-.01	.07	-.18	.85	-.15	.12
	EN ➜ AS ➜ NDXmood (a*b)	.02	.01			.01	.05
Anxious arousal	AS ➜ AA (b)	.27	.30	4.37	<.001	.72	1.90
	EN ➜ AA (c)	.08	.30	1.35	.26	-.18	1.00
	EN ➜ AA (c')	-.01	.31	-.26	.83	-.70	.53
	EN ➜ AS ➜ AA (a*b)	.12	.04			.055	.22
Social Anxiety Symptoms	AS ➜ SoPho (b)	.26	.17	4.01	<.001	.34	1.01
	EN ➜ SoPho (c)	.03	.17	.45	.74	-.26	.41
	EN ➜ SoPho (c')	-.08	.17	-1.13	.32	-.55	.14
	EN ➜ AS ➜ SoPho (a*b)	.09	.03			.046	.17
Depressive Symptoms	AS ➜ Depression (b)	.26	.61	4.84	<.001	1.76	4.19
	EN ➜ Depression (c)	.17	.61	2.97	.005	.61	3.04
	EN ➜ Depression (c')	.08	.64	1.34	.26	-.40	2.12
	EN ➜ AS ➜ Depression (a*b)	.19	.09			.06	.44

a = Effect of X on M; b = Effect of M on Yi; c = Total effect of X on Yi; c' = Direct effect of X on Yi controlling for M; Path a is equal across all models; therefore, it presented only in the model with Y_1 to avoid redundancies. The standard error and 95% CI for *a*b* are obtained by bootstrap with 5000 re-samples. EN (Emotional nonacceptance) is the predictor, AS (anxiety sensitivity) is the explanatory variable, and NDXmood (Number of Mood and Anxiety Disorders), AA, SoPho (Social Anxiety), and Depression (Depressive Symptoms) are the outcome variables. CI (lower) = lower bound of a 95% confidence interval; CI (upper) = upper bound; ➜ = affects. False Discovery Rate (FDR) method was used to control for familywise error rate (Benjamini and Hochberg 1995)

and somatic problems among the Latino population (Canino et al. 1999; Pina and Silverman 2004; Varela et al. 2007).

Although the cross-sectional nature of our research design does not permit explication of temporal ordering of the observed associations, attempts were made to improve confidence in these observations by evaluating two alternative explanatory models. With the exception of depressive symptoms, both alternative models were rejected using tests of indirect effect for each outcome variable. For depressive symptoms, one alternative model yielded a significant indirect effect. Given that the theoretical model for depressive symptoms also showed a significant indirect effect, AS and this variable may possibly exert reciprocal effects (Zavos et al. 2012). To more fully explore the nature of the relation among AS and depressive symptoms over time, future prospective modeling of the temporal ordering of emotional nonacceptance and AS in relation to depressive symptomatology is warranted. Nevertheless, the significant indirect effects for all hypothesized models, in conjunction with non-significant indirect effects for all but one model, provide generally consistent evidence for AS as an underlying factor between emotional non-acceptance and anxiety/depressive symptoms and disorders among Latinos.

Of note, there was empirical evidence of an incremental indirect effect of AS cognitive, physical, and social concerns for the relations between emotional nonacceptance and depressive, anxious arousal, and social anxiety symptoms. Although past work has not evaluated AS subcomponents in a simultaneous fashion, studies examining the differential relations between the three lower-order factors of AS and anxious arousal, social, and depressive symptoms have found physical, social and cognitive concerns to present the strongest relations with anxious arousal, social anxiety, and depressive symptoms/disorders respectively (Allan et al. 2014; Capron et al. 2015; Mitchell et al. 2014; Naragon-Gainey 2010; Norr et al. 2015; Olthuis et al. 2014; Taylor et al. 2007). Theoretically, each of these AS concerns may differentially represent the nature through which emotional nonacceptance exerts it effects on specific types of symptom expression.

Findings from the current investigation may serve to conceptually inform the development of specialized intervention strategies for Latinos in primary care with elevated risk for anxiety and depressive psychopathology (e.g., elevated emotional nonacceptance). Existing AS reduction programs among non-Latino populations have provided evidence of the feasibility and efficacy of incorporating tailored cognitive-behavioral skills (e.g., interoceptive exposure, psychoeducation) into prevention programs for anxiety and depression (e.g., Keough and Schmidt 2012; Schmidt et al.

2007). Consistent with such work, the present findings suggest that it may be advisable to understand and clinically address AS (or one of its sub-factors) among Latinos with higher levels of emotional nonacceptance in order to address anxiety and depressive symptoms and vulnerability (Zvolensky et al. 2015a, 2015b; Zvolensky et al. 2014). Further, recent acceptance-based behavior treatments have been implemented for comorbid social anxiety and depression (Dalrymple et al. 2014), demonstrating the value of combining traditional behavioral treatments (i.e. ones that target AS) with acceptance strategies. Thus, future work could usefully examine the feasibility of targeting emotional nonacceptance via AS reduction in an integrated acceptance-based behavior framework.

There are several interpretive caveats to the present study. First, as noted earlier, given the cross-sectional nature of these data, it is not possible to isolate a definitive the temporal relationships between the studied constructs. Future prospective studies are necessary to determine the direction of the observed effects. Second, the present Latino sample was largely female and seeking medical services for a wide range of issues. Future work could further evaluate the generalizability of the present model to other sectors of the Latino community, including samples with a larger percentage of males and those persons not seeking medical services. Third, Latinos' lack of acceptance for negative emotional states may be related to a greater tendency to employ an avoidant emotional response style relative to other groups (Davis et al. 2010). Accordingly, there is the possibility that a response bias toward endorsement of greater number of psychiatric symptoms may have influenced the present observations, although this issue should be minimized in the current study because the tests conducted were within group (rather between-group) in nature. Fourth, although 38.8% of the sample met criteria for Axis-I diagnoses in the past year, only 5.1% reported attending the clinic for psychological problems. Although we did not have the data regarding the current use of mental health services among this population, considering the lack of English proficiency in majority of these individuals and the fact that this branch of the medical clinic is one of the few centers in Houston area that provides services in Spanish language, there is a good possibility that the rest of the individuals with Axis-I diagnosis are not receiving a proper service they actually need. This finding, in the context of culture-based emotional non-acceptance among Latinos that could present itself as maladaptive health behaviors such as refraining from use of antidepressants (Shea and Yeh 2008), calls for future investigations focused on the interplay between cultural and emotional vulnerability factors for health illiteracy among this population. Fifth, inconsistent with prior findings among Latinos, there were limited significant associations between socio-demographic characteristics and anxiety and depressive symptoms in the current study sample. This finding may be due to unbalanced distribution of the gender (85.4% were female), or other specific characteristics of this economically disadvantaged sample. Future work needs to re-examine these associations among similar samples of Latino population to better understand the nature of the relations between socio-demographic factors and anxiety/depressive symptoms. Finally, the study criterion variables were limited to anxious arousal, social anxiety, and depressive symptoms. Thus, it is important for future work to further extend the present work to broader array of psychiatric symptoms (e.g., traumatic stress symptoms) and processes (e.g., quality of life).

Overall, the present study serves as an initial investigation to the nature of the association between emotional nonacceptance and anxiety and depression symptoms/disorders among Latinos in primary care. Results indicate AS may be an explanatory mechanism in the relation between emotional nonacceptance and a relatively broad array of anxiety and depressive symptoms and clinical disorders. Future work is needed to explore the extent to which AS accounts for relations between emotional nonacceptance and other clinical processes among Latinos in primary care and the value of integrating targeted intervention programs to help offset the notable health disparities well documented among this underserved population.

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