Is Low Self-Esteem a Risk Factor for Depression? Findings from a Longitudinal Study of Mexican-Origin Youth

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Abstract

We examined the relation between low self-esteem and depression using longitudinal data from a sample of 674 Mexican-origin early adolescents who were assessed at age 10 and 12 years. Results supported the vulnerability model, which states that low self-esteem is a prospective risk factor for depression. Moreover, results suggested that the vulnerability effect of low self-esteem is driven, for the most part, by general evaluations of worth (i.e., global self-esteem), rather than by domain-specific evaluations of academic competence, physical appearance, and competence in peer relationships. The only domain-specific self-evaluation that showed a prospective effect on depression was honesty–trustworthiness. The vulnerability effect of low self-esteem held for male and female adolescents, for adolescents born in the United States vs. Mexico, and across different levels of pubertal status. Finally, the vulnerability effect held when we controlled for several theoretically relevant third variables (i.e., social support, maternal depression, stressful events, and relational victimization), and for interactive effects between self-esteem and the third variables. The present study contributes to an emerging understanding of the link between self-esteem and depression and provides much needed data on the antecedents of depression in ethnic minority populations.

Keywords: global self-esteem, domain-specific self-esteem, depression, Mexican-origin adolescents

Two dominant models have been proposed to explain why low self-esteem is related to depression. The vulnerability model states that low self-esteem is a causal risk factor for the development of depression (Beck, 1967). Alternatively, the scar model proposes that low self-esteem is a consequence, rather than a cause, of depression, because experiences of depression may leave permanent scars in the self-concept of the individual (Shahar & Davidson, 2003). Importantly, the two models are not mutually exclusive because both processes (i.e., low self-esteem contributing to depression and depression eroding self-esteem) might operate simultaneously (Orth, Robins, & Roberts, 2008). A recent meta-analysis of the available longitudinal data found support for both processes, but that the vulnerability effect of low self-esteem on depression is twice as large as the scar effect of depression on self-esteem (Sowislo & Orth, 2013). Moreover, the vulnerability effect is highly robust; it holds across gender, from childhood to old age, for affective-cognitive and somatic symptoms of depression, for different measures of self-esteem and depression, and after controlling for content overlap between self-esteem and depression scales (Orth et al., 2008; Orth, Robins, Trzesniewski, Maes, & Schmitt, 2009; Sowislo & Orth, 2013).

The goal of the present research was to advance the field by using longitudinal data from a sample of Mexican-origin adolescents to address the following three questions: (a) Is the vulnerability effect of low self-esteem on depression driven by low global self-esteem or by low domain-specific self-esteem? (b) Does the hypothesized causal effect of low self-esteem hold when important third variables are controlled for, or is the vulnerability effect of low self-esteem spurious? (c) Does the vulnerability effect of low self-esteem hold in Mexican-origin adolescents, an underrepresented ethnic group in psychological research? As we will review in more detail below, low self-esteem and depression are more prevalent among Mexican-origin

youth than among White, Black, and Hispanic adolescents of non-Mexican origin. Moreover, Mexican Americans are the most rapidly growing part of the U.S. population and Mexican-origin children and adolescents are now the majority of the population of youth in California. Thus, it is particularly important to determine whether low self-esteem is a risk factor for depression in Mexican-origin youth. In this article, we use the term *depression* to denote a continuous variable (i.e., individual differences in depressive affect) rather than a clinical category such as major depressive disorder. Taxometric analyses suggest that depression is best conceptualized as a continuous construct (Hankin, Fraley, Lahey, & Waldman, 2005).

Global vs. Domain-Specific Self-Esteem and Their Relations with Depression

Previous research on the vulnerability model has focused almost exclusively on global self-esteem—that is, a person's overall evaluation of his or her worth,—but has neglected whether the model holds for measures of domain-specific self-esteem—that is, a person's self-evaluation in domains such as academic competence, social skills, physical attractiveness, or morality. Given that cross-sectional studies with adolescents indicate that negative self-evaluations of appearance, likability, and competence are concurrently related to depression (Harter, Marold, & Whitesell, 1992; Harter & Whitesell, 1996), self-esteem theorists have hypothesized that domain-specific self-esteem contributes to the development of depression (Harter, 2012). However, research has not yet tested whether domain-specific self-esteem prospectively predicts depression (e.g., by using longitudinal data and controlling for previous levels of the constructs). Knowledge about which domains of self-esteem (all, a few, or none of the domains) contribute to the vulnerability effect is important for theoretical reasons, because it helps us understand why and for whom low self-esteem is a risk factor for depression. In addition, knowledge about the effects of domain-specific self-esteem is important for practical

reasons, because it facilitates the design of interventions that target the particular facet of self-evaluation that has the most toxic effect on depression. Therefore, the first goal of the present research was to test the vulnerability model using measures of both global and domain-specific self-esteem.

Clearly, domain-specific self-evaluations are related to global self-esteem (e.g., Marsh, 1986). For example, in a study of college students, individuals with high self-esteem tended to see themselves as more academically competent, socially skilled, athletic, and physically attractive (Robins, Hendin, & Trzesniewski, 2001). However, many researchers believe that global self-esteem is more than just an aggregate of a person's domain-specific self-evaluations (Pelham & Swann, 1989; Rosenberg, 1979). Researchers have proposed divergent models of the relation between global and domain-specific self-esteem: the bottom-up model states that domain-specific self-evaluations influence global self-esteem, whereas the top-down model states that global self-esteem influences domain-specific self-evaluations (cf. Swann & Bosson, 2010). However, the findings of two longitudinal studies with large samples of adolescents supported neither the bottom-up nor the top-down model, but instead suggested that global and domain-specific self-evaluations do not influence each other over time (Marsh & Yeung, 1998).

In view of the nonequivalence and possible causal independence of global and domain-specific self-esteem, the vulnerability effect of low global self-esteem may not hold for low domain-specific self-esteem. Another reason why global self-esteem might be a better predictor of depression than domain-specific self-esteem is the specificity-matching principle. This principle states that specific predictors are better predictors of specific outcomes, whereas global predictors are better predictors of global outcomes. Given that depression is a relatively global construct, which combines a number of cognitive, affective, and somatic symptoms, depression

is likely to be predicted more strongly by global than domain-specific self-esteem (Swann, Chang-Schneider, & McClarty, 2007).

Causality vs. Spuriousness of the Relation Between Low Self-Esteem and Depression

The second goal of this research was to advance the field by testing, and possibly ruling out, several alternative explanatory accounts. A general methodological issue in this field is that the typical study does not allow for strong conclusions about causality, because experimental study designs are not feasible for ethical and practical reasons. If experimental designs are not an option, then longitudinal designs provide for a partial remedy, because longitudinal designs allow testing models that include prospective effects between constructs (Finkel, 1995). However, the longitudinal design also involves threats to causal inference, one of which is that relevant third variables that causally influence the observed variables were omitted from the model (Little, Preacher, Selig, & Card, 2007).

Therefore, in the present research we examined several theoretically relevant third variables and tested whether these variables confounded the prospective effect of low self-esteem on depression or, to put it differently, whether the prospective effect became nonsignificant if the effects of the third variables were statistically controlled. By controlling for third variables, we gained important information on the robustness of the vulnerability model, which—if the vulnerability effect holds—would strengthen confidence in the model. Whether the evidence supports or contradicts the causal status of the vulnerability model is a critical question because a causal effect of low self-esteem implies that improving self-esteem is worthwhile and likely to reduce the risk for depression.

We selected third variables that previous research suggests might be protective or risk factors for depression. Specifically, we tested whether the effect of low self-esteem on

depression can be accounted for by poor social support (DuBois et al., 2002; for a study with a Mexican-origin sample see Rodriguez, Mira, Paez, & Myers, 2007), maternal depression (Goodman et al., 2011), stressful life events (Hammen, 2005; for a study with a sample of Hispanic adolescents, see Zeiders, Umaña-Taylor, & Derlan, 2012), and relational victimization (Desjardins & Leadbeater, 2011). In addition to testing whether the main effects of these variables confound the relation between low self-esteem and later depression, we also tested whether the third variables influence depression by moderating (e.g., buffering or exacerbating) the effects of self-esteem. For example, the vulnerability effect of low self-esteem could be stronger when youth are also experiencing stressful events, being victimized by their peers, receiving minimal social support, or have a mother who is struggling with depression.

Note that the longitudinal design of the present research helps disentangle—by examining reciprocal prospective effects between the constructs—a truly spurious effect (e.g., low self-esteem is related to depression because being victimized by peers makes the adolescent depressed and lowers his or her self-esteem) from a causal mediation process (e.g., low self-esteem predicts depression because low self-esteem increases the risk of being victimized by peers which in turn contributes to depression; D. A. Cole & Maxwell, 2003). Distinguishing between these types of third-variable models is of crucial importance for theoretical and practical reasons. If the spurious effect model is correct, then interventions aimed at increasing self-esteem will have no effect on the risk for depression; if the causal mediation model is correct, then self-esteem interventions may interrupt the hypothesized causal chain from low self-esteem to depression.

Self-Esteem and Depression Among Hispanic Adolescents

The third goal of this research was to test whether the vulnerability model holds in a

sample of Mexican-origin adolescents. Most studies report that Hispanic adolescents have lower global self-esteem than White or Black adolescents (e.g., Erol & Orth, 2011; Robins, Trzesniewski, Tracy, Gosling, & Potter, 2002; Twenge & Crocker, 2002). Moreover, Twenge and Crocker's (2002) meta-analysis suggests that Mexican-Americans have even lower self-esteem than Hispanics of non-Mexican origin. With regard to domain-specific self-esteem, the available evidence suggests that, similarly to global self-esteem, Hispanic adolescents report poorer self-evaluations than Black adolescents in nearly all domains (e.g., academic competence, peer relationships, affect, and physical appearance), and, in some domains, also poorer self-evaluations than White adolescents (e.g., Crain & Bracken, 1994; Widaman, MacMillan, Hemsley, Little, & Balow, 1992).

With regard to depression, consistent evidence has accrued that Hispanic adolescents have higher levels of depression than Whites and Blacks (e.g., Anderson & Mayes, 2010; Bernal & Rosselló, 2008). For example, a meta-analysis found that Hispanic children and adolescents scored higher on the Children's Depression Inventory than Whites and Blacks (Twenge & Nolen-Hoeksema, 2002). Two studies with large samples of adolescents indicated that Mexican-American adolescents have a particularly high risk of depression compared to Whites and Blacks, and also compared to adolescents of other Hispanic origin (Roberts, Roberts, & Chen, 1997; Roberts & Sobhan, 1992). Moreover, U.S.-born Hispanics have more mental health problems than foreign-born Hispanics, a finding referred to as the "immigrant paradox" because foreign-born Hispanics have experienced more stressful events and poverty associated with the immigration (Alegría & Woo, 2009).

In summary, the available evidence suggests that low self-esteem and depression are important mental health concerns for Mexican-origin adolescents. Moreover, the few studies that

have examined the association between self-esteem and depression in Mexican-origin (Portes & Zady, 2002; Umaña-Taylor & Updegraff, 2007) and Hispanic adolescents (Behnke, Plunkett, Sands, & Bámaca-Colbert, 2011; Robles-Piña, Defrance, & Cox, 2008; Smokowski, Rose, & Bacallao, 2010) have found that low self-esteem is significantly related to depression. However, given that these studies used cross-sectional designs, there is a need for longitudinal analyses of the relation between low self-esteem and depression in Hispanic adolescents.

The Present Research

In the present research, we examined reciprocal prospective relations between self-esteem and depression using data from a large sample of Mexican-origin early adolescents. One of the advantages of the large sample size is that we have increased power to detect potentially subtle interactions involving gender and other third variables. The present research extends previous research in several additional ways.

First, we examined the effects of both global and domain-specific self-esteem on depression, whereas previous research has focused exclusively on global self-esteem. Besides global self-esteem, the self-esteem measure used assesses self-evaluations in the domains of school competence, physical appearance, honesty–trustworthiness, and relations with peers, allowing us to explore whether these domains of negative self-evaluation serve as a risk factor for depression.

Second, we tested whether the effects of global and domain-specific self-esteem hold across gender, nativity (born in U.S. vs. Mexico), and pubertal status.

Third, we examined several theoretically relevant third variables. Specifically, we tested for the potentially confounding effect of social support, maternal depression, stressful events, and relational victimization. These third variables are of particular importance for Mexican-

origin participants. For example, given the Mexican American cultural context is characterized as being more collectivistic (Triandis, 1989), availability of social support and relational victimization should be especially relevant when studying depression. Moreover, given that family relations are highly valued in Latino culture (Rodriguez et al., 2007) and given that Mexican-origin mothers are less likely to use mental health services (Aguilar-Gaxiola, Kramer, Resendez, & Magaña, 2008; Alegría & Woo, 2009), maternal depression may be especially detrimental for the children's well-being.

Fourth, we examined the vulnerability effect in a sample of Mexican-origin adolescents. Previous longitudinal research has been based predominantly on participants of European origin (for a review of the available studies see Sowislo & Orth, 2013). Thus, we do not know whether the previously reported effect of low self-esteem on depression will generalize to other ethnic groups.

Fifth, very few studies have examined prospective reciprocal relations between low self-esteem and depression in children as young as 10 years of age (Borelli & Prinstein, 2006; McCarty, Stoep, & McCauley, 2007). The present research provides much needed data on early adolescence when symptoms of depression are often first emerging (Kessler et al., 2005). During the age span covered in this study (i.e., 10 to 12 years), most participants experienced the transition to middle school, which is a period of significant risk for internalizing and externalizing problems (Scaramella, Conger, & Simons, 1999), academic problems (Barber & Olsen, 2004), and a decrease in global and domain-specific self-esteem (Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991; for a study with a subsample of Hispanics, see Robins et al., 2002). Mexican-origin youth in particular are often exposed to risk factors such as discrimination and poverty that are negatively associated with peer and school success, which are factors that

are closely linked to domain-specific self-evaluations and global self-esteem (for an intervention study on preventing mental health problems among Mexican American adolescents following the transition to middle school, see Gonzales, Dumka, Deardorff, Carter, & McCray, 2004).

Method

Participants and Procedures

Participants were of Mexican origin, as determined by their ancestry and their self-identification as being of Mexican heritage. The sample consists of 674 Mexican origin families with a typically functioning child attending the 5th grade (Wave 1) in a public or Catholic school. Children and their families were drawn at random from rosters of students in the school districts of Sacramento and Woodland, California. First-, second-, and third-generation children of Mexican origin were eligible for the study, and the focal child had to be living with his or her biological mother. 29% of the children, 84% of the mothers, and 88% of the fathers were born in Mexico (the remainder were all born in the United States). On average, mothers had spent 16.1 (*SD* = 10.6) years in the United States and fathers 19.4 years (*SD* = 9.8). 38% of mothers and 40% of fathers did not attend high school; 25% of mothers and 25% of fathers completed some high school; 18% of mothers and 20% of fathers completed high school or had a general equivalency diploma [GED]; and 19% of mothers and 15% of fathers had some college, a college degree, or a graduate degree; of those who completed high school or less, the median grade achieved was 9th grade for both mothers and fathers.

Participants were recruited by telephone or, when they did not have a telephone, by a recruiter who went to their home. Of the eligible families, 73% agreed to participate. Trained research staff interviewed the participants in their homes. They visited the families on two separate occasions within a one-week period. During the interviews of the children, the parents

were not present.

The present study used two waves of data, with a two-year interval between waves. At Wave 1, mean age of the children (50% female) was 10.4 years (*SD* = 0.60). At each wave, the self-esteem and depression measures were administered on separate visits, thus minimizing the influence of response sets on any observed relations between the two measures. Data on study variables were available for 672 adolescents at Wave 1 and 579 adolescents at Wave 2. To investigate the potential impact of attrition, we compared adolescents who did and did not participate at Wave 2 on study variables assessed at Wave 1. Adolescents who dropped out were older (*M*s = 10.6 vs. 10.4; *d* = 0.37) and reported less relational victimization (*M*s = 1.31 vs. 1.40; *d* = −0.19); for all other variables, differences were nonsignificant.

Measures

Interviews were conducted in Spanish or English based on the preference of the participant. Sixteen percent of the early adolescents completed the interviews in Spanish.

Self-esteem. Global and domain-specific self-esteem were assessed with the 25-item Self-Description Questionnaire II—Short Form (SDQII-S), a well-validated and widely used measure (Marsh, Ellis, Parada, Richards, & Heubeck, 2005; for a study with a Hispanic subsample, see Widaman et al., 1992). To facilitate the interview format, the SDQII-S response categories were modified from the original 6-point scale to a 4-point scale ranging from 1 (*not at all true*) to 4 (*very true*). The "general self" scale, a measure of global self-esteem, included 6 items (alpha reliability = .74 at Wave 1 and .79 at Wave 2). Self-evaluation in the domain of school competence was assessed with 4 items (alpha = .70 and .74). Self-evaluation in the domain of physical appearance was assessed with 4 items (alpha = .86 and .87). Self-evaluation in the domain of honesty–trustworthiness was assessed with 6 items (alpha = .73 and .74). Self-

evaluation in the domain of relations with same-sex peers was assessed with 5 items (alpha = .65 and .63). As a second measure of global self-esteem, we computed an SDQ total score, based on the average of all 25 items (alpha = .88 at both waves).

Depression. We used the 6-item depression scale of the Early Adolescent Temperament Questionnaire—Revised (Ellis & Rothbart, 2001), a revision of a measure developed by Capaldi and Rothbart (1992). To facilitate the interview format, the response categories were modified from the original 5-point scale to a 4-point scale ranging from 1 (*not at all true*) to 4 (*very true*). The alpha reliability was .61 at Wave 1 and .59 at Wave 2.

Social support. We used a modified version of the 12-item Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988). The MSPSS is a well-validated measure (Zimet, Powell, Farley, Werkman, & Berkoff, 1990) that has been used with Hispanic samples (e.g., Edwards, 2004). To facilitate the interview format used to administer the questionnaire, the MSPSS response categories were modified from the original 5-point scale to a 4-point scale ranging from 1 (*not at all true*) to 4 (*very true*). The alpha reliability was .89 at Wave 1 and .92 at Wave 2.

Stressful events. Stressful events were assessed with the Multicultural Events Schedule for Adolescents (MESA; Gonzales, Gunnoe, Jackson, & Samaniego, 1995; Program for Prevention Research, 1999). The MESA has been used frequently with Hispanic samples (e.g., Gonzales, Deardorff, Formoso, Barr, & Barrera, 2006). The current study uses a 35-item version of the MESA; a few items were dropped because of references to sexuality, girlfriends, and boyfriends, or likely vocabulary problems for respondents at ages 10 to 12 years. An important component of the MESA is its inclusion of items tapping into ethnic or language discrimination. Participants reported whether they had experienced events during the past three months in

domains such as family trouble, family conflict, peer hassles, school hassles, and economic hassles. Item examples are “your parent lost a job” and “a family member got upset at you for not participating in the family’s cultural or religious traditions.” The alpha reliability was .80 at Wave 1 and .78 at Wave 2.

Relational victimization. Relational victimization was assessed with a 12-item scale adapted from Prinstein, Boergers, and Vernberg (2001), Neary and Joseph (1994), and Kokkinos and Panayiotou (2004). The scale assesses whether the respondent was a target of psychological or physical aggression by peers during the past three months. Item examples are “A kid your age gave you the silent treatment or did not talk to you on purpose,” and “A kid your age pushed you around or hit you.” Responses were measured on a 4-point scale ranging from 1 (*almost never or never*) to 4 (*almost always or always*), with an alpha reliability of .89 at Wave 1 and .84 at Wave 2.

Maternal depression. We used the 10-item version (J. C. Cole, Rabin, Smith, & Kaufman, 2004) of the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). The CES-D is a well-validated measure (Eaton, Smith, Ybarra, Muntaner, & Tien, 2004). For each item, mothers reported how frequently they experienced the symptom during the past month using a 4-point scale (1 = *almost never or never*; 2 = *sometimes*; 3 = a *lot of the time*; 4 = *almost always or always*), with an alpha reliability of .77 at Wave 1 and .75 at Wave 2.

Pubertal status. Pubertal status was assessed at age 10 with the Pubertal Development Scale (PDS; Petersen, Crockett, Richards, & Boxer, 1988). The PDS is a well-validated measure (Schmitz et al., 2004) that has been used with Hispanic samples (e.g., White, Deardorff, & Gonzales, 2012). The scale included five items concerning: growth spurt in height, pubic hair growth, and skin change (boys and girls); voice deepening and facial hair growth (boys only);

and breast development and menarche (girls only). Responses were measured on a 4-point scale, ranging from 1 (*has not yet started*) to 4 (*seems completed*), except for the menarche item, which was coded as 1 (*no*) or 4 (*yes*). The mean pubertal status score was 1.78 (*SD* = 0.50) for boys (alpha = .63) and 1.90 (*SD* = 0.56) for girls (alpha = .60).

Statistical Analyses

Analyses were conducted with the Mplus 6.1 program (Muthén & Muthén, 2010). To deal with missing values (12% of the data were missing, most of it due to longitudinal attrition as reported above), we employed full information maximum likelihood estimation to fit models directly to the raw data (Schafer & Graham, 2002). We used item parcels as indicators because they produce more reliable latent variables than individual items (Little, Cunningham, Shahar, & Widaman, 2002). For each measure (e.g., global self-esteem, depression), we aggregated the items into three parcels. The uniquenesses of individual indicators were correlated across time to control for bias due to parcel-specific variance (D. A. Cole & Maxwell, 2003). Models including latent interactions were estimated by numerical integration using the default algorithm, i.e., rectangular integration (Muthén & Muthén, 2010).

Model fit was assessed using the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root-mean-square error of approximation (RMSEA). Good fit was indicated by values greater than or equal to .95 for CFI and TLI, and less than or equal to .06 for RMSEA (Hu & Bentler, 1999). To test for differences in model fit, we used the test of small differences in fit (MacCallum, Browne, & Cai, 2006, Program C).

Results

Gender Differences in Self-Esteem and Depression

Table 1 shows the means and standard deviations of all study variables. At age 10, boys

and girls did not differ significantly in their average level of global and domain-specific self-esteem, except that girls had more favorable self-evaluations on honesty–trustworthiness (d = 0.22). At age 12, girls had more favorable self-evaluations on school competence (d = 0.18), honesty–trustworthiness (d = 0.24), and relations with peers (d = 0.20), and higher scores on the SDQ total scale (d = 0.21). Overall, these results indicate that girls had slightly higher domain-specific self-esteem than boys (corresponding to small effect sizes); however, boys and girls did not show consistent differences in global self-esteem. Although previous research suggests that girls tend to have lower global self-esteem than boys, meta-analytic findings indicate that the effect size of this gender difference is small (Kling, Hyde, Showers, & Buswell, 1999). Despite their slightly higher domain-specific self-esteem, girls reported significantly higher levels of depression than boys at both waves, corresponding to small to medium effect sizes (d = 0.36 at age 10 and d = 0.30 at age 12).

Relations Between Self-Esteem and Depression

We used cross-lagged latent variable regression models for the analysis of prospective relations between self-esteem and depression. Figure 1 provides a generic illustration of the models. The cross-lagged paths indicate the prospective effect of one variable on the other (e.g., effect of self-esteem at age 10 on depression at age 12), after controlling for their stabilities across time (e.g., effect of depression at age 10 on depression at age 12). We tested for longitudinal measurement invariance of the factor loadings (Widaman, Ferrer, & Conger, 2010). For all models, constraining the loadings to be equal across waves did not significantly worsen model fit; consequently, we retained the longitudinal constraints on loadings in subsequent analyses. Overall, the fit of the models tested was good (Table 2).

The results for the SDQ total score and general self scale supported the vulnerability

model, but not the scar model (Table 3). Low self-esteem at age 10 predicted depression at age 12, controlling for depression at age 10. In contrast, depression at age 10 did not predict low self-esteem at age 12, controlling for level of self-esteem at age 10. Of the domain-specific self-esteem scales, only unfavorable self-evaluations of honesty–trustworthiness predicted depression; school competence, physical appearance, and relations with peers did not have significant prospective effects on depression. We found one effect consistent with the scar model: individuals with higher levels of depression at age 10 showed declines in their self-evaluated peer relations from age 10 to 12.

We tested whether controlling for gender would change the relations between the self-esteem scales (i.e., global and domain-specific self-esteem) and depression. The magnitude of the structural coefficients were virtually unaltered; all of the significant paths remained significant and all of the nonsignificant paths remained nonsignificant. We also examined whether gender moderates any of the effects, using multiple group analyses. However, for all global and domain-specific self-esteem variables, models constraining the structural coefficients to be equal for boys and girls did not significantly decrease model fit. Similarly, no moderator effects emerged for nativity or pubertal status. That is, constraining the coefficients to be equal for U.S. vs. Mexico-born children, and for children who scored low vs. high on the pubertal status scale (operationalized by a median split at age 10), did not significantly decrease model fit. Also, no significant moderator effects emerged when we examined pubertal status separately for males and females.

Testing Alternative Explanations of the Vulnerability Effect

Next, we tested alternative explanations of the effect of low global self-esteem on depression, specifically whether effects were spurious and confounded by theoretically relevant

third variables (i.e., social support, maternal depression, stressful events, and relational victimization) or whether effects held when these third variables were controlled statistically. For these analyses, we used the total score of the SDQ as measure of self-esteem because of its superior psychometric properties (the results were very similar for the general self scale and led to the same conclusions). All of the third variables were concurrently related to depression at age 10, which supports their inclusion in the model as potential confounds.

In the third variable models, the cross-lagged path of self-esteem on depression indicated the prospective effect of self-esteem, controlling for the stability of depression and controlling for the prospective effect of the third variable on depression. For all models, constraining the factor loadings to be equal across waves did not significantly worsen model fit; consequently, we retained these constraints in subsequent analyses. The fit of the models tested was good.

The prospective effect of low self-esteem on depression held in all of the third variable models (Figure 2), ranging in magnitude from −.13 to −.14 (vs. −.14 in the bivariate model). Moreover, none of the third variables had a significant prospective effect on depression, after controlling for the effect of low self-esteem. Three additional significant effects emerged. First, self-esteem had a positive prospective effect on social support (Figure 2A). This finding provides longitudinal support for previous research showing that self-esteem and social support are related (DuBois et al., 2002). Second, maternal depression had a negative prospective effect on the early adolescent's self-esteem (Figure 2B). Although previous research suggests that maternal depression and children's self-esteem are related (Miller, Warner, Wickramaratne, & Weissman, 1999), previous studies did not control for prior levels of the constructs. Thus, the present study extends previous research by showing that mothers high in depressive affect tend to have children who decline in self-esteem during early adolescence. Third, depression had a positive

prospective effect on stressful events (Figure 2C), consistent with previous research showing that depressed individuals experience more stressful life events (Hammen, 1991; Orth, Robins, & Meier, 2009).

Although we did not find any main effects of the third variables on depression, these variables could still influence depression by moderating (e.g., buffering or exacerbating) the effects of self-esteem. However, the interaction effects were nonsignificant in all models; thus, the vulnerability effect of low self-esteem on depression replicated across different levels of the third variables.

Finally, we turned to domain-specific self-esteem and tested whether its effect on depression was influenced by the main or interactive effects of the third variables. Because of the large number of tests for interactive effects (i.e., 16 tests, based on all possible combinations of the four domain-specific self-esteem measures and the four "third" variables) and because we did not have any hypotheses for these tests, we adjusted the significance level to $p < .003$, following the Bonferroni method (i.e., dividing .05 by 16). The relations between domain-specific self-esteem and depression (as reported in Table 3) were virtually unaltered when controlling for the third variables, and no significant interactions emerged for domain-specific self-esteem and third variables predicting depression.

Discussion

In the present research, we examined the relation between low self-esteem and depression in a large sample of Mexican-American youth. The results supported the vulnerability model, which states that low self-esteem is a prospective risk factor for depression. Moreover, the results suggested that the vulnerability effect of low self-esteem is driven, for the most part, by general evaluations of worth (i.e., global self-esteem), rather than by domain-specific evaluations of

academic competence, physical appearance, and competence in peer relationships. The only domain-specific component of self-esteem that matched the pattern of the vulnerability model was honesty–trustworthiness. The vulnerability effect of low self-esteem held for male and female adolescents, for adolescents born in the United States vs. Mexico, and across different levels of pubertal status. Finally, the vulnerability effect held when we controlled for several theoretically relevant third variables (i.e., social support, maternal depression, stressful events, and relational victimization), and for interactive effects between self-esteem and the third variables.

Theoretical and Practical Implications

The present study extended previous research by comparing the effects of global vs. domain-specific self-esteem. The results suggested that the vulnerability effect of low self-esteem is largely driven by general evaluations of the self, but not domain-specific self-evaluations. Prior research suggests that global self-esteem is not simply the sum of domain-specific self-esteem (Pelham & Swann, 1989); global self-esteem reflects the tendency to evaluate positively one's worth as a person, which may be relatively independent from specific evaluations of one's intelligence, physical attractiveness, and social skills. Although we failed to find support for the hypothesis that domain-specific self-esteem (with the exception of honesty–trustworthiness) is a risk factor for depression, these results provide a significant contribution to the field; many researchers have argued that it is important to publish null results, when there is a clear rationale for the hypothesis and the research has sufficient statistical power (Fraley & Marks, 2007). Moreover, although most of the domain-specific effects were nonsignificant, three of the four effects were in the direction predicted by the vulnerability model, and the fourth effect was exactly zero; in other words, the domain-specific effects were either consistent or not

with the vulnerability effect, but none suggested that higher domain-specific self-esteem leads to higher levels of depression. In addition, we note that although most of the measures of domain-specific self-esteem did not show prospective effects on depression, they showed concurrent correlations with depression (with the exception of self-evaluations of physical appearance). Thus, the present research does not suggest that domain-specific self-esteem is unrelated to depression—it only suggests that domain-specific self-esteem is not a vulnerability factor for increasing in depression.

Moreover, the findings of the present research allow ruling out several alternative explanatory accounts. The vulnerability effect of low self-esteem was not confounded by effects of social support, maternal depression, stressful events, and relational victimization, and their interactive effects with self-esteem. The results suggest, for example, that low self-esteem and depression are not related simply because maternal depression or a lack of social support leads to lower self-esteem and depression, creating a spurious link between the two. Previous research has provided evidence concerning one of the third variables examined in this research, specifically stressful events, suggesting that the degree to which individuals experience stressful life circumstances does not account for the vulnerability effect (Orth, Robins, & Meier, 2009). In the present study we used a measure of stressful events that was particularly sensitive to stressful experiences among the Mexican-origin early adolescents in our sample, by including stressful events due to ethnic and language discrimination (Gonzales et al., 1995). Thus, the present research replicates and extends previous research, indicating that stressful events do not confound the vulnerability effect. Moreover, the present study extended previous research by controlling for the possible confounding effects of social support, maternal depression, and relational victimization.

Whereas previous research on the longitudinal relation between low self-esteem and depression had been based predominantly on participants of European origin (see Sowislo & Orth, 2013), the present research examined participants of Mexican origin—an underrepresented ethnic group in psychological research (see, e.g., Bernal & Rosselló, 2008; Umaña-Taylor, 2009). Psychologists increasingly realize that research with samples from a diverse set of ethnic backgrounds and cultural contexts is necessary to evaluate the validity and generalizability of psychological theories and models (Henrich, Heine, & Norenzayan, 2010). For example, researchers have questioned whether a universal need for positive self-evaluation exists, specifically doubting its existence in collectivist cultures (Heine, Lehman, Markus, & Kitayama, 1999). Based on this conjecture, the structural relations between self-esteem and depression—and, consequently, the vulnerability model of low self-esteem and depression—may not replicate across all ethnic or cultural groups. The present research strengthens confidence in the generalizability of the vulnerability model by providing confirmatory evidence in favor of the model in a sample of Mexican-origin youth, who come from a more collectivistic cultural and family context (Rodriguez et al., 2007; Triandis, 1989). The cultural context examined in the present research could explain why the vulnerability effect held for honesty–trustworthiness but not for the other self-esteem domains. It is possible that Hispanic adolescents who are not satisfied with this aspect of themselves may be especially vulnerable to depression as dishonesty may threaten key values in the Mexican American cultural context, such as the importance of maintaining family closeness, cohesion, and harmony (“familismo”) and respect toward others (“respeto;” see Aguilar-Gaxiola et al., 2008). However, given that previous research on the vulnerability effect did not examine domain-specific self-esteem, this hypothesis is purely speculative and needs to be tested by comparing effects of domain-specific self-esteem across

samples with differing degrees of collectivism and key cultural values.

The results suggested that the vulnerability model held for both boys and girls, replicating findings from samples with older adolescents (Orth et al., 2008) and adults (Orth, Robins, Trzesniewski, et al., 2009). From a theoretical perspective, the evidence that the effect of low self-esteem on subsequent depression operates independently from gender is in line with the vulnerability model, which states that low self-esteem is a general risk factor for depression (see Sowislo & Orth, 2013). Of course, the fact that the structural model replicates across genders does not mean that boys and girls did not differ in their average level of self-esteem and depression. In fact, girls in the present sample scored slightly higher on depression and some of the measures of domain-specific self-esteem. However, our results suggest that the structural relations between self-esteem and depression are unaffected by gender. Similarly, the vulnerability effect of low self-esteem held across nativity and across different levels of pubertal status. Although foreign-born and U.S.-born Mexican Americans differ in the prevalence of depression (Alegría & Woo, 2009) and although pubertal status may influence level of depression (White et al., 2012), the present findings suggest that the structural relations between self-esteem and depression among Mexican-origin adolescents are unaffected by nativity and pubertal status.

The present findings have important implications for interventions that attempt to prevent or decrease depression. Given the divergent findings for global vs. domain-specific self-esteem, interventions should aim to enhance a person's overall sense of self-worth, rather than improving an adolescent's perceptions of his or her intelligence, attractiveness, and social skills. Moreover, given that the vulnerability effect of low self-esteem held across different levels of several third variables, the results suggest that improving self-esteem reduces risk of depression regardless of

specific circumstances such as whether the adolescent has low or high social support or whether he or she experiences life stress, and regardless of whether he/she was born in the U.S. vs. Mexico or is pre- vs. post-puberty. Importantly, meta-analytic reviews suggest that it is possible to improve the self-esteem of children and adolescents and thereby obtain concomitant positive changes in other areas of adjustment (Haney & Durlak, 1998; see also O'Mara, Marsh, Craven, & Debus, 2006). Thus, interventions that target global self-esteem may have pervasive effects on youth development, leading to cumulative benefits over the course of adolescence. Although more research is needed on this topic, studies suggest that global self-esteem may positively influence important outcomes, besides adjustment, in domains such as health and interpersonal relationships (Orth, Robins, & Widaman, 2012; Trzesniewski et al., 2006). The findings by O'Mara et al. (2006) suggest that the most powerful self-esteem interventions use attributional feedback (e.g., helping adolescents attribute outcomes to effort), goal feedback (e.g., promoting realistic goals), and contingent praise (e.g., praising individuals for effort and improvements in performance); in contrast, the use of noncontingent praise was not effective (e.g., just providing positive feedback unrelated to actual performance). Thus, these findings suggest that it is not effective to tell adolescents that they are great in the absence of real accomplishments and mastery experiences.

In this research, we also identified two predictors of self-esteem change from age 10 to 12. First, individuals reporting higher levels of depressive affect at age 10 tended to decline in self-perceived peer competence over the next two years, consistent with the scar model. One possible explanation is that depressive affect might impair the development of effective social skills and lead to social withdrawal, and consequently contribute to a more negative self-image in this domain (Fauber, Forehand, Long, Burke, & Faust, 1987). Second, maternal depression at

age 10 had a negative impact on the adolescent's global feelings of self-worth. Future research should examine the processes that mediate this effect and test whether maternal depression worsens the adolescent's self-esteem through maladaptive parenting, disturbed child–mother attachment, marital conflict, or some other mechanism (Cummings & Davies, 1994). Future research should also examine the extent to which decreases in the child's self-esteem mediate the transmission of depressive symptoms from mothers to their children (cf. Goodman et al., 2011). Although in this research maternal depression did not have a direct prospective effect on child depression (while controlling for the prospective effect of the child's self-esteem), the findings suggest that maternal depression may have an indirect prospective effect on child depression through its negative effect on the child's self-esteem.

Limitations and Future Directions

Given that the present research tested a sample of Mexican-origin early adolescents, future research should examine whether the results generalize to other groups. However, the fact that the basic vulnerability effect of low self-esteem on depression has been replicated in many previous studies based on a heterogeneous set of samples (see the meta-analysis by Sowislo & Orth, 2013) suggests that the conclusions of the present study might be relevant for children and adolescents from other ethnic backgrounds. With regard to the specific cultural context examined in the present study, future research would benefit from more socioeconomically diverse samples of Mexican-origin youth from more diverse geographic regions (Carlo, Villarruel, Azmitia, & Cabrera, 2009; Umaña-Taylor, 2009).

Another limitation is that the study design does not allow for strong conclusions regarding the causal influence of self-esteem because relations between variables may have been caused by third variables that were not assessed. However, given that we controlled for several

theoretically relevant variables that could have provided alternative explanatory accounts, the present study strengthens the case for the vulnerability model of low self-esteem and depression.

Also, the results do not allow for firm conclusions regarding the effect of self-esteem on major depressive disorder (MDD) because we did not assess clinical levels of depression using a diagnostic interview and did not test the vulnerability effect in a clinical sample. Nevertheless, longitudinal studies have demonstrated a relation between low self-esteem and clinically diagnosed depression (Ormel, Oldehinkel, & Vollebergh, 2004; Trzesniewski et al., 2006), suggesting that the present results are relevant for levels of depressive affect that represent a significant impairment in psychological functioning.

Another limitation is the low internal consistency of the depression measure, which may have attenuated the magnitude of the vulnerability effect. However, the fact that we nevertheless found support for the vulnerability model strengthens confidence in the robustness of the effect. Moreover, the low reliability of this measure is at least partially remedied by the use of latent variables, which are assumed to be error free (D. A. Cole & Maxwell, 2003; Little et al., 2007).

Future research should seek to identify the cognitive, emotional, and behavioral processes that mediate the effect of low self-esteem on depression. A possible intrapersonal pathway is that low self-esteem may increase the tendency to ruminate about negative aspects of the self, and rumination, in turn, may intensify depressive affect (Nolen-Hoeksema, 2000). A recent longitudinal study examined this hypothesis and found that rumination partially mediated the vulnerability effect (Kuster, Orth, & Meier, 2012).

Conclusion

In conclusion, the present research improves our understanding of the link between low self-esteem and depression by providing evidence from a large sample of Mexican-origin early

adolescents; by showing that the vulnerability effect of low self-esteem is driven largely by global, but not domain-specific, evaluations of the self; by ruling out several alternative hypotheses concerning main and interactive effects of important third variables such as social support and relational victimization; and by showing that the effect holds for male and female adolescents and across different levels of pubertal status. In sum, the present research provides crucial information about an important risk factor for depression in Mexican-origin youth and significantly strengthens confidence in the generalizability of the vulnerability model. If future research confirms the causal impact of low self-esteem, then the knowledge provided by the present study suggests that interventions aimed at increasing global self-esteem among early adolescents are worthwhile and likely to reduce risk for the development of depression.

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Table 1

Means and Standard Deviations of Study Variables

Variable	Age 10 years		Age 12 years	
	M	*SD*	*M*	*SD*
Global self-esteem				
SDQ total score	3.14	0.41	3.17	0.37
General self	3.22	0.53	3.27	0.49
Domain-specific self-esteem				
School competence	3.19	0.61	3.15	0.57
Physical appearance	2.46	0.76	2.42	0.69
Honesty–trustworthiness	3.42	0.46	3.40	0.43
Relations with peers	3.16	0.60	3.31	0.51
Depression	2.12	0.56	1.76	0.47
Third variables				
Social support	3.26	0.56	3.22	0.59
Maternal depression	1.75	0.46	1.76	0.44
Stressful events	3.96	3.70	3.29	3.27
Relational victimization	1.39	0.48	1.13	0.23

Note. Response scales ranged from 0 to 35 for stressful events and from 1 to 4 for all other measures. SDQ = Self-Description Questionnaire.

* $p < .05$.

Table 2

Fit of Bivariate Models

Self-esteem variable	χ^2	*df*	CFI	TLI	RMSEA [90% CI]
Global self-esteem					
SDQ total score	122.9*	46	.98	.97	.050 [.039, .061]
General self	112.3*	46	.97	.95	.046 [.035, .057]
Domain-specific self-esteem					
School competence	83.1*	46	.98	.97	.035 [.022, .046]
Physical appearance	76.6*	46	.99	.98	.031 [.018, .044]
Honesty–trustworthiness	120.4*	46	.95	.93	.049 [.038, .060]
Relations with peers	124.3*	46	.94	.91	.050 [.040, .061]

Note. CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root-mean-square error of approximation; CI = confidence interval; SDQ = Self-Description Questionnaire.

* $p < .05$.

Table 3

Standardized Estimates of Structural Coefficients in Bivariate Models

Self-esteem variable	$r_{SE,D}$	Cross-lagged effects		Stability effects	
		SE→D	D→SE	SE→SE	D→D
Global self-esteem					
SDQ total score	−.28*	−.14*	−.04	.47*	.47*
General self	−.18*	−.15*	−.06	.44*	.48*
Domain-specific self-esteem					
School competence	−.18*	−.07	−.02	.45*	.50*
Physical appearance	−.07	.00	−.01	.45*	.51*
Honesty–trustworthiness	−.24*	−.17*	.00	.53*	.48*
Relations with peers	−.40*	−.09	−.16*	.35*	.47*

Note. $r_{SE,D}$ is the correlation between the latent constructs at Wave 1. SE = self-esteem; D = depression; SDQ = Self-Description Questionnaire.

* $p < .05$.

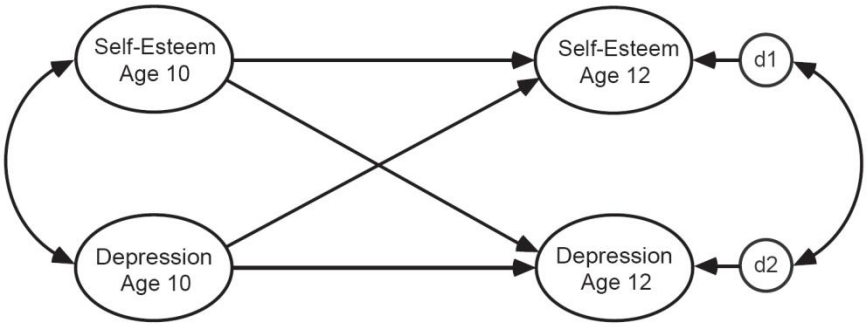

Figure 1. The figure illustrates the structural model of self-esteem and depression used in the present research. The relations between factors are specified as cross-lagged effects, which indicate the prospective effect of one variable on the other (e.g., effect of self-esteem at age 10 years on depression at age 12 years), after controlling for their stabilities across time (e.g., effect of depression at age 10 years on depression at age 12 years). Residual variances of factors (i.e., disturbances) are denoted as *d1* and *d2*. The figure shows only latent constructs and omits observed variables.

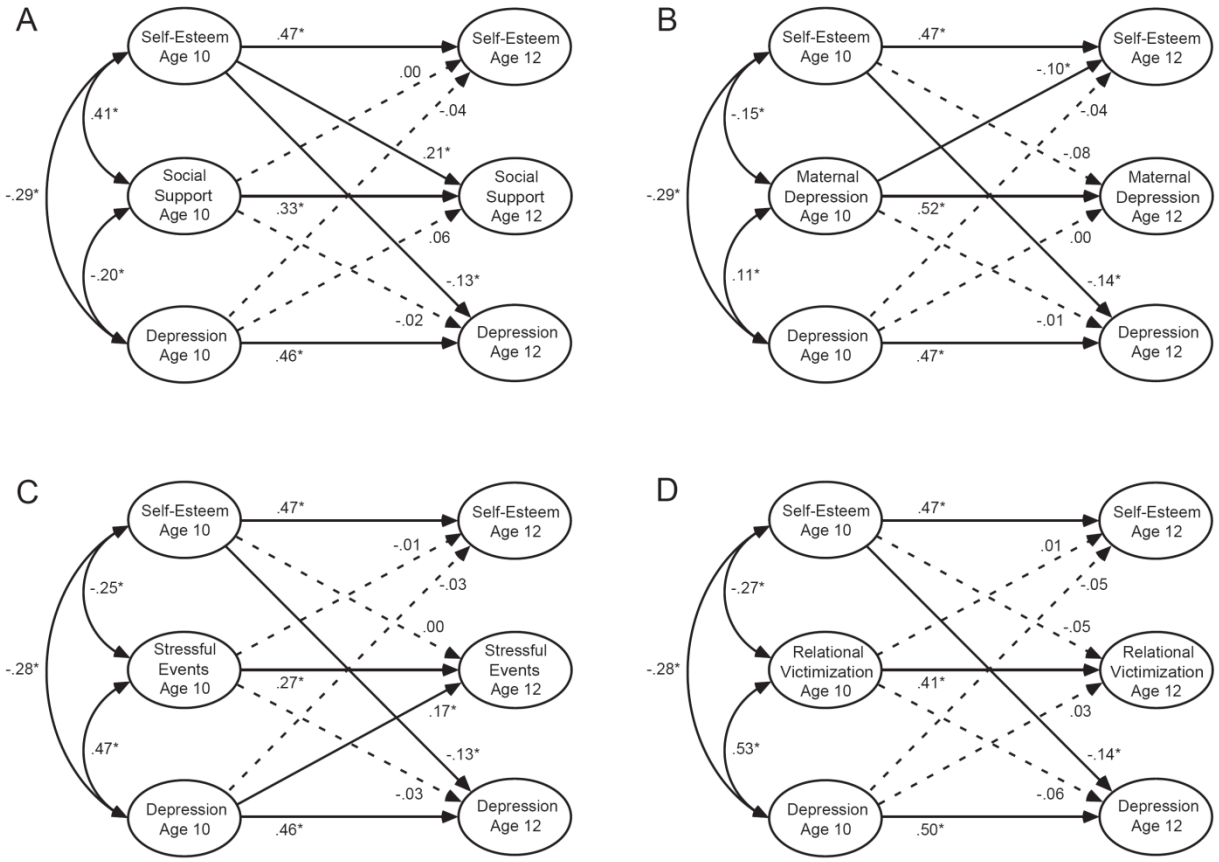

Figure 2. Standardized structural coefficients for the models controlling for third variables, i.e., social support (Panel A), maternal depression (Panel B), stressful events (Panel C), and relational victimization (Panel D). The figure shows only latent constructs and omits observed variables and intercorrelations of residual variances at age 12 years. Significant paths are shown as solid lines and nonsignificant paths are shown as dashed lines. * $p < .05$.