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Evaluating the Link between Self-Esteem and Temperament in Mexican Origin Early Adolescents

Richard W. Robins,

Department of Psychology, University of California, Davis

M. Brent Donnellan,

Department of Psychology, Michigan State University

Keith F. Widaman, and

Department of Psychology, University of California, Davis

Rand D. Conger

Departments of Psychology and Human and Community Development, University of California, Davis

Abstract

The present study examined the relation between self-esteem and temperament in a sample of 646 Mexican-American early adolescents (mean age=10.4). Self-esteem was assessed using child reports on the Self-Description Questionnaire II—Short (SDQII-S; Marsh et al., 2005) and temperament was assessed using child and mother reports on the revised Early Adolescent Temperament Questionnaire (Ellis & Rothbart, 2001). Findings show that: (a) early adolescents with high self-esteem show higher levels of Effortful Control but, contrary to findings in adult samples, do not differ from low self-esteem adolescents in Negative Affectivity; (b) low self-esteem is associated with Depression; and (c) low self-esteem is associated with Aggression. These findings replicated for boys and girls, two measures of self-esteem, and child and mother reports of temperament. The present study contributes to an emerging understanding of the link between self-esteem and temperament, and provides much needed data on the nature of self-esteem in ethnic minority populations.

Temperament refers to biologically-based individual differences in emotional reactivity and self-regulation (Rothbart & Bates, 2006). Over the past few decades, studies have linked dimensions of temperament such as effortful control and negative affectivity to a wide range of developmental outcomes (for reviews see Caspi & Shiner, 2008; Rothbart & Bates, 2006; Sanson & Hemphill, 2004). During the same period, researchers have conducted thousands of studies examining the correlates, causes, and consequences of high and low self-esteem (e.g., Harter, 2006; Marsh & Craven, 2006; Swann, Chang-Schnieder, & McClarty, 2007; Trzesniewski et al., 2006; see Baumeister, Campbell, Krueger, & Vohs, 2003 for a critical perspective). Surprisingly, these two important lines of research have only rarely intersected and researchers do not have a clear understanding of the temperamental traits that distinguish children and adolescents with high versus low self-esteem. Moreover, when research has been conducted on this issue, the studies have typically been done with middle-class participants of

Address correspondence to: Richard W. Robins, Department of Psychology, University of California, One Shields Avenue, Davis, CA 95616, rwo@ucdavis.edu, Phone: (530) 754-8299; Fax: (530) 752-2087.

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largely European origin. Thus, we do not know whether the extant findings will generalize to other ethnic groups.

Understanding the relation between self-esteem and temperament is important for several reasons. First, such work will help elaborate the nomological network of both constructs. This kind of research might have particular value in light of the controversy surrounding whether high self-esteem has a “dark side” (e.g., Baumeister, Smart, Boden, 1996; but see Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Tangney & Leary, 2003; Webster, 2006). That is, if the temperamental correlates of high self-esteem are also linked to problematic outcomes (e.g., diminished self-regulatory capacities) then there would be additional basis to suspect that high self-esteem itself might be problematic. In general, connecting self-esteem to basic temperament traits will provide a strong basis for making predictions about how self-esteem might relate to the same set of outcomes as those predicted by temperament, and perhaps even offer clues to the mechanisms linking temperament to these outcomes.

Second, an examination of the temperament correlates of self-esteem might provide further insights into processes of self-esteem and personality development. For example, temperament likely influences how children perceive and evaluate themselves. A child who is temperamentally high in negative affectivity, and therefore likely to have a low threshold for responding to failure with intense feelings of anxiety, sadness, shame, and humiliation, may be more likely to develop low self-esteem. Self-esteem may also mediate links between personality and a broad range of adjustment outcomes (Graziano, Jensen-Campbell, & Finch, 1997). For instance, self-esteem may mediate links between dimensions of temperament and whether individuals choose to approach or avoid challenges (Heimpel, Elliot, & Wood, 2006). Last, self-esteem may even play a role in the development of temperamental attributes. An adolescent with low self-esteem might lack the self-confidence to engage in a wide range of social behaviors and consequently become more introverted. Thus, we believe that much can be learned by evaluating links between self-esteem and temperament.

Temperament and Self-Esteem: Conceptual and Empirical Links

A positive sense of self is often viewed as an important component of overall psychological well-being (Jahoda, 1958; Rogers, 1961), and the developmental antecedents of self-esteem are a topic of considerable interest. Classic accounts of the development of self-esteem emphasize the influence of socializing agents such as parents and peers (e.g., Harter, 2006). Recent behavioral genetic research, however, has challenged a purely environmental explanation for self-esteem development as these studies have indicated that individual differences in self-esteem can be partially traced to genetic factors (Kendler, Gardner, & Prescott, 1998; McGuire, Manke, Saudino, Reiss, Hetherington, & Plomin, 1999; Neiss, Sedikides, & Stevenson, 2002; Neiss, Stevenon, Legrand, Iacono, & Sedikides, 2009). These two approaches can be integrated by proposing that genetically influenced individual differences are associated with how individuals are perceived by important figures in their lives (e.g., environmental elicitation; Caspi & Shiner, 2008) and with how individuals perceive their social and physical environments (e.g., environmental construal; Caspi & Shiner, 2008). Such person-environment transactions are likely to have a powerful impact on the development of self-esteem. Indeed, Klein (1995) suggested that temperamental dimensions contribute to how well individuals adapt to the challenges of adolescence which contributes to self-concept development (see also Windle et al., 1986).

This integrative perspective concerning the connection between temperament and self-esteem raises questions about which dimensions of temperament are most closely associated with self-esteem. Only a few studies have investigated links between temperament and self-esteem in adolescents. Heinonen, Räikkönen, Keskivaara, and Keltikangas-Järvinen (2002) found that

difficult temperament at age 12 as rated by mothers was related to self-esteem at age 18 for a sample of Finnish adolescents. Windle et al. (1986) used the Revised Dimensions of Temperament Survey (Windle & Lerner, 1986) and found that Harter's (1985) global self-worth scale had small to modest associations (i.e., r s ranging from .21 to .29) with self-reported Approach-Withdrawal (the motivation to approach appetitive stimuli), Flexibility-Rigidity (emotional stability in the face of environmental changes), and Mood (positive affect) in a sample of early adolescents; these three scales cohere to form a higher order dimension of Positive Affect/Adaptability (Windle, 1992). Windle et al. (1986) also found that self-esteem was related to self-reported Persistence and low Distractibility, two facets of Task Orientation.

Given the paucity of research on the link between self-esteem and temperament in childhood and adolescence, it is informative to consider studies linking self-esteem to the Big Five personality traits in adulthood. Using data from an extremely large Internet study ($N=326,641$), Robins, Tracy, Trzesniewski, Potter and Gosling (2001) found a strong negative correlation between self-esteem and Neuroticism ($r=-.50$), and weaker, positive relations with Extraversion ($r=.38$), Conscientiousness ($r=.24$), Openness to Experience ($r=.17$), and Agreeableness ($r=.13$). These associations are consistent with more recent studies, which also find that Neuroticism is the strongest personality correlate of self-esteem (Heimpel et al., 2006; Judge, Erez, Thoresen, & Bono, 2002; Watson, Suls, & Haig, 2002). Similarly, in a sample of adolescents, Graziano et al. (1997) found that self-reported Neuroticism had the strongest relation with Harter's global self-worth scale, but the relation ($r=-.39$) was weaker than that found in adulthood; moreover, correlations with the other Big Five traits were nearly as strong, with r s ranging from .28 (Extraversion) to .33 (Conscientiousness). Finally, a number of studies have shown that low self-esteem adolescents are particularly prone to develop depressive affect (Orth, Robins, & Roberts, 2008), which is a core component of Neuroticism. Considered together, research on adolescents and adults suggests that self-esteem is most strongly associated with affective aspects of temperament and personality.¹

Nonetheless, several questions remain about the associations between self-esteem and temperament. First, and perhaps most importantly, the few systematic attempts to document relations between self-esteem and temperament have yet to provide a clear picture of the traits characterizing high self-esteem youth, and more research is needed. Second, many previous studies have relied on self-reports to measure both sets of constructs, which can lead to concerns about shared method variance inflating the correlations between constructs. Third, previous studies have not thoroughly examined gender differences in the associations between temperament and self-esteem. Block and Robins (1993) found evidence that personality traits linked with success in agentic contexts were more strongly related to the self-esteem of boys whereas traits linked with the ability to get along well with others were more strongly related to self-esteem in girls. Fourth, previous studies have not tested whether temperament dimensions have interactive effects on self-esteem. For example, individuals who are high in Effortful Control and low in Negative Affectivity may have higher self-esteem than would be predicted from their individual effects. Finally, research is needed regarding the link between self-esteem and temperament in more diverse samples, including samples of ethnic minorities. It is possible, for example, that the close interconnectedness of Mexican American families (Hardway & Fuligni, 2006), including a tendency to socialize children to emphasize the needs of the family over their own individual needs and impulses (i.e., familism), would cause Mexican origin children to derive their self-esteem from self-regulatory capacities (i.e., effortful control) to a greater extent than European-American children do.

¹The temperament measure used by Windle et al. (1986) did not include scales related to negative affect, so it is not clear whether the strong link found between self-esteem and neuroticism in adulthood replicates in adolescence.

The Present Study

The present study examined the temperament correlates of self-esteem using data from a large sample of Mexican-American early adolescents. One of the advantages of the large sample size is that we have increased power to detect potentially subtle interactions involving gender as well as increased power to test for interactive and non-linear effects between temperament and self-esteem. Participants completed the Self-Description Questionnaire II—Short (SDQII-S; Marsh, Ellis, Parada, Richards, & Heubeck, 2005), a widely used and well-validated measure of both general and domain-specific self-conceptions. Both participants and their mothers completed the *Early Adolescent Temperament Questionnaire—Revised* (EATQ-R; Ellis & Rothbart, 2001), which includes scales tapping into two broad dimensions of temperament—Effortful Control and Negative Affectivity—and two aspects of socio-emotional functioning—Depression and Aggression. Using these data, we addressed four primary research questions: (1) Is self-esteem related to two basic dimensions of child and adolescent temperament—Effortful Control and Negative Affectivity? (2) Is low self-esteem related to Depression? (3) Is low self-esteem related to Aggression? (4) Do the observed relations with self-esteem replicate (a) across child and mother reports of temperament; (b) across two measures of self-esteem scored from the Self-Description Questionnaire; (c) for both boys and girls, and (d) controlling for gender?

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 669 Mexican origin families with a non-handicapped, typically functioning child attending the 5th grade in a public or Catholic school within the cities of Sacramento or Woodland, California. Children and their families were drawn at random from rosters of students in the school districts in these cities. 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. Because the children in the study averaged slightly more than 10 years of age, the majority of them had transitioned to the second decade of life and, thus, the early adolescent years.

Participants were recruited by telephone or, in cases where they did not have a telephone, by a recruiter who went to their home. 72.5% of the eligible families agreed to participate. Trained research staff interviewed the participants in their homes using laptop computers. They visited the families on two separate occasions within a one-week period. Interviews were conducted in Spanish or English based on the preference of the participant. On average, mothers had spent 16.1 ($SD=10.64$) years in the United States and fathers 19.4 years ($SD=9.81$). The educational level ranged from no schooling to Master's degree for the mothers (81.7% completed high school or less) and from one year of schooling to doctoral or other advanced degree for the fathers (82.4% completed high school or less).

The present analyses are based on the 646 children ($n=325$ boys; 321 girls; mean age=10.4; $SD=.60$) who had complete data on the SDQII-S and the EATQ-R; mother reports (mean age=36.7; $SD=5.91$) were available for 630 of these children. The EATQ-R and SDQII-S were administered to the children on separate visits, thus minimizing the influence of response sets on any observed relations between the two measures.

Self-Esteem Measure

Participants completed the Self-Description Questionnaire II—Short (SDQII-S), a well-validated and widely used multi-dimensional self-concept measure (Byrne, 1996; Marsh et al.,

2005); the SDQII-S scales correlate .93 to .95 with the original full-length scales (Marsh et al., 2005). The version of the SDQII-S used in the present study included the Self-Esteem (6 items), School Competence (4 items), Physical Appearance (4 items), Same-Sex Peer Relationships (5 items), and Honesty-Trustworthiness (6 items) scales. Given the aims of the present study, we focused on the Self-Esteem scale, which assesses adolescents' "perceptions of themselves as effective, capable, individuals who are proud and satisfied with the way they are" (Marsh et al., 2005, p. 102). In addition, as recommended by Marsh (1990), we computed a second measure of self-esteem, Total Self-Evaluation, based on the mean across all 25 SDQII items; this scale reflects the sum of an individual's domain-specific self-evaluations. In the present study, Self-Esteem ($M=3.22$; $SD=.52$) had an alpha reliability of .74 and Total Self-Evaluation ($M=3.15$; $SD=.41$) had an alpha reliability of .87. The two self-esteem measures correlated .84 ($p < .05$) with each other.

To facilitate the interview format used to administer the questionnaire, 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 of you" to 4 "very true of you." 17% of children chose to complete the questionnaire in Spanish; the Spanish-language SDQII-S was created by bilingual Mexican-American project staff with forward and backward translation to confirm accuracy.

Temperament Measure

Participants and their mothers completed the short form of the *Early Adolescent Temperament Questionnaire—Revised* (EATQ-R; Ellis & Rothbart, 2001), a revision of a measure developed by Capaldi and Rothbart (1992). In previous research (e.g., Muris, Meesters, & Blijlevens, 2007), the EATQ-R scales have been found to represent three broad, superordinate dimensions: Effortful Control, Negative Affectivity, and Surgency/Extraversion. However, in this project, we were able to assess only the Effortful Control and Negative Affectivity dimensions because the High Intensity Pleasure scale (the central component of Surgency) failed to achieve adequate reliability for either the child ($\alpha = .39$) or mother ($\alpha = .15$) reports. Following Muris et al. (2007), Effortful Control was assessed by the 16 EATQ-R items related to Activation Control (the capacity to perform an action when there is a strong tendency to avoid it), Attention (the capacity to focus attention as well as to shift attention when desired), and Inhibitory Control (the capacity to plan and to suppress inappropriate responses); and Negative Affectivity was assessed by the 13 items related to Fear (unpleasant affect related to anticipation of distress) and Frustration (negative affect related to interruption of ongoing tasks or goal blocking). In the present study, Effortful Control had an alpha reliability of .65 for child reports ($M=2.99$; $SD=.38$) and .79 for mother reports ($M=2.94$; $SD=.44$); Negative Affectivity had an alpha reliability of .74 for child reports ($M=2.66$; $SD=.50$) and .74 for mother reports ($M=2.55$; $SD=.47$). Effortful Control and Negative Affectivity correlated $-.27$ ($p < .05$) for the child reports and $-.19$ ($p < .05$) for the mother reports.

In addition to the temperament scales, the EATQ-R includes two behavioral scales related to socio-emotional functioning: Depressive Mood (6 items; unpleasant affect and lowered mood, loss of enjoyment and interest in activities) and Aggression (6 items; hostile and aggressive actions, including person- and object-directed physical violence, direct and indirect verbal aggression, and hostile reactivity). Depressive Mood had an alpha reliability of .60 for child reports ($M=2.12$; $SD=.55$) and .64 for mother reports ($M=1.89$; $SD=.51$); Aggression had an alpha reliability of .74 for child reports ($M=1.41$; $SD=.49$) and .78 for mother reports ($M=1.43$; $SD=.51$). Depression and Aggression correlated .32 ($p < .05$) for the child reports and .36 ($p < .05$) for the mother reports.

To facilitate the interview format, the EATQ-R response categories were modified from the original 5-point scale to a 4-point scale ranging from 1 "not at all true of you" to 4 "very true of you." 16% of children and 80% of mothers chose to complete the questionnaire in Spanish;

the EATQ-R was translated in Spanish by Carmen Gonzalez and el Grupo de Investigación en Psicología Evolutiva at the University of Murcia, Spain.

Results

Gender Differences in Self-Esteem and Temperament

Boys and girls did not differ in their average level of self-esteem, on either the Total Self-Evaluation ($M_s=3.13$ vs. 3.16 , $d = .08$, n.s.) or Self-Esteem ($M_s=3.20$ vs. 3.23 , $d = .06$, n.s.) scales. This finding is consistent with previous research showing that a gender difference in self-esteem does not emerge until later in adolescence, when girls' self-esteem drops more precipitously than boys' (Robins, Trzesniewski, Tracy, Gosling, & Potter, 2002). Several gender differences in temperament were found, but none replicated across child and mother reports. Girls reported higher levels of Negative Affectivity ($M_s = 2.75$ vs. 2.57 , $d = .37$, $p < .05$) and Depression ($M_s = 2.23$ vs. 2.01 , $d = .40$, $p < .05$) than boys, but the mother-report data did not show the same effects ($d_s = .04$ and $.00$, respectively, n.s.). Similarly, mothers reported that their daughters were higher than their sons in Effortful Control ($M_s = 3.00$ vs. 2.87 , $d = .31$, $p < .05$) and lower in Aggression ($M_s = 1.35$ vs. 1.51 , $d = .32$, $p < .05$), but the child-report data did not show these effects ($d_s = .05$ and $.15$, respectively, n.s.).

Do Child Reports of Temperament Agree with Mother Reports?

Correlations between mother- and child-reports were $.33$ ($p < .05$) for Effortful Control, $.21$ ($p < .05$) for Negative Affectivity, $.15$ ($p < .05$) for Depression, and $.25$ ($p < .05$) for Aggression. The mother-child correlations for boys and girls were $.35$ and $.30$ (Effortful Control), $.24$ and $.16$ (Negative Affectivity), $.14$ and $.17$ (Depression), and $.24$ and $.25$ (Aggression), respectively (all $p_s < .05$). These values are similar to, although slightly lower than, those found in previous research (Ellis & Rothbart, 2001).

Is Self-Esteem Related to Basic Temperament Traits?

Table 1 shows correlations of self-esteem with Effortful Control, Negative Affectivity, Aggression, and Depression, separately for child and mother reports; partial correlations, controlling for gender, are shown in parentheses. Both measures of self-esteem were correlated positively with child and mother reports of Effortful Control ($r_s = .20$ to $.44$, all $p_s < .05$); all effects remained significant after controlling for gender ($r_s = .20$ to $.46$, all $p_s < .05$) and Negative Affectivity ($r_s = .23$ to $.45$, all $p_s < .05$). No significant relations were found between self-esteem and Negative Affectivity (r_s ranging from $-.07$ to $.06$, all n.s.). Overall, the findings suggest that high self-esteem adolescents tend to be high in Effortful Control but neither particularly high nor low in Negative Affectivity.

To test for gender interactions, we conducted a series of multiple regression analyses in which we predicted each measure of self-esteem from Effortful Control (or Negative Affectivity), gender, and the interaction between gender and Effortful Control (or Negative Affectivity). None of the interactions reached significance except for the gender $\times$ Effortful Control effect on Self-Esteem ($p < .05$; $\Delta R^2 = 0.7\%$), and none explained more than a trivial proportion of variance (all $\Delta R^2 < 1\%$).

To test for interactions between the temperament scales, we conducted moderated multiple regression analyses predicting each measure of self-esteem from Effortful Control, Negative Affectivity, and their interaction (i.e., a product of their standard scores). None of the interactions reached significance and none explained more than a trivial proportion of variance in either self-esteem measure ($\Delta R^2 < 1\%$).

Is Low Self-Esteem Related to Depression?

Both measures of self-esteem were correlated negatively with child and mother reports of Depression ($r_s = -.09$ to $-.20$, all $p_s < .05$); all correlations remained significant after controlling for gender ($r_s = -.09$ to $-.21$, all $p_s < .05$). Gender did not significantly moderate any of the relations between self-esteem and depression ($\Delta R^2 < 1\%$). Thus, early adolescents with low self-esteem tend to report higher levels of depression. However, the magnitude of the relation is weaker than is typically found in samples of older adolescents and young adults (Orth et al., 2008).

Is Low Self-Esteem Related to Aggression?

Both measures of self-esteem were correlated negatively with child and mother reports of Aggression ($r_s = -.11$ to $-.23$, all $p_s < .05$); all correlations remained significant after controlling for gender ($r_s = -.11$ to $-.23$, all $p_s < .05$). Gender did not significantly moderate any of the relations between self-esteem and aggression ($\Delta R^2 < 1\%$). Thus, individuals with low self-esteem tend to engage in higher levels of aggression, consistent with previous studies using self and informant reports of antisocial behavior (Donnellan et al., 2005) but contrary to experimental studies based on laboratory measures of aggression (e.g., Bushman & Baumeister, 1998; Thomaes, Bushman, Stegge, & Olthof, 2008).

Discussion

The present study examined the relation between self-esteem and temperament in a large sample of Mexican-American youth. Findings showed that: (a) early adolescents with high self-esteem showed higher levels of Effortful Control but they did not differ from low self-esteem adolescents in Negative Affectivity; (b) low self-esteem was associated with Depression; and (c) low self-esteem was associated with reports of aggressive behaviors. These findings replicated for boys and girls and across child and mother reports of temperament. We first comment on several of the more noteworthy findings before turning to a broader consideration of links between temperament and self-esteem.

Early adolescents with high self-esteem tended to be high in Effortful Control but did not differ from their low self-esteem peers in Negative Affectivity. The magnitude of the relation between self-esteem and Effortful Control was quite strong, particularly considering that the correlations were attenuated by measurement error (e.g., for the Total Self-Evaluation scale, the disattenuated correlation with child-reported Effortful Control was .58 and the disattenuated cross-method correlation with mother-reported Effortful Control was .36). This finding seems to fit well with the contention by Klein (1995) that the temperamental traits linked with success in educational settings are also linked with self-esteem during adolescence. These results are also consistent with our speculation that temperament traits related to self-regulation might play a particularly important role in the self-esteem of Mexican American youth given the cultural emphasis on children's duty to the family rather than the gratification of their individual needs and impulses.

Surprisingly, self-esteem was almost entirely unrelated to Negative Affectivity. In adult samples, personality traits related to negative affect, such as Neuroticism, are consistently the strongest predictors of self-esteem (e.g., Robins et al., 2001). One potential explanation for this apparent discrepancy is that the Negative Affectivity scale from the EATQ-R includes more specific content than most measures of Neuroticism in adults. In particular, the EATQ-R Negative Affectivity scale emphasizes fear and frustration in particular settings (e.g., "I am nervous of some of the kids at school who push people into lockers and throw your books around") rather than more generalized propensities to be anxious, dejected, and emotionally unstable. We surmise that self-esteem may be more strongly connected with more general

forms of distress, attributes that are more widely represented in the item content of Neuroticism measures used with adult samples, than with context-specific distress associated with particular problem situations.

Nonetheless, we found that self-esteem was negatively related to Depression. This pattern is generally consistent with research on adults, although the correlations were considerably smaller than is typically found. The relation between self-esteem and depression observed in the present study is likely to have been attenuated by restriction of range, given that relatively few 10-year olds experience high levels of depressive symptoms. Thus, the strength of the relation is likely to increase in magnitude over the course of adolescence and into adulthood. Indeed, some researchers have argued that self-esteem and depression are essentially the same construct in adults, reflecting opposite endpoints of the same continuum (e.g., Watson et al., 2002). Based on their strong concurrent relations, Watson et al. (2002; see also Judge et al., 2002) cautioned against treating trait measures of self-esteem and depression as distinct constructs. The present correlations point to an association between self-esteem and depression, but these associations did not rise to the level of convergence that one would expect for two measures of the same construct (even the correlations based on self-reported depression were weak in magnitude).

The nature of the connection between low self-esteem and depression remains a contentious issue. An alternative to the Watson et al. (2002) common factor perspective is the “vulnerability model” which holds that low self-esteem operates as a risk factor for depression (Beck, 1967; Metalsky, Joiner, Hardin, & Abramson, 1993). Consistent with this view, Southall and Roberts (2002) found that low self-esteem predicted an increase in depression measured 3 months later in a sample of adolescents, and several longitudinal studies of late adolescence and adulthood have shown that low self-esteem has cross-lagged effects on subsequent levels of depression after controlling for prior levels of depression (e.g., Orth et al., 2008; Orth, Robins, Trzesniewski, Maes, & Schmitt, 2008). Importantly, prior research has failed to support the “scar model” which hypothesizes that low self-esteem is an outcome rather than an antecedent of depression (Ormel, Oldehinkel, & Vollebergh, 2004; Orth et al., 2008; Orth, Robins, Trzesniewski et al., 2008). Thus, support has accumulated for the vulnerability model and all of the preceding longitudinal findings are difficult to reconcile with the conclusion that self-esteem and depression are nothing more than indicators of the same underlying construct.

In addition to the debate over the connections between self-esteem and depression, this study contributes additional data to the ongoing debate about whether low or high self-esteem individuals are prone to aggression. Several researchers have raised doubts about the link between low self-esteem and externalizing problems (Baumeister, Bushman, & Campbell, 2000; Bushman et al., 2009), and have suggested that high self-esteem may have a “dark side” because it predicts aggression and other forms of antisocial behavior (Baumeister et al., 1996). However, the present findings provide no support for this view. Instead, we found that low, not high, self-esteem was related to aggressive tendencies in children as young as 10 years of age. This relation held using both self- and maternal-reports of aggression. These results are consistent with our earlier claim that it is too soon to discard the low self-esteem hypothesis with respect to antisocial behavior (Donnellan et al., 2005; Webster, 2006), but are inconsistent with research showing that young adolescents with low self-esteem do not show higher levels of aggression in a laboratory task (Thomaes et al., 2008).

One important limitation of the present findings is that they are based exclusively on concurrent data, and do not allow us to disentangle the causal direction of the relation between self-esteem and temperament. That is, we do not know whether Effortful Control engenders high self-esteem; whether high self-esteem promotes certain cognitive, behavioral, and affective tendencies that facilitate Effortful Control; or both. According to McCrae and Costa’s Five-

Factor Theory (e.g., 2008), basic dimensions of temperament influence people's self-conceptions, but self-conceptions do not influence basic traits, which are determined exclusively by biological factors. This is an important assumption that should be tested empirically. For example, a longitudinal study that measures change in Effortful Control and self-esteem over time would help clarify the causal relations between aspects of temperament and aspects of the self-concept.

Another question that arises is whether the present findings would replicate in a sample of European origin children. As noted earlier, the emphasis in Mexican-American culture on deriving self-respect through connection to one's family rather than through individual achievements and the gratification of individual needs, might account for the strong observed relation between high self-esteem and effective self-regulatory capacities.

Finally, although the present findings highlight the importance of the regulatory component of temperament, operationalized by the Effortful Control dimension, we were able to examine the effects of only one of the two reactive components – Negative Affectivity. Previous research suggests that Positive Affectivity may also be related to high self-esteem (Windle, 1992), and this link should be further explored in future research.

In summary, the present findings show that early adolescents with high self-esteem can be described in terms of a particular set of temperament traits. This raises additional questions as to whether self-esteem can be entirely explained by temperament – in other words, are adolescent's self-evaluations simply a reflection of their underlying traits? In the present study, the EATQ-R temperament traits of Effortful Control and Negative Affectivity collectively accounted for 6% to 20% of the variance in self-esteem, indicating that a considerable amount of the variance in self-esteem cannot be explained by temperament. However, it is still possible that temperament can account for some previous self-esteem findings. For example, numerous studies have demonstrated that self-esteem is related to constructs such as feedback-seeking, causal attributions, social comparisons, autobiographical memories, achievement strivings, and relationship behaviors. Do these relations exist independently of temperament and basic personality dispositions such as the Big Five? Researchers do not have a clear answer to this question, in part, because the literatures surrounding basic dimensions of temperament and self-esteem are often independent.

Nonetheless, we suggest that even if associations between self-esteem and outcomes of interest are no longer detectable once temperament is taken into account in a statistical sense, theory and research on self-esteem would still be necessary to *understand* such relations. Accounting for variance in a phenomenon is not the same as explaining it. Similarly, it is worth noting that some effects of temperament on life outcomes might be mediated by self-esteem (see also Graziano et al., 1997). This possibility was recently elaborated by Heimpel et al. (2006) who suggested that self-esteem serves as a mediator between aspects of temperament and more proximal predictors of achievement such as achievement goals. They note that "self-esteem is a resource that individuals draw upon in their ongoing self-regulation" (p. 1299). In line with their recommendations, we hope that the present findings stimulate future research aimed at testing integrative models of personality functioning that include dimensions of both temperament and self-esteem. A greater cross-fertilization of the literatures surrounding temperament and self-esteem will help illuminate research in both areas.

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Table 1

Correlations of Self-Esteem with Child and Mother-Reported Effortful Control, Negative Affect, Depression, and Aggression

EATQ-R Scale	SDQII-S Total Self-Evaluation			SDQII-S Self-Esteem		
	Total	Girls	Boys	Total	Girls	Boys
Effortful control						
Child	.44* (.46*)	.49*	.39*	.34* (.35*)	.40*	.28*
Mother	.30* (.29*)	.33*	.28*	.20* (.20*)	.24*	.19*
Negative affect						
Child	-.07 (-.07)	-.06	-.10	.00 (.00)	.01	-.02
Mother	.03 (.03)	.04	.01	.06 (.06)	.07	.04
Depression						
Child	-.20* (-.21*)	-.23*	-.19*	-.12* (.13*)	-.15*	-.11*
Mother	-.15* (-.15*)	-.11*	-.19*	-.09* (-.09*)	-.08	-.11*
Aggression						
Child	-.23* (-.23*)	-.20*	-.25*	-.12* (-.12*)	-.11*	-.12*
Mother	-.20* (-.19*)	-.24*	-.17*	-.11* (-.11*)	-.12*	-.10

Note. $N = 646$ for child report ($n = 321$ girls; $n = 325$ boys) and 630 for mother report ($n = 314$ girls; 316 girls). Values in parentheses are partial correlations controlling for gender. EATQ-R = Early Adolescent Temperament Questionnaire-Revised. SDQII-S = Self-Description Questionnaire II-Short Form.

*
 $p < .05$.