PERFECTIONISM AND DEPRESSIVE SYMPTOMS IN EARLY ADOLESCENCE

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The Adaptive/Maladaptive Perfectionism Scale (AMPS; K.G. Rice & K.J. Preusser, 2002) was developed on samples of 9- to 11-year-old children. A primary purpose of the current research was to examine whether the AMPS could be useful in studies of adolescents, and in particular, studies of adolescent depression. This study of 145 early adolescents revealed (1) a somewhat different AMPS factor structure than has been evident in studies of younger children; (2) no significant mean differences between boys and girls on perfectionism, although girls were significantly more depressed than boys; (3) a pattern of perfectionism-depression correlations that differed somewhat between boys and girls; and (4) several interactions of different dimensions of perfectionism in accounting for depression. Results are discussed by addressing differences between children and adolescents in school cultures, physical and psychological changes from childhood to adolescence, and the importance of considering the positive as well as the negative aspects of perfectionism among school-age children. © 2007 Wiley Periodicals, Inc.

Professionals in school settings work in environments in which high performance expectations are consistently present. Students are expected to work to the best of their abilities, teachers are concerned with providing the best learning experiences they can, and administrators might be concerned with overall performance of their school as indicated by standardized test scores. Counselors and psychologists in school settings might be especially attuned to performance demands, and psychological consequences of those demands, on students and other members of the school community. One potentially useful construct for helping school service personnel understand the consequences of high academic performance demands on students is perfectionism. As Ashby and Kottman (2000) note, the school environment is an ideal setting to examine perfectionism in its various forms and with its various presumed consequences (see also Rice & Leffert, 1997).

Perfectionism has been variously defined and there exists some controversy around the conceptual as well as operational definitions of perfectionism (Cox, Enns, & Clara, 2002; Enns & Cox, 2002; Flett & Hewitt, 2002b; Hewitt, Flett, Besser, Sherry, & McGee, 2003; Shafran, Cooper, & Fairburn, 2002, 2003; Stöber, 1998). One controversial conceptualization of perfectionism challenges the notion that perfectionism is invariably maladaptive (Chang, 2003). According to this view, the maladaptive form of perfectionism emphasizes excessively high standards for performance and flawlessness, self-punitive reactions to perceived inadequacies in reaching or maintaining expected levels of performance, and social or interpersonal experiences that foster or exacerbate self-criticism and characterological despair (Blatt, 1995; Flett & Hewitt, 2002b; Slaney, Rice, & Ashby, 2002). This form of perfectionism, despite being operationalized in various ways, seems consistently associated with psychological impairment, including, but not restricted to, depression, suicidal ideation and tendencies, anxiety, and eating disorders (Blatt, 1995; Chang, Watkins, & Banks, 2004; Flett & Hewitt, 2002a; Goldner, Cockell, & Srikameswaran, 2002).

In contrast, the adaptive form of perfectionism has been conceptualized as high personal expectations or standards, conscientious orientation to tasks and performance, preferences for order and organization, and a persistent striving for excellence, all of which occur in a personal/ psychological and interpersonal environment of low criticism and negativity, and high support and

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esteem (Ashby & Rice, 2002; Blankstein & Dunkley, 2002; Hill et al., 2004; Rhéaume et al., 2000; Rice, Ashby, & Slaney, 1998; Rice & Mirzadeh, 2000; Terry-Short, Owens, Slade, & Dewey, 1995; see Parker, 1997, for a study of sixth graders). Adaptive forms of perfectionism are more strongly associated with the Big Five personality dimension of Conscientiousness than Neuroticism, and positively associated with life satisfaction, self-esteem, cohesive self-development, positive affect, secure attachment, and actual academic achievement as well as satisfaction with achievement (Chang et al., 2004; Cox et al., 2002; Grzegorek, Slaney, Franze, & Rice, 2004; Mobley, Slaney, & Rice, 2005; Parker, 1997; Rice & Dellwo, 2002; Rice, Lopez, & Vergara, 2005; Rice & Slaney, 2002).

Much of the literature on perfectionism has focused on late adolescents, young adults, and adult clinical populations, although most conceptualizations of perfectionism trace the origins of perfectionistic tendencies to childhood (Adler, 1956; Hamachek, 1978; Horney, 1950; Missildine, 1963; see Flett, Hewitt, Oliver, & Macdonald, 2002, for a recent summary). One possible reason for this gap between theory and research could be the lack of serviceable instruments to measure perfectionism in children and early adolescents. A few researchers have examined adolescent perfectionism using measures developed in studies of young adults (e.g., Dixon, Lapsley, & Hanchon, 2004; Gilman & Ashby, 2003; LoCicero, Ashby, & Kern, 2000; Parker, 1997; Zuroff, Koestner, & Powers, 1994). Recently, some measures designed specifically to measure perfectionism in children have appeared in the literature. In separate studies, Hewitt and associates (2002) and McCreary, Joiner, Schmidt, and Ialongo (2004) used the unpublished Child and Adolescent Perfectionism Scale developed by Flett, Hewitt, Boucher, Davidson, and Munro (2001), a measure patterned after the adult Multidimensional Perfectionism Scale (Hewitt & Flett, 1991). Hewitt and colleagues (2002) found that self-oriented and socially prescribed perfectionism were associated with several forms of emotional difficulties (e.g., depression, anxiety) among a sample of 10- to 15-year-old children. McCreary and coworkers (2004) found that the original two-factor model for the scale was less adequate in measuring perfectionism in their sample of sixth-grade African American children than was a three-factor model that included both positive (striving) and negative (self-critical) aspects of self-oriented perfectionism. This latter dimension, along with socially prescribed perfectionism, was significantly associated with concurrent and prospective (seventh-grade) depression, anxiety, and conduct problems for both boys and girls.

One indirect implication of the current study is whether well-intentioned downward (or upward) transportation of measures from different aged samples is affected by contextual vagaries not typically considered in such usage. It is hazardous to assume that instruments developed for one target population (e.g, young adults) are suitable for participants of other developmental periods. This is particularly the case for instruments that purport to measure dispositional constructs, such as perfectionism, for it is now widely agreed, in both developmental systems (Lerner, 1991) and personality theory (Cervone & Shoda, 1999), that a stable behavioral signature is an outcome of person × context interactions. Persons and contexts are inextricably linked, and therefore it must be an empirical question as to whether a scale designed for use in one developmental context serves the same end in other developmental contexts.

In this study, we focus on a recently developed and published measure of perfectionism for children. The Adaptive/Maladaptive Perfectionism Scale (AMPS; Rice, Kubal, & Preusser, 2004; Rice & Preusser, 2002) was initially developed and tested on multiple samples of mostly 9- to 11-year-old children. Following Loevinger's (1957) classic approach to scale development, Rice and Preusser (2002) conducted internal content (experts reviewed items and content domains) as well as internal structural analyses (factor analyses) on the measure and concluded that four replicated and reliable factors could be identified: Sensitivity to Mistakes, Contingent Self-Esteem, Compulsiveness, and Need for Admiration. Sensitivity to Mistakes measured children's fears and

other negative emotions and attributions associated with making mistakes. Sensitivity or concerns about making mistakes has been shown to be a robust correlate of psychological problems among adults (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Frost, Marten, Lahart, & Rosenblate, 1990), so it is not surprising that such a dimension would emerge in a measure tapping perfectionism in children. Originally named Contingent Self-Esteem and conceptualized as a likely negative aspect of perfectionism, this dimension of perfectionism on the basis of current research seems more accurately understood as an indicator of contingent but positive self-esteem. Although the items of this subscale measure positive feelings about the self that are presumed to be linked to some type of activity or performance standard, scores on this dimension were correlated positively with indicators of healthy self-concept and therefore likely denote a valence of positive self-evaluation with regard to performance. Conceptually it may be sensible to consider this dimension as the inverse of the Discrepancy dimension conceptualized by Slaney, Rice, and Ashby (2002) as a core feature of maladaptive perfectionism. Discrepancy, as operationalized by the Revised Almost Perfect Scale (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001), refers to feelings of inadequacy in reaching or maintaining performance expectations. The AMPS Compulsiveness dimension taps preferences for organization, and an ordered, deliberate, conscientious, and persistent approach to task completion. In this light, Compulsiveness could be considered, conceptually, to be either an adaptive or a benign aspect of perfectionism, unless combined with a more maladaptive perfectionistic dimension such as Sensitivity to Mistakes. In terms of operationalization, Compulsiveness is comparable to subscales such as Order, Organization, High Standards, and Personal Standards appearing in several perfectionism measures (Frost et al., 1990; Hill et al., 2004; Slaney et al., 2001). Need for Admiration addresses one's interest in being recognized, admired, and appreciated. This dimension has its conceptual roots in self psychology (e.g., Kohut & Wolfe, 1978) and a similarly conceptualized dimension has appeared in a recently developed measure of perfectionism (Hill et al., 2004).

Although Rice and Preusser (2002) and Rice and associates (2004) reported no significant differences between boys and girls on AMPS subscale scores, they did observe some interesting sex differences in the patterns of associations between perfectionism and different dimensions of self-concept. In general, Sensitivity to Mistakes and Contingent Self-Esteem emerged as the most consistent significant predictors, though there were gender-specific differences across the various self-concept dimensions. As one example, in predicting behavioral problems, Sensitivity to Mistakes was a significant predictor for boys but not girls, whereas Contingent Self-Esteem was a significant predictor of girls' self-concept but not of boys'. As another example, interaction tests revealed that boys, and not girls, reported more behavioral and emotional regulation problems when also reporting relatively higher Sensitivity to Mistakes and relatively lower Contingent Self-Esteem scores. Interestingly, for boys, the combination of high Contingent Self-Esteem with *high* Sensitivity to Mistakes scores appeared to yield the best psychological functioning, at least in terms of several of the self-concept dimensions assessed in that study (Rice et al., 2004). They concluded that the relative adaptiveness of perfectionism depended on the interaction of several perfectionism dimensions, and that what might appear adaptive for boys may not necessarily be adaptive for girls, and vice versa. These findings and others bear witness to the need for a contextual specification of perfectionism, one that considers the possibility that perfectionism takes different forms and serves different functions in different developmental contexts. The research and developmental theory to date suggest that adult models of perfectionism should not be expected to apply in a straightforward way to children, that assessments developed for younger children would not necessarily apply in a straightforward manner to adolescents or adults, and that dimensions adaptive for boys may not be adaptive for girls, and vice versa. Person $\times$ context interactions form the core of a developmental systems perspective

and have the potential to illuminate perfectionism more fully as a construct, and as a predictor, of important mental health outcomes.

In the current study, we attempted to extend the results of Rice and Preusser (2002) and of Rice and colleagues (2004) in two ways. The central premise of this study is that dispositional constructs, such as perfectionism, do not imply uniformity of expression or outcome regardless of developmental context; a developmental systems view insists that a stable behavioral signature is found at the intersection of persons and contexts. Given the developmental and educational challenges evident at middle school, there is cause to wonder whether assessments will coalesce in the same way for participants in different developmental and educational contexts. The points of departure for this analysis were the AMPS factor structure in evidence in older children (early adolescents, mostly 12- to 14-year-olds) and whether the scores from the AMPS would be significantly associated with depressive symptoms. Depression was examined because the context of middle school presents unique developmental and educational pressures that may increase the risk of depressive symptoms (Simmons & Blyth, 1987). Indeed, there are significant increases in rates of depression at middle school ages compared to childhood rates, and girls are more at risk than boys (Twenge & Nolen-Hoeksema, 2002). Indeed, it is possible that perfectionism mediates or moderates the effects context may have on the development of perfectionism. In sum, adolescents experience very different academic, social and, by definition, developmental contexts than younger children. As a result, self-referent perfectionistic performance evaluations may take very different forms and serve very different functions for adolescents than are evident in younger children.

Therefore, factor analysis was used to evaluate the factor structure of the AMPS with an adolescent sample. Indicated modifications to the measure would be considered before pursuing any associations between AMPS scores and depressive symptoms. In addition to the contextual arguments already made, a focus on depression as a correlate of perfectionism has considerable justification in the perfectionism literature, primarily because perfectionism has often been considered a maladaptive trait and because perfectionism has denoted persistent, chronic dissatisfaction with one's performance (and inability to experience pleasure from efforts) combined with unrealistic self-expectations, excessive self-criticism, perceived criticism from others for apparent shortcomings, dichotomous all-or-nothing thinking (perfectionism or failure), and other pernicious characteristics (Blatt, 1995; Enns & Cox, 2002). Drawing on qualitative interview data as well as quantitative assessment, Rice, Bair, Castro, Cohen, and Hood (2003) summarized the *recipe* for perfectionistic despair and depression:

> Maladaptive perfectionists appear to hold themselves to rigid self-expectations ("must" perform well), very high standards, and stringent self-evaluations. Yet, these perfectionists have little confidence in their ability to bring about desired outcomes, may not see their efforts as linked to outcomes, and, perhaps in the worst scenario, may have strong beliefs that outcomes result from powerful others. . . . This is a seemingly paradoxical, circular, and discouraging view for maladaptive perfectionists. High standards must be achieved by persistent personal efforts; those efforts are perceived as not likely to result in attaining standards; and the perfectionist is responsible for perceived inadequate efforts. (p. 54)

Not surprisingly, the magnitude of associations (effect sizes) between depression and maladaptive forms of perfectionism such as discrepancy or concerns about making mistakes has tended to be moderate to large (e.g., Hill et al., 2004; Rice & Mirzadeh, 2000; Slaney et al., 2001). However, high performance expectations, positive striving, and personal standards have revealed small to negligible effect size associations with depression in studies of adults (e.g., Frost et al., 1993; Hill et al., 2004; Slaney et al., 2001) and in the limited research available on children (McCreary et al., 2004). In much of this research, however, the potential interaction between adaptive or benign aspects of perfectionism (such as high standards or achievement striving) and

a maladaptive dimension (such as concerns about mistakes) has not been examined. It is possible that the tests of direct effect associations have masked circumstances under which a presumed form of adaptive perfectionism could in fact be maladaptive for children, as when a child has very high compulsive tendencies as well as excessive concerns about making mistakes. One purpose of the present study was to examine such a possibility.

Psychometric properties of AMPS scores were examined for a sample of adolescents and compared with previous findings based on younger children. After any warranted modifications, the association between AMPS scores and depressive symptom scores was examined. As with other studies of adolescent depression, it was reasonable to expect and analyze sex differences.

<center>METHOD</center>

Participants and Procedures

One-hundred forty-five adolescents were recruited from a rural middle school in the Midwest. Four outliers (see the following discussion) were eliminated from the sample. Remaining participants were either in sixth ($N = 19$, 11 females, $M_{age} = 12.05$, $SD = 0.23$), seventh ($N = 52$, 30 females, $M_{age} = 12.98$, $SD = 0.61$), or eighth ($N = 70$, 39 females, $M_{age} = 13.77$, $SD = 0.62$) grade. Approximately 96% of the overall sample was between the ages of 12 and 14 (age ranged from 12 to 16, $M_{age} = 13.25$, $SD = 0.83$). Although race/ethnicity and socioeconomic data were not obtained, 94% of the school's student population was Caucasian and 53% were low-income students. Students are designated low-income if their family receives public aid, they live in institutions for neglected or delinquent children, they are being supported in foster homes with public funds, or they are eligible to receive free or reduced-priced lunches.

Students whose parents consented to their participation and who subsequently assented to participate in the study completed the measures on the same day in small-group classroom settings. Students were monitored during the completion of the scales and encouraged to ask questions about any items that were confusing or difficult to understand.

Instruments

Adaptive/Maladaptive Perfectionism Scale. The AMPS (Rice & Preusser, 2002) is a 27-item self-report questionnaire that, in samples of preadolescent children, measures four dimensions of perfectionism: Sensitivity to Mistakes (nine items), Contingent Self-Esteem (eight items), Compulsiveness (six items), and Need for Admiration (four items). A 4-point response scale ranging from *really unlike me* to *really like me* is used. Higher scores indicate more perfectionism. Exploratory and confirmatory factor analyses of item sets and data derived from multiple samples of children in different states and school districts were used to support the four-factor structure of the instrument. Age was not significantly correlated with the AMPS subscales, though the measure was developed on samples that only ranged in age from 9 to 11. Also, significant average differences between scores for boys and girls have not emerged (Rice & Preusser, 2002; Rice et al., 2004). Internal consistency reliability estimates for the scores have ranged from .73 to .91 (Rice & Preusser, 2002; Rice et al., 2004).

Reynolds Adolescent Depression Scale. The Reynolds Adolescent Depression Scale (RADS) (Reynolds, 1986) is a 30-item self-report questionnaire that also utilizes a 4-point Likert-style rating. This scale is intended to assess the various domains and symptoms of depression, with higher scores denoting more depressive symptoms. Considerable psychometric support exists for the RADS. Scores on the RADS have been shown to demonstrate good reliability (Campbell, Byrne, & Baron, 1992, 1994) and validity (Atlas & DiScipio, 1992). In the present study, Cronbach's coefficient alpha for the RADS score was .86. Approximately 15% ($n = 20$) of this nonclinical

sample could be considered to be experiencing clinically significant depression on the basis of the typical RADS cutoff criterion score of 77 and above (Reynolds, 1986). Girls were significantly overrepresented in the depressed group, $\chi^2(1, N = 145) = 10.97$, $p < .001$; 18 of the 20 adolescents categorized as depressed were girls. Although guidelines exist to categorize adolescents into discrete depressed and nondepressed groups, there is recent evidence based on taxometric research that indicates depression is best considered a continuous rather than discrete categorical construct (Hankin, Fraley, Lahey, & Waldman, 2005). Furthermore, the dimensional scoring of the RADS retains power otherwise lost by creating discrete groups (Cohen, 1983). For these reasons, and because we sampled adolescents in a nonclinical, general population setting, we elected to use the continuous RADS score as the indicator of depressive symptoms.

RESULTS

Listwise deletion of missing item level revealed that nearly 20 cases would be dropped if adhering to that conservative criterion. Therefore, to retain as many usable cases as possible, missing item data were replaced with the series mean for each item. Mahalanobis distance was used to screen for outliers in the data set. The Mahalanobis distance for four participants exceeded the critical value of $\chi^2(27, N = 145) = 55.48$, which was based on 27 dependent variables (AMPS items). Those participants were dropped from the data set.

Corrected item-total correlations were examined for the four AMPS subscales based on the scoring derived from the younger sample (DeVellis, 2003). Two correlations for each item were examined. Items with a correlation less than .30 with the total score from each dimension were excluded from further analyses if those same items also did not have a correlation greater than or equal to .30 with an overall total score based on the 27 items of the AMPS. The rationale for this decision was to exclude items that did not appear related to a presumed subscale of perfectionism and also were not associated with a larger overall composite of perfectionism. Interestingly, this screening process suggested that nine items be excluded from further analyses; seven (of the eight) items of the Contingent Self-Esteem subscale constituted the majority of the problematic items. This finding alone suggested that the self-esteem factor would not be replicated with the current sample data.

A polychoric correlation matrix of remaining 18-item-level AMPS data was generated by the PRELIS/LISREL 8.54 (Jöreskog & Sörbom, 2003) program. Briefly, polychoric correlations are recommended because distributional properties of item data are likely to be skewed and AMPS item responses are likely to be more accurately considered ordinal data than interval data (Nunnally & Bernstein, 1994). Polychoric correlations are adjusted correlations that would be evident if the item variable scores were continuous and normally distributed (Nunnally & Bernstein, 1994, p. 127). An exploratory factor analysis was conducted utilizing the polychoric correlation matrix. Although factor analysis of data at the item level is less preferred than analysis involving scales or composites, common factor analysis can be a reasonable strategy for item analyses in scale development (see Gorsuch, 1997). Communalities in this analysis ranged from .38 to .67. The Kaiser-Meyer-Olkin (Kaiser, 1970, 1974) Measure of Sampling Adequacy (.804) indicated that it was reasonable to conduct a factor analysis on these data.

A principal axis factor analysis revealed five factors with eigenvalues ranging from 1.11 to 6.39. A scree test also suggested the conclusion that five factors could be a reasonable solution. Because of limitations inherent in the scree test, a parallel analysis (based on 100 simulations) was conducted to aid decision making regarding the number of factors to extract and retain for rotation (Reise, Waller, & Comrey, 2000). A parallel analysis generates random data sets based on the same sample size and number of scale items (in this case, 18) used in the actual study. The point where

the scree plot derived from the actual data crosses the scree plot from the simulated data provides a cut point for the number of factors to extract; factors with smaller eigenvalues in the actual data than those evident in the simulated data should not be extracted (Reise et al., 2000, p. 290). The parallel analysis resulted in simulated eigenvalues for the first five factors of 1.68, 1.54, 1.43, 1.34, and 1.27, whereas the eigenvalues for the first five factors from the analysis of actual data were 6.39, 1.62, 1.48, 1.26, and 1.11. Three of the eigenvalues from the actual data exceeded those of the simulated data and suggested a three-factor structure was tenable.

Before rotation, the three retained factors accounted for about 53% of the variance. Oblique rotation with the Promax procedure (kappa = 4) was used to refine the factor solution and clarify labeling of the factors (Ford, MacCallum, & Tait, 1986). After rotation, the three factors accounted for approximately 44% of the interitem variance. The pattern matrix for this analysis appears in Table 1.

An examination of the item-factor coefficients revealed some correspondence with previous factors emerging in research on children and AMPS scores, though there also appeared to be some subtle distinctions between children and adolescents as well. For example, the first factor appeared to tap excessive concerns about making mistakes and corresponding self-criticism when mistakes are made (e.g., "When one thing goes wrong, I wonder if I can do anything right"). Interestingly, an item that formerly was thought to be an indicator of Contingent Self-Esteem ("My work is never done well enough to be praised") also loaded on this factor, possibly reflecting a pervasive sense of inadequacy regarding performance expectations. This factor was labeled Sensitivity to Mistakes.

The second factor contained items tht reflected the Need for Admiration factor previously observed in the studies of children. However, there were some differences in this factor when

Table 1

Exploratory Factor Analysis of AMPS Items: Promax Rotated Factor Loadings (Pattern Matrix) for the Three-Factor Solution

		Factor		
No.	Item	I	II	III
24	My work is never done well enough to be praised.	**0.75**	−0.10	−0.10
12	I get mad when I see a mistake in my work.	**0.72**	0.03	−0.10
26	Making one mistake is as bad as making ten mistakes.	**0.71**	−0.08	0.08
23	When one thing goes wrong, I wonder if I can do anything right.	**0.70**	0.22	−0.13
17	I become sad when I see a mistake on my paper.	**0.63**	0.11	0.00
8	When I make a mistake, I feel so bad that I want to hide.	**0.62**	−0.13	0.29
6	I take a long time to do something because I check it many times.	**0.38**	0.11	0.26
13	I have certain places where I always put my things.	**0.32**	0.20	0.03
4	I like to be praised for my work because then others will want to be like me.	−0.05	**0.90**	−0.24
11	I do good work so that others think I am great.	0.08	**0.65**	0.06
16	I want to be known as the best at what I do.	−0.07	**0.54**	0.09
19	I want to be perfect so that others will like me.	0.29	**0.47**	0.07
3	I like for things to always be in order.	0.12	**0.42**	0.18
2	I am fearful of making mistakes.	0.16	**0.35**	0.13
9	I always make a list of things and check them off after I do them.	0.03	−0.14	**0.80**
22	I cannot relax until I have done all my work.	−0.01	0.15	**0.63**
20	I notice more what I do right than what I do wrong.	**−0.32**	0.33	**0.49**
25	I only like to do one task at a time.	0.14	−0.09	**0.39**

compared to the results on children. For example, an item previously considered an indicator of concerns about making mistakes ("I am fearful of making mistakes") loaded on this factor, as did an item previously thought to indicate compulsiveness or need for order and organization ("I like for things to always be in order"). These items, combined with the others loading on the second factor, suggest a social need to appear perfect, or, alternatively, a fear of making mistakes or appearing disorganized because these imperfections make one less worthy of admiration.

The third factor contained items consistent with the previously labeled Compulsiveness factor. These items appeared to reflect a potentially healthy or adaptive degree of conscientious task performance. For example, in addition to items indicating preferences for sequential and careful attention to tasks, the item "I notice more what I do right than what I do wrong" suggests an internalized and perhaps deliberate effort at looking for the positive rather than focusing on the negative in one's performance.

Descriptive Statistics

Descriptive statistics and measurement reliabilities appear in Table 2. Data are displayed for RADS scores and restructured AMPS subscales that were created by identifying items for each subscale on the basis of the item-factor loadings from the exploratory factor analysis items, then simply summing raw item responses for each subscale. For the four scores, Cronbach's coefficient alphas ranged from .56 to .94.

Correlations between the AMPS subscale scores and the RADS appear in Table 3. Type I error was corrected for multiple statistical tests (in this case, .05/5 tests each for boys and girls or .01). To be statistically significantly different from zero, correlations for boys and girls needed to exceed |.36| and |.31|, respectively. All of the intersubscale score correlations for the AMPS were

Table 2

Means, Standard Deviations, and Internal Consistencies for the Adaptive/Maladaptive Perfectionism Scale and the Reynolds Adolescent Depression Scale

	Boys ($n = 61$)	Girls ($n = 80$)	$t (139)$[a]	p	Cohen's d
Sensitivity to mistakes					
M	18.67	17.75	1.06	.292	.18
SD	5.11	5.05			
α	.84	.81			
Need for admiration					
M	16.02	15.98	0.07	.949	.01
SD	3.51	3.96			
α	.72	.78			
Compulsiveness					
M	10.29	9.65	1.44	.153	.24
SD	2.67	2.57			
α	.64	.56			
RADS depression					
M	53.51	61.83	−2.75	.01	.51
SD	12.76	18.75			
α	.86	.94			

[a]Series mean substitution was used for Adaptive/Maladaptive Perfectionism Scale (AMPS) items. For tests of AMPS subscale differences, $df = 139$; for test of RADS differences, $df = 120$ (51 boys, 71 girls). *p*-values based on two-tailed tests. RADS = Reynolds Adolescent Depression Scale.

Table 3
*Correlations Between Revised Adaptive/Maladaptive Perfectionism subscales
and Reynolds Adolescent Depression Scale*

	1	2	3	4
1. Sensitivity to mistakes	1.00	.59	.40	.19
2. Need for admiration	0.61	1.00	.45	−.10
3. Compulsiveness	0.50	0.41	1.00	−.27
4. Depression	0.01	−0.07	0.03	1.00

Note. Correlations for boys are below the diagonal and are based on *n* ranging from 51 to 61. Correlations for girls appear above the diagonal and are based on *n* ranging from 71 to 80. On the basis of *n* = 51 for boys and 71 for girls, and adjusting type I error for multiple tests (.05/5 = .01), | *r* | needed to exceed .36 for boys and .31 for girls to be considered statistically significant, two-tailed tests.

significant, but none of the correlations between AMPS scores and RADS scores met this criterion. Nevertheless, some strengths of association between the scores seemed rather different for boys and girls. For example, the correlation between Compulsiveness and RADS was −.27 for girls but .03 for boys, a difference that, with greater power, may have revealed an important effect, $Z = 1.63$, $p = .052$, one-tailed test.

Regression Analyses of Perfectionism and Depressive Symptoms

Separate, by sex, hierarchical multiple regression analyses were conducted to determine the overall association between AMPS and RADS scores, and to determine whether interactions among AMPS subscales significantly improved the overall models. The scores on the predictor AMPS subscales were centered before creating multiplicative interaction terms (Aiken & West, 1991; Cohen, Cohen, West, & Aiken, 2003). The three AMPS subscales were entered as a block in the first step in each analysis. In separate analyses, each of the three two-way interaction terms (Sensitivity to Mistakes × Compulsiveness, Sensitivity to Mistakes × Need for Admiration, and Need for Admiration × Compulsiveness) was added to the equation in the next step. The test of the interaction is whether a significant proportion of variance is accounted for by interaction terms after partialing the main effects of the predictors in the first step of the analysis. Because interaction effects tend to be difficult to detect with multiple regression (McClelland & Judd, 1993), the Type I error level for testing the interaction effect was set at a more liberal level of .10 to permit exploration of any potentially meaningful interactions. Multicollinearity diagnostics revealed no concerns about these analyses; variance inflation factor (VIF) ranged from 1.28 to 2.15; tolerance ranged from .465 to .869. Values for VIF that exceed 10 and tolerance values less than .10 are cause for concerns regarding multicollinearity (Cohen et al., 2003).

For boys, the AMPS scores did not account for significant variation in RADS scores, $R^2 = .01$, $F(3, 47) = 0.22$, $p = .885$. Two of the three interaction terms contributed significant additional explained variation to the model: Sensitivity to Mistakes × Need for Approval, $\Delta R^2 = .10$, $F(1, 46) = 4.91$, $p = .032$, and Sensitivity to Mistakes × Compulsiveness, $\Delta R^2 = .06$, $F(1, 46) = 3.04$, $p = .088$. For girls, AMPS scores did account for significant variance in RADS scores, adjusted $R^2 = .21$, $F(3, 67) = 5.96$, $p = .001$, and one of the interaction terms yielded additional, explained variation in depressive symptoms: Need for Approval × Compulsiveness, $\Delta R^2 = .04$, $F(1, 66) = 3.28$, $p = .075$. Tests of individual standardized beta coefficients for girls revealed that two of the three AMPS predictors were significantly associated with depressive symptoms: Sensitivity to Mistakes ($\beta = .47$, $p = .001$) and Compulsiveness ($\beta = −.36$, $p = .004$). The directions of these

effects confirmed Sensitivity to Mistakes as a maladaptive aspect of perfectionism for girls whereas Compulsiveness appeared adaptive, insofar as greater compulsiveness was associated with significantly fewer depressive symptoms.

Figures 1 to 3 display the significant interaction effects. These plots were developed by following procedures described by Cohen and associates (2003). Regression lines were used to plot RADS depression scores at low (1 SD below the mean), average (mean), and high (1 SD above the mean) values for the relevant AMPS predictors. For boys, higher levels of Sensitivity to Mistakes were associated with higher depressive symptoms scores, but only when Need for Admiration or Compulsiveness scores were low (see Figures 1 and 2). In other words, greater needs for admiration or greater preferences for completing tasks with deliberate and careful attention appeared to lessen the negative impact of concerns about making mistakes, at least for boys. The most depressed boys were those who had high concerns about making mistakes but relatively much lower than average compulsiveness and need for admiration. The most depressed girls, in contrast to boys and after controlling for the significant direct main effects of Sensitivity to Mistakes and Compulsiveness, were those who endorsed the lowest Need for Admiration and Compulsiveness scores. As can be seen in Figure 3, higher levels of compulsiveness reduced the otherwise negative effect of lower desire to be admired by others. Thus, compulsiveness appeared
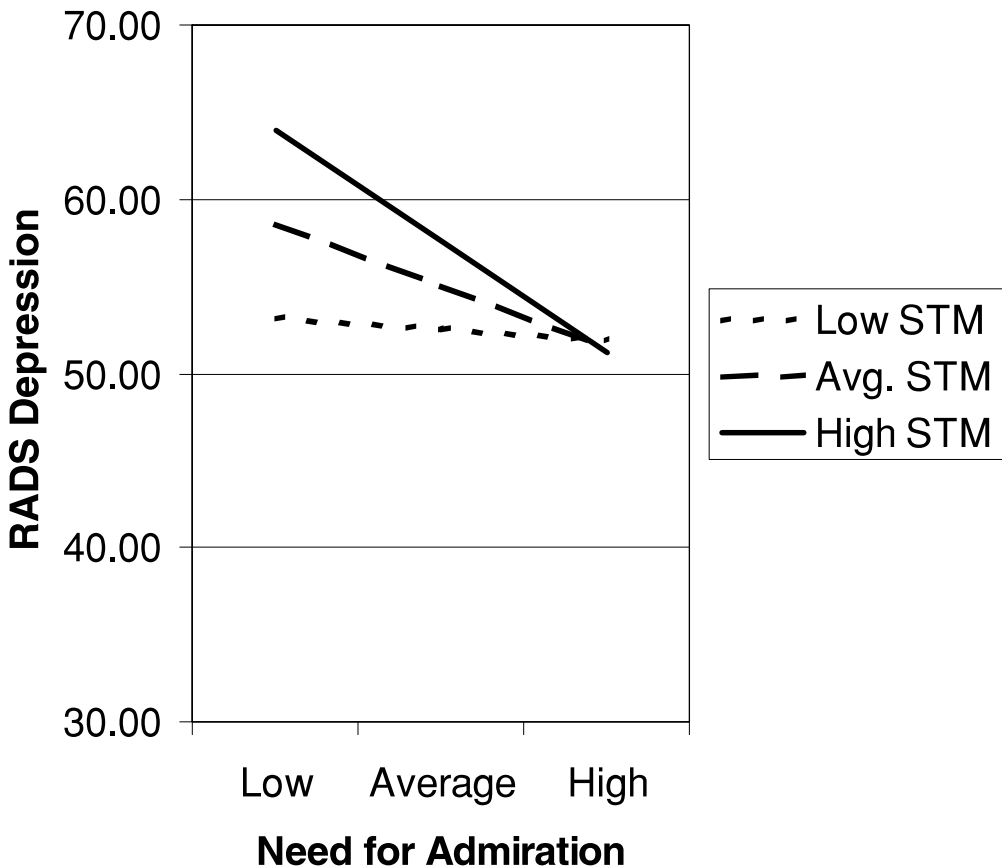

FIGURE 1. The Adaptive/Maladaptive Perfectionism Scale Sensitivity to Mistakes (STM) × Need for Admiration interaction predicting Reynolds Adolescent Depression Scale scores for boys.
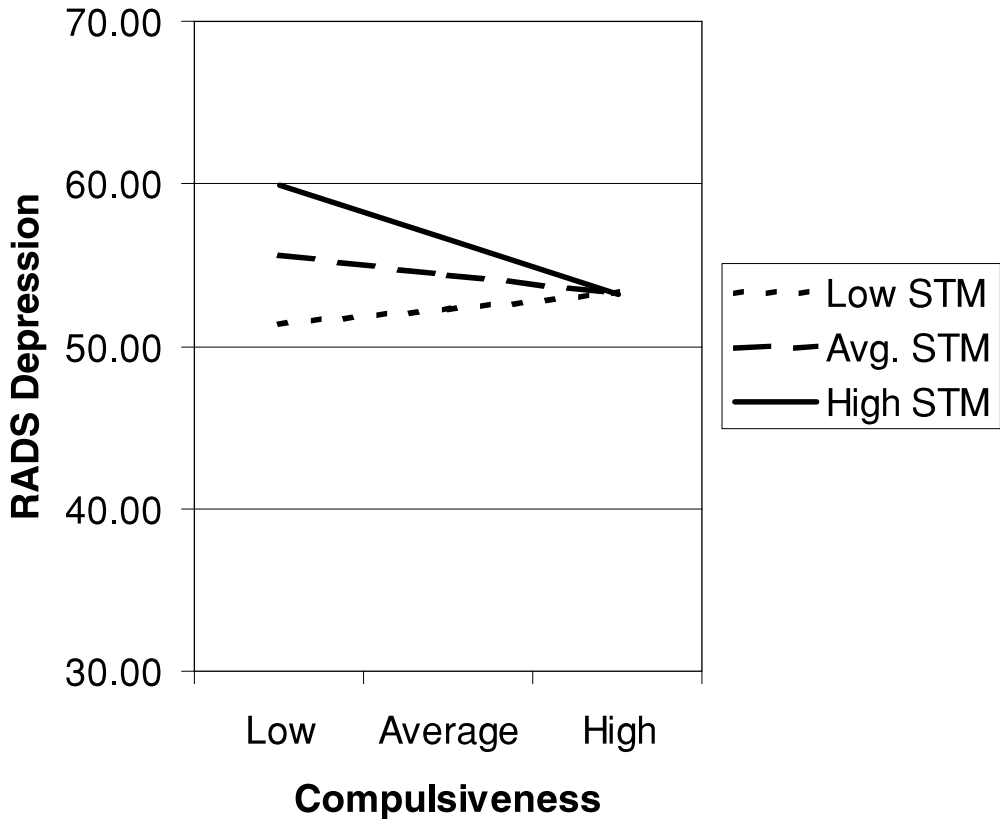
FIGURE 2.   The Adaptive/Maladaptive Perfectionism Scale Sensitivity to Mistakes (STM) × Compulsiveness interaction predicting Reynolds Adolescent Depression Scale scores for boys.

to be adaptive for both boys and girls, and lower, rather than greater, need for admiration was maladaptive but only when combined with higher concerns about making mistakes (boys) or lower compulsiveness (girls).

DISCUSSION

The general purpose of this study was to advance the conceptual and empirical literature on perfectionism in children and adolescents. On the conceptual front, on the basis of models and studies of perfectionism in adults, there is reason to suspect that perfectionism is a multidimensional construct with likely adaptive as well as more familiar maladaptive characteristics. However, whether conceptualizations of perfectionism as adaptive and maladaptive apply to children is not yet clear. Research in which adult measures have been downsized or deployed in their entirety to the study of children notwithstanding, a more complete understanding of the relatively healthy or dysfunctional aspects of perfectionism in children has been hampered by the dearth of suitable measures developed on children.

Conceptualizations of the origins of perfectionism have long been centered on a developmental compass that points in one direction to important early relational contexts in a child's life and in another direction to important transitional experiences and person-environment
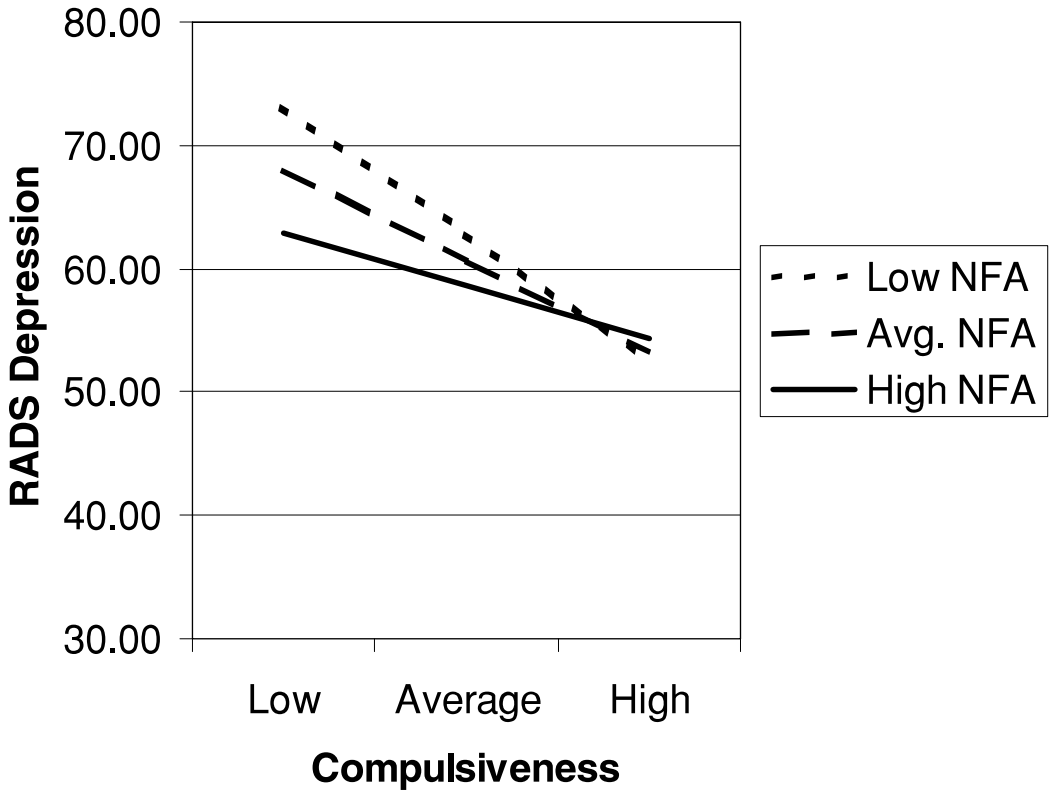
FIGURE 3. The Adaptive/Maladaptive Perfectionism Scale Need for Admiration (NFA) × Compulsiveness Interaction predicting Reynolds Adolescent Depression Scale scores for girls.

interactions that foster the development of perfectionism. Again, however, empirical scrutiny of these directions has been hindered by limited means for measuring perfectionism in children. Rice and Preusser (2002) sought to remedy this situation by developing the AMPS, a measure of perfectionism that could be used with younger children. The specific purpose of the present study was to examine further the AMPS in two novel ways. One was to study an older sample (early adolescents) and the other was to cast a wider "nomological net" around perfectionism by including depression as a relevant criterion.

Three AMPS dimensions that were generally similar to dimensions found in samples of younger children emerged: Sensitivity to Mistakes, Need for Admiration, and Compulsiveness. Although generalizability of these results is hindered by sample limitations, some further speculation about the results is warranted. These and other findings should be considered in light of the contexts early adolescents and children find themselves in, such as the school environment as well as the physical and psychological changes that occur for children as they progress from age 9 through about age 14. For instance, the culture of middle or junior high schools is quite different from the culture of elementary school, and some have argued the school environment may not fit the developmental needs of adolescents. In her review, Baer (1999) described a poor "stage-environment fit" for adolescents, particularly with regard to academic environments and expectations, and concluded that studies "repeatedly show that systematic changes in the classroom environment after the transition to junior high school contribute to a decline in achievement-

related attitudes, values, motives, and behavior for some adolescents" (p. 240). Academic demands tend to intensify as children move to middle school and external performance standards may play a role in the level of concern students experience about making mistakes and attending to details. Other contextual and transition challenges are apparent as well in adolescence. Appearance and recognition may become more important perhaps because of their role in self- and social development. For example, the Need for Admiration factor that emerged in the adolescent sample data was somewhat different from the factor that emerged with children, and the differences seemed to involve additional concerns about making public mistakes or revealing disorganization. This somewhat revised version of Need for Admiration is sensible in light of the fact that early adolescence is a time of heightened self-consciousness and the construction of possibly evaluative "imaginary audiences" (Lapsley, 1990, 1993), which may further explain why this version of the Need for Admiration factor did not emerge in children. In sum, there are theoretical and contextual reasons for factors such as sensitivities to mistakes, concerns about admiration from others, and attention to details in performance situations to emerge among early adolescents.

Sensitivity or concern about mistakes has often been associated with adverse emotional functioning and appears to be a consistent indicator of maladaptive perfectionism. Alternatively, once such adverse aspects of perfectionism are controlled, as was the case in the analyses of standardized partial regression coefficients, some otherwise presumed maladaptive dimensions could emerge as relatively important and adaptive. Such was the case for Compulsiveness. For girls, the correlation between Compulsiveness and RADS scores was not statistically significant ($r = -.27$). Partialing Sensitivity to Mistakes scores alone from that correlation increased the size of the relationship between Compulsiveness and RADS scores ($r = -.39$, $p = .001$). Although this post hoc exploration should be considered cautiously, one potential implication of this finding is that depressive symptoms might be lessened or prevented by girls' learning how to be less concerned about making mistakes, and correspondingly more self-forgiving. At the same time, preventive or tertiary interventions for depression might also focus on task and time management skills. In the case of a depressed girl, perhaps helping to impose more order or organization on what may appear to be an otherwise disorderly and discouraged life could be therapeutic.

It is interesting to speculate about the relative importance and interplay of some perfectionism dimensions in predicting depressive symptoms for boys and girls. For instance, concerns about mistakes and compulsive tendencies accounted for significant variation in depression for girls, but none of the AMPS dimensions accounted directly for significant variation in depression for boys. Instead, perfectionism effects for boys were only evident in interactions. Interpreting what appears to be an adaptive role of perfectionistic compulsiveness could be aided by acknowledging that early adolescents enter puberty experiencing more rigidly controlling environments than they previously encountered (Baer, 1999). Direct or moderated emotional benefits from compulsive attention to tasks and demands might be precipitated by an environmental event; adolescents find themselves in a school environment that has now adopted, and enforced, expectations regarding mistakes and possibly close attention to details. Excessive pressure to avoid mistakes and get good grades in the absence of some degree of support or direct education around orderliness, intentional task and time management, and focused efforts to enhance organizational skills may result in higher rates of depressive symptoms among early adolescent boys. Moreover, girls benefit directly from compulsive attention to tasks and performance, and they suffer directly when they have higher concerns about making mistakes. The increased expectations for performance and intensified interest in individual student achievement in middle school may also benefit some adolescents who have greater needs for admiration and recognition, or harm others who are less concerned with recognition. Girls who had less need for admiration were most depressed when compulsiveness was low; girls who had less need for recognition benefited, in terms of less

depression, when they had greater conscientiousness. Boys who had lower need for recognition but greater concern about making mistakes also reported more depressive symptoms than other boys. For boys, compulsiveness and need for admiration may lessen the otherwise adverse impact of concerns about making mistakes on depression. These findings point to the need to conduct additional research on how dispositional qualities interact with classroom contextual-environmental qualities to enhance, or reduce, emotional well-being of students. One implication of these results is that the relative adaptiveness or maladaptiveness of perfectionism may emerge not only through the ways dispositional factors interact but also in light of their interaction in various contexts or environments in which performance and achievement may be emphasized.

The reliability of scores on the AMPS was generally lower for the Compulsiveness scores and higher for the other dimensions. The reliability results for Sensitivity to Mistakes and Need for Admiration were comparable to results reported by Rice and Preusser (2002; Rice et al., 2004). Although reliability coefficients in the .50–.60 range could be of some concern, several important considerations are necessary when evaluating the adequacy of scores. First, it is important to remember that a reliability estimate is a function of a sample, and therefore a function of sample scores and not a test per se. Reliability must be judged in light of the purposes for which the instrument is being used, not in terms of rigidly applied criteria abstracted from particular research contexts. Second, there exist no empirically derived minimal criteria for reliability coefficients, though certainly numerous guidelines have been suggested. As Schmitt (1996, pp. 351–352) reminds us, "Even with reliability as low as .49, the upper limit of validity is .70. When a measure has other desirable properties, such as meaningful content coverage of some domain and reasonable unidimensionality, this low reliability may not be a major impediment to its use." John and Benet-Martínez (2000) add that essential considerations regarding lower than preferred reliability estimates are the context of the research and the amount of error variance one is willing to tolerate given the study and its implications. They suggest that the "goal in measurement is to maximize validity rather than internal consistency" (p. 346). The reliability findings with this sample should alert other researchers to pay close attention to the consistency with which adolescent participants respond to AMPS items. As well, the internal consistency of those scores should be considered in light of the context and needs of the research and setting.

Finally, in the preliminary item-total analyses, most of the AMPS items previously associated with the Contingent Self-Esteem subscale could not be retained in the analyses of the adolescent sample data. Although Rice and Preusser (2002) initially conceptualized this dimension as potentially problematic (esteem contingent on performance), as Rice and colleagues (2004) observed in their study of younger elementary school-age children, the subscale might better be referred to as Contingent (Positive) Self-Esteem. For adolescents, the items on this measure did not correlate well with each other or with a higher-order perfectionism dimension (AMPS total score). Perhaps as a result of the developmental span of adolescents in this sample some responded to those items comparably to the children whereas others may have been more discriminating in their self-referent judgments regarding esteem and performance contingencies. The concern here could be a double-barreled or otherwise vague aspect of some esteem items. For instance, a response to the item "After doing an activity, I feel happy" may present too many situation-specific variations to be responded to in the same way that adolescents might respond to "Once I do well at something, I am pleased." Alternatively, as Crocker and Knight (2005) note, an important question in self-esteem research addresses the activities that affect esteem for an individual. Some adolescents may find some aspects of performance measured by the Contingent Self-Esteem items to be relevant for their esteem but not othere whereas other adolescents may not find the same items relevant. Given the conspicuous dip in self-esteem from childhood to adolescence (Robins & Trzesniewski, 2005), and findings of significant associations between perfectionism and esteem

among late adolescents and adults in other studies (e.g., Rice & Dellwo, 2001, 2002; Slaney et al., 2001), future work would usefully be employed in understanding contingent self-worth among early adolescents.

In sum, the present findings add to the growing construct validity literature for perfectionism in children (e.g., Hewitt et al., 2002; McCreary et al., 2004), and for the AMPS in particular. The AMPS shows promise for future studies of perfectionism with children and adolescents. Future research could be usefully directed to longitudinal uses of the AMPS, such as charting stability and change of perfectionism over time, the stability and change of perfectionism-criterion associations over time, and the causal questions regarding the origins of perfectionism (e.g., studies of children and parents, teachers). Important questions remain, such as whether results on the AMPS are state dependent or trait stable and relatedly whether affective states alter the stability of AMPS scores (cf. Rice & Aldea, 2006). The AMPS should be examined to determine its cross-cultural conceptual, functional, and psychometric equivalence within and between various diverse demographic and national groups. Indeed, a limitation of the current study is that it is based on a sample derived from a single school composed mostly of Caucasian students. Finally, convergent and discriminant validity research should be undertaken to assess the associations between AMPS dimensions and other measures of perfectionism in children (Flett et al., 2001), as well as adult measures of perfectionism used on younger samples (Dixon et al., 2004; Gilman & Ashby, 2003; LoCicero et al., 2000; Parker, 1997).

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