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Developmental Origins of Perfectionism Among African American Youth

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Abstract

The present study used a person-centered latent variable approach to classify types of perfectionism among 6th-grade African American children living in an urban setting. In particular, the authors were interested in determining whether an adaptive subtype could be found and validated against external criteria. The authors also attempted to identify any developmental precursors that could reliably differentiate the perfectionist subtypes. A social learning and competence framework was used to select potential 1st-grade risk and protective factors for future perfectionism profiles. Four classes best described the children's perfectionism scores in 6th grade. Three of these classes resembled the profiles most commonly seen in prior perfectionism research (Non-Critical/Adaptive, Critical/Maladaptive, and Non-Perfectionist). The fourth class, Non-Striving, was characterized by extremely low levels of reported personal standards. Sixth-grade correlates confirmed the distinctiveness of these classes. In particular, the Critical/Maladaptive and Non-Striving classes had higher rates of internalizing symptoms and disorders. Additionally, several 1st-grade predictors suggested unique developmental origins of these classes. The Critical/Maladaptive class was characterized by lower academic skills and elevated teacher-rated attention problems, hyperactivity, shyness, and peer rejection. The Non-Striving class had higher rates of family alcohol problems and lower levels of parent praise. Implications regarding the universal and culture-specific origins and effects of perfectionism are discussed.

Keywords

children; African American; adaptive; maladaptive; perfectionism

Historically, the construct of perfectionism has been conceptualized as one dimensional and pathological in nature. Theorists have usually viewed perfectionism as the possession of unrealistic standards that eventually lead to anxiety, lowered self-esteem, and other negative outcomes (i.e., Brown & Beck, 2002; Ellis, 2002; Horney, 1950). Although a one-dimensional conceptualization has dominated the history of perfectionism theory and popular definition, in the past two decades researchers have expanded their

conceptualizations of perfectionism to become multidimensional in nature (e.g., Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). Initial multidimensional conceptualizations remained mostly pathological and focused on the different subfacets of the deleterious construct. For instance, Hewitt and Flett's (1991) original research on their multidimensional perfectionism scale (MPS) contained three dimensions: self-oriented perfectionism, which is characterized by the possession of high standards and striving to meet those standards; socially prescribed perfectionism, which is characterized by the perception that significant others set and hold high standards for an individual; and other-oriented perfectionism, which is characterized by an individual holding others to excessively high standards. Hewitt and Flett asserted that all of these perfectionism dimensions related to psychological distress such as depression and anxiety.

More recent evidence has suggested that adaptive dimensions of the construct exist as well. Frost, Heimberg, Holt, Mattia, and Neubauer (1993) factor analyzed both their multidimensional perfectionism scale and Hewitt and Flett's (1991) MPS. The analysis of both scales suggested a two-factor solution that Frost and colleagues labeled adaptive and maladaptive. The adaptive factor consisted of questions from several subscales related to personal standards, including the Self-Oriented Striving subscale of Hewitt and Flett's MPS. Conversely, the maladaptive factor included items from Hewitt and Flett's Socially Prescribed Perfectionism subscale.

Over the past decade, many studies using cluster analysis techniques have found that adaptive and maladaptive perfectionists experience well-being and psychological distress in expected ways (Grzegorek, Slaney, Franze, & Rice, 2004; Mobley, Slaney, & Rice, 2005; Rice & Ashby, 2007; Rice & Dellwo, 2002; Rice & Slaney, 2002). Maladaptive perfectionism correlates with psychological distress outcomes such as depression, anxiety, and negative cognitions (see Campbell & Di Paula, 2002; Grzegorek et al., 2004; Rice & Ashby, 2007; Slaney, Rice, & Ashby, 2002; Wang, Slaney, & Rice, 2007). However, adaptive perfectionism is positively linked with indicators of psychological well-being such as high self-esteem, positive affect, and the initiation and sustaining of goal-directed behavior (see Campbell & Di Paula, 2002; Rice & Ashby, 2007; Rice & Dellwo, 2002; Slaney et al., 2002, 2001). These studies all provide support for the theory that perfectionism represents a concept that is more complex than a uniformly pathological construct.

Recent studies have also extended the perfectionism literature downward to include youth and confirmed the presence of adaptive and maladaptive dimensions as early as middle school (e.g., Dixon, Lapsley, & Hanchon, 2004; Gilman & Ashby, 2003; Gilman, Ashby, Sverko, Florell, & Varjas, 2005; McCreary, Joiner, Schmidt, & Ialongo, 2004; O'Connor, Dixon, & Rasmussen, 2009; Parker, Portesova, & Stumpf, 2001; Rice, Kubal, & Preusser, 2004; Rice, Leever, Noggle, & Lapsley, 2007; Stoeber & Rambow, 2007). Notably, McCreary and colleagues investigated the nature of multidimensional perfectionism and its correlates among a sample of African American middle school students living in a major metropolitan area on the east coast of the United States. McCreary et al. measured perfectionism using the Child and Adolescent Perfectionism Scale (CAPS; Flett, Hewitt, Boucher, Davidson, & Munro, 2000), a scale based on the Self-Oriented and Socially Prescribed Perfectionism subscales of the adult MPS (Hewitt & Flett, 1991). They found a three-factor solution, which divided the Self-Oriented subscale into two factors represented by striving toward perfection and self-criticism over perceived imperfection. The authors concluded that their factor solution fit the adaptive and maladaptive paradigm put forward by such researchers as Slaney et al. (2001). Specifically, the striving toward perfection factor appeared to represent an adaptive component of perfectionism, whereas the Self-Criticism over Perceived Imperfection and Socially Oriented Perfectionism subscales

comprised the maladaptive dimensions of perfectionism. O'Connor et al. conducted a more recent study that validated McCreary et al.'s three-factor solution and added evidence for the invariance of the three-factor structure across time and gender.

Despite recent attention to the construct in youth samples, however, little seems to be known about how perfectionism develops. Without a developmental framework and evidence, efforts to prevent or intervene in perfectionism patterns will be purely speculative. Although most theories characterize perfectionism as a stable, traitlike quality (Flett, Hewitt, Oliver, & Macdonald (2002), few longitudinal studies have been conducted to verify whether and when the stable qualities emerge. It is unlikely that perfectionism, at least how it is commonly measured, is stable prior to late childhood or early adolescence. Most studies rely on self-reported perfectionism, which heavily weights the cognitive aspects of the construct (e.g., self-perceptions, self-beliefs, self-criticisms). This is important because cognitive self-appraisals in early childhood are unstable and more directly linked to immediate and concrete events in the environment (Cicchetti & Toth, 1995; Dweck & Leggett, 1988; Fincham & Cain, 1986). Evidence of transient cognitions in early childhood makes it questionable whether self-reported perfectionism qualities would be stable during this period (Cicchetti & Toth, 1995; Fincham & Cain, 1986).

Most conceptions also assume perfectionism precedes and contributes to adaptive or maladaptive outcomes (e.g., depression, social and academic dysfunctions; Hewitt & Flett, 1991), although causal modeling studies in perfectionism are lacking (e.g., most studies merely show cross-sectional correlations and lack evidence of temporal sequence or causal precedence). Without temporal or causal control, researchers could just as easily conclude that depression/anxiety precede and cause maladaptive perfectionism (e.g., self-criticism and external locus of control) as the inverse. Additionally, even if future research supports the contention that maladaptive perfectionism in adolescence or adulthood contributes to risk for negative outcomes, the reverse could be true in childhood. That is, social and academic problems or skill deficits, family dysfunction, emotional dysregulation, and mood symptoms during childhood may provide fertile ground for the emergence of pathogenic self-perceptions and behavior coping patterns that could become solidified in later years as perfectionism.

In line with this perspective, social learning theories would suggest that the social patterns and self-perceptions that define perfectionism develop through interactions between child characteristics and their social environments (Bandura, 1986). In particular, children learn personal standards through adult modeling and selective reinforcement for achieving those standards. Parents and teachers convey expectations to children and whether they are meeting those expectations throughout development (Cole, Jacquez, & Maschman, 2001). Children living in unstructured, unpredictable, critical, or hostile home environments are also likely to develop negative self-perceptions, including a low sense of perceived control to influence important life events (Ostrander & Herman, 2006).

During the elementary years, children's self-perceptions are deeply influenced by the perceptions that teachers and peers have of their competence, especially in two domains: academic and social skills (Cole et al., 2001). According to Cole and colleagues' (2001) competence theory, teachers and peers at school accurately perceive the relative social and academic competence of children and communicate these perceptions to each child. Research supporting this theory has shown that academic or social skill deficits (as rated by objective tests or ratings by others) during childhood contribute to future self-critical beliefs (Herman & Ostrander, 2007) and an external locus of control (Ostrander & Herman, 2006), that is, the belief that one is unable to control important life outcomes, including meeting personal standards or other's expectations. Not surprisingly, children with problems known

to interfere with academic and social success (such as attention problems, hyperactivity, or defiant behaviors) are more likely to develop negative self-perceptions as well (Herman & Ostrander, 2007).

Although speculative, a social learning and competency framework highlights potential predictors of adaptive and maladaptive aspects of perfectionism that may develop around the time of school entry. Emotional and behavioral symptoms, poor relations with adults and peers, and academic skill deficits during early childhood may lead to rigid and critical self-beliefs and enduring perceptions that the expectations set for them by others are excessive and unattainable. Likewise, early parenting behaviors such as expectations, discipline practices, monitoring and involvement, rejection, and praise all play a role in shaping children's expectations about themselves, their goals, and their perceptions of control (Ostrander & Herman, 2006).

The Present Study

In the present study, we attempted to identify the types of perfectionism among African American children in sixth grade living in an urban setting and to determine whether any social, academic, or intrapersonal precursors in early childhood would differentiate the resulting classes. We used a social learning and competence framework to select potential 1st-grade risk and protective factors for future perfectionism profiles. We followed a conventional approach to latent profile analysis, first identifying the classes and then validating them with internal and external criteria (e.g., child-, parent-, teacher-, and clinician-reported school and family characteristics and resources). After establishing the validity of the groupings, we then examined early childhood predictors of those groupings.

We used the same sample of children as the McCreary et al. (2004) study to capitalize on their prior work in determining the sample-specific factor structure of the CAPS for these children. Because McCreary et al.'s primary interest was in the factor structure of the perfectionism scale, they did not attempt to classify children into perfectionism groups or types. Though both approaches—latent profile analysis and factor analysis—are complementary, classifying persons (rather than variables) is a very different method and yields distinct answers.

Two aspects of the present study are unique compared with any prior study. First, this is the first study, to our knowledge, to determine the classes/clusters of perfectionism within a sample of African American youth from mostly low-income backgrounds living in an urban context. Second, it is the first study (of any sample characteristics) to examine early childhood predictors of perfectionism classes in a longitudinal design and over such a long period of development (5 years). We focused on first-grade predictors of perfectionism types because school entry represents a critical developmental milestone. Unsuccessful adaptation to the school social field (through academic or social failure) can have lasting consequences for youth psychological adjustment (Kellam & Rebok, 1992) and can set in motion the social learning processes that we expected to contribute to both adaptive and maladaptive aspects of perfectionism. We focused on a single time point (rather than on trajectories) for selecting these potential precursors because of the salience of school entry and because resulting precursors of single time points have more practical implications for screening and early identification of risk.

Method

Participants—Data were drawn from a longitudinal study conducted by the Prevention Intervention Research Center (PIRC) at Johns Hopkins University (JHU). The original study population consisted of a total of 678 children and families, representative of students

entering first grade in nine Baltimore City public elementary schools (Ialongo, Poduska, Werthamer, & Kellam, 2001). The children were recruited for participation in two school-based, preventive, intervention trials targeting early learning and aggression (Ialongo et al., 2001). Three first-grade classrooms in each of the nine elementary schools were randomly assigned to one of the two intervention conditions or a control condition. The interventions were provided over the first-grade year, following a pretest assessment in the early fall. Intervention condition was controlled for in all analyses, described below.

Six hundred sixty-one children participated in the intervention trial in the fall of 1993 and completed one or more assessments through Grade 6. Eighty-nine percent ($n = 585$) of these children were African American, and the majority were from low-income families (over 60% qualified for free or reduced lunch at school). Analyses for this study focused on African American boys ($n = 239$) and girls ($n = 217$) who enrolled in the study in first grade and who completed assessments during the spring of sixth grade ($N = 456$). The mean age of these children at study entry was 6.22 years ($SD = 0.34$); thus, their mean age 5 years later (sixth grade) would have been 11.22 years. African American children who completed sixth-grade assessments did not significantly differ from the African American children who did not on measures of self-reported depression, teacher-rated attention problems, or academic achievement scores collected during fall of first grade ($ps > .05$). As an indicator of low socioeconomic status, 71.7% of the sample for the present study received free lunch or reduced lunches according to parent report in the fall of first grade. This percentage did not significantly differ for those who completed sixth-grade assessments and those who did not ($ps > .05$).

Measures: Class indicators

The CAPS (sixth grade)—Perfectionism was assessed using the CAPS developed by Flett et al. (2000). The CAPS scale assesses beliefs about one's personal standards and their source (self- or other prescribed). Youth rated the extent of their agreement with each item of the 22 items on a 5-point scale ranging from 1 (*false—not at all true of me*) to 5 (*very true of me*). In their factor analysis, McCreary and colleagues (2004) found three factors that best captured the sixth-grade responses of the African American youth in this study. The factors and corresponding Cronbach's alphas were as follows: Self-Oriented Striving (.58), Self-Oriented Critical (.66), and Socially-Prescribed (.85). McCreary et al. reported significant intercorrelations among the three factors for boys (Striving-Critical = .28, Striving-Other = .29, and Critical-Other = .70); intercorrelations for girls were lower (Striving-Critical = .16, Striving-Other = .23, and Critical-Other = .45). On the basis of McCreary et al.'s factor structure, items on each of these dimensions were summed and then total scores converted to z-scores to aid with interpretation. Gender was controlled for in our analyses.

Measures: Class predictors (first and sixth grade)

Assessments included multiple measures of youth depressive and behavioral symptoms, social skills, academic competence, and family processes assessed in 1st grade and 6th grade.

Depressive symptoms—The Baltimore How I Feel-Young Child Version, Child Report (BHIF-YC-C; Ialongo, Kellam, & Poduska, 1999a) is a child self-report scale of depressive and anxious symptoms. Two BHIF-YC-C time points were used for the present analyses: fall of first grade and spring of sixth grade. The internal consistency for the BHIF-YC-C 14-item Depression sub-scale was .70 in first grade, and .75 in third grade. Two-week test-retest reliability coefficients have ranged from .60 in first grade to .70 in middle school (Ialongo et al., 1999a). The 6-month, test-retest correlation coefficient in first grade for the BHIF-YC-C Depression subscale was .31, reasonable stability given the fluctuating nature

of the construct. In terms of concurrent validity, for each standard deviation increase in BHIF-YC-C Depression sub-scale scores in first grade, there was a threefold and statistically significant increase in the likelihood of the child's parent reporting that the child was in need of mental health services for "feeling sad, worried or upset." Data from the first-generation PIRC data sets revealed that child self-reports on the BHIF Depression sub-scale during elementary school predicted to an age 19–20 report of a lifetime suicide attempt ($OR = 2.38$, 95% CIs [1.30, 4.25]) and a diagnosis of a lifetime episode of major depressive disorder (MDD; $OR = 1.84$, 95% CIs [1.16, 2.92]).

MDD symptoms and diagnoses—The Diagnostic Interview Schedule for Children-IV (DISC-IV; Shaffer, Fisher, Lucas, Duncan, & Schwab-Stone, 2000) is a structured clinical interview that yields *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (*DSM-IV*; American Psychiatric Association, 1994) diagnoses, as well as a symptom count for each disorder. Prior studies suggest the DISC has adequate test-retest reliability and validity (see Shaffer et al., 2000). The DISC-IV's MDD module was administered to youth in Grade 6.

Perceived control—Perceived control was assessed using the 18-item Control-Related Beliefs (CRB) scale developed by Weisz and colleagues (Weisz, Southam-Gerow, & McCarty, 2001; Weisz, Southam-Gerow, & Sweeney, 1998; Weisz, Sweeney, Proffitt, & Carr, 1993). The CRB scale assesses beliefs about one's ability to exert control over outcomes in academic, social, and behavioral domains. It has demonstrated relationships with depressive symptoms and low perceived personal competence, another type of control-related belief, and also with perceived noncontingency of outcomes (Weisz et al., 1993). Children respond to each item using a 4-point scale ranging from 1 (*not at all true*) to 4 (*very true*). Weisz et al. (2001) reported an alpha of .88 for total CRB scores; in the present sample, the alpha for total scores was .76.

Self-worth—Self-worth was assessed using the Self-Perception Profile for Adolescents (SPPA) scale developed by Harter (1988). The SPPA assesses self-competence across multiple domains. For these analyses, we focused on student scores on the four-item Self-Worth subscale completed in Grade 6 ($\alpha = .68$). The SPPA's validity is supported by findings linking scores to perceived control, mastery motivation, academic achievement, and depression (Harter, 1988).

School behaviors and symptoms: Teacher Observation of Classroom Adaptation-Revised (TOCA-R; Werthamer-Larsson, Kellam, & Wheeler, 1991)

—Teacher ratings of shyness, oppositional behaviors, attention problems, hyperactivity, peer rejection, and academic skills were obtained in the spring semester of the first and sixth grade using the TOCA-R (Werthamer-Larsson et al., 1991). The TOCA-R was developed and used by the JHU PIRC in the evaluation of the first- and second-generation JHU PIRC trials. The TOCA-R requires teachers to respond to 43 items pertaining to the child's adaptation to classroom task demands over the last 3 weeks. Adaptation is rated by teachers on a 6-point frequency scale ranging from 1 (*almost never*) to 6 (*almost always*). Each subscale is reported as a mean score of all items. Items for the subscales were largely drawn from the *DSM-III*, *DSM-III-R*, and *DSM-IV*.

The Shy subscale includes four items that measure social avoidance or low social participation ("Avoided classmates"; "Stayed to him/herself"). The Oppositional subscale includes four items that measure defiant behaviors at school (e.g., "Disobeyed teachers and other adults"; "Talked back to teachers and other adults"). The Attention Problems (Inattention) subscale has nine items (e.g., "pays attention"; "easily distracted"). The

Hyperactivity scale consists of three items that tapped excessive activity (e.g., “could not sit still,” “fidgeted or squirmed”). The Peer Rejection subscale includes three items (rejected by classmates, has lots of friends, and children seek him out to play); the positively worded items were reverse scored and the mean of all items calculated.

Test–retest correlations over a 4-month interval with different interviewers were .60 or higher for each of these subscales, whereas the coefficient alphas ranged from .80 to .94 for all subscales. The coefficient alphas for the TOCA-R subscales in elementary school were .83 (Shyness), .94 (Oppositional Behavior), .97 (Attention Problems), .80 (Hyperactivity), and .78 (Peer Rejection). The first-year test–retest intraclass reliability coefficients for the Oppositional subscale ranged from .65 to .79 over grades 2–3, 3–4, and 4–5. One-year test–retest reliability ranged from .54 to .56 over Grades 1–5 for the Attention problems subscale, from .33 to .35 for the Shyness subscale, from .35 to .36 for the Peer Rejection subscale, and from .41 to .46 for the Hyperactivity subscale.

Parent report of parenting and family processes: Structured Interview of Parent Management Skills and Practices—Parent Version (SIPMSP; Capaldi & Patterson, 1994)—The SIPMSP was designed to assess the major constructs included in Patterson, DeBaryshe, and Ramsey’s (1989) model of the development of antisocial behavior in children. The items assess (a) parental monitoring (e.g., for first-grade form, “How likely would you be aware your child was in a fight”; sixth-grade form, “How often is child out after dark without an adult present?”); (b) inconsistent discipline (e.g., “How often can child talk you out of punishing him/ her?”); (c) specific praise (e.g., “How often do you praise child? How often do you explain the behavior you are praising?”); (d) parent rejection (e.g., “How difficult is it to be patient with child?”); and (e) fun time (e.g., “How often do you spend time with child in a fun activity?”). Parents are asked to respond to questions regarding their disciplinary practices in open-ended and forced-choice response formats. The monitoring, praise, and fun time scales were reverse scored so that higher scores corresponded with higher levels of those behaviors. In the first-grade analyses (1993–1994 JHU PIRC trials), inept discipline, as assessed by SIPMSP, was found to be associated with increased child aggression as rated by teachers, whereas parent rejection was related to decrements in child psychological well-being in terms of anxious and depressive symptoms. See Capaldi and Patterson (1994) and Chilcoat (1992) for details on the psychometric characteristics of these measures. Parents completed the SIPMSP in the fall of first grade (α s ranged from .58 to .80) and again in the spring of sixth grade (α s ranged from .51 to .77). In Grade 1, parents also completed a family adversity scale in which they reported the amount of financial, relationship conflict, and alcohol problems that their family was experiencing.

Peer relations—The Social Preference Construct is a subscale of the Pupil Nomination Inventory (PNI; Ialongo, Kellam, & Poduska, 1999b). The PNI is a modified version of the Pupil Evaluation Inventory (PEI; Pekarik, Prinz, Leibert, Weintraub, & Neale, 1976). Ten items were selected from the original PEI on the basis of their relevance to three constructs: authority acceptance/ aggressive behavior, social participation/shy behavior, and likability/ rejection. An additional four items were added to tap psychological well-being. The assessment was administered by providing pictures of each of the children in the classroom along with their names. The pictures were taken with a digital camera, uploaded to a personal computer, and then printed on an optical scan sheet for each question/nomination item. The scan sheet contained a bubble for each picture. The items were read aloud to the class, and each child filled in the bubble under the picture of a classmate if that classmate fit the description included in the question/nomination item (e.g., “Which children do you like best?”). Children were able to make unlimited nominations of classmates for each question. The raw scores on each of the above dimensions were converted to standard scores based on

the distribution of nominations within a child's classroom. The social preference construct was determined by calculating the percent mean nomination for likability versus the percent mean nomination for rejection for fall of first grade, with lower scores indicating that the child is less preferred and rejected more by classroom peers.

Test-retest correlations (intraclass correlation coefficients; ICCs) over a 6-month interval ranged from .19 to .66 for the 14-item peer nomination items. The test-retest data for the social preference construct were as follows: "Which children are your best friends?", ICC = .55; "Which children don't you like?", ICC = .52. In terms of concurrent validity, the peer nomination items "Which children are your best friends" and "Which children do you like best" were each correlated in the expected direction with teacher-rated likability/rejection in first grade ("... best friends", $r = -.11$; "... like best", $r = -.18$) for boys. The correlations were modest in magnitude, but statistically significant. For girls, the correlation between "... best friends" and teacher-rated likability/rejection was significant and in the expected direction ($r = -.30$). The correlation between teacher-rated likability/rejection and "... like best" was also significant ($r = -.32$).

Academic competence: The Comprehensive Test of Basic Skills 4 (CTBS, 1990)—The CTBS represents one of the most frequently used standardized achievement batteries in the United States. Subtests on the CTBS cover both verbal (word analysis, visual recognition, vocabulary, comprehension, spelling, and language mechanics and expression) and quantitative topics (computation, concepts, and applications). The CTBS was standardized on a nationally representative sample of 323,000 children from kindergarten through Grade 12. In the present study, the CTBS was administered during the fall of first grade. The CTBS Total Math and Reading scores for each child collected during the fall of first grade were used for all analyses.

Kaufman Test of Educational Achievement-Brief and Comprehensive Forms (K-TEA; Kaufman & Kaufman, 1998)—The K-TEA is an individually administered diagnostic battery that measures reading, mathematics, and spelling skills. The brief form of the K-TEA is designed to provide a global assessment of achievement in each of the latter areas. In the present study, the Reading (reading decoding and comprehension) subtest from the brief form in Grade 6 was used. The K-TEA Math Computation test was not administered in Grade 6 in light of initial concerns over the length of the overall battery. Both forms provide age- and grade-based standard scores ($M = 100$, $SD = 15$), grade equivalents, percentile ranks, normal curve equivalents, and stanines. The K-TEA norms are based on a nationally representative sampling of over 3,000 children from Grades 1 to 12.

Teacher Ratings and School Records—The TOCA-R asks teachers to provide an overall rating of each student's educational performance on a 6-point scale ranging from 1 (*Definitely Failing*) to 6 (*Excellent*). This score was used as an additional measure of academic competence in first grade. Finally, each student's mean GPA was collected across all classes in sixth grade from school records.

Mental health service utilization—Using a variant of the school-based mental health and educational services module of the Service Assessment for Children and Adolescents-Parent Report (Horwitz et al., 2001), school psychologists and/or social workers completed a checklist in Grade 6, which asked them to report the nature, quantity, and types of mental health services provided at school to each student. Need for services was coded as 1 if a child was receiving any mental health services and 0 if they were not.

Statistical methods

Latent profile analysis (LPA)—The present study used an LPA. LPA is an individual-focused latent variable approach. In this study, researchers used LPA to classify children's perfectionism scores into optimal grouping categories (Muthén & Muthén, 2004). Individual-level approaches, such as cluster analysis and LPA, possess advantages over variable-level analyses like regression and factor analysis (Walrath et al., 2004). Individual-focused analyses provide a way of grouping persons into categories on the basis of shared characteristics that separate members of one group from another group.

Although researchers have most commonly used cluster analysis as an individual-focused method, when compared with LPA, it has several shortcomings including the lack of clear statistical cutoffs for determining how well the solution fits the data. As a result, cluster analysis may lead to the creation of somewhat arbitrary groups (Vermunt & Magdison, 2002; Yang, Shaftel, Glasnapp, & Poggio, 2005).

Conversely, LPA allows investigators to identify discrete *latent* variables that best group individuals on the basis of their scores from multiple discrete observed variables (McCutcheon, 1987). Conceptually similar to cluster analysis, the use of LPA in this study represents a multivariate approach, which assumes an underlying latent variable that determines group membership for an individual rather than relying on cutoffs on rating scales.

Additionally, in LPA the model can be reproduced with an independent sample, or in other words, it is model based (Nylund, Muthén, & Asparouhov, 2006). Also, LPA determines class designation via fit statistics and tests of significance. In order to take uncertainty of membership, or error, into account, LPA bases group membership on probabilities. Furthermore, LPA offers more robust scaling differences on observed variables when compared with cluster analysis. Finally, LPA allows for the inclusion of covariates and outcomes in models to determine how well specified groups predict outcomes and other demographic and diagnostic criteria (Walrath et al., 2004).

Determining model fit—In this study, researchers conducted analyses using Mplus 5.2 (Muthén & Muthén, 2004). LPA offers multiple statistical indicators of model fit. Ultimately, the best fitting model is based on statistical considerations as well as relevant theory. In the present study's analyses, more weight was given to the Bayesian information criterion (BIC; Schwartz, 1978) and the sample-size-adjusted BIC (ABIC; Sclove, 1987). Recent simulation studies have shown that the BIC provides the most reliable indicators of true model fit (Nylund et al., 2005). Additionally, a likelihood difference test was used, the Lo-Mendel-Rubin (VLMR; Lo, Mendall, & Rubin, 2001), which assesses the fit between two nested models that differ by one class. In the VLMR, significant *p* values indicate that the solution with one more class provides a better fit compared with the solution containing one less class. Additionally, a recently developed parametric bootstrap likelihood validation test (Mplus 5.2) was used. This bootstrap test helped confirm the selection of the final class solution by testing whether the selected class model was statistically better than the solution with one less class.

Researchers used entropy as another indicator of how well the model classifies individuals. Entropy values closer to or exactly 1 indicate better classification. It is appropriate, however, to always examine entropy in conjunction with other fit indices. In subsequent analyses, therefore, latent class regressions (LCRs) were conducted to examine whether or not demographic, diagnostic, and functioning variables predicted individual membership in classes. LCR is very similar to multinomial logistic regression analysis with the exception

that the criterion in LCR (classes) remain latent, and each case retains a probability of being in each class rather than being forced into a single observed class.

Assumptions and treatment of missing comorbidity data—The main assumption of latent variable models like LPA is local independence. In other words, LPA assumes that observed variables retain independence when considering the latent variable; this is a conceptual assumption that is consistent with the model of perfectionism tested in this study. LPA also assumes normal distribution of observed indicators. In this study, measures of skewness and kurtosis for each of the three indicators all fell below 1.0, suggesting that the data adequately met this assumption. The Mplus software uses a widely accepted way of handling missing data (Muthén & Shedden, 1999; Schafer & Graham, 2002) by using a full information maximum likelihood estimation under the assumption that the data are missing at random (Arbuckle, 1996; Little, 1995). Of the 456 participants in sixth grade, the covariance coverage for all variables ranged from 0.888 to 0.990, well above minimum thresholds for establishing adequate coverage (e.g., .10; Muthén & Muthén, 2004). The mixture missing command was used in all analyses to account for missing data.

Results

Identification and description of the classes

LPA of CAPS scores—We first conducted an LPA to determine the optimal number of classes and the clinical characteristics associated with each class. We included three indicators in these analyses, the three CAPS subscales (Self-Striving, Self-Critical, and Socially Prescribed), and two covariates, gender and intervention status. Descriptive statistics for all study variables are given in Table 1. LPA fit indices for one through five class solutions are summarized in Table 2. The four-class solution emerged as the optimal fit for the data as it had the lowest BIC value, and the VLMR LRT indicated the four-class solution provided a better fit than the three-class model. A bootstrap validation procedure with 20 successful replications confirmed that the four-class solution offered a better fit than the three-class solution.

Characteristics of the classes—Figure 1 summarizes the prevalence and characteristics of the four identified latent classes. Class 1 was best characterized as the Non-Critical (Adaptive) class (27%; $n = 123$) given that this group had higher than average Self-Striving scores and below-average Socially Prescribed and Self-Critical scores. Class 2 was labeled Critical (Maladaptive) and included 41% of the sample ($n = 189$). This class had the highest mean scores on all three CAP subscales. That is, although they had comparable Self-Striving scores as the Adaptive class, they also had above-average Socially Prescribed and Self-Critical scores. Class 3 was labeled Non-Perfectionist (23%; $n = 104$). This class was characterized by below-average scores on all three indicators. Finally, Class 4 was distinguished by its severely low score on Self-Striving (more than 2 *SDs* below the sample mean). Thus, this group was labeled Non-Striving (9%; $n = 40$).

We used gender and intervention status as covariates of class membership to determine whether unique demographics could distinguish the groups. There were no significant gender or intervention status differences among the various classes. We retained these variables as covariates for all subsequent LCRs, however.

Sixth-grade correlates of class membership

Child-, teacher-, clinician-, and parent-reported characteristics in sixth grade as well as academic performance provided independent tests of the discriminant and convergent

validity of the respective classes. We conducted LCRs to determine whether these characteristics distinguished the classes.

Child-reported symptoms—The Critical (Maladaptive) class reported the highest mean internalizing symptoms in sixth grade (see Table 3). Their depression ($M = 0.94$) and anxiety scores ($M = 1.10$) were roughly twice as high as those reported by the Non-Critical (Adaptive) class ($M_s = 0.48$ and 0.52 , respectively). These visual differences in mean scores were statistically significant. That is, the Critical (Maladaptive) class had significantly higher depression and anxiety scores than the Non-Critical (Adaptive) ($Z = 6.21, p = .000; Z = 224.39, p = .000$) and Non-Perfectionist classes ($Z = 2.40, p = .000; Z = 26.30, p = .000$), respectively. Child-reported symptoms also supported the distinctiveness of the Non-Critical (Adaptive) class and the appropriateness of this label. In addition to their favorable differences with the Critical (Maladaptive) class, the Non-Critical (Adaptive) class also had significantly lower depression and anxiety scores compared with the Non-Perfectionist ($Z = 3.30, p = .001; Z = 13.89, p = .000$) and Non-Striving classes ($Z = 3.57, p = .000; Z = 18.41, p = .000$), respectively. Moreover, they reported significantly higher mean self-worth and perceived control scores compared with the Critical (Maladaptive) ($Z = 2.67, p = .008; Z = 5.25, p = .000$), Non-Perfectionist ($Z = 2.47, p = .01; Z = 2.87, p = .004$), and Non-Striving classes ($Z = 3.57, p = .01; Z = 3.85, p = .000$), respectively.

Clinician report—Consistent with the higher levels of distress reported by the Critical (Maladaptive) class, these youth had higher major depressive episode symptom scores upon diagnostic interview and were more likely to be receiving mental services. Their symptom counts were four to 10 times higher than the Non-Critical (Adaptive) and Non-Perfectionist classes, and these differences were marginally ($Z = 1.72, p = .085$) to statistically different ($Z = 2.12, p = .03$), respectively. The Non-Striving group had comparable levels of symptoms as the Critical (Maladaptive) group ($Z = 2.03, p = .04$). Although MDD diagnoses were relatively uncommon for these youth in the sixth grade (1.8% of the sample met MDD criteria), we examined diagnostic rates among the groups. All of the youth with MDD fell into either the Critical (Maladaptive) or Non-Striving classes (the probability of MDD diagnoses was 5% for each class). Because no youth in the Non-Critical (Adaptive) and Non-Perfectionist classes met criteria for MDD, probabilities for these classes and odds ratios among classes could not be computed. However, these differences can be taken as evidence of group differences on this diagnostic variable. Finally, the Non-Critical (Adaptive) class was also less likely to be receiving mental health services in sixth grade compared with the Maladaptive/Critical ($OR = 2.94$, 95% CIs [1.28, 6.80]) and Non-Perfectionist classes ($OR = 2.74$, 95% CIs [1.10, 6.82]).

Teacher-reported behaviors—There were also significant group differences based on teacher reports in sixth grade. Their ratings characterized the Critical (Maladaptive) class as having attention and social problems. The Critical (Maladaptive) class had significantly higher inattention scores compared with the Non-Critical (Adaptive) class ($Z = 3.88, p < .001$) as well as with the Non-Perfectionist ($Z = 3.80, p = .002$) and Non-Striving classes ($Z = 3.20, p = .001$). They also had higher peer rejection scores than the Non-Critical (Adaptive) ($Z = 2.27, p = .023$) and the Non-Perfectionist classes ($Z = 2.57, p = .01$). Their oppositional scores were also higher than the Non-Critical (Adaptive) class ($Z = 2.42, p = .015$). Although the Non-Striving class had the highest mean score on the oppositional scale, their score was only marginally different than the Non-Critical (Adaptive) class ($Z = 1.79, p = .077$)—likely an artifact of the small size of this group (i.e., low power).

Parent-reported family processes—The Non-Critical (Adaptive) class was associated with closer parental supervision in sixth grade. Their parents reported higher mean

monitoring scores compared with the Critical (Maladaptive) ($Z = 2.96, p = .003$), Non-Perfectionist ($Z = 2.11, p = .04$), and Non-Striving classes ($Z = 2.78, p = .005$). Parent reports of their discipline practices or engagement in fun activities did not differ among the groups.

Academics—Academic scores provided mixed findings with regard to the highest functioning class. All groups had mean scores well below the normative mean on the K-TEA Reading Subtest, and these means were not significantly different from one another. The Critical (Maladaptive) group had the highest GPA (averaged across all courses). The difference between the Critical (Maladaptive) group's GPA and the Non-Critical (Adaptive) ($Z = 2.83, p = .005$) and Non-Striving classes was statistically significant ($Z = 2.10, p = .04$).

First-grade predictors of class membership

A central goal of this project was to determine whether any child-, teacher-, peer-, and/or parent-reported characteristics in first grade could predict the sixth-grade perfectionism classes. We conducted LCRs to determine whether these characteristics distinguished the classes. Table 4 provides the mean scores and standard deviations for these various characteristics by class.

Child-reported symptoms—The groups did not differ on any child-reported emotional symptoms in first grade. Mean scores on both the depression and anxiety scores were very similar across classes.

Teacher-reported behaviors—The most consistent and striking differences among classes were observed on teacher ratings of student behaviors in first grade. Teachers rated the Critical (Maladaptive) class as having significantly more behavioral and social problems in first grade compared with the other classes. In particular, the Critical (Maladaptive) class had significantly higher levels of inattention ($Z = 2.45, p = .014$) than the Non-Critical (Adaptive) class and significantly higher hyperactivity scores ($Z = 2.45, p = .014$) than the Non-Perfectionist class. Their hyperactivity scores were also marginally higher than the Non-Critical (Adaptive) class ($Z = 1.89, p = .054$). They were rated as more oppositional than the Non-Perfectionist class ($Z = 2.31, p = .021$), and their shy scores were marginally higher than the Non-Critical (Adaptive) class ($Z = 1.72, p = .085$). Finally, the Critical (Maladaptive) group had higher peer rejection scores than the Non-Perfectionists ($Z = 2.17, p = .03$).

Parent report—Although the classes did not differ on mean-rated parent monitoring, discipline, rejection, or fun time in first grade, the parents of the Non-Striving class reported less praise/ reinforcement in their homes compared with the Adaptive/Critical class ($Z = 2.46, p = .014$). One other key difference emerged on the family adversity items. The Non-Striving class had significantly higher levels of alcohol problems in their family compared with other classes: Non-Critical (Adaptive) ($Z = 2.10, p = .036$), Critical (Maladaptive) ($Z = 2.03, p = .034$), and Non-Perfectionist classes (had no reported risk).

Academics—On a standardized achievement test in first grade (CTBS), all groups fell in the below-average range compared to national norms. Although the Math and Reading scores on the CTBS were also comparable across groups, teachers rated the Non-Critical (Adaptive) group as having significantly higher academic performance than the Critical (Maladaptive) group ($Z = 2.30; p = .022$) in first grade.

Peer report—The Non-Striving class had a significantly higher social preference score compared with the Non-Critical (Adaptive) ($Z = 2.05, p = .04$), Critical (Maladaptive) ($Z =$

3.14, $p = .002$), and Non-Perfectionist classes ($Z = 2.25$, $p = .025$). The other three groups had scores approaching zero on this measure, indicating that they were nearly equally likely to be favorably and unfavorably nominated by peers. The Non-Striving class, however, had a much higher probability of favorable peer nomination.

Discussion

Four classes best described the perfectionism scores of sixth-grade African American students living in an urban context. Three of these classes resembled the profiles most commonly seen in prior perfectionism research (Non-Critical/Adaptive, Critical/Maladaptive, and Non-Perfectionist). The fourth class, Non-Striving, was characterized by extremely low levels of reported personal standards. Sixth-grade correlates mostly confirmed the distinctiveness of these classes. Additionally, several first-grade predictors suggested unique developmental origins of the Critical (Maladaptive) class.

One purpose of this study was to determine whether an adaptive subtype of perfectionism would be found in a sample of high-risk African American children. We found such a class, and some evidence emerged to support the validity of this group. In sixth grade, this class was characterized by the lowest levels of emotional symptoms and the highest levels of adaptive self-perceptions. They also had parents who were more likely to be supervising and monitoring their behavior. The developmental origins of this class were less clear, except that they appeared to be in the normal range (compared with local peer groups) on most of the domains assessed in first grade, and their parents reported higher rates of praise compared with the nonstriving group.

However, our findings have much more to say about the origins of critical (previously labeled maladaptive) perfectionism. The Critical (Maladaptive) class was distinguished from all other groups by many characteristics in first grade that were consistent with Cole and colleagues' (2001) looking glass hypothesis. Notably, they were rated by their teachers as having significantly more problems with attention, hyperactivity, academics, and socialization compared with their peers. By sixth grade, students in this group were more likely to be suffering emotionally as evidenced by their higher self-reported depression and anxiety, their lower levels of self-worth and perceived control, and their higher risk for depressive disorders. Their problems with inattention persisted through sixth grade, although their hyperactivity appears to have abated. They also continued to have a smaller social network by teacher report.

All was not gloomy for this group, however. Surprisingly, despite their social and emotional problems and even their past academic shortcomings, they had the highest GPA of any group in sixth grade. What emerges is a more complex picture of these children and the question about the function of their high standards and self-critical, socially prescribed orientation. By all measures in this study, these children appear to have had limited resources to achieve academic success, and yet compared with their local peer group, they were successful on a common academic metric (GPA). Of course, the question is at what cost. Clearly, self-criticism and not meeting their own personal standards were associated with emotional distress, as shown by their higher rates of emotional symptoms and disorders in sixth grade.

The somewhat contradictory findings of this group (academic success with emotional distress) also calls into the question the well-established naming convention observed in the perfectionism literature. "Maladaptive" may be a misnomer for this group given that they in fact had the highest level of academic functioning of any group. Thus, we adopted a naming structure to account for the descriptive labels of class indicators (Critical) rather than

assigning names on the basis of perceived outcomes. The advantage of indicator (rather than outcome) labeling is that it is consistent with modern perspectives about the dynamic nature of development and resilience. As Tolan (1996) noted over a decade ago, when indices from multiple life domains are used to define resilience (as opposed to focusing on a single outcome, like GPA or graduation), very few, if any, children emerge unscathed from high-risk contexts like the ones experienced by children in this study. Adaptive and maladaptive functioning may be more complex than implied by these overarching outcome labels.

The Non-Striving class was unexpected as it has not been observed in prior studies. This class was empirically justified by conventional statistical criteria (e.g., fit indices and bootstrapping tests) and also by meaningful external criteria that distinguished it from the other classes. Children in this class had self-striving scores two standard deviations below the grand mean. They were also differentiated from the Non-Perfectionist class by their lower levels of overall adjustment in sixth grade (lower achievement and higher risk for depressive disorder). Had we simply assigned youth in the Non-Striving class to the Non-Perfectionist class (as would likely have occurred in a three-class solution), we would have masked this subgroup's risk for deleterious outcomes. Students in this group had elevated risk for clinician-rated depressive symptoms and disorder comparable to the Critical (Maladaptive) group. They had a significantly lower GPA but were more liked by their peers. In first grade, their parents reported the lowest levels of praise and reinforcement. They were further distinguished from all other groups by their family-reported alcohol problems and also by their high peer social preference scores.

Although both the Critical (Maladaptive) and Non-Striving classes had the highest risk for depressive symptoms and disorder in sixth grade, the findings suggest that these groups may have had different risk factors for these problems. Whereas the Critical (Maladaptive) class was distinguished by high levels of self-criticism and by tangible skill deficits in first grade, the Non-Striving class was not self-critical in sixth grade and had average or higher academic and social skills in first grade. Thus, different strategies may be needed to prevent or treat depressive symptoms among children in these two groups.

The early childhood characteristics associated with the Critical (Maladaptive) group is parallel to literature showing that children with early attention, conduct, and/or academic problems are at greater risk for future internalizing distress (Herman & Ostrander, 2007). Identifying children with these characteristics at an early age and then providing them with academic and social skill supports during elementary years could potentially lower their risk for future depressive symptoms. Interventions for these youth after the onset of their depressive symptoms also would likely need to target their critical self-evaluations.

The only potential first-grade risk factor that we identified for the Non-Striving group from our myriad predictors was that their caregivers reported slightly higher levels of alcohol problems within the family. Thus, we can only speculate when and why these children developed their very low standards and ultimately their risk for depression. Perhaps children living in deprived settings, like those in this study, and who experience multiple risks by virtue of their race, socioeconomic status, poor neighborhoods and schools, and their limited prospects for life success, are more prone to develop this pattern of very low interest in self-striving standards. This explanation would be consistent with socioecologic theories of depression for youth from ethnic minorities. In particular, Hammack's (2003) unified model identifies oppressive life experiences (social, economic, educational) associated with ethnic minority status as a defining pathway to depressive symptoms for African American children. In this view, pervasive oppression undermines African American children's sense of competence and efficacy, which leads to hopelessness, despair, and depression. Their extremely low striving and perceived control scores imply that children in the Non-Striving

class were experiencing hopelessness and despair. To confirm these speculations, however, we would need to collect additional data in future studies to determine whether children in this class experienced more or were more impacted by specific oppressive life experiences. If true, children on a path toward nonstriving aspects of perfectionism would likely benefit from family-centered interventions for reducing alcohol problems, counseling and supports for reducing oppressive experiences, and increasing praise and positive reinforcement at home. If anything, these children were most distinguished by their favorable ratings by peers, so adults should not assume that this protective factor alone will help children living in urban contexts avert negative social and emotional outcomes.

An important implication of this study is that the very nature of perfectionism and even its effects may depend on the cultural context. Although three groups are consistently observed across cultural contexts (adaptive, maladaptive, and nonperfectionist), variations of these three groups may be found among different populations and at different periods of development. As Wang and colleagues (2007) reported, a fourth type of perfectionism (a low striving but self-critical class) may be more prominent among individuals from collectivist cultures. Likewise, Dixon and colleagues (2004) found essentially the same fourth type of perfectionism (but labeled it “Mixed Maladaptive”) in a sample of gifted adolescents studying at a midwestern residential school. In our study, we also found a fourth group with extremely low standards/ striving, but unlike the added subtype in these two prior studies, children in this class were not self-critical. It is possible that this class is found only in settings and circumstances in which prospects for life success are grim.

The consequences of perfectionism types may also depend on cultural context. Gilman et al. (2005) found that the strength of perfectionism dimensions in predicting outcomes differed between U.S. and Croatian youth. Moreover, they found that Maladaptive perfectionists in the United States had high satisfaction scores in school and family domains compared with Non-Perfectionists; in the Croatian sample, these groups had similar satisfaction ratings across domains. Our findings were unique in suggesting that elevations on the maladaptive domain of perfectionism (self-critical) may not produce uniformly negative consequences even relative to the adaptive group (noncritical). In this study, the maladaptive group actually was most successful at least by one measure of academic performance (GPA). These findings support prior calls and efforts to determine the universal and culture-specific components of perfectionism and its impact (Mobley et al., 2005).

Unfortunately, we did not test a culture-specific paradigm in this study. Rather, we tested the generalizability of an existing theory or framework (perfectionism) within African American youth, an approach Betancourt and López (1993) labeled “top down.” As such, we lacked measures that could further explain any potential culture-specific phenomenon (such as the oppressive experience hypothesis described above). However, both top-down and bottom-up approaches are needed, and both can advance understanding of processes in various cultural groups (Betancourt & López, 1993).

Related to questions about the definition of perfectionism, future studies are needed to determine how many dimensions are needed to define classes of perfectionism (a different question than how many dimensions emerge from factor analyses). In this study, we followed the convention of prior theory and research indicating that self-reported perfectionism is composed of three factors. But it may be the case that two dimensions could accurately define the various groups. The Striving score clearly distinguished the classes, as shown in Figure 1; however, standardized scores on the Critical and Other-Oriented dimensions were nearly identical across classes. It would be premature to abandon the three dimensions, however, based on a single study of perfectionism domains at one time point.

Very little research has examined the stability of perfectionism over time. As noted earlier, most theories of perfectionism describe it as a stable, traitlike process, which implies it plays a causative role in adolescent and adult dysfunction. Examining the stability or growth of perfectionism dimensions in longitudinal design across many years would advance theory and understanding of the construct. If perfectionism characteristics are stable during adolescence, it would support descriptions of it as a personality characteristic that would be best influenced or altered prior to when it becomes a stable quality. If, however, subsequent studies revealed scores change over time, it would imply that perfectionism fluctuates with life circumstances and is amenable to intervention across the life course.

Another limitation concerns the types of assessments of first grade that were available. As our analyses were based on an archival data set, we were limited by the types of assessments that were collected in this study to address the original study hypotheses. Although we had some parent-reported data, much research suggests that direct observations of parenting behaviors provides much more accurate assessment of home environments. Thus, the lack of findings on some of the parenting domains in first grade (monitoring, discipline, and play) may simply be an artifact of this limitation. A more fine-tuned analysis of family interaction patterns and parenting practices during these early years may yield insights into specific familial characteristics that contribute to the development of perfectionism.

In retrospect, our first-grade measures may have been biased toward describing the origins of self-critical and other-oriented perfectionism to the neglect of the striving dimension. Social and academic skill deficits may explain the development of negative self-perceptions (like self-criticism and low perceptions of control), but other factors may be needed to account for self-striving. As noted in the introduction, social learning theory would suggest that personal standards likely result from adult expectations and modeling of high standards and their selective reinforcement during childhood. Unfortunately, we did not have access to such measures in this archival data set. Future research will need to examine these factors as potential sources of perfectionistic striving.

Similarly, we did not have a measure of parent–child attachment in this study. Many perfectionism researchers have speculated this may be a particularly relevant construct for understanding the emergence of perfectionism (Flett et al., 2002). Although this is a worthwhile question for future research, the lack of an attachment measure in this study is not a limitation per se. Our interest was in identifying predictors of perfectionism profiles at school entry. School entry is an important developmental milestone in itself and carries with it the potential for early intervention if risks are identified. Attachment is typically viewed as most salient during the first few years of life. At school entry, the effects of healthy or maladaptive attachment patterns, if meaningful, would manifest in disrupted behavior or social patterns that could be readily observed in first grade. In other words, attachment was not a central focus in our study, but many of the variables that we studied could serve as developmental proxies for attachment patterns.

One potential limitation worth noting is that we elected not to correct for multiple comparisons in the present article. One challenge with corrections related to LPA analyses is that they differentially penalize small classes; for example, because of power differences, LCRs focused on differentiating classes are more likely to find differences between larger size classes and less likely to find differences with classes with smaller sample sizes. Thus, corrections for multiple comparisons could potentially obscure real differences between small subgroups. A second concern with corrections in this article is that they would bias the results in supporting cross-sectional versus longitudinal differences. Effect sizes over time, in this case over 6 years, are always much smaller than those obtained over shorter time intervals (or at the same time). Yet, even modest predictors can provide meaningful

information about developmental origins when observed at such a young age. Because this was the first examination of predictors of perfectionism over such a long period, we elected to report all comparisons that were significant at the .05 level and to report precise *p* values.

It is noteworthy that even with such liberal criteria for statistical significance that so few early predictors distinguished the perfectionism classes with the exception of the Critical group. There are several potential reasons for the limited number of significant predictors in this study. Perhaps, the precursors to perfectionism may not be evident by first grade. Although plausible, this explanation seems unlikely given the known impact of this developmental transition period on later functioning (Kellam & Rebok, 1992). Alternately, it is possible that perfectionism is a separate developmental process that is better understood through biological/developmental mechanisms (i.e., the emerging personality) rather than through the social developmental processes considered in this study. Still, it would be surprising whether any biological precursors to perfectionism would not correlate with some of the social processes considered here.

A different method for understanding the developmental precursors to perfectionism would be to examine them over time rather than at a single time point; such an approach would assume that growth in these processes would be the key to understanding their impact on later perfectionism. We did not make this assumption in our study. Instead, we took a pragmatic approach based on a well-established theory of developmental transitions (Kellam & Rebok, 1992) and attempted to identify malleable risk factors at a single time point. A trajectory or growth approach to precursors, even if significant, would be difficult to implement in practice.

One limitation of this study is that the class indicators were given by youth report only. Although self-ratings of perfectionism remain the standard used by most studies of the construct, future studies are needed to assess any behaviors associated with perfectionism either as observed by significant others or by direct observations by researchers. Until such studies are conducted, the perfectionism construct will remain largely defined as a cognitive self-construal process rather than, as many authors contend, an observable trait.

However, our measurement strategy for defining predictors was a key strength of this study. We used multiple informants (teachers, parents, self, clinicians) and multiple methods (self-reports, interviews, performance, archival records) at two time points to move beyond prior perfectionism research that has been plagued by method and source bias. Most prior studies have relied on single informants (self-ratings) to define perfectionism and its presumed consequences. When a literature is largely based on a single source or method, it is hard to disentangle overlapping constructs and harder still to clearly identify true relations among the construct of interest and its antecedents and consequences (Burton-Jones, 2009). Observed relations among variables may be simply due to shared method variance rather than to the underlying constructs. As one example, consider that youth who are depressed are likely to answer all questions on all measures in a similar negative tone—the resulting high correlations among variables in single informant studies thus could be due simply to these varying response sets and not to anything inherent in the underlying constructs like perfectionism. The next generation of perfectionism research needs to incorporate multiple methods/sources as done in this study.

Some other notable strengths of the study include the longitudinal design, relatively large sample of an understudied population, the use of an innovative, person-centered procedure called LPA, as well as the validation of the observed classes with independent ratings of family and school environment and resources. Continued investigations of developmental

aspects of perfectionism across cultural contexts will yield new insights into the meaning of this construct as well as its implications for well-being.

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Figure 1.
Characteristics of the classes.

Table 1

Descriptive Statistics for all Study Variables

Variable	First grade		Sixth grade	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Child report				
Depression	0.82	0.34	0.74	0.50
Anxiety	0.85	0.41	0.76	0.55
Self-worth	—	—	14.55	2.35
Perceived control	—	—	2.45	0.38
Teacher report				
Shyness	2.19	1.02	2.55	0.74
Oppositional	1.95	1.00	2.36	1.13
Inattention	2.68	1.36	3.03	1.18
Hyperactivity	2.01	1.14	2.19	1.02
Peer Rejection	2.22	1.07	2.82	1.00
Parent report				
Monitoring	2.83	0.36	3.00	0.66
Poor discipline	1.99	0.73	1.97	0.69
Fun time	2.92	0.53	3.35	0.90
Specific praise	3.15	0.73	—	—
Parent rejection	1.90	0.57	—	—
Marital problems	0.48	0.87	—	—
Alcohol problems	0.07	0.32	—	—
Financial problems	1.02	1.05	—	—
Academics				
CTBS Reading	454.21	66.67	—	—
CTBS Math	438.28	89.60	—	—
Academic Rating	4.35	1.32	—	—
K-TEA Reading	—	—	89.83	12.06
Overall GPA	—	—	2.81	1.03
Clinician report				
MDD symptoms	—	—	0.25	1.09
MDD diagnosis	—	—	0.03	0.16
Need for services	—	—	0.26	0.44
Peer ratings				
Social preference	0.07	0.23	—	—

Note. CTBS = Comprehensive Test of Basic Skills; KTEA = Kaufman Test of Educational Achievement; MDD = major depressive disorder. Dashes indicate that data were not available or collected at that time point.

Table 2

Model Fit Indices for One- to Five-Class Solutions of Child Symptoms

Class	BIC	Adj. BIC	VLMR LRT	Entropy
One-class solution	5086.55	5061.16		
Two-class solution	4950.64	4906.20	.00	.67
Three-class solution	4862.16	4798.69	.00	.74
Four-class solution	4831.92	4749.40	.01	.79
Five-class solution	4837.48	4735.92	.56	.82

Note. Boldface type indicates best fit: The four-class solution had the lowest BIC, and the VLMR LRT and the bootstrap LRT indicated the four-class solution provided a better fit than the three-class solution. All entropy ratings indicate acceptable fit. BIC = Bayesian information criterion; VLMR = Lo-Mendel-Rubin test; LRT = Likelihood Ratio Test.

Table 3

Estimated Mean Scores on Sixth-Grade Child-, Teacher-, Parent-, and Clinician-Reported Variables and Academics by Class

Variable	Class 1 Non-Critical (Adaptive)		Class 2 Critical (Maladaptive)		Class 3 Non-Perfectionist		Class 4 Non-Striving		Significant class comparisons
	M (SD)		M (SD)		M (SD)		M (SD)		
Child report									
Depression	0.48 (0.36)		0.94 (0.52)		0.73 (0.46)		0.81 (0.51)		1 vs. 2, 3, 4 *** 2 vs. 3 *
Anxiety	0.52 (0.40)		1.10 (0.57)		0.68 (0.49)		0.82 (0.59)		All ***
Self-worth	15.62 (0.92)		14.07 (2.64)		14.31 (2.44)		14.03 (2.69)		1 vs. 2, 3, 4 **
Perceived control	2.63 (0.29)		2.33 (0.37)		2.43 (0.38)		2.29 (0.45)		1 vs. 2, 3, 4 ***
Teacher report									
Shyness	2.51 (0.69)		2.63 (0.73)		2.44 (0.69)		2.51 (0.69)		
Oppositional	2.16 (1.00)		2.52 (1.20)		2.31 (1.14)		2.80 (1.14)		1 vs. 2 *
Inattention	2.74 (1.12)		3.29 (1.16)		2.98 (1.13)		2.96 (1.28)		1 vs. 3 ** 4 *** 2 vs. All ***
Hyperactivity	2.15 (0.99)		2.30 (1.03)		2.01 (0.94)		2.29 (1.15)		
Peer Rejection	2.70 (0.95)		3.03 (1.02)		2.59 (0.92)		2.56 (1.26)		2 vs. 1 *, 3 **
Parent report									
Monitoring	3.18 (0.67)		2.91 (0.64)		2.90 (0.64)		2.61 (0.62)		1 vs. 2 ** 3 *, 4 **
Poor discipline	1.92 (0.67)		2.00 (0.74)		1.96 (0.67)		1.96 (0.57)		
Fun time	3.46 (0.81)		3.27 (0.94)		3.44 (0.87)		3.16 (0.97)		
Academics									
K-TEA Reading	92.01 (10.87)		88.10 (12.23)		89.82 (12.20)		90.30 (13.20)		
Overall GPA	2.58 (0.91)		3.02 (1.08)		2.83 (0.97)		2.53 (1.07)		2 vs. 1 ** 4 *
Clinician report									
MDD symptoms	0.10 (0.57)		0.44 (1.42)		0.04 (0.26)		0.43 (1.56)		3 vs. 2, 4 *
MDD diagnosis	0.00 (0.00)		0.05 (0.01)		0.00 (0.00)		0.05 (0.01)		
Need for services	0.13 (0.02)		0.31 (0.05)		0.30 (0.07)		0.26 (0.05)		1 vs. 2, 3 *

Note. Boldface indicates that the score is significantly higher than one or more groups. K-TEA = Kaufman Test of Educational Achievement; MDD = major depressive disorder.

* $p < .05$.

.100' > *p*

.10' < *p*

Table 4

Estimated Mean Scores on First-Grade Child-, Teacher-, Parent-, and Peer-Reported Variables and Academics by Class

Variable	Class 1 Non-Critical Perfectionist			Class 2 Critical Perfectionist			Class 3 Non-Perfectionist			Class 4 Non-Striving Perfectionist			Significant class comparisons
	M (SD)			M (SD)			M (SD)			M (SD)			
Child report													
Depression	0.81 (0.33)			0.83 (0.31)			0.83 (0.37)			0.68 (0.40)			ns
Anxiety	0.83 (0.43)			0.89 (0.39)			0.85 (0.41)			0.72 (0.40)			ns
Teacher report													
Shyness	2.02 (0.94)			2.30 (1.12)			2.20 (0.96)			2.20 (0.81)			ns
Oppositional	1.85 (1.01)			2.09 (1.05)			1.75 (0.82)			2.08 (1.02)			2 vs. 1, 3*** 4 vs. 1***, 3***
Inattention	2.41 (1.26)			2.95 (1.43)			2.63 (1.31)			2.52 (1.21)			1 vs. 2*
Hyperactivity	1.88 (1.02)			2.22 (1.26)			1.79 (0.98)			2.11 (1.14)			2 vs. 3*
Peer Rejection	2.18 (1.08)			2.37 (1.16)			2.04 (0.76)			2.19 (0.86)			2 vs. 3*
Parent report													
Monitoring	2.83 (0.35)			2.82 (0.49)			2.87 (0.26)			2.79 (0.45)			ns
Poor discipline	2.13 (0.51)			1.94 (0.74)			2.08 (0.67)			2.16 (0.79)			ns
Specific praise	3.30 (0.62)			3.20 (0.68)			3.22 (0.80)			2.98 (0.41)			1 vs. 4*
Parent rejection	1.87 (0.44)			1.91 (0.51)			1.85 (0.42)			1.93 (0.43)			ns
Fun time	2.94 (0.45)			2.82 (0.49)			2.92 (0.54)			2.78 (0.48)			ns
Alcohol problems	0.06 (0.25)			0.08 (0.31)			0.00 (0.00)			0.24 (0.69)			4 vs. 1, 2, 3***
Financial problems	1.08 (1.07)			0.93 (1.01)			1.07 (1.11)			1.03 (1.01)			ns
Marital conflict	0.60 (0.94)			0.41 (0.82)			0.44 (0.80)			0.60 (0.96)			ns
Academics													
CTBS Reading	457.31 (60.49)			448.96 (73.06)			454.21 (65.49)			468.49 (56.95)			ns
CTBS Math	438.43 (86.96)			429.79 (92.55)			445.07 (89.04)			456.27 (80.12)			ns
Academic rating	4.59 (1.21)			4.10 (1.41)			4.41 (1.26)			4.53 (1.17)			1 vs. 2*
Peer ratings													
Social preference	0.04 (0.26)			*0.03 (.29)			0.02 (0.30)			0.16 (0.24)			4 vs. 1, 3* 4 vs. 2***

Note. Boldface indicates that the score is significantly higher than one or more groups. CTBS = Comprehensive Test of Basic Skills.

*
 $p < .05$.
**
 $p < .01$.

 $p < .001$.