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Self Concept in Children and Adolescents with ADHD

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Attention deficit hyperactivity disorder (ADHD) is the most common mental health disorder of childhood, affecting approximately 3%-8.7% of children and adolescents in the U.S. (NIMH, 2008). ADHD is a chronic and stigmatizing neurobiological disorder with deficits in the neurotransmitter systems that effect executive functioning. Etiology is primarily genetic, with only 7% of cases related to head trauma, lead poisoning, or low birth weight. Seven genes have been shown to have statistically significant evidence of association with ADHD (the dopamine 4 and 5 receptors, the dopamine transporter gene, dopamine – hydroxylase gene, the serotonin transporter gene, the serotonin 1B receptor, and the synaptosomal associated protein 25 gene) (Faraone, Perlis, Doyle, Smoller, Goralnick, Holmgren & Sklar, 2005). Although ADHD is considered an environmentally-dependent disorder, with symptoms increasing and decreasing in relation to environmental demands and expectations, there is no evidence to suggest that ADHD is caused by poor parenting practices or diet (Barkley, 2006).

People with ADHD have impairments in adaptive functioning which is often manifested in difficult behaviors such as aggression, poor rule-regulated behavior, inability to delay gratification, behavioral disinhibition, learning difficulties, poor impulse control, and low motivation. Children and adolescents with ADHD are at significant risk for numerous emotional and social problems, including academic and occupational underachievement, increased suicide and risk-taking behavior, depression, addiction, interpersonal difficulties, and family disruption (Barkley, 2006). Symptoms of ADHD are pervasive, affecting an

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individual's cognition, behavior, and affect resulting in academic, social, and interpersonal relationship challenges. On a systemic level, ADHD significantly influences multiple social units including the family, neighborhoods, schools, community organizations, workplaces, and the larger society.

Much discussion exists in the research literature about the short- and long-term effects of this behavioral disorder on individual children and their families. Findings from previous studies on the relationship between ADHD and self-concept are mixed, with some studies indicating that self-concept scores are higher in children with ADHD than those without ADHD (Treuting & Hinshaw, 2001), others reporting that scores are lower in children with ADHD, (Barber, Grubbs, & Cottrell, 2005), and still others reporting no difference between children with or without ADHD (Bussing, Zima, & Perwien, 2000). Further research is needed to clarify under what circumstances differences in self-concept scores exist in children with ADHD. Understanding more specifically how self-concept and behavioral problems are related, given the behavioral disruption that accompanies ADHD, is important in order to support a child's social and emotional development. Furthermore, an understanding of such a relationship may be different based on gender, age, and ethnicity. Gaining an increased understanding of these relationships can better guide best practices in the assessment and treatment of children with ADHD disorder. The aim of this study was to examine the relationship between behavior problems and self-concept in children and adolescents with ADHD. In addition, the prediction of self-concept scores by gender, age, ethnicity, and behaviors problems was also examined.

Background

Symptoms of ADHD, pharmacological treatment of ADHD, comorbid disorders, and the developmental course of the disorder are well studied. Nonetheless, a paucity of research exists in other important areas. More specifically, there is a lack of studies examining the differences in how children of different gender, ages, and ethnic groups experience ADHD and how those differences are expressed in relation to self-concept and behavior problems. Few studies are published and research results that are available report conflicting findings.

ADHD and Self-concept

Self-concept is the totality of the individual's cognitive image of him or herself; it is the cognitive component of the self (Houck & Spelman, 1999). It includes a descriptive definition of the self and the ideas, beliefs, and attitudes about the self and one's competencies in various domains. A positive self-concept in children has been associated with improved academic performance, effective use of coping skills, safe and healthy social relationships, and dynamic movement through successive developmental stages (Houck, 1999). Self-esteem is differentiated from self-concept as the *expression* of one's self-concept, and the value and significance one places on one's self – the way one *feels* about who they are. One kind of perceived competence that develops over time may be a sense of self-efficacy (Houck, 1999), which refers to the experience of the self as able to produce specific social interactive outcomes (Connell, 1990). It is similar to "social competency" – the perceived competence to produce social outcomes. Whereas self-concept is an individual's cognitive image of self and one's competencies, self-efficacy is the *experience* of self as able to produce these competencies

Self-concept and self-esteem have been found to be impaired in children with ADHD (Graetz, Sawyer, & Baghurst, 2005; Demaray & Elliot, 2001). Pisecco (2001) found that poor self-concept, specifically in relation to academic competence, contributed directly to the development of disruptive, antisocial behaviors in early adolescence. Others found that children with the inattentive type of ADHD tended to engage in more internalizing behavior

and had lower self-esteem than the hyperactive type who exhibited externalizing behaviors and had a higher self-esteem (Graetz, et al., 2001). Concurrently, this same research found that children with ADHD who were both inattentive and exhibited externalizing behavior had lower self-esteem than children who were solely inattentive or were hyperactive-externalizing (Graetz et al., 2001).

A Canadian study sampled 165 children with ADHD when they were, on average, 10 years old (Klassen, Miller, & Fine, 2004). Although physical health in children with ADHD was deemed comparable to the control group, psychosocial health scores were significantly impacted across all domains. Children with more symptoms of ADHD had worse psychosocial health-related quality of life (HRQL) scores. The negative impact on self-esteem was substantial, with a large effect size of -0.90 . Furthermore, children with two or more co-morbid disorders had poorer HRQL scores across a range of domains compared to those with no or only one comorbid disorder. Oppositional defiant disorder and conduct disorder co-morbidities were correlated with lower HRQL scores, yet co-morbid learning disabilities were not. This suggests that identification and differentiation of co-morbid processes in children with ADHD has clinical significance when determining appropriate treatment (Klassen, Miller, & Fine, 2004). Given the finding that children with ADHD self report the belief that their “real” selves are persistently “bad” (Kendall, Hatton, Beckett, & Leo, 2003) despite treatment with medication, these psychosocial consequences and co-morbidities may well contribute to diminished self-concept. This is supported by a study of 143 students with ADHD, eight to twelve years old, that even though self-esteem scores were normal, independent predictors of lower self-esteem again included having a diagnosed co-morbid internalizing condition and having a high level of functional impairment (Bussing, et al, 2000). Medication use was not predictive although being Caucasian was.

Self-concept and Age

Little research exists specifically comparing the self-concept of children with ADHD at different ages. In this study, interest in age as a factor stems from the implications of the research findings described above. To the extent that ADHD symptoms, co-morbidities, and internalizing behavior problems negatively impact self-esteem and self-concept, a finding for behavior problems to be related to self-concept is anticipated for the current study. There is evidence that there is little change in a child’s level of aggressive/externalizing behavior from kindergarten through eighth grade (Vazsonyi & Keiley, 2007) and for there to be relative stability of behavior problems over time, especially aggression and social withdrawal, from toddlerhood to preschool, and from preschool to grade school and adolescence (Houck & Spegman, 1999). Therefore, a concern is raised about whether such stability of behavior problems may have a negative cumulative effect on self-concept as children age. Thus, in this study of children and adolescents with ADHD, age will be examined in relation to self-concept.

Self-concept and Gender

Much of the current ADHD research on gender differences has limited applicability to females because study samples included mostly males. Females tend to present less frequently in clinics for evaluation of ADHD, and therefore are represented less in clinical research. Clinically referred males could be more numerous due to their greater likelihood of disruptive behaviors. The reasons behind fewer female referrals to clinics may be numerous and complex. Nonetheless, this circumstance has implications for the diagnosis and treatment of ADHD in females (Gershon, 2002).

Gershon’s (2002) meta-analytic review of gender differences in ADHD revealed females to be rated significantly less impaired than males on hyperactivity, inattention, and impulsivity

whereas a more recent study (Rucklidge, 2008) found that ADHD symptoms were not gender specific. However, both the Geshon (2002) meta analysis and the Rucklidge study (2008) found that females with ADHD manifested fewer externalizing problems (Geshon) or aggression and externalizing behavior (Rucklidge), and were found to have more internalizing problems (Geshon), with higher rates of depression and anxiety (Rucklidge) compared to boys with ADHD. Adolescent girls were additionally found to have lower self-efficacy and poorer coping strategies than adolescent boys with ADHD (Rucklidge), and efficacy and coping strategies are thought to be linked to self-concept (Houck, 1999).

These findings—that females had more internalizing problems, depression, and anxiety as well as diminished self-efficacy and coping, and had less aggression and externalizing behavior than males—together support a hypothesis that aggression and externalization may not negatively impact self-concept as much as internalizing behaviors. Yet, not all studies agree with these findings and often show similar rates of coexisting psychiatric disorders and symptoms (Rucklidge). The relationships among gender, behavior problems, and self-concept are not well understood and require further research.

Self-concept, Behavioral Problems, and Ethnicity

One teacher-based study assessed children without ADHD from low SES families, and found that ethnicity, specifically being African American, and the primary caretaker's single marital status were the only variables significantly associated with teachers' assessment of externalizing behavioral problems (Horwitz, Bility, Plichta, Leaf, & Haynes, 1998). This same study found that Hispanic children were more likely to experience internalizing and attention behavioral problems.

In a study of parents of African American children with ADHD, researchers found that African American children were half as likely to receive pharmacotherapy compared to Caucasians (Olaniyan, dos Reis, Garriett, Mychailyszyn, Anist, Rowe, & Cheng, 2007). Interestingly, a Turkish randomized controlled study on methylphenidate treatment of ADHD in children found that the children treated pharmacologically had significantly higher self-esteem than those who were not treated pharmacologically (Ozturk, Sayar, Tuzun, & Kandil, 2000). Furthermore, an American study found that treatment with stimulants and self-esteem were positively correlated in children with ADHD (Frankel, Cantwell, Myatt, & Feinberg, 1999). It may be that medication facilitates behavioral regulation thereby promoting more positive self-esteem. This potential warrants further study. Additionally, these findings suggest that African American children, who are less likely to be treated pharmacologically for their ADHD, may be at risk for lower self-esteem. More research is necessary, however, to further our understanding about how children and adolescents with ADHD from various ethnic groups differentially manifest self-concept.

Purpose

Existing research reveals links between behavior problems and self-concept, as well as behavior problems and ADHD, gender, and ethnicity, respectively. The purpose of this study was to examine the relationship between behavior problems and self-concept in children and adolescents with ADHD. In addition, the relationships among gender, age, and behavior problems with self-concept were explored, and ethnic differences with respect to behavior problems and self-concept were examined.

Method

Using a descriptive correlational design, this study is a secondary analysis of data drawn from the NIH-funded study, *ADHD, Ethnicity, and Family Environment* (Kendall, 2000).

Previous results from the larger study have been published (Kendall, Hatton, Beckett, & Leo, 2003; Kendall, Leo, Perrin, & Hatton, 2005a; Kendall, Leo, Perrin, & Hatton, 2005b; Perry, Hatton, & Kendall, 2006). The original sample included 157 caregivers of at least one child living in the home and diagnosed with ADHD. During the screening process mothers were asked how the diagnosis of ADHD was made and by whom. To be included in this study, the diagnosis had to be made by a health care provider legally allowed to make such a medical diagnosis, such as a physician, clinical psychologist, psychiatric-mental health nurse practitioner, or licensed clinical social worker. Those who reported that their children were diagnosed by their teachers or through their school, or that they were self-diagnosed, were referred to clinicians for a formal diagnostic assessment. If an ADHD diagnosis was given to the child, then subsequently, that family was invited to participate in the study. Our success in using this screening procedure in a previous study (Kendall, 1998; 1998) warranted using self-report of diagnosis in the current study. Furthermore, we interviewed all the children with ADHD and their mothers which further solidified that self-report of ADHD was accurate.

A thrust of the larger parent study was to examine the disability burden from unmet mental health needs that typify ethnic minorities relative to Caucasians. Thus, about a third of the participating families were African American, a third were Hispanic, and a third were Caucasian (see Kendall et al., 2005b for details). Families were recruited through informational flyers posted at schools, clinics, and social service and cultural support agencies in the Portland, Oregon and San Diego areas. Those interested in participating in the study contacted recruitment coordinators to schedule an initial interview with the family in their home, unless the family specified otherwise. Once informed consents were signed and questions answered, questionnaires were administered and private interviews were conducted with individual family members. At the conclusion of the data collection session, the caregivers were provided \$100 in appreciation for the time and effort contributed to the project. The current study focuses on the data collected from self-reports of caregivers regarding child behavior problems and children and adolescents with ADHD self-reporting on their self-concept.

Measures

Demographic Questionnaire—Caregivers were asked to complete a demographic form, consisting of questions related to age, gender, and ethnicity of the ADHD child, family ethnicity, and household income. In addition, we asked caregivers to report the ADHD – diagnostic type of their child (inattentive, hyperactive/impulsive or combined), the number of existing diagnosed psychiatric co-morbidities of their child, and to rate their perception of severity of ADHD symptoms (not a problem, mild, moderate, extremely severe) and their perception of disruptiveness of symptoms (not a problem, mild, moderate and extremely severe). (For further information on the perception of severity of ADHD symptoms perception scale and the perception of disruptiveness of symptoms scale see Kendall, et al, 2005b).

Child Behavior Checklist (CBCL)—The Child Behavior Checklist (CBCL; Achenbach, 1991) was administered to parents of children and adolescents to assess the severity of ADHD symptoms. The behavioral/emotional problems of the target child were assessed through 118 behavioral descriptors that the parents rated as not true of the child (0), somewhat or sometimes true (1), or very true or often true (2). Parental reports were obtained separately from caregivers and fathers; maternal scores were analyzed for this report.

The CBCL data yielded a total problem score in addition to two major dimensions of child behavior, Internalizing and Externalizing. Substantial reliability and validity study has been conducted, and normative data were drawn from the 48 contiguous states for SES, ethnicity, region, and urban-suburban, and urban-suburban-rural residence. In the current study, internal consistency estimates (alpha coefficients) were: Internalizing Problems, $\alpha = .90$ (32 items); Externalizing Problems, $\alpha = .93$ (33 items); and Total Problems $\alpha = .95$ (118 items). Internal consistency estimates of the scale and subscales were fairly high and more than adequate. For this sample, the mean scores and standard deviations for the subscales and total scale were in the clinical range for gender and age categories; see Table 1.

Children's Self-Concept Scale: The Way I Feel about Myself—The Piers-Harris Children's Self-Concept Scale (CSC; Piers, 1986) was completed by children and adolescents with ADHD, aged six to eighteen years, to assess self-concept. The self-report measure was administered to younger children (age 6–8) individually by a research assistant. The CSCS has 80 items that are self-declarative statements, such as “I have many friends.” The children respond to each statement with “yes” (1) or “no” (0); the item scores are summed to yield a total score and factor scores, including physical appearance and attributes, anxiety, intellectual and school status, behavior, happiness and satisfaction, and popularity. Higher scores for total self-concept and factor scores reflect a more positive self-concept. Previous test-retest reliability estimates range from .71-.96 (Piers), reflecting relative stability in children's report on the CSCS. Internal consistency estimates have been more than adequate, ranging from .78-.93 for the total scale. In the current study, the internal consistency estimate (alpha) for the total scale was .92 for the entire sample of children. The total scale score, with a possible range from 0 to 80, was used in the current study. For the total self-concept scores, the sample in this study yielded $M = 56.52$ ($SD = 13.12$), a somewhat lower average score than found for the normative sample ($M = 61.16$, $SD = 11.04$; Piers, 1986).

Data Analysis

Descriptive statistics were used to describe the characteristics of the children's ADHD. The associations between gender and these characteristics and ethnicity and these characteristics were also assessed. The first aim of this study, to examine the relationship between behavior problems and self-concept, was analyzed using correlation analysis and linear regression. It was hypothesized that more behavior problems would be related to lower self-concept. The second aim of the study was to explore the relationship among gender, age, and behavior problems with self-concept. Correlation analyses between gender, age, behavior problems, and self-concept were conducted; subsequently, multiple regression analysis was conducted to assess the prediction of self-concept scores by gender, age, and behavior problems. Finally, MANOVA was carried out with ethnicity serving as the grouping variable and behavior problems and self concept scores serving as the dependent variables.

Results

Sample

A complete data set was available for 145 children and adolescents, who ranged from 6 to 18 years of age, with an average age of nearly 11 years ($M = 10.92$, $SD = 2.99$). Mothers were the primary caregivers of these children and adolescents, although the sample also included seven grandmothers and one great-grandmother, ranging in age 21 to 79 years of age ($M = 38.3$, $SD = 8.7$). Caregivers were educated, with 85% ($n = 122$) having at least a high school education and two thirds (67.2%, $n = 96$) having at least some college. Most caregivers (88%, $n = 128$) reported having family health insurance. Families averaged 4

members in size ($M = 4.01$, $SD = 1.38$). See Table 2 for additional characteristics of the children/adolescents and their families.

Characteristics of ADHD

Descriptive statistics were calculated for the children's type, severity, and disruptiveness of ADHD. In this sample, all of the children (100%; $n = 145$) were identified as having ADHD. The type of ADHD was reported for 143 of the child participants: over two thirds (68.3%, $n = 99$) were reported to have a combination of inattention and hyperactivity, 15% ($n = 22$) had inattention and 15% ($n = 22$) had hyperactivity. Using a subjective rating scale for severity of ADHD symptoms, most of the children were rated by their caregivers as having at least a moderate level of ADHD severity (51.7%, $n = 75$) and nearly one third were rated as having extremely severe ADHD (32.4%, $n = 47$). Caregivers were also asked to rate their perception of the disruptiveness of their children's ADHD behavior. Accordingly, 95% (94.5%, $n = 137$) of the children were viewed as having ADHD that was at least a little disruptive, with two thirds (64.1%, $n = 93$) perceived as having ADHD that was moderately or extremely disruptive.

Over two thirds (69.7%, $n = 101$) of the ADHD participants were currently on medication for their ADHD. Of those, nearly half (48.5%, $n = 49$) found the medication extremely helpful and another third (37.6%, $n = 38$) reported the medication as moderately helpful. A few found the medication to be only a little helpful or not helpful at all (6.9%, $n = 7$, respectively).

The associations between gender and the type, severity, and disruptiveness of ADHD were separately assessed using Chi Square, as were the associations between ethnicity and these variables. Gender was not significantly associated with the type of ADHD, $\chi^2(3, N = 145) = 4.11$, $p = .25$, the severity of the child's ADHD, $\chi^2(3, N = 145) = 1.54$, $p = .67$, or the disruptiveness of the child's ADHD, $\chi^2(3, N = 145) = 4.08$, $p = .25$. Ethnicity also was not significantly associated with the child's ADHD characteristics: type, $\chi^2(9, N = 145) = 2.54$, $p = .98$; severity, $\chi^2(9, N = 145) = 6.38$, $p = .70$; and disruptiveness, $\chi^2(9, N = 145) = 7.28$, $p = .61$.

Behavior Problems and Self-Concept

The first aim of this study, to examine the relationship between behavior problems and self-concept, was analyzed using correlation analysis and linear regression. It was hypothesized that more behavior problems would be related to and predict lower self-concept. According to correlation analysis, the CBCL total problem score yielded a moderate negative correlation with the total score on the Pier Harris Self-Concept Scale ($r = -.20$, $p = .01$). When the major dimensions of the CBCL were correlated with the self-concept total score, analysis revealed a negative relationship between the internalizing problem score and the self-concept total score ($r = -.29$, $p = .001$); more internalizing problems were related to lower self-concept scores. See Table 3.

A linear multiple regression analysis was then performed with the total self-concept score as the dependent variable and internalizing behavior problems and externalizing behavior problems as the independent variables. Refer to Table 3 for the correlations between the variables; Table 4 displays the results of the regression analysis. The overall regression equation was significant, $F(2, 145) = 7.18$, $p = .001$. Altogether, 9% (8% adjusted) of the variability in self-concept scores was predicted by knowing the scores on the two behavior problem variables. Only the internalizing behavior problem score predicted self-concept scores, with higher internalizing problems predicting lower self-concept ($\beta = -.36$, $t = -3.53$, $p < .01$).

Relationships between Gender, Age, Behavior Problems and Self-Concept

The second aim of the study was to explore the relationship between gender, age, and behavior problems with self-concept. Correlation analyses between gender, age, internalizing and externalizing behavior problem scores, and self-concept were conducted. Subsequently, multiple regression analysis was conducted to assess the prediction of self-concept by gender, age, and behavior problem scores.

The correlation analyses (see Table 3) revealed a small but significant correlation between gender and internalizing behavior problems, with females yielding higher scores ($r = .17, p = .02$); gender was not related to externalizing behavior problem scores. Age was not correlated with internalizing, externalizing, or total behavior problem scores. Whereas gender was not related to the self-concept score, age yielded a significant negative relationship with the total self-concept score ($r = -.23, p = .01$), with older children having lower self-concept scores.

Linear multiple regression analysis was performed between the total self-concept score as the dependent variable and gender, age, and internalizing and externalizing behavior problem scores as the independent variables. Table 5 displays the results of the multiple regression analysis. The overall regression equation was significant, $F(4, 145) = 5.96, p = .001$. Altogether, 15% (12% adjusted) of the variability in self-concept scores was predicted by knowing the scores on the four predictor variables. Two independent variables uniquely contributed to the prediction of self-concept scores: age and internalizing behavior problem score. The child's age was predictive of self-concept ($\beta = -.19, t = -2.34, p < .05$) after taking into account child gender, with older children having a diminished self-concept score. The child's CBCL internalizing score was moderately predictive of self-concept ($\beta = -.36, t = -3.61, p < .01$), after taking into account the child's gender and age.

Ethnicity and Child Behavior Problems and Self-concept

Separate ANOVA's were carried out with ethnicity serving as the grouping variable and internalizing behavior problems, externalizing behavior problems, and self-concept scores as the respective dependent variables. There were no significant differences between ethnic groups on CBCL internalizing scores, $F(3, 141) = 1.055, p = .37$, or CBCL externalizing scores, $F(3, 141) = .378, p = .77$. Although ANOVA revealed only a slight trend for differences between ethnic groups on self-concept scores, $F(3, 141) = 2.106, p \leq .10$, the mean scores by ethnic group were of interest: other/mixed ($n = 7$) $m = 60.71$ ($sd = 4.90$); African American ($n = 46$) $m = 59.85$ ($sd = 1.91$); Hispanic American ($n = 45$) $m = 55.44$ ($sd = 1.93$); and Caucasian ($n = 47$) $m = 53.68$ ($sd = 1.89$). The lowest mean scores on self-concept were obtained by Caucasian children.

Discussion

The study explored several factors that potentially contributed to low self-concept in children with ADHD. After analyzing the results for this report, age and internalizing behaviors were found to negatively influence the child's self-concept.

Within the study's sample, 84% of the caregivers identified the child as having at least a moderate severity of ADHD and one third said their child had ADHD of extreme severity. Also, 94.5% said the child's ADHD was at least a little disruptive, with two thirds reporting moderate to severe disruptiveness. These characteristics of ADHD certainly put the subjects of the study at higher risk for negative behavior and correlated low self-concept. This limitation could have affected the following findings of the study.

The older children with ADHD had the lower self-concept scores. This finding suggests that the duration of ADHD perhaps has an adverse cumulative effect on self-concept and intervention for self-concept and/or -esteem may be needed. It may be beneficial to reassess needs of children with ADHD with a focus on self-concept as they mature and enter new developmental stages.

In this study, more internalizing problems were correlated with lower self-concept scores. Past studies have shown that females tend to have more internalizing behaviors and fewer externalizing behaviors than males, and thus may be more susceptible to poor self-concept than males. Because of a tendency toward internalization, females tend to be diagnosed with ADHD later than males. Therefore, there is a need for earlier diagnosis of girls and screening for internalizing problems and diminished self-concept as a part of the diagnostic process and management of ADHD.

However, gender did not predict self-concept. This indicates that it is more important to determine whether a child exhibits internalizing or externalizing behavior problems regardless of the patient's gender in assessing risk for poor self-concept. Given that females were underrepresented in this study (21.4%, $n = 31$), more research is necessary to definitively determine whether there is a correlation between gender and self-concept.

Post hoc exploratory analysis suggested that the self-concept of Caucasians is lower than that of African-Americans and Hispanics. Although only a trend for difference in this regard was found, the trend is supported by the findings of other studies indicating that minorities may have better underlying self-concept and self-esteem (Negy, Shreve, Jensen, & Uddin, 2003). This is especially interesting considering that, while research has shown that stimulant treatment of ADHD leads to higher self-esteem scores, African-Americans particularly are less likely to receive psychopharmacotherapy for their ADHD and experience such benefits (Frankel et al., 1999; Ozturk et al., 2000; Olaniyan et al., 2007). Nonetheless, although our study had an adequate sample size, each ethnic group was relatively small. Moreover, our study included West Coast African Americans and Hispanics, which may not be a good representation of these groups in other areas of the United States.

Furthermore, our study was not longitudinal. Thus, self-concept was not assessed at baseline to determine if the lower mean self-concept score seen in Caucasians was a more severe and precipitous decline by age than for Blacks and Hispanics. In addition, self-concept scores were not measured before the ADHD diagnosis. It is therefore impossible to speculate whether self-concept scores declined from the mere diagnosis of ADHD, from the symptoms of ADHD, or from the experience of the symptoms and their consequences over time. Additional research is needed to identify factors that may precipitate a decline in self-concept over time in children with ADHD and protective cultural factors that may exist in minority communities protecting self-concept.

The link between age and self-concept suggests the importance of assessing and treating ADHD early, given that ADHD seems to have a progressive negative effect on children's self-concept. Further, those children with internalizing behavioral problems are at higher risk for poorer self-concept. Nonetheless, unidentified cultural factors may offer protection from ADHD's assault on a child's self-concept. Thus, identifying the patient's specific needs based on family and social context is an important aspect in the treatment of ADHD.

In conclusion, self-concept generally decreases with age and those with internalizing problems are at greater risk for poor self-concept. Thus, screening and treating low self-concept should be considered, even when medication is resulting in a good response for managing the symptoms of ADHD.

Applications for Clinical Practice

The problems that children with ADHD experience, particularly in relation to peer relationships, school performance, and acceptance, are highly specific domains that influence self-concept and self-esteem. If functioning in these areas is impaired, then self-esteem plummets, and, since self-esteem mediates functioning, as self-concept is diminished, so too is functioning, which further reinforces a negative view of self, continuing a downward spiral. Early intervention is essential if we are to prevent secondary emotional injuries to children and adolescents with ADHD. Clinicians need to keep in mind that ADHD and ADHD symptoms are not always associated with dysfunction. If treated and managed, children with ADHD can grow to be happy and productive members of society. Early intervention in addressing both the ADHD symptoms directly, as well as addressing issues in relation to self-concept—such as identifying personal strengths, sharing success stories, providing peer support—may be key to optimizing outcomes for children and adolescents. Therefore, screening and treating low self-concept is an important aspect of the care needed for these children.

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Table 1

CBCL Means and Standard Deviations

	Sample <i>M (SD)</i>	Norms ^a <i>M (SD)</i>
<i>Internalizing Scale</i>		
Boys 6–11 years (<i>n</i> = 71)	13.42 (9.13)	5.6 (4.7)
Girls 6–11 years (<i>n</i> = 26)	14.77 (9.87)	6.3 (5.5)
Boys 12–18 years (<i>n</i> = 52)	13.92 (9.10)	6.4 (5.5)
Girls 12–18 years (<i>n</i> = 8)	22.38 (10.76)	7.5 (6.6)
<i>Externalizing Scale</i>		
Boys 6–11 years (<i>n</i> = 71)	23.59 (11.04)	9.8 (7.1)
Girls 6–11 years (<i>n</i> = 26)	21.27 (9.48)	8.2 (6.1)
Boys 12–18 years (<i>n</i> = 52)	22.19 (12.84)	8.7 (7.6)
Girls 12–18 years (<i>n</i> = 8)	29.25 (15.36)	7.1 (6.6)
<i>Total Problems Scale</i>		
Boys 6–11 years (<i>n</i> = 71)	61.51 (28.21)	24.3 (15.6)
Girls 6–11 years (<i>n</i> = 26)	61.84 (24.27)	23.1 (15.5)
Boys 12–18 years (<i>n</i> = 52)	57.59 (28.95)	22.5 (17.0)
Girls 12–18 years (<i>n</i> = 8)	82.13 (35.66)	22.0 (17.7)

^a Achenbach, T. M. (1991). *Manual for the child behavior checklist/4–18 and 1991 profile*. Burlington, VT: University of Vermont Department of Psychiatry.

Table 2

Sample Characteristics

Children/Adolescents	<i>n</i>	%
<i>Age</i>		
6–12 years	100	69.0
13–18 years	45	31.0
<i>Gender</i>		
Males	114	78.6
Females	31	21.4
<i>Ethnicity</i>		
African American	46	31.7
Hispanic American	45	31.0
Caucasian	47	32.4
Other or mixed	7	4.8
<i>Family/Caregiver</i>		
<i>Annual Income</i>		
< \$10,000	36	25.2
\$10,000–40,000	66	44.7
> \$40,000	43	30.1
<i>Partner Status</i>		
Single-parent	74	51.0
Partnered	71	49.0

Table 3
Correlations among Child Gender, Age, Behavior Problem (CBCL) Scores and Self-Concept (PSC) Scores (*N* = 145)

Child Variables	1	2	3	4	5	6
Total Self-Concept	1					
Internalizing Behavior Problems	-.29**	1				
Externalizing Behavior Problems	-.11	.61**	1			
Total Behavior Problems	-.20**	.85**	.88**	1		
Gender	.08	.17*	.03	-.13	1	
Age	-.23**	.06	.01	.03	-.13	1

**
p = .01 (1-tailed)
*
p = .05 (1-tailed)

Table 4

Standard Multiple Regression of Behavior Problem Scores on Self-Concept Scores

Predictor Variables	<i>B</i>	β	<i>t</i>
CBCL Internalizing Problems	-.488	-.356	-3.53**
CBCL Externalizing Problems	.118	.108	1.07
Intercept	60.73		
$R^2 = .09$			
Adjusted $R^2 = .08$			
$R = .30^{**}$			

**
 $p \leq .01$

*
 $p \leq .05$

Table 5

Standard Multiple Regression of Child Gender, Age, and Behavior Problem Scores on Self-Concept Scores ($N = 145$)

Predictor Variables	<i>B</i>	β	<i>t</i>
Gender	3.73	.117	1.45
Age	-.816	-.186	-2.34 *
CBCL Internalizing Problems	-.499	-.364	-3.61 **
CBCL Externalizing Problems	.117	.107	1.08
Intercept	68.99		
$R^2 = .15$			
Adjusted $R^2 = .12$			
$R = .38^{**}$			

**
 $p \leq .01$

*
 $p \leq .05$