Examining Parent and Teacher Perceptions of Behaviors Exhibited by Gifted Students Referred for ADHD Diagnosis Using the Conners 3 (An Exploratory Study)
Sarah C. Wood

THE TWICE-EXCEPTIONAL

Examining Parent and Teacher Perceptions of Behaviors Exhibited by Gifted Students Referred for ADHD Diagnosis Using the Conners 3 (An Exploratory Study)

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This exploratory study considered the perceptions of parents and teachers regarding behaviors exhibited by gifted students who may have attention deficit hyperactivity disorder (ADHD) by examining their responses to the Conners 3 behavior rating scale. Statistical analysis revealed average scores in the ratings of parents and teachers in the areas of inattention, hyperactivity/impulsivity, executive functioning, and learning problems. Parent and teacher ratings of these students were not significantly correlated nor were there significant differences between parents and teachers on ratings of students. The need for further examination of the psychometric properties and appropriate use of the Conners 3 in diagnosis of twice-exceptional students, the need for normative data on gifted populations for the Conners 3, and a greater understanding of the differential display of ADHD in the gifted population were suggested.

Keywords: ADHD, behavioral rating scale, Conners 3, executive functioning, gifted, learning problems, parent ratings, teacher ratings, twice exceptional

The American Psychological Association ranks attention deficit hyperactivity disorder (ADHD) as the most prevalent behavioral disorder among school-age children (American Psychiatric Association [APA], 1994). However, a definitive understanding regarding the incidence and etiology of ADHD is still evolving. The estimate of children who suffer from ADHD averages across research at about 2%, although it has been reported to be as great as 16% (S. M. Moon, 2002). Estimates of the prevalence of ADHD have varied and so have criteria for its diagnosis. The Diagnostic and Statistical Manual of Mental Disorders (DSM) published by the American Psychiatric Association has provided differing conceptualizations of ADHD in each of its last three editions (Konold & Glutting, 2008). Currently, the DSM-IV recognizes four subtypes of ADHD—predominantly hyperactive/impulsive, predominantly inattentive, combined, and not otherwise specified (APA, 1994). According to the DSM-IV, diagnosis of ADHD requires an individual to display six or more of the nine symptoms of hyperactivity/impulsivity, inattention, or both. Symptoms must be present before age 7, persist for at least 6 months, occur in more than one setting, and cause a significant impairment in social, academic, or occupational functioning (APA, 1994). The DSM-IV also specifies that alternative causes of ADHD symptoms should first be ruled out. Otherwise, pharmacological treatment and educational interventions intended to rectify issues related to ADHD may be mistakenly applied to situations for which they could be inappropriate and even harmful.

Though the DSM-IV criteria appear to provide a general checklist for diagnosis, no definitive assessment for ADHD yet exists (Lindstrom, Tuckwiller, & Hallahan, 2008). Scientific advances have enabled researchers to begin to identify functional and structural differences in the brains of individuals with ADHD. A few of the most promising...
theories regarding ADHD point to the existence of a chemical imbalance involving the neurotransmitters dopamine and norepinephrine (Kalbfleisch & Banasiak, 2007), smaller and/or slower maturing brain regions including the frontal lobe and cerebellum (Rothenberger & Banaschewski, 2005), and a disregulation of brain-wave activity—often in the frontal regions (Robbins, 2000). Despite the growing sophistication in brain imaging techniques, currently the existence of ADHD is still evaluated primarily on the basis of behavior.

Diagnosis of ADHD on the basis of behavior is difficult for a number of reasons. Young children regularly demonstrate many of the behaviors associated with ADHD (Lindstrom et al., 2008). In addition, several other conditions are often associated with ADHD and need to be excluded before making a diagnosis of ADHD, including learning disabilities, oppositional defiant disorder, conduct disorder, substance abuse and dependence, tic disorders, mood disorders, anxiety disorders, posttraumatic stress disorder, and sleep disorders. In addition, environmental factors such as premature birth, head injury, fetal alcohol syndrome, prenatal exposure to cocaine or nicotine, lead toxicity, and food additives have each been determined to increase the risk of ADHD symptoms (Kaufman, Kalbfleisch, & Castellanos, 2000). The process of identifying behaviors that may be indicative of ADHD followed by attempting to account for all other possible causes of those behaviors is an exacting one rife with potential for error.

**ADHD RATING SCALES AND GIFTED STUDENTS**

Accurate diagnosis of ADHD in the gifted student is likely to be especially challenging. Gifted students have been found to exhibit behavioral traits similar to students with ADHD (Kalbfleisch & Iguchi, 2007; Nelson, Rinn, & Hartnett, 2006). For example, students of high intellectual ability may display both inattentive behaviors when they are not challenged and excitability and intensity when they are interested in a particular topic (Webb et al., 2005). The young gifted child’s inability to sit still, wait for one’s turn, or general intensity and excitability may be misunderstood and misidentified as ADHD by teachers, leading to inappropriate special education referral and possible misdiagnosis (Baum & Olenchak, 2002; Baum, Olenchak, & Owen, 1998; Flint, 2001; Hartnett, Nelson, & Rinn, 2004; Webb et al., 2005).

In the twice-exceptional student, one who is gifted and has an additional exceptionality such as ADHD, ADHD and gifted abilities may disguise one another (Ruban & Reis, 2005a). If these students are identified, it is likely to be in only one exceptionality or to occur as late as college (Kalbfleisch & Iguchi, 2007; Ruban & Reis, 2005a). In the most extreme cases, a child’s gifted abilities and ADHD may mask each other completely, leaving neither one recognized or addressed (S. M. Moon, 2002).

Adding to the challenge of accurate identification and diagnosis of twice-exceptional students is the fact that attention deficit disorder may present different cognitive, social, and emotional issues in the gifted child than it does for the average child with ADHD (Lovecky, 1999). ADHD is commonly associated with executive functions of the brain such as self-regulation, excitement and inhibition of impulses, planning, organizing, and sequential thinking, which are believed to occur in the frontal lobe. However, because gifted children are believed to have a higher functioning prefrontal cortex, it is theorized that breakdowns in attention are more likely to impact their posterior cortex, leading to problems with sensory integration and emotional input (Sousa, 2003). In a study of gifted boys with ADHD, rather than acting as a protective factor, giftedness appeared to heighten social and emotional difficulties related to ADHD (S. M. Moon, Zentall, Grskovic, Hall, & Stormont, 2001). Generally, it has been suggested that the gifted child with ADHD may be cognitively advanced compared to same-aged peers but lagging behind in emotional maturity and self-regulation (Kaufman & Castellanos, 2000; Lovecky, 1999; Neihart, 2003; Silverman, 2003). Alternatively, it has been hypothesized that gifted children with ADHD may rely upon intellectual or creative ways to create stimulation, rather than the kinesthetic or sensory types of stimulation commonly associated with ADHD (Zentall, Moon, Hall, & Grskovic, 2001). The cognitive profile of a gifted child with ADHD may also reflect unique strengths such as the ability to combine dissimilar and unrelated things and an ability to “hyper focus”—concentrating intently for long periods of time on areas of interest (Kalbfleisch & Banasiak, 2007). Thus, manifestation of ADHD in the gifted child is believed to vary from what would constitute typical indicators in average children.

Researchers have suggested that diagnosis of ADHD in gifted students should rely upon comparisons of students made against their gifted peers, rather than against average students with ADHD (Lindstrom et al., 2008; Lovecky, 1999; T. R. Moon, Brighton, Callahan, & Jarvis, 2008; Yewchuck & Lupart, 2000). Because ADHD is characterized by an inability to attend to effortful tasks, it is necessary to consider the degree to which a gifted child may find a task to be challenging. The gifted child will find a different range of tasks difficult and stimulating (Kaufmann & Castellanos, 2000; Lovecky, 1999). The difference between gifted students who suffer from ADHD and their gifted peers who do not is an inability to organize creative ideas into products and to sustain enough interest and motivation to finish a project once the novelty of the original idea has passed (Flint, 2001). Uneven levels of performance may reflect this challenge to sustain effort, and the gifted student struggling with ADHD is likely to display inconsistent performance and underachievement (Lovecky, 1999). Hence, because of the subtle ways in which they differ, it is essential that educators develop an awareness.
of the behavioral characteristics of both giftedness and ADHD (Yewchuck & Lupart, 2000). Additionally, professionals need to recognize how these two exceptionalities may enhance or inhibit one another (Kaufmann & Castellanos, 2002).

It is recommended that assessment of ADHD in gifted students be conducted by professionals who are knowledgeable about both giftedness and ADHD (Flint, 2001; Lovecky, 1999; Webb et al., 2005). However, teachers of the gifted are not often trained in special education, and special education teachers are not trained in recognizing the characteristics of giftedness (Yewchuck & Lupart, 2000). Perhaps a reflection of the difficulties faced by professionals in recognizing twice-exceptional students, research has indicated that those gifted students who are also identified as having ADHD are likely to have higher IQ scores than their gifted peers without ADHD (Zentall et al., 2001), leading to the theory that traditional diagnostic tools are only able to uncover the most highly gifted students who suffer from ADHD (Flint, 2001).

Compounding the challenges of identifying an additional exceptionality in gifted students is the need to operationalize what has been identified as a largely exclusionary, behavioral definition of ADHD. One of the primary tools traditionally employed in the consideration of a diagnosis of ADHD is the standardized behavioral rating scale. Behavior rating scales attempt to measure the extent to which a student displays characteristics of a disorder. However, rating scales do not typically provide a direct measure of the child’s behavior. Rather, measurement occurs through the lens of parent and/or teacher perception (Gianarris, Golden, & Green, 2001). Thus, it is necessary to consider any single rating within the broader context of an overall assessment. Though the multi-informant design of behavior rating scales may offer an additional safeguard toward accurate student assessment (DuPaul, 2003), whether or not this is true for gifted subjects is unknown. Research regarding rating scales has determined that different perspectives allow for the recognition and rating of different types of behaviors (Canivez, Watkins, & Schaefer, 2002; DuPaul, 2003; Konold & Pianta, 2007). Though a teacher is likely to provide a normative perspective in rating a student’s behavior, the inclusion of a more idiographic insight of the parent (Konold, Brewster, & Pianta, 2004) could help to clarify the motivation and impetus behind actions as being indicative of ADHD, giftedness, or other emotional and cognitive issues.

However, the fact that multiple informants often provide differing ratings of the same child also presents a challenge for clinicians (Canivez et al., 2002; Konold & Pianta, 2007; Renk, 2005). The extent and types of variability provided by multiple raters has become a serious methodological consideration in the interpretation and use of behavior ratings scales for the diagnosis of ADHD (Gomez, Burns, Walsh, & de Moura, 2003; Ruffalo & Elliott, 1997). Differences in behavior ratings can be attributed to different perspectives and contexts (source variance), ranges of related behaviors in the construct (trait variance), or error. In the case of gifted students who display ADHD behaviors that differ from the normative range or whose cognitive strengths are misinterpreted by raters, rating scale variance may present additional complexities for interpretation.

**Conners 3 Rating Scales**

Despite the methodological concerns surrounding them, the use of behavioral rating scales in the diagnosis of ADHD is ostensibly necessitated through the DSM-IV’s (APA, 1994) diagnostic criteria that require multiple behavioral symptoms be present, in a number of settings, and over an extended period of time. Thus, a demand for reliable rating scales that quantify the existence of ADHD symptoms has fueled their use and continued development. Touting a large normative base, supported factor structure, and strong psychometric properties, the Conners rating scales have been widely used to diagnose and track ADHD treatment (Collett, Ohan, & Myers, 2003; Conners, 2008). The original Conners Rating Scale (CRS) was published in 1989 and revised as the Conners’ Rating Scales–Revised (CRS-R) in 1997. The Conners 3 (2008), the latest revision of these popular rating scales, was created to provide direct connections to the DSM-IV-TR diagnosis of ADHD, improved measurement of comorbid conditions, and links to Individuals with Disabilities Education Act (IDEA) 2004. In addition, this third edition was updated with normative data. Yet, the Conners 3 rating scales have not explicitly addressed the overlap in behaviors indicative of giftedness and attention deficit disorder. The assessment manual contains a section that details the need to consider “differential and co-morbid diagnoses” (Conners, 2008, p. 19); however, gifted characteristics are not mentioned as a diagnostic concern. Past researchers have expressed an additional caution in using Conners’ rating scales for assessing a gifted child’s attention because no gifted subgroup was included in the normalization sample (Kaufmann & Castellanos, 2000; Kaufmann et al., 2000). This oversight has continued with the recent development and publication of the Conners 3 and suggests a potential threat to validity when assessing gifted students. Considering the widespread use of Conners rating scales in the assessment of ADHD, the need to develop a better understanding of their applicability with a gifted student population is crucial.

The convergence of several important educational issues led to this exploratory study. First, the prevalence of ADHD diagnoses among school-age children considered in conjunction with an evolving DSM-IV definition, which is exclusionary and based largely on behavioral criteria, has raised concerns regarding the precision with which this disorder is diagnosed. In addition, the hypothesis that attention-related difficulties may be manifested differently or masked entirely due to gifted students’ intellectual capacities has heightened
questions regarding accurate identification and diagnosis of such twice-exceptional students. Recognizing these complexities, the purpose of this exploratory project was to explore the issues underlying assessment of gifted students who may have ADHD. Through examination of parent and teacher perceptions, using the Conners 3 rating scales, the ratings of gifted students’ attention-related behaviors will be considered in relation to Conners 3 normative data. In addition, differences in the types of behaviors that parents and teachers observe, the degree to which these informants consider certain behaviors prevalent, and their overall ratings of these students’ attention are examined. Two primary research questions are posed:

1. Do gifted students who are referred as potentially twice exceptional (being both gifted and having ADHD) display any characteristic behavioral differences that emerge clearly through parent and teacher Conners 3 ratings?

2. To what extent do parent and teacher ratings of the attention-related behaviors of these gifted students agree?

**METHOD**

**Participants**

Participants in this exploratory study were recruited from the sample of Project 2EXCEL, a larger research project concerned with the identification of twice-exceptional students carried out in several school systems surrounding a major Midwestern city. One of the suburban school systems participating in Project 2EXCEL provided a sample of students identified as gifted and “not thriving.” Project 2EXCEL defined not thriving as gifted students suspected of being twice exceptional due to having a behavioral or learning issue identified as focus issues, uneven performance and test scores, or emotional difficulties. Evidence of learning challenges in this sample included patterns of performance on standardized aptitude testing that revealed key cognitive strengths and weaknesses related to learning disabilities, executive function, attention disorder, and intellectual disability (profile analysis). Also included in Project 2EXCEL’s sample were students previously determined to be twice exceptional (gifted and identified as ADHD, learning disabled, or emotionally disturbed). Within Project 2EXCEL’s sample at this site, 36 second- and third-grade students were identified as possible research subjects. A total of 36 parents and 11 teachers were invited to complete behavioral checklists regarding these 36 students. Twenty-six parents and 7 teachers submitted completed rating scales, resulting in a total set of comparative data on 21 students.

Although parents and teachers were the actual participants in this exploratory study, inclusion was determined on the basis of student characteristics. At the time of the ratings, all 21 student-subjects were completing second or third grade, a point at which screening for behavioral and educational exceptionalities commonly occurs. Each student had previously been identified as gifted by his or her school system. The gifted identification process within this school system is based on a set of combined criteria, including exceptional performance on standardized aptitude testing (Wechsler Intelligence Scale For Children-Fourth Edition [WISC-IV] or Stanford Binet V and CogAT), a computerized adaptive achievement testing (Measures of Academic Progress [MAP]), and a parent inventory (a locally constructed behavioral checklist). Through application of a prescribed formula, students are identified as eligible for gifted services if their overall score meets a preestablished cutoff. In addition to being identified their school division, each student-subject of this study had also been screened for inclusion in Project 2EXCEL. This screening process identified possible twice-exceptional student participants on the basis of standardized aptitude testing performance (WISC-IV), which revealed key cognitive strengths and weaknesses related to learning disabilities, executive function, attention disorder, intellectual disability, and giftedness (profile analysis), or the existence of subscores that differed by more than one standard deviation on verbal and performance measures (scatter). Hence, the entire sample of students had previously been identified as gifted and as having an additional exceptionality or as not thriving within their current educational programming.

**Demographics**

Brief demographic surveys completed by parents and teachers revealed the following student characteristics. Of the 21 students rated, 76% (n = 16) were male and 24% (n = 5) were female. At the point at which data were collected, the students came from seven different classrooms. Two thirds (n = 14) were completing second grade and the other third (n = 7) were at the end of their third-grade year. Forty-eight percent (n = 10) had an educational placement that could be best described as cluster grouping within the regular classroom, and 52% (n = 11) received gifted services in a self-contained, advanced classroom. Parent responses indicated that 24% (n = 5) of the students had previously been diagnosed as having ADHD and that of these 5 students 60% (n = 3) had taken ADHD medication on a daily basis for at least 3 months prior to completion of the behavioral rating scales. None of the 21 students had formally met criteria for having a learning disability. However, parents and teachers indicated that 29% (n = 6) suffered from “other exceptionalities,” which included “focus issues,” “emotional/depressive,” “uneven abilities,” and “age/developmental” concerns.
Assessments and Measures

Conners 3

The primary instrument used for data collection was the full-length Conners 3rd Edition (Conners 3; Conners, 2008). In addition to symptom scales corresponding to the DSM-IV, the Conners 3 provides scores in the areas of inattention, hyperactivity/impulsivity, learning problems, executive functioning, aggression, and peer/family relations. The Conners 3 is designed to collect and compare findings across multiple raters (Conners). The Conners 3 requires the respondent to rate students on descriptions of behavior using a scale representing the degree to which each statement has been true over the past month, 0 = not true at all (never, seldom), 1 = just a little true (occasionally), 2 = pretty much true (often, quite a bit), and 3 = very much true (very often, very frequently). Items on the Conners 3—Teacher include behaviors that relate to the student’s focus and concentration in the classroom. For example, one item reads, “Gives up easily on difficult tasks.” Another is, “Fidgets or squirms in seat.” Items on the Conners 3—Parent often overlap with those on the teacher form, but the parent form also includes items referring to emotion and attention at home. One example item included on the Parent Rating Scale reads, “Avoids or dislikes things that take a lot of effort and are not fun.”

Conners 3 Normative Sample

The normative sample of the Conners 3 includes ratings from 1,200 parents, 1,200 teachers, and 1,000 youth considered representative of the U.S. population as stratified according to age, gender, and race/ethnicity (Conners, 2008; Gallant, 2008; Gallant et al., 2007). The normative sample was diverse in terms of parental education level and geographic location. Ratings were analyzed using exploratory factor analysis and confirmatory factor analysis, leading to the development of index scores and validity scales and the elimination of poorly loaded items (Conners, 2008).

Interrater Reliability

During development and standardization of the Conners 3, cross-informant correlations were examined in order to determine the degree of consistency between parent and teacher ratings of the same youth using the Conners 3. When considering the total normative sample, a significant degree of consistency was found across mean parent to teacher ratings, \( r = 0.60 \) (ranging from 0.52 to 0.67; Conners, 2008). The manual represents these moderate correlations as being high enough to indicate consistency between different informants’ ratings, though not high enough to suggest redundancy in collecting ratings from multiple informants (Conners, 2008). This moderate range of agreement between raters may also be indicative of the confounding nature of variance provided by multiple informants, a methodological concern regarding ratings scales often discussed in research literature (Canivez et al., 2002; Konold & Pianta, 2007; Renk, 2005). Consideration of the instrument’s consistency between raters is a central focus of this exploratory study.

Validity

Because the main intent of this exploratory study is better to inform the use of behavior rating scales in the identification of twice-exceptional students, indicators of the validity of the Conners 3 when working with a gifted sample are also of importance. Lack of data on the effects of the use of the rating scale with gifted populations, lack of empirical support for structure and scoring of the Inattention Scale, high intercorrelations between various scales, uneven distribution in variance related to specific learning and attention-related traits, and the elimination of items related to perfectionism, psychosomatic disorders, and anxiety during the Conners’ most recent revision each indicate a possible limitation when using this instrument with a gifted student population. These issues and their possible impact upon the identification of twice-exceptional students will be acknowledged and examined through this study’s exploration of Conners 3 parent and teacher ratings of gifted students. In fact, concerns regarding the precision with which the Conners 3 is able to assess and inform regarding gifted students’ attention-related issues make this study’s primary questions especially salient.

Data Collection

All survey and rating scale completion for this exploratory study was carried out in a setting and during a time of the participant’s own choosing. Data were not collected beyond a 1-month cutoff from the end of the school year. All forms were scored using the publisher’s computerized scoring program.

Analysis

Descriptives

In order to consider the first research question—“Do gifted students who are referred as potentially twice exceptional (being both gifted and ADHD) display any characteristic behavioral differences that emerge clearly through parent and teacher Conners 3 ratings?”—descriptive data on parent and teacher ratings of the sample were analyzed for each scale and symptom score. The overall scores, calculated group means, standard deviations, and medians were examined to ascertain each score’s central tendency. In an attempt to reveal the variable distribution of ratings within each group score, frequencies were studied visually as histograms. To capture more precisely the degree of symmetry in the distributions of ratings by parents and teachers, normality was considered by analyzing the skewness and kurtosis of each content and symptom score distribution.
In order to consider the second research question “To what extent do parent and teacher ratings of the attention-related behaviors of these gifted students agree?” correlations of parent and teacher ratings of these students were measured and examined for significance for every symptom and content score. Once combined, rates of agreement for each score were expressed as correlations and examined for statistical significance. In order to control for type 1 error, a conservative estimate was set at \( p < .007 \).

Paired-Samples t-Tests

To answer the second research question, differential ratings of these students’ behaviors by teachers and parents were evaluated using paired-samples \( t \)-test analyses. Differences were evaluated for statistical significance at \( p < .007 \).

RESULTS

Central Tendency

Overall, the calculated group means reveal scores within the average range \( (M = 45.76–57.95) \), indicating typical levels of concern on each of the content and symptom scales rated by these parents and teachers. However, the relatively large values detected as standard deviations in nearly each score category \( (SDs = 4.97–15.79) \) indicate notable variability of individual scores. In consideration of this variability, the median value for each symptom and content score area is also listed in Table 1.

Frequencies

Visual examination of histograms of the distribution of ratings for each content and symptom score revealed the dominant pattern of asymmetrical, positively skewed ratings of these students compared to Conners 3 norms.

Normality

Normality of ratings of individual students across each content and symptom score was studied in an attempt to confirm visual impressions of largely positively skewed results (skewness values 0.42–1.61). The impression that ratings were often tightly grouped around lower than average values, as observed through spikes of low scores on many of the histograms, was further explained through kurtosis values, which were negative in 11 of the 18 ratings. Table 1 includes all skewness and kurtosis values.

Correlations

When corresponding parent and teacher ratings of the seven scores (and two subscores) were analyzed, only ratings making up the DSM-IV ADHD Inattentive Symptom Scale \( (r = 0.57, p = .007) \) were found to be correlated significantly at \( p < .007 \); this correlation was very small. Overall, the average degree of agreement between parent and teacher ratings of this sample of gifted and twice-exceptional students when considering each of the seven scores was only \( r = 0.36 (rs = 0.16–0.57) \)—much lower than the \( r = 0.59 \) or \( 0.60 \) reported during normative development of the Conners 3 (Conners, 2008). Table 2 illustrates the extent to which ratings of parents and teachers are correlated.
TABLE 2  
Correlations of Paired Samples of Parent and Teacher Ratings

<table>
<thead>
<tr>
<th>Paired Sample</th>
<th>Mean</th>
<th>SD</th>
<th>( s_x )</th>
<th>Mean</th>
<th>SD</th>
<th>( s_x )</th>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inattention</td>
<td>56.33</td>
<td>12.9</td>
<td>2.8</td>
<td>52.52</td>
<td>10.6</td>
<td>2.3</td>
<td>21</td>
<td>0.46</td>
<td>.035</td>
</tr>
<tr>
<td>Hyperactive–Impulsive</td>
<td>57.38</td>
<td>12.5</td>
<td>2.7</td>
<td>57.71</td>
<td>15.8</td>
<td>3.4</td>
<td>21</td>
<td>0.19</td>
<td>.418</td>
</tr>
<tr>
<td>Learning problems</td>
<td>45.76</td>
<td>4.97</td>
<td>1.1</td>
<td>46.62</td>
<td>7.4</td>
<td>1.6</td>
<td>21</td>
<td>0.28</td>
<td>.216</td>
</tr>
<tr>
<td>Executive functioning</td>
<td>56.29</td>
<td>13.5</td>
<td>3.0</td>
<td>52.05</td>
<td>10.8</td>
<td>2.4</td>
<td>21</td>
<td>0.40</td>
<td>.070</td>
</tr>
<tr>
<td>DSM-IV ADHD Inattentive</td>
<td>55.95</td>
<td>12.8</td>
<td>2.8</td>
<td>53.48</td>
<td>11.4</td>
<td>2.5</td>
<td>21</td>
<td>0.57</td>
<td>.007</td>
</tr>
<tr>
<td>DSM-IV ADHD Hyperactive–Impulsive</td>
<td>57.05</td>
<td>11.1</td>
<td>2.4</td>
<td>56.81</td>
<td>15.4</td>
<td>3.4</td>
<td>21</td>
<td>0.16</td>
<td>.501</td>
</tr>
<tr>
<td>Conners 3 Global Index</td>
<td>57.95</td>
<td>12.5</td>
<td>2.7</td>
<td>56.38</td>
<td>13.8</td>
<td>3.0</td>
<td>21</td>
<td>0.48</td>
<td>.027</td>
</tr>
<tr>
<td>Global Index—Emotional Liability</td>
<td>54.95</td>
<td>12.1</td>
<td>2.6</td>
<td>53.52</td>
<td>15.0</td>
<td>3.3</td>
<td>21</td>
<td>(0.56)</td>
<td>.008</td>
</tr>
<tr>
<td>Global Index—Restless–Impulsive</td>
<td>57.90</td>
<td>13.6</td>
<td>3.0</td>
<td>55.57</td>
<td>13.7</td>
<td>3.0</td>
<td>21</td>
<td>(0.44)</td>
<td>.045</td>
</tr>
</tbody>
</table>

Note. \( *p < .007. \)

TABLE 3  
Paired Sample \( t \)-Tests of Parent & Teacher Ratings—Paired Differences

<table>
<thead>
<tr>
<th>Paired Sample</th>
<th>Mean Difference</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>( t )</th>
<th>Sig. (Two-Tailed)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inattention</td>
<td>3.81</td>
<td>12.33</td>
<td>2.69</td>
<td>1.42</td>
<td>.17</td>
</tr>
<tr>
<td>Hyperactive–Impulsive</td>
<td>−0.33</td>
<td>18.22</td>
<td>3.98</td>
<td>−0.08</td>
<td>.93</td>
</tr>
<tr>
<td>Learning problems</td>
<td>−0.86</td>
<td>7.69</td>
<td>1.68</td>
<td>−0.51</td>
<td>.62</td>
</tr>
<tr>
<td>Executive functioning</td>
<td>4.24</td>
<td>13.48</td>
<td>2.94</td>
<td>1.44</td>
<td>.17</td>
</tr>
<tr>
<td>DSM-IV ADHD Inattentive</td>
<td>2.48</td>
<td>11.31</td>
<td>2.47</td>
<td>1.00</td>
<td>.33</td>
</tr>
<tr>
<td>DSM-IV ADHD Hyperactive–Impulsive</td>
<td>0.24</td>
<td>17.56</td>
<td>3.83</td>
<td>0.06</td>
<td>.95</td>
</tr>
<tr>
<td>Conners 3 Global Index</td>
<td>1.57</td>
<td>13.42</td>
<td>2.93</td>
<td>0.54</td>
<td>.60</td>
</tr>
<tr>
<td>Global Index—Emotional Liability</td>
<td>1.43</td>
<td>12.96</td>
<td>2.83</td>
<td>(0.51)</td>
<td>.62</td>
</tr>
<tr>
<td>Global Index—Restless–Impulsive</td>
<td>2.33</td>
<td>14.42</td>
<td>3.15</td>
<td>(0.74)</td>
<td>.47</td>
</tr>
</tbody>
</table>

Note. \( *df = 20. \)

Paired Differences

In paired-samples \( t \)-tests no significant differences were found between the parent and teacher ratings making up the seven scores studied for this sample of gifted students. Table 3 illustrates the results of paired-samples \( t \)-tests.

DISCUSSION

Average Group Means on Conners 3—Parent and Teacher Ratings

The calculated group means for parent and teacher ratings of inattention, hyperactive–impulsive behaviors, executive functioning, and learning problems fell within the normal range, indicating typical levels of concern, overall, for this sample of students. However, high standard deviations for group means and nonnormal histograms each suggested some degree of variability among parent and teacher ratings for individual students. Skewness and kurtosis values confirmed that most of these score distributions were positively skewed and nonsymmetrical. Despite their overall nonnormality, for a number of reasons, average group means of content and symptom scores for this particular sample are meaningful.

ADHD Ratings by Teachers Were Not Elevated

A finding of average group means for these gifted students does not support the notion that young gifted children are at risk of being overidentified as having ADHD. In the past, researchers have expressed concern that teachers may mistakenly attribute young gifted children’s intensity, excitability, or inattention to ADHD, resulting in misdiagnosis (Baum & Olenchak, 2002; Baum et al., 1998; Flint, 2001; Hartnett et al., 2004; Nelson et al., 2006; Webb et al., 2005). In this study, ratings by teachers in the areas of inattention and hyperactive–impulsive behaviors indicated typical levels of concern and teacher ratings calculated to correspond with DSM-IV inattentive and DSM-IV ADHD hyperactive–impulsive also did not place these gifted students at an elevated risk of ADHD diagnosis. In fact, normality tests confirmed that teacher ratings of this group of students were positively skewed for all four ratings related to inattention and hyperactive–impulsive behaviors and kurtosis values less than zero imply that distributions of these four areas of teacher ratings were fairly consistent within the group of students.

It should be noted that this sample only included students who had previously been successful enough in an academic environment to be identified as gifted. Further, teachers with training or experience in working with gifted...
students completed a majority of the ratings. It is possible that a larger, more diverse sample of bright students, including those not yet identified as gifted or ADHD and ratings more representative of regular education teachers would be more likely to reflect any tendency for teachers to perceive young gifted students’ behaviors as being indicative of ADHD. However, this sample of students and teachers did not indicate any elevation of such a risk.

In helping to shape practice, a finding of average ADHD ratings may relieve fears that the behaviors of gifted students will be misinterpreted as indicative of ADHD. If further studies validate the finding that teacher ratings of ADHD behaviors in gifted students are average, it would indicate that teacher referrals of ADHD behaviors in bright students, when they do occur, should not be prematurely dismissed and follow-up evaluations should be pursued.

Ratings Regarding Learning Problems Appeared Typical

Average ratings in the dimension of learning problems are also striking given that the small sample was purposefully selected because they were believed to have difficulties impacting learning. Through Project 2EXCEL’s initial screening, this sample of gifted students had been previously identified as not thriving in their current educational programming or as having been diagnosed with ADHD or another special education need. Further, the parents and teachers who rated the students’ behaviors had each provided informed consent to participate in research that they believed to be aimed at evaluating their students’ challenges. Thus, it was expected that informants would be disposed to reporting any difficulties they perceived and that scores regarding learning problems might be elevated. However, ratings of learning problems by teachers and parents were well within the average range—indicating only typical levels of concern. The distribution of ratings of learning problems revealed somewhat positively skewed distributions of parent and teacher perceptions of these students’ learning difficulties. Further, low kurtosis values for the distribution of parent and teacher perceptions of learning problems imply that ratings of individual students were tightly gathered around central scores.

A finding of consistently average Conners 3 ratings on the Learning Problems factor has two possible interpretations. First, average Conners 3 ratings of these students could lend support to the belief that twice-exceptional students are able to disguise learning disabilities or ADHD through reliance upon their gifted abilities (Kalbfleisch & Iguchi, 2007; Ruban & Reis, 2005a; S. M. Moon, 2002). Accepting this premise, a tightly clustered, positively skewed grouping of ratings in the dimension of learning problems suggest that the Conners 3 Learning Problems factor did not accurately capture any difficulties that inhibit learning for these gifted students. This interpretation is of added interest when considering the psychometric make-up of the Conners 3. During its development, Exploratory Factor Analysis (EFA) explained a majority of variance in Conners 3 ratings through the Learning Problems factor (Conners, 2008). If this factor is determined to be less sensitive when parents and teachers rate gifted students, the construct validity of the Conners 3 when used with this population is brought into question.

Alternatively, assuming these ratings to be accurate suggests that Project 2EXCEL’s screening criteria may have overidentified learning problems in this group of gifted students. In fact, a growing body of literature questions two of the diagnostic practices that Project 2EXCEL relied upon—profile analysis and subtest scatter. Researchers have argued that the practice of ipsative analysis, required for considering subtest scatter, and profile analysis lacks validity when diagnosing learning disabilities (Fletcher et al., 2005; Kavale & Forness, 1984; Olenchak & Reis, 2002; Watkins & Kush, 1994). Further, gifted students may typically show a greater degree of variance between verbal and performance scores (Sweetland, Reina, & Tatti, 2006) making them appear to have a greater degree of scatter.

In helping to shape practice, a finding of average teacher and parent ratings of learning problems in this gifted sample, should it be verified through future research, may indicate the need to consider average learning problems ratings in bright students as indicative of learning problems. Considering that gifted students’ exceptional intellectual abilities should also result in lower than average ratings of learning problems, when using the Conners 3, average learning problems ratings should be seriously considered alongside other indicators of student achievement in the diagnosis of learning disorders or disabilities.

Average Executive Functioning (Greater Variance in Parent Ratings)

Given that the entire sample had previously met gifted identification criteria in their school system, it was expected that scores related to executive functioning would be significantly lower (indicating fewer concerns) than the norm. However, Conners 3 ratings reflected typical levels of concern for these students’ executive functioning as indicated by parents and teachers. It is possible that, for these students, the interaction between a learning disability or ADHD and their gifted capabilities resulted in average executive functioning scores—a higher incidence of difficulties than those that would be expected in a typical gifted sample.

It is important to note that the distributions of parent and teacher perceptions of executive functioning are characterized by nonnormality and asymmetry. A positive skew of parent and teacher ratings indicates that though ratings of these gifted students’ executive functioning appear typical, the majority of the students rated were perceived as having fewer concerns than the norm. Further, the variance in the distribution of parent ratings was greater than that in teacher ratings, which were fairly consistent. Researchers
have repeatedly suggested that it is best to compare gifted students who may be twice exceptional against their gifted peers/norms (Lindstrom et al., 2008; Lovecky, 1999; T. R. Moon et al., 2008; Yewchuck & Lupart, 2000). This assertion appears to be an especially salient one when considering that teacher ratings do not differentiate between these students’ executive functioning difficulties distinctly. The more marked variance in parent ratings of this group of students suggests that items making up this scale score may capture differences between students more precisely than their average scores suggest. Considering that these ratings are referenced by Conners 3 norms that do not account for the effect of gifted intellectual abilities, additional research with a sample representative of gifted students without ADHD or learning disorders could provide a more meaningful comparison for this sample’s average executive functioning ratings.

In helping to shape practice, a finding of average executive functioning ratings may indicate the need to consider average scores in gifted students as possibly significant and follow up such ratings up with further evaluation of executive functioning skills. If future research provides further documentation of this finding, it may be especially important to consider ratings by parents of gifted students when evaluating executive functioning as a possible indicator of ADHD because these were more differentiated in this exploratory research with the Conners 3.

**Low Correlations Between Ratings by Parents and Teachers**

Statistical analysis considered the degree to which parent and teacher ratings agreed. Given the DSM-IV’s diagnostic requirement that ADHD symptoms occur in more than one setting (APA, 1994) and researchers’ recognition that source variance often occurs in rating scale use (Canivez et al., 2002; DuPaul, 2003; Konold & Pianta, 2007), this project sought to illuminate any significant trends existing between the scores of its multiple raters. Significant correlations were found between the parent and teacher ratings for just one of these seven scores—DSM-IV Inattentive. This correlation was very small, and all interrater correlations, even the one found to be significant, were smaller than those reported for the norming group of the Conners 3.

**Lack of Significant Differences Between Parent and Teacher Ratings**

Researchers (Canivez et al., 2002; DuPaul, 2003; Konold & Pianta, 2007) have noted the potential of parent and teacher ratings to differ as a result of perspectives and contexts (source variance), ranges of related behaviors in the construct (trait variance), or error. No evidence of source or trait variance was found in this sample due to a lack of significant differences between teacher and parent ratings. This lack of explainable differences could be considered reflective of the confounding nature of assessment of ADHD in gifted students—reiterating the need to develop a gifted subgroup to enhance the Conners 3 normative data.

Though this study was exploratory and its findings will need to be further validated, a finding of low correlations between parent and teacher ratings of gifted students when using the Conners 3 suggests that this measure may not provide the necessary agreement for a definitive diagnosis of ADHD, learning problems, or difficulties with executive functioning in gifted students. A lack of discernible variance in parent and teacher ratings further suggests the need to rely upon alternative, more closely aligned ADHD rating scales until more research is conducted regarding use of the Conners 3 when evaluating gifted students.

**Limitations**

As an exploratory project, the sample was limited to 21 students in one school division, all of whom were previously identified as gifted. The ratings of students who are potentially gifted but whose other handicapping conditions may mask giftedness could not be assessed. Further, one teacher provided one third (7) of the teacher ratings. Due to this project’s limited sample, any generalizations can only be considered to be preliminary.

**Suggestions for Future Research**

Clearly, this study suggests the need to explore the reliability and validity of the Conners 3 for use in identifying ADHD in the gifted population and, if found suitable, to develop a set of gifted norms for the Conners 3 to identify more precisely and evaluate attention, learning, and executive functioning challenges as they are revealed in twice-exceptional students. It is necessary to conduct well-designed research in which comparisons between parent and teacher ratings of gifted students—with and without ADHD—and average students—with and without ADHD—are considered. Such a study will provide useful data toward developing a set of gifted student norms while shedding light on any differences that exist in the ways in which cognitive challenges are expressed by gifted students and perceived by parents and teachers. Until the validity of behavioral rating scales such as the Conners 3, when used with a gifted sample, is sufficiently researched, ratings presumed to offer the assessment of ADHD in twice-exceptional students are likely to continue to confound more than clarify.

**REFERENCES**


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