Gifted or ADHD? The Possibilities of Misdiagnosis

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This research intends to provide empirical support for the possibility of misdiagnosis of giftedness and Attention Deficit Hyperactivity Disorder (ADHD). Forty-four graduate students enrolled in a school counseling program acted as participants. Participants were given one of two forms, both of which provided a hypothetical case study of a young boy with characteristics of both giftedness and ADHD. Participants were then asked for a diagnosis. A chi-square analysis suggests a statistically significant difference whereby the suggestion of the diagnosis of giftedness can lead participants away from a diagnosis of ADHD. Implications for educators and graduate level counseling and psychology programs are provided.

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Although the prevalence rate for Attention Deficit Hyperactivity Disorder (ADHD) is estimated at 3 to 5% in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR; American Psychiatric Association, 2000), indirect evidence often suggests that it is currently diagnosed at a higher rate. For example, ADHD is one of the most common reasons children are referred to mental health professionals (Brown, 2000). The prescription of stimulant medication, which is frequently used to treat ADHD, has significantly increased over the past decade (Ghose, 1999; Olson, Marcus, Weissman, & Jensen, 2002). Further, it is uncommon to hear of the misdiagnosis of ADHD, wherein a child’s behaviors are attributed to ADHD when in actuality they are caused by or related to some other condition or trait (e.g., Perry, 1998). One such trait is superior psychomotor overexcitability.

Children with ADHD and children who are gifted often engage in similar behaviors. According to Webb and Latimer (1993), both groups often possess high activity levels, have difficulty paying attention, act without much forethought, experience problems persisting on certain tasks, and have difficulty following rules. Both groups also often experience significant social difficulties and academic underachievement (Guenther, 1995; Leroux & Levitt-Perlman, 2000).

It is common for diagnosticians to use behavior checklists when investigating the possibility of ADHD. When these checklists are relied upon, rather than used as one piece of evidence among other sources, the possibility of confusing ADHD for giftedness increases (Baum & Olenchak, 2002). Behavior checklists address only the expressions of behavior instead of the causes of behavior. Although the behaviors of children with ADHD and children who are gifted may show some striking similarities, the etiologies of these behaviors differ considerably between groups. The behaviors of children with ADHD are generally thought to be caused by a neurological abnormality in the prefrontal cortex of the brain and/or neurotransmitter dysfunction (Barkley, 1990). ADHD-like behaviors exhibited by children who are gifted likely have far different explanations. Empirical research and theories in the gifted education literature help in understanding these behaviors.

Piechowski (1986), working from Dabrowski’s theory of positive disintegration, argued that children who are gifted may possess “overexcitabilities” in five areas: psychomotor, sensual, intellectual, imaginative, and emotional. Children who are gifted are said to often have intense expressions in these domains and these expressions are thought to indicate advanced development. Some studies have provided partial support for Dabrowski’s theory applied to gifted children (Kitano, 1990; Piechowski & Colangelo, 1984; Tucker & Hafenstein, 1990), but more investigation is required to make conclusions about its validity. Of particular relevance for this discussion are the psychomotor and imaginational overexcitabilities. Psychomotor overexcitability is indicated by behaviors such as rapid speech, impulsive actions, and increased bodily movement, while imaginative overexcitabilities are shown by intense visualization and daydreaming (Piechowski & Colangelo). Clearly, the psychomotor overexcitability of the gifted child could be labeled as “hyperactive” by the observer uninformed of some gifted children’s tendencies. The gifted child expressing imaginative overexcitability through daydreaming may look inattentive, but could be using this uninterrupted time to think creatively (Cramond, 1994).

Further explanation of the ADHD-like behaviors of children who are gifted is provided by research on their typical educational environments. Webb and Latimer (1993) state that children who are gifted may spend a quarter to half of the school day waiting for their classmates to catch up. Such an environment fosters boredom and difficulty focusing attention on skills that were learned long ago. Gallagher and Harradine (1997) interviewed over 800 gifted students who clearly voiced their struggles in the classroom because of the slow pace of instruction, emphasis on facts rather than on thinking skills, and excessive repetition of mastered skills. Describing the typical educational environments of gifted students, Gallagher and Harradine state, “It is as if we, as adults, were taken aside and asked to learn how to read Dick and Jane or to master the multiplication tables” (p. 132). Therefore, it appears that the cause of gifted students’ inattention is often due to boredom resulting from an unchallenging classroom environment. The authors of the DSM-IV-TR considered this possibility by stating, “Inattention in the classroom may also occur when children with high intelligence are placed in academically understimulating environments” (APA, 2000, p. 91).

Finally, Silverman’s theory of asynchronous development is helpful in explaining gifted students’ ADHD-like behaviors.
particularly social problems (Silverman, 1997). Gifted children are at a higher risk than average children in experiencing asynchronous development, whereby a discrepancy exists between intellectual development and physical and/or social development. In addition, the greater the discrepancy between intellectual and social development, the greater likelihood a child will struggle internally and in social relationships. While experiencing asynchronous development then, a gifted child is prone to social problems. Likewise, children with ADHD are prone to social difficulties (Dumas, 1998; Luteijn, et al., 2000). The similarities in social problems among gifted children and children with ADHD are great, and often mistaken.

Because of the disparate explanations of the similar behaviors of children with ADHD and children who are gifted, perhaps it is not surprising that many of these behaviors are only similar at a gross level. There are finer levels of analysis with regard to inattention, heightened activity, and impulse control between the two groups that can help distinguish them from one another. Certainly, at a gross level, children with ADHD and children who are gifted often have attention difficulties. A deeper consideration of this inattention indicates that gifted students' inattention is usually situation specific while inattention in children with ADHD is pervasive across settings (Webb & Latimer, 1993). In fact, the DSM-IV-TR requires that symptoms be present in two or more settings for a diagnosis to be made. It is not uncommon for gifted children to have attention problems at school, but none at home (Lind & Silverman, 1994), whereas children with ADHD often experience these problems in both settings (Barkley, 1990). Clearly, children who are gifted have the ability to maintain attention for long periods of time when they are interested. Lovecky (1994) states that this is also the case for some children with ADHD, but that gifted children have far more preferred activities to engage their attention.

In addition to inattention, both groups also often exhibit heightened activity levels and impulse control problems. Gifted students' high activity is generally focused and directed (Webb & Latimer, 1993), whereas the active behavior of a child with ADHD is usually random and not goal-directed (Leroux & Levitt-Perlman, 2000). Finally, both groups may exhibit impulsive behavior, but children who are gifted tend to answer correctly those questions they have impulsively responded to while children with ADHD tend to guess incorrectly (Lovecky, 1994).

Our argument thus far has been that the two groups often exhibit similar behaviors but that these behaviors have different explanations depending on whether the child has ADHD or is gifted. But what about the possibility that the child is both? The authors of the DSM-IV-TR allow for such a possibility, stating: ...on average, intellectual level, as assessed by individual IQ tests, is several points lower in children with this disorder compared with peers. At the same time, great variability in IQ is evidenced: individuals with Attention-Deficit/Hyperactivity Disorder may show intellectual development in the above-average or gifted range. (APA, 2000, p. 88)

The DSM-IV-TR provides no data on the prevalence rate of this combined condition, but it is likely to be low. Webb (2000) stated, "Some gifted children surely do suffer from ADHD, and thus have a dual diagnosis of gifted and ADHD; but in my opinion, most are not" (p. 5). It is not within the scope of this paper to discuss the comorbidity of ADHD and giftedness, but the reader is referred to Lovecky (1999) for further information.

Although, as is clear from the discussion of above, the diagnosis of ADHD, giftedness, or both can be a difficult one to make, accuracy in diagnosis is paramount. Misdiagnosis has potentially harmful consequences. Guenther (1995) argued that if a child's behaviors are construed as being negative, it is unlikely that the child will be seen as gifted. Therefore, once the ADHD diagnosis is placed on the child, it may be very difficult to perceive his or her behavior any other way but within that framework. Diagnosing children with ADHD when they are truly gifted also leads to inappropriate treatment. It is very common to provide stimulant medication for ADHD. There is some evidence that such medication can impair cognitive performance (Cantwell, 1996). In addition, stimulant medication can have negative side effects, including appetite suppression, insomnia, irritability, anxiety, sadness, and nightmares (Efron, Jarman, & Barker, 1997). It seems unconscionable for gifted children to unnecessarily experience such negative effects from stimulant medication. Gifted children's risk-taking behaviors and high energy levels are behaviors that could be perceived as problematic in a traditional school setting, but they are the very attributes that will allow them to be successful later in life (Guenther, 1995). As Baum and Olenchak (2002) stated, "There is little doubt that in at least some cases, students of high ability are being 'cured of their giftedness' in an exchange for controlled, compliant behavior" (p. 79). The consequence of misdiagnosis to the well being of the individual child is obvious, but we must also consider the broader consequence of potential loss of human capital. On the other hand, missing the diagnosis of ADHD in gifted children who truly experience the disorder is also deleterious. ADHD is a serious medical condition that can incapacitate a person from functioning at his or her fullest potential. Effective treatment options exist, but a correct diagnosis must first be given.

A heavy burden is placed on those who are responsible for identifying and distinguishing between students who are gifted and students who have ADHD. Often individuals in the counseling and psychological services offices of schools are relied on to identify these children. The gifted literature suggests that there is currently little training for school personnel that would allow them to make competent decisions regarding the distinction between ADHD and giftedness (Silverman, 1998). In addition, it appears that little or no empirical research has been conducted to assess the possibilities for misdiagnosis between giftedness and ADHD. Therefore, the purpose of this pilot study is to test the possibility for misdiagnosis empirically and determine whether future school counselors receive training that would enable them to tell the difference between ADHD and giftedness. In other words, can a presentation of the same constellation of behavioral characteristics result in different diagnoses of either ADHD or giftedness, depending on the bias of the individual making the diagnosis?

The following method owes much to the classic psychiatric "suggestion" research of the late 1960s and early 1970s. For example, Temerlin (1968) looked directly at suggestion effects in psychiatric diagnosis by exposing various mental health professionals to an audio recording of a potentially mentally unhealthy man (played by an actor). Before listening to the tape, the subjects were allowed to overhear the passing comments of a professional person of high prestige. In one condition, the passing comment was, "the patient is a perfectly healthy man," and in the other condition, "he looked neurotic but actually was quite psychotic." When the diagnosis of healthy was suggested to the subjects, they unanimously
agreed that the man showed no signs of disturbance. When a
disorder was suggested, 92% of the subjects diagnosed some
dysfunction, 60% of which considered him psychotic. In a simi-
lar vein, the concept of introducing a biased suggestion to
affect outcome behavior (i.e., the possibility of giftedness as a
diagnostic option) is a key component of this study.

Method

Participants

Forty-four first year graduate students enrolled in a school
counseling program in a large, public, Midwestern university
volunteered to participate in this study. Demographic informa-
tion is presented in Table 1. Students were chosen out of con-
vienience, as the professors of the school counseling program
allowed the researchers to collect data from their students. Of
the 44 students who volunteered to participate, subjects were
chosen at random to be placed in either the experimental group
or the control group. Twenty-two participants were placed in
each group.

Materials

Two vignettes were used in this study. Form A, the form
without diagnostic alternatives that allowed for free recall, and
Form B, the form with diagnostic alternatives that required stu-
dents to choose a diagnosis among choices supplied, contained
identical passages that described characteristics of a hypotheti-
cal seven-year-old boy. The researchers constructed the pas-
sage based on Webb and Latimer's (1993) research regarding
the similarity of symptoms related to ADHD and giftedness.
The similar symptoms were used to describe the child in a
vignette format. The passage read as follows:

Sam is 7 years old and a second grader. He has been
referred to you for assessment by his teacher. He has a
high activity level and appears more restless than
other children his age. Sam has difficulty restraining
his desire to talk in the classroom and interrupts his
teacher often. The teacher has repeatedly tried to
change Sam's behavior, but Sam questions authority
and has a difficult time accepting rules and regula-
tions. Sam's homework is frequently messy because
he appears careless or inattentive to details. Sam has a
poor attention span, especially when he is bored.
Sam's home environment appears to be normal.

Both forms asked the participants to read the passage
and answer the questions following the passage. Form A asked,
"If this child were referred to you by his teacher for
evaluation, what do you think the underlying explanation for his
behavior would be?" Form B asked, "If this child were referred
to you by his teacher for evaluation, do you think the cause of
his behavior could be attributed to Attention Deficit Hyperac-
tivity Disorder (ADHD) or due to his being gifted and talented
(G/T)?" Both forms also asked for demographic information.

Procedure

Participants volunteered to fill out the questionnaire while
in an introductory graduate level course in school counseling.
Participants were assured that participation was voluntary, that
all results were anonymous, and that their participation would
have no affect on their standing in the class. The researcher
randomly gave half of the participants Form A and the other
half Form B.

Results

A chi-square analysis was used to determine the difference
in choice of diagnosis based on whether the participant was
answering a form with diagnostic alternatives (Form B) or a
form without diagnostic alternatives (Form A). The independent
variable was the type of form and the dependent variable was
the diagnosis. The diagnoses based on the form used can be
seen in Table 2. A diagnosis of "gifted" indicates the participant
attributed the behaviors solely to giftedness; a diagnosis of
"ADHD" indicates the participant attributed the behaviors solely
to ADHD, a diagnosis of "both" indicates the participant attrib-
uted the behaviors to both giftedness and ADHD, and a diagno-
sis of "neither/other" indicates the participant attributed the
behaviors to neither giftedness or ADHD, but to another diagno-
sis such as a learning disability or a mental disorder.

The results indicate a significant main effect between the
type of form and the diagnosis made by the participant. A chi-
square analysis shows that the difference between Form A and
Form B is largely due to participants diagnosing giftedness,
neither/other, or both on Form B more often than on Form A,
indicating that the suggestion of the giftedness category can
influence the diagnosis of behaviors typical of both giftedness
and ADHD ($x^2 (3, 44) = 13.10, p = .004$). To further illustrate,
46% of the participants given Form B suggested a diagnosis of
giftedness (14%) or both giftedness and ADHD (32%). Of the
participants given Form A, 0% suggested a diagnosis of gifted-
ness or both giftedness and ADHD. Because Cramer's V is

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Table 1

Table 2
future research should address the shortcomings of this study so that more solid conclusions can be drawn. It would be interesting to sample participants from a representative pool of graduate programs across the country and to use students who are both in the beginning and at the end of their training. Additionally, it would be interesting to use a sample of experienced professionals such as school counselors, school psychologists, and teachers. Lastly, it would be relevant to not only study the diagnosis that these individuals make, but also their reasoning in coming to their decisions.

In summary, this study indicates that counselors in training may not receive information concerning the similarities between children with ADHD and gifted children. If this issue is not addressed at some point in their training, gifted children may be inappropriately referred for an ADHD diagnosis. Despite the presence of literature suggesting the possibility of misdiagnosis, it appears that this is the first study to address this issue empirically. Due to the harmful impact that the mis-diagnosis of ADHD can have on gifted children, future research should continue to address whether this is a real phenomenon, and if so, what needs to be done to remedy this potential problem.

REFERENCES

Guthrie, A. (1999). What educators and parents need to know about...ADHD, creativity, and gifted students. Storrs, CT: National Research Center on the Gifted and Talented.

The order of authorship does not reflect relative contribution to this paper. Authorship is shared equally, and the order of authorship is listed alphabetically.