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Appalachian Teachers' referral for ADHD in Contrast to Giftedness in Selected Vignettes

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APPALACHIAN TEACHERS' REFERRAL FOR ADHD IN CONTRAST TO GIFTEDNESS
IN SELECTED VIGNETTES

A thesis submitted to
the Graduate College of
Marshall University
In partial fulfillment of
The requirements for the degree of
Education Specialist
In
School Psychology
by
Alexandria Rose Mejia

Approved by
Dr. Sandra Stroebel, Committee Chairperson
Dr. R. Lanai Jennings, Committee Member
Dr. Conrae Lucas-Adkins, Committee Member

Marshall University
May 2016

APPROVAL OF THESIS

We, the faculty supervising the work of Alexandria Rose Mejia, affirm that the thesis, Appalachian Teachers' Referral for ADHD in Contrast to Giftedness in Selected Vignettes, meets the high academic standards for original scholarship and creative work established by the School Psychology Program and the Graduate College of Marshall University. This work also conforms to the editorial standards of our discipline and the Graduate College of Marshall University. With our signatures, we approve the manuscript for publication.



Dr. Sandra Stroebel, Department of School Psychology Committee Chairperson

5/5/16

Date



Dr. R. Lanai Jennings, Department of School Psychology Committee Member

5/5/2016

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5-2-16

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Abstract

ADHD is the most widely diagnosed behavior disorder in children however, the non-standardized nature of an ADHD evaluation can lead to misdiagnosis. Teachers often initiate referrals, though symptoms associated with ADHD can also be observed in gifted students. Appalachia has reported rates of ADHD that are much higher than the national average. It is therefore important that the factors that influence referral are better understood. This study hypothesized that priming to giftedness would reduce the likelihood that a teacher would refer for an ADHD evaluation in ambiguous vignettes and that teachers primed to consider giftedness will rate characteristics of ADHD as more ambiguous than non-primed teachers. Data from 65 participants were collected via SurveyMonkey questionnaire. No significant difference was found to support the hypotheses that Appalachian teachers rated any differently than non-Appalachian teachers and priming for giftedness had no effect on teacher ratings or referral rate.

CHAPTER 1

LITERATURE REVIEW

Children suspected of having Attention Deficit Hyperactivity Disorder (ADHD) are one of the most frequently referred groups of children to mental health providers (Centers for Disease Control and Prevention, 2010; Hartnett, Nelson & Rinn, 2003). ADHD is concurrently the most widely diagnosed behavior disorder in children (Elder, 2010). Two symptoms commonly associated with ADHD by the layperson are inattentive behaviors and physical restlessness. These symptoms, with others, can have many alternative causes ranging from side effects from medication to foods ingested earlier in the day, as well as the result of a neurobiological disorder like ADHD. For example, causes of inattention can range from environmental distractions (other students, sitting near a window or door, difficulties seeing the board, etc.), lack of sleep or problems at home, cognitive deficits, or in some cases, cognitive giftedness (Hartnett, Nelson, Rinn, 2003). Among biological causes, the possibilities range from neurological damage, biochemical imbalances, lead poisoning, and prenatal exposure to various chemicals or low birth weight (Havey, Olson, McCormick & Cates, 2005). Physical restlessness can also have sources ranging from an undiagnosed tic disorder (Flint, 2001) to having consumed too much sugar and caffeine. Appropriate identification of these causes can be brought to light by thoroughly investigating environmental, biological, and antecedent factors contributing to a student's subsequent behavior. However, this process is often lengthy, time consuming, and rife with potential errors and misattributions (Wood, 2012). The current study plans to investigate the likelihood that a referral to ADHD will be made if the teacher resides in Appalachia or if the teacher is informed of alternative causes to behaviors characteristic of ADHD.

Research supports the possibility for misdiagnosis of ADHD (Hartnett, Nelson & Rinn, 2003; Rinn & Nelson, 2009). Also identified is the presence of much confusion about the actual diagnosis of ADHD (Havey, et al., 2005; Nowacek, & Mamlin, 2007, Rinn & Nelson, 2009). Currently, the Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5) recognizes three categorical presentations of ADHD: ADHD - Predominately Inattentive, ADHD - Predominately Hyperactive/Impulsive, and ADHD - Combined Presentation (American Psychiatric Association, 2013). The DSM-5 requires that six or more symptoms must be present for at least six months and have a significant negative impact on social, academic, or occupational activities (American Psychiatric Association, 2013). Inattentive symptoms as described by the DSM-5 are:

- a. Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or during other activities;
- b. Often has difficulty sustaining attention in tasks or play activities.
- c. Often does not seem to listen when spoken to directly.
- d. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace.
- e. Often has difficulty organizing tasks and activities.
- f. Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort;
- g. Often loses things necessary for tasks or activities;
- h. Is often easily distracted by extraneous stimuli;
- i. Is often forgetful in daily activities. (American Psychiatric Association, 2013 p. 59-60)

Hyperactivity and Impulsivity are described by the DSM-5 as:

- a. Often fidgets with or taps hands or feet or squirms in seat;
- b. Often leaves seat in situations when remaining seated is expected;
- c. Often runs about or climbs in situations where it is inappropriate;
- d. Often unable to play or engage in leisure activities quietly;
- e.

Is often “on the go,” acting as if “driven by a motor”; f. Often talks excessively; g. Often blurts out an answer before a question has been completed; h. Often has difficulty waiting his or her turn; i. Often interrupts or intrudes on others. (American Psychiatric Association, 2013 p. 59-60)

As mentioned, at least six symptoms (five for persons 17 or older) must be present, cause impairment in at least two different settings, and significantly interfere with functioning (American Psychiatric Association, 2013). These symptoms must be present before the age of 12 though retroactive diagnoses can occur with adults presenting with symptoms later in life (American Psychiatric Association, 2013). It is important to note that symptoms present in only one setting is an exclusionary factor, meaning that if a child presents these symptoms only at home, or only at school, the behaviors cannot be classified as ADHD. However, it is not uncommon for pediatricians to assign a diagnosis of ADHD based only on parent self-report, often relying on the parent’s perception of classroom behavior. If a teacher has a distorted perception of ADHD symptomology and urges a parent into referring for an ADHD evaluation, there is a chance that the diagnosing doctor will receive only distorted reports of classroom behavior, thereby circumventing the two-environment exclusionary factor.

Because ADHD is a neurobiological disorder, the prevalence of diagnosis should not have wide variations; however, studies have shown that this is untrue. Misdiagnosis of ADHD is especially alarming since the national average of children diagnosed with ADHD, as reported by parents, has steadily risen from 7.8% in 2003, to 9.5% in 2007, to the most current measured level of 11.0% in 2011 (Visser et al., 2014). In 2003, 5% to 11.1% of parents reported that their child had been diagnosed with ADHD at some point, with wide variations between the fifty states (Visser et al., 2014). In 2011, this trend continued with 5.6% to 18.7% of parents reporting

their children as diagnosed with ADHD (Visser et al., 2014). Not only is ADHD being reported more often, it is more often discussed in the media and in popular magazines. This poses a problem since evidence suggests the availability of trained professionals licensed to diagnose ADHD is dwindling when the rates of “diagnosed” ADHD are rising (Fabiano, et al. 2013). Some studies have also noted the rates of diagnosed ADHD rise with classroom size while differences between public and private school have also been documented (Havey et al., 2005). Teachers have also been found to look at different aspects of ADHD than parents, likely reflecting a difference in environment (McLoughlin, Rijdsdijk, Asherson, & Kuntsi, 2011).

ADHD and Appalachia

The rising rates of diagnosis can be particularly alarming for states identified as “high need” for educational and health services. Appalachian states such as West Virginia not only follow the rising trend, but supersede the national average with rates at 10.1% in 2003, 13.3% in 2007 and 11.9% in 2011 (Visser et al., 2014). Appalachian schools also face a number of other factors that are detrimental to the outcomes of students including overall higher disability rates for both children and adults, higher than average unemployment rates, high rates of poverty, and chronic shortages of personnel (McLaren & Harp Rutland, 2013). Appalachian teachers, as teachers who work in high-poverty and rural areas, are often less academically prepared to teach, have less experience, less support, often lack licensure for the grade or content they teach, and often are not trained to meet the needs of students served under IDEA (McLaren & Harp Rutland, 2013). Potential teachers who would be interested in obtaining certification and training as special education providers often encounter barriers such as high tuition rates, geographic issues such as long distances to travel both to universities and to provide services further exacerbating the deficits in these areas (McLaren & Rutland, 2013). By identifying and

acknowledging the propensity to misattribute ADHD, education professionals can make accurate referrals to special education resources and reduce the already strained service providers.

Giftedness Symptomology

Gifted children are often required to participate in the general education classroom with teachers that have little to no training in gifted education (Olthouse, 2014). Teachers will also interpret the term “giftedness” according to their own understanding of the term as there have been a number of definitions of “giftedness” over the years (Olthouse, 2014). Currently, the National Association for Gifted Children provides a broad definition of “giftedness” which encompasses many competing theoretical positions (Olthouse, 2014). Currently, the NAGC defines giftedness as:

Gifted individuals are those who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or achievement in top 10% or rarer) in one or more domains. Domains include any structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensorimotor skills (Olthouse, 2014 p.123)

Teachers’ perceptions of gifted children are typically overwhelmingly positive, though they don’t have a unifying conception of what giftedness refers to (Olthouse, 2014).

Children who are gifted often display symptoms of a child diagnosed with ADHD. Some of these symptoms include high activity levels, difficulty paying attention, difficulty staying on task, impulsive behavior, academic underachievement, and both can experience difficulty with peers (Hartnett, Nelson & Rinn, 2003). Gifted children often exhibit unusual intensity or focus on an activity, high motivation, and high achievement in subjects they find valuable (Flint, 2001). However, the areas of interest which the gifted student finds interesting may not match

what the teacher values or what curriculum dictates. If a student spends an inordinate time in a subject mismatched with the demands and expectations of the classroom it is entirely possible for that student to have failing or poor grades as a result.

Identifying students who are gifted versus students with ADHD can be further complicated by over-excitabilities (OEs), defined as behavioral or mental excesses. As described by Flint (2001), over-excitabilities are categorized into five domains: psychomotor, emotional, intellectual, imaginal, and sensual. In particular, two types of over-excitabilities are especially prone to being attributed to ADHD, Psychomotor OEs, and Imaginal.

Psychomotor over-excitabilities are characterized by excesses of movement, such as rapid speech, super-energy, impulsiveness, and a need to act. Although the behaviors exhibited by children with psychomotor OEs are also characteristic of children with ADHD, the source of these excesses are very different. Children who are gifted express these behavioral excesses for the love of moving, whereas children who have ADHD are compelled to move; it is a compulsion they cannot stop. Imaginal over-excitabilities are characterized by an excess of imagination and can be expressed through rich daydreams and fantasies, which may interfere with classroom activities. It is almost impossible for a teacher to discern between a student who is engaging in a rich and colorful daydream and a student who is exhibiting inattention (Flint, 2001). For those who are not specifically trained in identifying the differences, the lines between ADHD and Giftedness can be very blurry. This difference is especially important because the underlying causes of behavior are very different between ADHD and Giftedness. It comes down to being able to identify those children that cannot complete assignments and those that will not complete assignments.

Although the symptomology for gifted students looks the same on the surface, the causes can range from environmental features to a lack of stimulation. Students who are gifted often are forced to work at the pace of the slowest student in the classroom while completing assignments that are under-stimulating and well below ability level (Flint, 2001). This lack of engaging material can cause the same types of behavioral excesses exhibited from students with ADHD. Students who are gifted can also exhibit academic underachievement since the material may be too under-stimulating or so easy the student does not complete the assignment.

Teachers' Perceptions of ADHD

Teachers are often the first to identify behavioral and academic problems in children. When differentiated classroom instruction and behavioral intervention yield less than desired growth, teachers are responsible for referring students to a range of more intensive support services. These referrals frequently include referrals for special education and the medical community for mental health supports. Studies that examine teachers' perception of the prevalence of ADHD have found that teachers not only use a very loose definition of ADHD, they often tend to overestimate how many students actually have ADHD (Fabiano et al., 2013). In a study conducted in southern Virginia, 36% of teachers reported that between 6-15% of students had been diagnosed with ADHD. The same study found an additional 36% of teachers reported that more than 15% of students had ADHD either diagnosed or were suspected of having unidentified ADHD (Fabiano et al., 2013).

When the same study was replicated in a rural Midwestern setting, teachers reported 4.93% of their students had a formal diagnosis of ADHD. When teachers included students whom they *suspected* had ADHD, the percentage rose to 8.63% (Fabiano et al., 2013). Furthermore, it was found that across all states, 5.58% of children in elementary school and

3.53% of middle school students had a diagnosis of ADHD known to the teacher; those numbers generally doubled when teachers were asked to include students with suspected ADHD (Fabiano et al., 2013).

Elder (2010) found that ADHD referrals are largely driven by subjective comparisons between children in the same grade level in the same school. These comparisons are further complicated by the fact that some students in classes are much younger than other students reflecting behaviors that are not actually driven by ADHD symptoms, but by a lack of maturity (Elder, 2010). Students with ADHD are often three to seven times more likely to be retained as well as subject to higher suspension rates and/or special education needs/referrals, all resulting in a higher chance that they will not graduate high school (Graczyk et al., 2005). These difficulties often lead teachers to perceive students with ADHD as being more difficult, disruptive and view them with a more negative attitude than their peers (Graczyk et al., 2005)

The Current Study

The current research supports the notion that misdiagnosis of ADHD symptoms is possible and likely to happen when ADHD symptomology is misunderstood and/or alternative causes are not considered. Literature also supports the idea that Appalachian teachers are more likely than non-Appalachian teachers to refer for ADHD evaluations. Therefore, the following hypotheses are made:

Hypothesis 1: This study hypothesizes that priming teachers to consider giftedness as an alternative diagnosis will lead to a decrease in likelihood that a teacher will refer a child for an ADHD evaluation.

Hypothesis 2: It is further hypothesized that teachers in Appalachia will tend to refer ambiguous vignettes for an ADHD evaluation more than non-Appalachian teachers.

Hypothesis 3: Teachers primed to consider giftedness as an alternative diagnosis will rate characteristics of ADHD as more ambiguous than teachers who are not primed.

This current study hypothesizes that teachers will readily identify a child exhibiting symptoms common to ADHD and Giftedness as being ADHD unless they are primed to consider giftedness as an alternative diagnosis. Teachers primed to consider giftedness before reading vignettes of behaviors common to both diagnoses will show less propensity to ascribe ADHD to that child. Because many of the referrals for ADHD are being initiated by school personnel, identifying misattributions should be identified early in order to prevent losing any time that could be spent in more effective interventions.

CHAPTER 2

METHOD

Participants

Participants include both Appalachian and non-Appalachian teachers who are at least in their first year of teaching. Invitations to participate that included a web link were sent to school administrators and other personnel in order to be distributed to currently working teachers as well as posted on social media sites. Email addresses were obtained via personal reference, internet search for school district administrators, and other public sources of information.

A total of 100 responses were collected over the course of three days with 63 people completing the entire survey. The majority of respondents were between the ages of 25 to 64 (94%) with 25 to 34 year olds comprising the largest portion (37%). Eighty-two percent of respondents were female; 18% were male. Participants ranged in years of experience with 10% of respondents being first year teachers, 18% with 1-5 years of experience, 24% with 6-10 years of experience, 14% with 11-15 years of experience, 11% with 16-20 years of experience, and 21% with over 20 years of experience. The vast majority of respondents were general education teachers comprising 53% of responses; 14% were special educators in inclusive classrooms, 16% were special educators in a self-contained classroom, and 17% were related arts teachers. Forty-seven percent of respondents were elementary school or pre-k teachers, 24% were middle school teachers, 24% were high school teachers and 4% were adult educators. Sixty-three percent of respondents were Appalachian teachers, 26% were non-Appalachian, and 10% were not currently working in Appalachia but had in the past. Seventy-three percent of respondents ended up being in the priming group and 27% were in the non-primed group. Finally, ten respondents

were formally trained in the diagnosis of mental disorders and were therefore disqualified for meeting ineligibility requirements.

Instrument

The survey was created using the SurveyMonkey software and formatting tools. The survey has a total of 15 questions, including three demographics questions (Appalachian residency status, age, and gender), and questions about teaching service. Questions pertaining to teaching service focused on how many years they had taught, what type of teacher they were, and what level of school they teach (elementary, middle, etc.). Participants were also asked if they had a license to diagnose mental and behavioral disorders, at which time the survey was programmed to discontinue the survey and go to the last page thanking them for their participation if they answered in the affirmative. Two vignettes were created describing hypothetical students with problem behaviors commonly attributed to ADHD. These vignettes were created following diagnostic guidelines for ADHD according to the DSM-5. The vignettes are purposefully vague, gender neutral and allude to situation/site specific symptoms (i.e. “She says that Skyler likes to read at home but at school you hardly ever see Skyler reading”) which is an exclusionary factor for a diagnosis of ADHD. Neither of the vignettes met diagnostic criteria for a child to be diagnosed with ADHD. These vignettes were modeled from one used in Hartnett, Nelson & Rinn’s (2004) research as follows:

Sam is a 7-year-old second grader. 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 the teacher often. The teacher repeatedly tried to change Sam’s behavior but Sam questions authority and has a difficult time accepting rules and regulations. Sam’s homework is frequently messy because he appears careless and inattentive to details. Sam

has poor attention span, especially when he is bored. Sam's does not seem to have difficulties at home.

A checklist of characteristics of ADHD was created by referencing the DSM-5 and creating simple statements of behavior. Participants were asked to rate if they think those characteristics describe ADHD with the option of selecting "yes", "no", or "maybe." Examples of these statements are "Doesn't pay attention to details, makes careless mistakes", "Is easily distracted", and "Often daydreams, looks off into space, doesn't seem to pay attention to what is happening in class". The SurveyMonkey software was set to distribute two versions of the survey - half would receive a description of behaviors which may be characteristic of either ADHD or gifted prior to reading the vignettes and checklist, while the other half would read this informational page after reading the vignettes and checklist.

Procedure

Email and web link access was sent out to Appalachian and non-Appalachian teachers as well as posted to social media sites frequented by teachers. Participants were informed of their rights to confidentiality and informed that participation was voluntary. Participants were allowed to exit the survey site at any time, no IP addresses were saved, and no personal identification information was collected. Some participants were asked to read a short information page describing disruptive behaviors common in both children diagnosed with ADHD and those who are gifted at the beginning of the survey while others were asked to read it at the end of the survey. Participants were next asked to read two vignettes and rate the likeliness to refer that student for an evaluation on a 4-point Likert scale. Participants then read a list of behaviors and indicated if they were typical of ADHD or not. Participants were only allowed to move forward

on the survey so that participants who received the prompting stimulus last could not go back and change their answers.

CHAPTER 3

RESULTS

A total of 100 responses were collected with 64 participants completing at least the first vignette question. The remaining responses were either excluded due to advanced training in the diagnosis of mental disorders (N=10) or failed to complete the survey past the demographics questions. Of the sixty-four participants who completed the entire survey 51 were female and 14 were male. Forty-six participants were identified as Appalachian teachers and 18 participants were non-Appalachian. Teachers that identified as not currently teaching in Appalachia but had previous experience teaching in Appalachia were determined to be “Appalachian” if they had more than 5 years of experience teaching in Appalachia in the past. Sixty-three participants responded to both vignettes and sixty-four responded to the vignette “Micah”. Approximately 70% of participants were in the “primed” group with about 30% reading the informational page last.

Hypothesis 1

This study hypothesized that priming teachers to consider giftedness will lead to a decrease in likelihood that a teacher will refer a child for an ADHD evaluation. Due to the low completion rate, responses were condensed into two categories with “not likely” and “somewhat likely” responses grouped together indicating a low likelihood that a teacher would refer for ADHD. Likewise, “most likely” and “definitely would” were condensed to indicate a strong likelihood that a teacher would refer for ADHD evaluation. There is no support for this hypothesis as determined by Chi square analysis. A Chi-square test for independence with Yates Continuity Correction indicated no significant association between primed and likelihood for a referral for

ADHD evaluation for Micah, $\chi^2(1, n = 65) = .44, p = .51, \phi = .12$, or Skyler $\chi^2(1, n = 64) = 3.09, p = .08, \phi = .26$.

Hypothesis 2

It was hypothesized that teachers in Appalachia will tend to refer ambiguous vignettes for an ADHD evaluation more than non-Appalachian teachers. Again, due to the low completion rate responses were condensed into two categories with “not likely” and “somewhat likely” responses grouped together indicating a low likelihood that a teacher would refer for ADHD. Likewise, “most likely” and “definitely would” were condensed to indicate a strong likelihood that a teacher would refer for ADHD evaluation. A Chi-square test for independence with Yates Continuity Correction indicated no significant association between Appalachian status and likelihood for a referral for ADHD evaluation for Micah, $\chi^2(1, n = 64) = .04, p = .84, \phi = .06$, or Skyler $\chi^2(1, n = 63) = 1.25, p = .26, \phi = .18$ (see Appendix B for tables).

Hypothesis 3

Teachers primed to consider giftedness will rate characteristics of ADHD as more ambiguous than teachers who are not primed. For this analysis, responses in the “no” and “maybe” categories were condensed to create a category which indicates any level of doubt versus a firm “yes” for each characteristic. Each characteristic was evaluated using a Chi-square test for independence with Yates Continuity Correction which indicated no significant association between the primed group and ratings of characteristics of ADHD. Four participants did not complete the item “Doesn’t pay attention to details, makes careless mistakes.”

Characteristic	<i>N</i>	χ^2	<i>p</i>	<i>phi</i>
Doesn’t pay attention to details, makes careless mistakes	59	.08	.78	-.08
Fails to complete schoolwork or tasks	63	.20	.66	.09
Loses things	63	.04	.84	.06

Fidgets or squirms in seat ^a	63	1.07	.30	.17
Is easily distracted ^b	63	.59	.46	.14
Blurts out answers before the question has been completed	63	.08	.78	.07
Has difficulty waiting their turn	63	.00	1.00	.02
Often daydreams, looks off into space, doesn't seem to pay attention to what is happening in class	63	.00	.97	.04
Avoids or dislikes things that take a lot of effort and are not fun	63	2.19	.14	-.22
Is constantly moving	63	.00	1.00	-.03
a. 1 cell (25.0%) have expected count less than 5. The minimum expected count is 4.86.				
b. 1 cell (25.0%) have expected count less than 5. The minimum expected count is 2.57.				

Further Analyses

Appalachian Status and Characteristics of ADHD

There were no significant interactions between Appalachian status and referral in vignettes.

Appalachian status was compared to ratings of characteristics of ADHD in order to see if there was any interaction on that level. Each characteristic was evaluated using a Chi-square test for independence with Yates Continuity Correction which indicated no significant association between the Appalachian status and ratings of characteristics of ADHD.

Characteristic	<i>N</i>	<i>X</i> ²	<i>p</i>	<i>phi</i>
Doesn't pay attention to details, makes careless mistakes	58	.00	1.00	-.01
Fails to complete schoolwork or tasks	62	.00	1.00	.03
Loses things	62	.07	.79	-.07
Fidgets or squirms in seat ^a	62	.08	.79	-.08
Is easily distracted ^b	63	.00	1.00	.04
Blurts out answers before the question has been completed	62	.00	1.00	.01
Has difficulty waiting their turn	62	.03	.85	-.06
Often daydreams, looks off into space, doesn't seem to pay attention to what is happening in class	62	.00	.98	-.04
Avoids or dislikes things that take a lot of effort and are not fun ^d	62	.06	.81	-.07
Is constantly moving	62	.00	1.00	.04

- a. 1 cell (25.0%) have expected count less than 5. The minimum expected count is 4.94
- b. 1 cell (25.0%) have expected count less than 5. The minimum expected count is 2.57

Gender

Gender was examined in order to evaluate if the gender of the rater had any bearing on likeliness to refer for ADHD evaluation or ratings of characteristics of ADHD. Of the sixty-five participants who responded to Micah, and sixty-four who responded to Skyler, 14 respondents were male. No significant interactions were noted on any level of analysis considering gender. A Chi-square test for independence with Yates Continuity Correction indicated no significant association between gender and likelihood in referral for ADHD evaluation for Skyler, $\chi^2(1, n = 64) = .93, p = .34, \phi = -.16$, or Micah $\chi^2(1, n = 65) = .00, p = 1.00, \phi = -.04$. Gender was also evaluated for any interactions on ratings of Characteristics of ADHD. A Chi-square test for independence with Yates Continuity Correction indicated no significant association between gender and ratings of ADHD characteristics (Table 1.2).

Table 1.2 Characteristic of ADHD and Gender				
Characteristic	<i>N</i>	χ^2	<i>p</i>	<i>phi</i>
Doesn't pay attention to details, makes careless mistakes ^a	59	.05	.82	-.07
Fails to complete schoolwork or tasks	63	.00	1.00	.00
Loses things	63	.00	.97	-.04
Fidgets or squirms in seat ^b	63	.76	.38	-.15
Is easily distracted ^c	64	.27	.61	-.12
Blurts out answers before the question has been completed	63	.00	1.00	-.02
Has difficulty waiting their turn	63	.00	1.00	-.04
Often daydreams, looks off into space, doesn't seem to pay attention to what is happening in class	63	.20	.66	.10
Avoids or dislikes things that take a lot of effort and are not fun ^d	63	.01	.92	.05
Is constantly moving	63	.03	.85	.07

1 cell (25.0%) have expected count less than 5. The minimum expected count is 4.85.

1 cell (25.0%) have expected count less than 5. The minimum expected count is 3.78.

1 cell (25.0%) have expected count less than 5. The minimum expected count is 2.11.
1 cell (25.0%) have expected count less than 5. The minimum expected count is 4.67

Teaching Experience and Grade Level

Years of experience as a teacher was examined to see if there was any interaction between years as a teacher and ratings for likelihood to refer for ADHD. A Chi-square test for independence indicated no significant association between years teaching and likelihood in referral for ADHD evaluation for Skyler, $\chi^2(1, n = 64) = 3.56, p = .17, \phi = .24$, or Micah $\chi^2(1, n = 65) = 2.29, p = .32, \phi = .19$. Finally, grade level taught was considered for interaction. A Chi-square test for independence indicated no significant association between level of school taught and likelihood in referral for ADHD evaluation for Skyler, $\chi^2(1, n = 64) = 5.82, p = .12, \phi = .30$, or Micah $\chi^2(1, n = 65) = 3.80, p = .28, \phi = .24$.

CHAPTER 4

DISCUSSION

The goal of this study was to investigate whether or not two factors would influence the likelihood that teachers would refer a student for an ADHD evaluation. The first factor focused on whether or not priming for giftedness affected the likelihood of a teacher's referral for an ADHD evaluation. The second factor was whether Appalachian status of the teacher affected the likelihood that a student was referred for an ADHD evaluation. Analysis by Chi-square showed that there were no significant interactions between either Appalachian and non-Appalachians in ratings of ambiguous vignettes, nor was there any difference between the primed group and non-primed participants in ratings of vignettes. Although the use of vignettes has been used to investigate ADHD (Hartnett, Nelson & Rinn, 2004; Moldavsky, Groenewald, Owen, & Sayal, 2013), there are some limitations to the use of vignettes. The vignettes used in this study were purposefully ambiguous, with limited information provided to the participants. Though Hartnett & Rinn found a significant difference in counselors that were primed for giftedness in their vignettes (2003), this was not mirrored in teachers' referrals. This may be due to the differences in experience levels; Hartnett & Rinn used school counselors in graduate school while the current study used a self-identified teacher sample. Furthermore, in practice, teachers have a wealth of information to use when making ADHD referrals for their actual students. The vignettes created for this survey were purposefully gender neutral, though teacher personal experience may have negated those factors. Overall, vignettes can be a helpful way to assess a teacher's opinion, but have inherent difficulties which may have impacted the current study.

A major limitation of this study was the small sample size of completed responses. Although 100 people took the survey, only 65 of those responses were complete. Out of the

responses collected, only 14 of the participants were male with the majority of responders indicating they were female (82%). Although studies have investigated the differences between male and female students with ADHD (Skogli, Teicher, Andersen, Hovik, & oie, 2013) there have been few, if any studies, which take into consideration the gender of teachers in ADHD referral. Future researchers may find it worthwhile to investigate whether male and female teachers rate characteristics of ADHD any differently in a larger sample.

Another limitation of this investigation was the unequal distribution of participants into the primed and non-primed groups. Approximately 70% of participants ended up being in the primed sample rather than the desired 50/50 composition. The Survey Monkey website allows for a survey to be programmed to randomly flip the ordering of pages for every other participant. It is conjectured that the low number of non-primed participants is due to the high number of participants that did not complete the survey. For example, if every even-numbered participant was given the primed version of the survey and every other odd-numbered participant failed to complete the survey, the primed group would be much larger in total. Without being able to contact any participants, it is unlikely to find a cause for this uneven distribution.

Another factor to consider in future studies is whether grade level affects the likelihood of a teacher to refer for an ADHD evaluation. The finding was not significant in this study but a larger sample size may yield significant findings.

Finally, because the survey was voluntary, the type of respondents who volunteered may have affected the outcomes. For example, because data was collected via internet, there are some basic assumptions of the person who responded that were not controlled for at the start of this investigation. For example, in order to access the survey, the participant would have to be motivated to participate, either out of interest in the subject or in interest in the pursuit of

science. Participants also have to have computer access and be savvy enough to navigate the webpage. Though most teachers are trained in the use of email accounts, some may not have had access to the survey during school hours or through their work computers.

The conclusion of this study was that simple priming for giftedness is not great enough to influence the likeliness of teacher's referrals for ADHD evaluations. Future investigators would be prudent to expand upon the data collected to see if a wider sampling would impact the results of this study as well as changing the format of the survey and/or creating a more expansive checklist of characteristics. Unfortunately, the problem of overwhelming referrals is not solved by simple priming for giftedness, nor is it solved by a page of psychoeducation. Rather, teachers may benefit from a more extensive interaction with a trained professional such as a school psychologist who explains what ADHD is, and isn't, in order to lower necessary referrals.

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APPENDIX A: IRB Approval



Office of Research Integrity
Institutional Review Board
One John Marshall Drive
Huntington, WV 25755

FWA 00002704

IRB1 #00002205
IRB2 #00003206

April 20, 2016

Sandra Stroebel, PhD
School Psychology Department, MUGC

RE: IRBNet ID# 823352-1

AT: Marshall University Institutional Review Board #2 (Social/Behavioral)

Dear Dr. Stroebel:

Protocol Title: [823352-1] Appalachian Teachers' Referral for ADHD in Contrast to Giftedness in Selected Vignettes

Expiration Date: April 20, 2017

Site Location: MUGC

Submission Type: New Project APPROVED

Review Type: Exempt Review

In accordance with 45CFR46.101(b)(2), the above study and informed consent were granted Exempted approval today by the Marshall University Institutional Review Board #2 (Social/Behavioral) Designee for the period of 12 months. The approval will expire April 20, 2017. A continuing review request for this study must be submitted no later than 30 days prior to the expiration date.

This study is for student Alexandria Mejia.

If you have any questions, please contact the Marshall University Institutional Review Board #2 (Social/Behavioral) Coordinator Bruce Day, ThD, CIP at 304-696-4303 or day50@marshall.edu. Please include your study title and reference number in all correspondence with this office.

APPENDIX B: SURVEY

Teachers' Referral in Selected Vignettes

Consent to Participate in the Study

You are invited to participate in a research project entitled “Teachers' Referral in Selected Vignettes” designed to investigate teachers' likelihood of referring a student for an evaluation for special education services. The study is being conducted by Sandra Stroebel Ph.D. and Alexandria Mejia, M.A of Marshall University and has been approved by the Marshall University Institutional Review Board (IRB). This research is being conducted as part of the thesis requirements for Alexandria Mejia.

You will be asked to answer a few questions about your teaching service and demographics. Then you will be provided with two short vignettes of student behavior and performance and asked to rate the likelihood that you would refer them for an evaluation for special education services. Your replies will be anonymous, so do not type your name anywhere on the form. There are no known risks involved in this study. Participation is completely voluntary and there will be no penalty or loss of benefits if you choose to not participate in this research study or to withdraw. If you choose not to participate you can leave the survey site. Once you complete the survey you can delete your browsing history for added security. Completing the on-line survey indicates your consent to use of the answers you supply. If you have any questions about the study you may contact Dr. Sandra Stroebel at 304-746-2032 or Alexandria Mejia at 304-617-8579.

If you have any questions concerning your rights as a research participant, you may contact the Marshall University Office of Research Integrity at (304) 696-4303.

By completing this survey, you are giving consent and confirming that you are 18 years of age or older.

Please print this page for your records.

Teachers' Referral in Selected Vignettes

Demographics

1. What is your age?

- 18 to 24
- 25 to 34
- 35 to 44
- 45 to 54
- 55 to 64
- 65 to 74
- 75 or older
- Prefer not to answer

2. What is your gender?

- Female
- Male
- Prefer not to answer

Other (please specify)

Teachers' Referral in Selected Vignettes

Teaching Service

3. How many years have you been teaching?

- First year teacher
- 1-5 years
- 6-10 years
- 11-14 years
- 16-20 years
- over 20 years

4. What type of teacher are you? (Most current)

- General Education
- Special Education- Inclusive (Intervention Specialist, RTI, SPL, etc)
- Special Education - Self Contained Classroom
- Related Arts (Art, Music, Technology, etc.)

Other (please specify)

5. What level of school do you currently teach?

- Pre-K
- Elementary School (Grades K-5)
- Middle School (Grades 6-8)
- High School (Grades 9-12)
- Community Technical/Vocational School (Students >18 years old)
- Adult Education (any student 18+)

6. Do you have professional training in the diagnosis of mental and behavioral disorders, or hold a license to diagnose or treat mental disorders?

- Yes
- No

Teachers' Referral in Selected Vignettes

Teaching Service - Region

Please refer to this list by state to see if your county is located in the Appalachian region as provided by The Appalachian Regional Commission (ARC) <http://www.arc.gov/counties> or consult this map, also provided by The ARC [Map of Appalachian Region](#) (right click and open in new window if links do not work)

7. Are you currently a teacher in the Appalachian Region?

- Yes
- No
- No, but I have been a teacher in Appalachia in the past

8. How many years have you served in Appalachia? (past or present)

- First year teacher
- 1-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- over 20 years

Teachers' Referral in Selected Vignettes

Introduction to Vignettes

Please read the next pages carefully and answer any questions which may follow.

Teachers' Referral in Selected Vignettes

Alternative Causes for Behavior

9. I am seeing this page before reading about any students

- True
- False

Every behavior can be traced back to a cause and sometimes identical behaviors can have different causes. For some kids, paying attention and sitting still is very hard, sometimes even painful. As educators, sometimes we see a kid running around the room or not paying attention and we think... “That kid DEFINITELY has ADHD!” Day in and day out the student doesn't pay attention in class, shows reluctance or refusal to do any non-preferred task, and has failing grades. Sometimes these kids have poor social skills and talk too much, or do not talk at all. It is

even more frustrating to see that when they are “ON”, they can be so bright, focused, and complete tons of work.

However, behaviors common to students with ADHD can also be found in students with very high intelligence, or students who are “Gifted”. Behaviors common to ADHD and students who are Gifted are listed below:

- Inattention/Daydreaming
- Physical Restlessness
- Impulsivity
- Sensory Over-Excitability
- Extreme focus on preferred tasks
- Failure to complete homework
- Messy and disorganized work/workspace
- It all boils down to “can’t do” or “won’t do”. Children with ADHD have a neurological disorder which makes them unable to discriminate between stimuli which they SHOULD be paying attention to, and stimuli that most other children can filter out. Gifted students CAN pay attention, but are more interested in their rich internal worlds than what is going on in the classroom.

Likewise, students with ADHD will impulsively act in ways that are hyperactive due to an inability to regulate themselves. Or they will engage in physical restless behaviors in order to concentrate on a task. Students who are Gifted will engage in behaviors similarly if they find a subject boring or if a task is seen as “menial” and “not worth their time”.

Although these behaviors seem identical on the surface, knowing the cause of the behavior is key to understanding how to solve these behavior problems.

Although these behaviors seem identical on the surface, knowing the cause of the behavior is key to understanding how to solve these behavior problems.

Teachers' Referral in Selected Vignettes

Micah

Micah is a student in your class who is very talkative and animated but doesn’t get along easily with peers. Micah often talks over people, interrupts discussions, and misses social cues. Although Micah excels at reading, and is actually one of your top students in this area, Micah is failing in all other subjects. You suspect that Micah is underperforming in these areas, but you can’t tell because work hardly ever gets turned in. In fact, Micah only reliably turns in reading assignments, any other subject, including spelling and writing, are likely to be incomplete or missing. During any other subject, especially math, Micah can often be found wandering the room, fidgeting, daydreaming, or looking out the window. Micah is very easily distracted and doesn’t ever seem to know what the class is supposed to be doing. When Micah does turn in work, it is often messy, torn, and completed out of order. This disorganization is mirrored in Micah’s workspace, locker, and by the fact that Micah always seems to be losing things. At home, Micah’s mother reports that organization is Micah’s weakest area. She has to fight with Micah to do any homework at all because the only thing Micah seems to be interested in is video games. She reports that Micah can sit and play games all night long, often staying up all night, despite curfew.

10. How likely would you be to refer this child for an ADHD evaluation?

Not at all likely



Somewhat likely



Most likely would



Definitely would



Teachers' Referral in Selected Vignettes

Skyler

Skyler is a student in your class who has failed to complete/turn in many assignments, often turns in work that is messy and crumpled up, and whose workspace is often disorganized or downright messy. Although very bright, Skyler is failing in every subject except math, which is Skyler's favorite subject. Skyler finds all math and science related assignments to be extremely easy and interesting and is almost always the first one done with assignments in this area. This makes the struggle to get Skyler to complete any other tasks, even ones that are not difficult, that much more disappointing. When engaged in a preferred task, Skyler is focused, persistent, and often has to be told to stop. In any other task, Skyler is distracted, fidgety, cranky, and restless. Although work hardly ever gets turned in, Skyler is almost always the first student to raise their hand when you ask a question in class. Skyler is often disruptive in class, often calling out of turn, talking to neighbors, and wandering around the room to sharpen pencils, "check on" things around the room, or any number of other actions. Skyler's mother reports that at home there are complaints that homework is "stupid", frequent refusals to complete work, and false claims that there isn't any homework for the day. She says that Skyler likes to read at home, but at school, you hardly ever see Skyler reading.

11. How likely would you be to refer this child for an ADHD evaluation?

Not at all likely



Somewhat likely



Most likely would



Definitely would



Teachers' Referral in Selected Vignettes

Behaviors that are perceived to be characteristic of ADHD

12. Please select whether the following behaviors are characteristic of ADHD

	Yes	No	Maybe
Doesn't pay attention to details, makes careless mistakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fails to complete schoolwork or tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Loses things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is easily distracted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fidgets or squirms in seat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blurts out answers before the question has been completed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has difficulty waiting for their turn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is constantly moving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often daydreams, looks off into space, doesn't seem to pay attention to what is happening in class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Avoids or dislikes things that take a lot of effort and are not fun	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Teachers' Referral in Selected Vignettes

Survey Complete!

Thank you for taking the time to complete this survey! Your responses are greatly appreciated!

If you have any further questions about this study you may contact Dr. Sandra Stroebel at stroebel@marshall.edu, Alexandria Mejia at mejia@live.marshall.edu or you may contact the Marshall University Office of Research Integrity at (304) 696-4303.

APPENDIX C

TABLES

			MicahReferYN		Total
			Not Likely/Somewhat Likely	Most Likely/Definitely Would	
Appalachian	Appalachian	Count	26	20	46
		% within Appalachian	56.5%	43.5%	100.0%
		% within MicahReferYN	74.3%	69.0%	71.9%
		% of Total	40.6%	31.3%	71.9%
Non-Appalachian	Non-Appalachian	Count	9	9	18
		% within Appalachian	50.0%	50.0%	100.0%
		% within MicahReferYN	25.7%	31.0%	28.1%
		% of Total	14.1%	14.1%	28.1%
Total	Total	Count	35	29	64
		% within Appalachian	54.7%	45.3%	100.0%
		% within MicahReferYN	100.0%	100.0%	100.0%
		% of Total	54.7%	45.3%	100.0%

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.222 ^a	1	.637		
Continuity Correction ^b	.037	1	.848		
Likelihood Ratio	.222	1	.638		
Fisher's Exact Test				.781	.423
Linear-by-Linear Association	.219	1	.640		
N of Valid Cases	64				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.16.

b. Computed only for a 2x2 table

		Value	Approx. Sig.
Nominal by	Phi	.059	.637
Nominal	Cramer's V	.059	.637
N of Valid Cases		64	

		SkylerReferYN			
		Not Likely/Some what Likely	Most Likely/Defini tely	Total	
Appalachian	Appalachian	Count	31	14	45
		% within Appalachian	68.9%	31.1%	100.0%
		% within SkylerReferYN	77.5%	60.9%	71.4%
		% of Total	49.2%	22.2%	71.4%
Non- Appalachian	Non- Appalachian	Count	9	9	18
		% within Appalachian	50.0%	50.0%	100.0%
		% within SkylerReferYN	22.5%	39.1%	28.6%
		% of Total	14.3%	14.3%	28.6%
Total	Total	Count	40	23	63
		% within Appalachian	63.5%	36.5%	100.0%
		% within SkylerReferYN	100.0%	100.0%	100.0%
		% of Total	63.5%	36.5%	100.0%

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2- sided)	Exact Sig. (1- sided)
Pearson Chi-Square	1.979 ^a	1	.159		
Continuity Correction ^b	1.248	1	.264		
Likelihood Ratio	1.940	1	.164		
Fisher's Exact Test				.246	.132

Linear-by-Linear Association	1.948	1	.163
N of Valid Cases	63		

- a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.57.
- b. Computed only for a 2x2 table

Table 3.3 Appalachian v Skyler refer for ADHD Symmetric Measures			
		Value	Approx. Sig.
Nominal by	Phi	.177	.159
Nominal	Cramer's V	.177	.159
N of Valid Cases		63	