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The Influence of the ADHD Label on Teacher's Expectations of Academic Achievement

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by

Ashley Noel Metzger

Committee in charge:

Professor Laura Hamilton, Chair
Professor Irenee Beattie
Professor Whitney Pirtle

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The Thesis of Ashley Noel Metzger is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

Irenee Beattie

Whitney Pirtle

Laura Hamilton
Chair

University of California, Merced

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ABSTRACT OF THE THESIS

The Influence of the ADHD Label on Teacher's Expectations of Academic Achievement

by

Ashley Noel Metzger

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Professor Laura Hamilton, Chair

While education scholars have discussed differing perceptions of students' academic skills by race, little is known about differences in perceptions due to developmental disabilities. Using data from the Early Childhood Longitudinal Study, First Grade Waves, this study pushes forward what is already known about teacher perceptions by exploring whether a diagnosis of ADHD leads to differing teacher evaluations in science, math, and reading. Results do indicate that teachers are more likely to perceive students with ADHD as lower performing than their peers without ADHD. This pattern remains significant despite the addition of control variables. These students with ADHD are being rated worse even when this assumption is not warranted. This paper also discusses implications for education scholarship, and the study of developmental disabilities in an academic setting.

In 2011, over 1 in 10 children in the United States were labeled as having Attention-Deficit Hyperactivity Disorder (ADHD)—representing a 3.2% increase over estimates in 2003 and a 6% increase since 1978 (Centers for Disease Control and Prevention 2011). ADHD has three presentations of symptoms: inattentive, hyperactive-impulsivity, and comorbid inattentiveness with hyperactivity-impulses (American Psychiatric Association 2013). The medical community often assumes that symptoms of ADHD make it more challenging to focus and engage with academic lessons, not only for those diagnosed with ADHD, but also for the other students in the classroom.

The ADHD diagnosis, however, may also come with social stigma. According to the American Psychological Association (2015), the stereotype of ADHD refers to a "hyperactive little boy." One qualitative study revealed that symptoms of a diagnosis of ADHD are associated with negative attitudes of the diagnosed child (Law, Sinclair, and Fraser 2007). As these examples suggest, ADHD may also be functioning as a pejorative label, that negatively influences how these students are viewed. Teachers may perceive that some students perform unsatisfactorily simply because they have been labeled with an ADHD diagnosis. The symptoms combined with the negative stigma may pose damaging consequences for children diagnosed with ADHD in the classroom.

Despite the increase in the prevalence of ADHD, little sociological research has focused on the effects of ADHD diagnosis on students. In contrast, there is a robust body of scholarship documenting that other ascribed student characteristics, such as race and class, indirectly shape student achievement—in part, through teacher perceptions and expectations (Brophy 1983; Dusek and O'Connell 1973; Ferguson 2007; Paino and Renzulli 2012). Teachers are not immune to stereotype bias, whereby their perceptions of students are influenced by normative

assumptions of different social groups. These perceptions can be discriminatory, and lead teachers to expect less of students from stigmatized categories (Jussium, Eccles, and Madon 1996). For example, teachers often perceive Native American and both black immigrant and black American students as less capable than white students, and specifically rate Native American students as having the poorest approach to learning (Irizarry 2015a). As Jussium, Eccles, and Madon (1996) suggest, these negative expectations are problematic, as they can have powerful effects on student's future performance.

In this study, I expand research on teacher perceptions and expectations to the relatively new realm of neurodevelopmental disorders. Specifically, using the first-grade wave of the Early Childhood Longitudinal Study (ECLS-K:2011), I ask how does the diagnostic label of Attention-Deficit Hyperactivity Disorder (ADHD) impact teacher expectations of academic achievement in three areas: math, science, and reading, net of student, parent, and school characteristics? My goal is to determine if teachers hold negative perceptions of ADHD students that lead them to expect that these students will perform worse in the classroom than their peers, regardless of their actual academic ability. Given the literature, this project therefore presents two main hypotheses:

Hypothesis 1: The label of ADHD will lead to an increased likelihood of being rated as below grade level across subjects by teachers.

Hypothesis 2: The label of ADHD will lead to a decreased likelihood of being rated as above grade level across subjects by teachers.

The ADHD Label

Labeling theory is based on the idea that behaviors are deviant only when society labels them as deviant. Labels allow for people to determine the distinction between deviance and non-

deviance, normative and non-normative. Deviant labels often come with stereotypes, or generalizations of individuals who hold that label. Often these stereotypes are negative. These labels can be damaging, and have consequences for the well-being and life-satisfaction of labeled individuals. Most of this research is focused on individuals who have committed criminal acts and those diagnosed with mental health illnesses (Anderson and Taylor 2009; Giddens 1991; Link et al. 1989; Rosenfield 1997).

ADHD, while a medical diagnosis, can—in practice—be used as a negative label. Children who display disruptive behaviors are given a label directly after this behavior occurs (Hoza 2007). This label—ADHD—is often stigmatized. For example, children labeled with ADHD are assumed to be lazier, more violent, and at a significantly higher risk of getting in trouble (Walker et al. 2008). In this way, ADHD diverges from other medical diagnoses, such as asthma and depression, which are viewed more neutrally.

Within the classroom, a similar pattern exists. Teachers are more likely to rate labeled children with greater levels of disruption compared to non-labeled children (Fox and Stinnett 1996). Even when children marked with a deviancy label display what are considered "normal" behaviors, the label continues to shape teachers' perceptions; that is, diagnostic labels (e.g., emotionally disturbed or learning disabled) can make it difficult for teachers to objectively evaluate behavior (Algozzine 1981; Foster and Ysseldyke 1976; Foster, Ysseldyke and Reese 1975; Ysseldyke and Foster 1978). The ADHD label can thus change teachers' perceptions of children—potentially even how they rate or evaluate them in the classroom.

Academic Performance of Children with ADHD

Underperformance in academics is an issue faced by children with ADHD (Harris et al. 2005). On average, children labeled ADHD have lower mathematical and reading skill scores (Lahey et

al. 1998; McGee et al. 1991). In comparison to non-diagnosed children, preschool-aged children with ADHD are in substantial danger for academic difficulty (Dupal et al. 2001). According to parents, academic issues are not only dealt with in the classroom, but also at home (Rogers et al. 2009).While academic underperformance is significant in childhood, it also is relevant for adult lives; research suggests that, in general, adults with ADHD have lower occupational prestige (Manuzza et al. 1997).

It is, however, more difficult to pinpoint why ADHD children perform worse in school. Some evidence suggests that ADHD is characterized by deficits in the cognitive domain, as well as working and spatial memory impairments (Goldberg et al. 2005; Martinussen et al. 2005). Reading impairments may also be exacerbated by inattention issues central to the diagnostic label of ADHD (August and Garfinkel 1990). These deficits are not only associated with decreased academic achievement, but also increase the risk for recurring episodes of school failure amongst those diagnosed (Gresham and MacMillan 1997).

There are other explanations, however for the poor performance of children labeled as ADHD. The label itself may create expectations of low achievement that can lead teachers to view student behaviors more negatively or to not recognize when students are excelling or displaying positive behavior. There is very little research that explores the relationship between perceptions of the label ADHD and teacher ratings; however, as I discuss below, there is significant scholarship on the link between teacher perceptions of other marginalized groups and subsequent impact on student behavior.

The Importance of Teacher Perceptions

Student performance within the classroom relies heavily on teachers, as teachers interact with students regularly (Alvidrez and Weinstein 1999; Faulkner et al. 2014; Hamre and Pianta 2001;

Rist 1970; Rosenthal and Jacobson 1968). Teachers' assessments may be shaped by their expectations and perceptions of students. These perceptions arise from many areas—information received from other teachers, student records, and even physical student characteristics (Dusek 1985; Ferguson 2007; Rosenthal and Jacobson 1968; van den Bergh et al. 2010). They often occur before teachers have knowledge of student's actual academic abilities. Sibling performance and behavior, race, and gender are common mechanisms by which teachers create expectations for their students (Brophy and Good 1974; Ferguson 2007; Lee and Smith 2001; Paino and Renzuilli 2012; Rosenthal and Jacobson 1968; van den Bergh et al. 2010).

A significant amount of research has explored teacher perceptions of racially marginalized and labeled groups. For example, teachers more negatively evaluate black students in terms of academic ability and social behavior within the classroom (Clark 1983; Downey and Pribesh 2004; McGrady and Reynolds 2012; McKnown and Weinstein 2008; Ogbu 1991; Ready and Wright 2011). Asian students, on the other hand, are viewed as being less disruptive and more engaged by teachers (Bates and Glick 2013; Hacker 1992; Kao 1995; Matute-Bianchi 1986; McGrady and Reynolds 2012; Nakanishi 1988; Takagi 1992).

These differences in perceptions may arise for many reasons. The most common is variation in academic achievement between the groups (Ferguson 2003; Jussim and Harber 2005). However, these differences are also due to the fact that teachers are relying on racial and ethnic stereotypes leading them to perceive minority students as less capable (Irizarry 2015a; Irizarry 2015b). This work suggests that despite students' actual literacy test scores there are racial differences in how teachers are rating them. When considering high academic performers, minority students are perceived less favorably by teachers in comparison to their white peers (Irizarry 2015b).

Just as teachers' perceptions of minority students often do not match students' actual skill levels, the same may be true for children with ADHD. Children labeled with ADHD and those without may be viewed differently by educators. Vignette studies have presented descriptions of children with ADHD symptoms, but varied the presence of an ADHD diagnostic label. When the label was present, teachers saw students as having more serious behavioral issues, being more likely to disrupt the classroom, and requiring more time and effort than they were able to provide (Ohan et al. 2011). Similarly, Koonce and colleagues (2004), found that the ADHD label was associated with higher rates of reported attention problems.

Negative, inaccurate, and discriminatory teacher expectations are a problem in and of themselves. However, teacher expectations can have an indirect influence on student performance (Paino & Renzulli 2012). For example, teachers' negative perceptions may shape the tenor of interactions with students and can impact teacher's willingness to recommend them for more rigorous curriculum. Moreover, negative perceptions may lead to an increase in criticism and a decrease in effective feedback, as well as being called on in class (Brophy and Good 1970; Good 1981; Good and Brohpy 1972; Rist 1970). Poor cooperation and underachievement may also result due to exaggerated teacher-student conflict (Birch and Ladd 1997; Mandel and Marcus 1988; McCall, Evahn, and Kratzer 1992). Teacher perceptions also dictate gatekeeping actions; they may hold back a student for a year based on performance expectations.

Overall, teachers' negative perceptions of their students may lead to a self-fulfilling prophecy, in which young students who are viewed as poor performers eventually become the students that their teachers expect them to be (Brophy 1983; Eisenberg and Schneider 2007; Madon, Guyll and Spoth 2004; Merton 1948). In this case, the stigma teacher's associate with

ADHD can lead them to treat children labeled with this disorder differently, consequently shaping their academic outcomes (Ford and Stangor 1992; Good, Aronson, and Inzlicht 2003; Schaller and Maass 1998).

DATA, MEASURES, AND METHODS

Analyses rely on data from the Early Childhood Longitudinal Study, First Grade Waves (ECLS-K:2011). The ECLS program collects national data on children, starting at birth and following them at several points through the eighth grade. The focus of this paper is on early school experiences, and all measures are from the Spring 2012 first grade wave of the ECLS-K:2011. As many children are not diagnosed until spending some time in school where their behaviors are labeled as problematic, first grade was more appropriate than Kindergarten. In addition, the average age of diagnosis is 7 (Center for Disease Control and Prevention 2011), placing many youth with ADHD in first grade.

The dataset includes information on student characteristics, family background, student performance, teacher perceptions of student performance, and school characteristics development. The ECLS-K:2011 restricted data is the best suited for studying ADHD since it includes a measure of medical diagnosis, as well as additional measures pertaining to this disorder. The sample utilized in the paper is restricted by missing values—moving from 18,714 to 10,423 students. The sample size differs by missing values, mainly in the dependent and key independent variables (e.g., ADHD Diagnosis and IRT scores).

[TABLE 1 ABOUT HERE]

Key Dependent and Independent Measures

The analyses rely on two key measures: teacher grade level rating and diagnosis of ADHD. See Table 1 for descriptive statistics and coding schema.

Teacher Grade-Level Rating. The dependent variables are teacher grade level rating in math, science and reading. This is determined through a survey given to teachers in the Spring of 2012. Teachers rate their students based on their own perceptions of how students are performing in these subjects. These students can receive a rating of far below average, below average, average, above average, or far above average in comparison to children of the same grade for their mathematical, science and reading skills. For the purposes of this paper, this variable was recoded as below average (which includes far below average and below average), at grade level, or above average (which includes above average and far above average). A similarly coded measure for assessing teacher's perceptions of their students has been used in other research (Cherng forthcoming). Notably, there is debate over whether or not teachers' perceptions are linked to their actions, (e.g., choosing to hold back a child for a year or failing to encourage capable students to work harder). However, these data do not include measures that would allow for the direct assessment of teacher actions.

ADHD Diagnosis. The key independent measure is a dichotomous measure of ADHD diagnosis. In the 2012 Spring First Grade Parent Interview, the parents are asked about their child having attention issues and subsequently being diagnosed with ADHD or ADD. I combined ADHD and ADD diagnoses, as the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-V) criteria now consider ADD to be a subset of ADHD.

It is impossible to determine if teachers have been informed of an ADHD diagnosis. Thus, it may be the behaviors that teachers are responding to—not the actual label. However, in supplemental analyses, I considered two additional variables, having an Individualized Education Plan (IEP) in place at school and parent-teacher discussion of behavioral issues, to determine if the teachers are aware of the label. Within the sample of children diagnosed with ADHD, 32%

have an IEP, 72% have had behavioral issues discussed, and 81% have either an IEP or behavioral issues discussed. This provides strong evidence that, at least in most cases, teachers have discussed the ADHD diagnosis (or a potential diagnosis) with parents.

The dataset, unfortunately, does not have enough information on the date of diagnosis to include it in the analyses. One consequence of this limitation is that it makes it difficult to determine when these children were assigned the label of ADHD. Research suggests, however, that a label is assumed almost immediately after a disruptive behavior (Hoza 2007). A label typically initiates the process of seeking professional help to obtain a diagnosis (Arcia et al. 2000; Ohan et al. 2011). If anything, these analyses are a conservative test of the effect of the ADHD label on teacher perceptions, as the ADHD sample may not include all the children who are perceived as having such a disorder.

Explanatory Variables

Explanatory variables are included in the models to determine if other variables are moderating the relationship between teacher perceptions and ADHD diagnosis.

Key Explanatory Variable

IRT Score. It is important to determine if teacher's perceptions of student ability are reflective of student capabilities. Teachers may build their perceptions around student performance on standardized tests or, alternately, they may have expectations that are more positive or negative than assessments of student capability warrant. Thus, I include a measure for the student's academic ability on standardized tests. Item Response Theory (IRT) math, science and reading scores for Spring 2012 first graders are used in all subject-specific models predicting teacher's ratings of grade level competence in that subject.

Student Characteristics

Student characteristics impact the likelihood of diagnosis, the level of academic achievement, and teacher perceptions of student ability. Thus I include student's age, gender and race.

Age. Student age shapes the timing of ADHD diagnosis and labeling. The average age of diagnosis is 7 years of age according to the Centers for Disease Control and Prevention (2011). Age also plays a role in the academic achievement of students, as older students typically have greater mastery over classroom skills. Particularly in earlier grades, older students may also appear more mature and responsive to teachers, leading to more positive teacher perceptions.

Gender. A large body of literature has focused on gender differences in children's academic achievement. Early education studies reveal that girls perform slightly better across subjects (Hyde, Fennema and Lamon 1990; Pomerantz, Altermatt and Saxon 2002). However, girls have been shown to perform better in reading, whereas boys perform better in math courses as age increases (Stoet and Geary 2013). This is due in part, to the gender role stereotypes parents assign their children, gendered performance held by teachers, and peer pressures to conform to gender norms (Eccles, Jacobs and Harold 1990).

There is also a large gender difference in the prevalence of ADHD diagnosis. Approximately, 13.2% of boys are diagnosed with ADHD, whereas only 5.6% of girls receive a similar diagnosis (Center for Disease Control and Prevention 2011). Teachers report that they are more comfortable handling behavioral issues with boys who are diagnosed with ADHD than girls (Ohan et al. 2011). Given the lower incidence of girls with this diagnosis, teachers may feel ill equipped to help these students. This may potentially impact both academic achievement and teachers' perceptions of how girls with ADHD perform.

Race. Many scholars have studied the racial and ethnic disparities in educational achievement—as well as the causes of these gaps. Asian students typically have the highest

grades, followed by white students (Hacker 1992; Kao 1995; Matute-Bianchi 1986; Nakanishi 1988; Takagi 1992). Black and Hispanic students tend to have lower grades overall—although some of these differences are mediated by class differences. These racial differences in academic achievement are due, in part, to teacher's perceptions of the academic abilities of students from different racial and ethnic groups (Cherng forthcoming; Cherng and Han forthcoming; Hughes, Gleason and Zhang 2005; Irizarry 2015b). Racial and ethnic performance gaps are also a function of class-based inequities in educational and family resources (Brooks-Gunn et al. 2003; Duncan and Magnuson 2005).

Racial and ethnic background also affects the rate of diagnosis for ADHD. According to the CDC, from 1998-2000 the prevalence of ADHD among white children was the highest compared to all other races (2011). However, from 2000 to 2009 the prevalence of ADHD increased more rapidly among black and Puerto Rican children, so that the incidence rate—9.5%—is now nearly the same as for white children (at 10.6%) (Center for Disease Control and Prevention 2011). While there is less information on Hispanic children, the CDC (2011) does report that there is variation in the prevalence of ADHD amongst Hispanic racial and ethnic groups—Puerto Rican (9.5%) and Mexican (4.4%). Overall, more recent prevalence rates highlight racial convergence in ADHD diagnosis.

Parent Characteristics

Parental involvement significantly impacts children's academic achievement, and is shaped by several indicators of social class background (Allen 1996; Brian 1994; Choi, Bempechet, and Ginsburg 1994; Clarke and Williams 1992; Dye 1992; Lawler-Prince et al. 1994; Matzye 1995; Schrick 1992). Therefore, my models include key parent characteristics—parental income and parental highest level of education.

Parent Income. There is a positive relationship between parental income and student achievement (Blau and Duncan 1967; Jencks et al. 1972). Having a flexible income allows for more money to be spent on a child's education and well-being. Middle class parents are also more likely to enroll their children in after school programs and educational programs throughout the school year and into the summer, which give them an advantage over other students (Bodovski and Farkas 2008; Clark 2009; Crozier, Reay, and James 2011; Irwin and Elley 2011; Lareau 2003; Lareau 2002; Stefansen and Aarseth 2011; Vincent and Ball 2007). More affluent parents may also find it easier to provide material or cultural resources for their children's education (Lareau 2003).

Parental income also shapes the likelihood of ADHD diagnosis. More affluent parents are more likely to have quality health insurance and access to the kind of specialists who can offer a diagnosis (Kawachi, Adler and Dow 2010; Kawachi and Kennedy 1999; Marmot 2002). They can also afford to pay out of pocket for psychological and psychiatric services, if need be. Thus, greater financial resources are associated with a greater likelihood of ADHD diagnosis.

Parent Education. There is a positive association between parental education and positive educational outcomes (Blau and Duncan 1967; Davis-Kean 2005; Guryan, Hurst, and Kearney 2008; Jencks et al. 1972; Sewell and Hauser 1976). The more educated often parent in ways that are consistent with the values and approaches of schools. They are more familiar with the educational system and thus may have greater success in securing resources and special attention for their children (Lareau 2003). It is, in fact, hard to disentangle the effects of parental income from parental education, as both may increase the odds of diagnosis—and attempts to seek special services from the schools. Highest level of parental education is operationalized here as a set of dummies, with a bachelor's degree as the reference category.

School Characteristics

The school context is important for how well students fare, academically and socially. Different organizational contexts may offer more or less support for ADHD diagnosed students. Therefore, I include several school characteristics in my analyses.

Private or Public School. Studies have considered the effect of school control on children. Generally, there has been no consensus on which one is better for children, in part due to complicated selection effects (Cherchye et al. 2010). That is, more affluent children tend to attend private schools, which may explain higher test scores and grades (Cox and Jimenez 1990). In terms of ADHD diagnosis, while private schools may be stricter on who can attend, a majority of children diagnosed with ADHD are from white middle class families—the population that is most likely to frequent private schools (Ewert 2013). Private school control is treated as a dummy variable.

Region. Region contributes to the rate of ADHD diagnosis. According to the CDC children currently diagnosed with ADHD are more likely to be located in the Northeast and Southern states of the U.S. Children located in the South and West regions of the U.S. are more likely to be prescribed medication for ADHD (Stevens, Harman, and Kelleher 2004). These regional differences could be attributed to income levels in the area, as well as access to health care. In my analyses, region is treated as a series of dummy variables, with the South denoted as the reference category.

Analytic Strategy

I examine the influence of ADHD diagnosis on teacher perceptions of academic achievement in science—later presenting the findings for math and reading. The models use multinomial logistic regression, with teacher rating of at grade level set as the base category. For each outcome

variable—below grade level versus at grade level, and above grade level versus at grade level—I proceed as follows. First, I estimate a bivariate model, where ADHD diagnosis is used to predict teacher perceptions of academic achievement in each subject. I then include standardized IRT test scores, to control for a measure of students' ability levels. Lastly, I estimate a full model including student, parent, and school characteristics to determine if these variables can account for a relationship between ADHD diagnosis and teacher ratings.

RESULTS

Above Grade Level Versus At Grade Level Science Ratings

I start with teacher ratings of science performance—as the literature clearly demonstrates that teachers' perceptions of math and reading performance are shaped by both gender and race. Science—while not bias-free—may thus be relatively more neutral subject in the early years, and not as subject to stereotypes.

Table 2 presents coefficients from multinomial regression models assessing teacher perceptions of an ADHD diagnosis, for above grade level versus at grade level science achievement. Bivariate results from the base model show that children diagnosed with ADHD compared to those without ADHD are less likely to be rated by teachers as above grade level in science relative to at grade level (b=-.879, $p < .001$).

The second model in Table 2 includes the addition of standardized IRT science test scores. Increases in science IRT test scores correspond with an increase in the likelihood of being rated as above grade level in science. These results also suggest a similar pattern as presented in the base model. Children with ADHD are less likely to be rated as performing above grade level relative to at grade level in science by their teachers (b=-.825, $p < .001$). Even when controlling

for actual science ability, teachers are rating children with ADHD as less suitable for an above grade level placement.

Finally, the full model adds student, parent, and school characteristics. Control variables in the full model operate largely as expected. Being female decreases the likelihood of receiving a teacher rating of above grade level in science. Being black, Hispanic, Asian, or having two or more races compared to being white increases the chance of being rated as above grade level for science. As age increases so does the chance of being rated as above grade level in science. Children whose parents have either a Bachelor's or advanced degree compared to having less than a high school have an increased chance of being rated as above grade level for science. Parental income had no significance in the full model. Lastly, living in the Midwest, Northeast, and West compared to the South decreases the likelihood of being rated as above grade level relative to at grade level.

[TABLE 2 ABOUT HERE]

Importantly, even when accounting for these potentially mediating variables, there are still significant differences in being rated as above grade level versus at grade level in science for children diagnosed with ADHD, compared to those that are not (b=-.825, $p < .001$). These findings indicate that the negative effect of an ADHD diagnosis on teacher ratings of science skills is not the result of student, parent, or school characteristics.

Below Grade Level Versus At Grade Level Science Ratings

Does the diagnosis of ADHD effect below grade level teacher ratings versus at grade level in a similar manner? In this section I report the multinomial logistic results for teacher ratings of below grade level student performance.

Table 3 presents regression coefficients for teacher rating of students as below grade level versus at grade level performance in science. The bivariate results indicate that teachers are more likely to rate children with ADHD as performing below grade level than at grade level (b=.885, $p < .001$), suggesting that these students are viewed more negatively than others.

Next, I add IRT science test scores to the bivariate model to disentangle teacher perceptions of achievement from actual achievement. Predictably, as IRT scores increase, the likelihood of teachers rating students as below grade level decreases. Results reveal that, even controlling for this measure of science skill, teachers are still more likely to rate children diagnosed with ADHD as performing below grade level versus at grade level (b=.905, $p < .001$).

[TABLE 3 ABOUT HERE]

The full model adds variables capturing student, parent, and school characteristics. Again we see a counterintuitive finding with regards to students' race/ethnicity: Hispanic students are less likely to be rated as below grade level than whites. Being female also decreases the likelihood of receiving a teacher rating of below grade level relative to at grade level in science. As age increases so does the likelihood of being rated as below grade level. Returning to Table 3, we see that parental education is no longer significant, but all the parental income categories are significant indicating that earning more than $30,000 annually decreases the chances of being rated as below grade level in science There are several regional effects in this model: Attending school in the Midwest, and West, compared to the South, is associated with an increased likelihood of being rated as below rather than at grade level in science.

Most importantly, in the full model the negative impact of ADHD diagnosis on teacher ratings persist. That is, teachers are significantly more likely to rate children with ADHD as below grade level rather than at grade level, in comparison to their non-ADHD peers (b=.690, p

< .001). These findings indicate that the moderating effects of student characteristics, parental background, or school features do not explain teachers' negative perceptions of the students diagnosed with ADHD. (Please see the Appendix for math and reading logistic regression estimates).

Comparing Across Academic Subjects

In this final section, I display how generalizable the science findings are to math and reading—the two additional academic subjects also included in the ECLS-K data. Here I present the relative risk ratios from multinomial regressions, comparing at grade level teacher ratings to both above grade ratings and below grade ratings. For each subject—science, math, and reading—I show three models: the base model only including ADHD diagnosis, a model adding IRT test score for that subject, and a final model including the full set of student, parent, and school controls discussed earlier. The results of these analyses are condensed in Table 4. Only the relative risk ratios for ADHD diagnosis are presented, as the other control variables operate in ways that are consistent with the results presented in Tables 2 and 3.

For math, children diagnosed with ADHD have a smaller relative risk of being rated as above grade level versus at grade level across all three models (*base*=.511, $p < .001$; base+*IRT*=.636, $p < .01$; *full*=.639, $p < .01$). These same children also have a larger relative risk of being rated as below grade level relative to at grade level (*base*=2.878, $p < .001$; *base*+*IRT*=2.113, $p < .001$; *full*=1.940, $p < .001$). For reading, children diagnosed with ADHD have a smaller relative risk of being rated as above grade level (*base*=.438, $p < .001$; *base*+*IRT*=.526, $p < .01$; *full*=.553, $p < .01$), and a larger relative risk of being rated as below grade level compared to at grade level (*base*=2.501, $p < .001$; *base*+*IRT*=1.808, $p < .001$;

full=1.663, $p < .01$) across models. Lastly, for science this pattern once again holds consistent (see Table 4).

These results indicate that teachers are both less likely to rate children diagnosed with ADHD as above grade level and more likely to rate these otherwise similar children as below grade level relative to at grade level across subjects. The findings provide strong evidence that the ADHD label is driving teachers' negative perceptions of the academic achievement of students with this diagnosis. (See the Appendix for complete science, math, and reading relative risk ratios).

[TABLE 4 ABOUT HERE]

DISCUSSION AND CONCLUSION

Although research on teacher perceptions has been expanding in the area of race, there is very little work that focuses on developmental disabilities. This is particularly problematic in the case of ADHD diagnoses, which have increased dramatically in the last ten years. The aim of this research was twofold: (1) to investigate the ADHD label as having a potential influence on teacher perceptions and (2) to understand the implications for how teachers view students diagnosed with ADHD versus those who are not. This study offers a detailed and comprehensive picture of the relationship between ADHD diagnoses and teacher perceptions.

Results of this study indicate that teachers hold negative perceptions of children diagnosed with ADHD, and that this has consequences for how they rate students' educational skills. Specifically, teachers are less likely to rate students with ADHD as above grade level in science compared to students without ADHD, despite the student's actual academic ability. After adjusting for student, parent, and school characteristics, this pattern holds across multiple subjects—including math and reading. Moreover, results indicate that teachers assume students

with ADHD perform worse than their test scores suggest they are capable of. Teachers are more likely to rate students diagnosed with ADHD as performing below grade level in science, even controlling for student's science ability. Again, this pattern is consistent for math and reading too, and holds with the addition of explanatory variables.

These findings provide significant support for the notion that ADHD is a label that is associated with considerable social stigma. These findings are important for the study of developmental disabilities and the possible effects (both direct and indirect) that these disabilities have on children's academic achievement. In many ways, diagnosis may be a double-edged sword for children and their families.

Being diagnosed with a developmental disability allows for children to receive special resources and effective treatments while enrolled in school—e.g., specialized IEP plans, one-on-one teaching, academic and dietary accommodations, etc. (Arcia et al. 2000; Ohan et al. 2011). Parents often fight for their children to receive these resources, as they believe they will benefit their children. They may even seek additional evaluative services outside of the school—potentially at a high financial price—to guarantee a diagnosis that requires the school to provide resources for their child.

Yet, these efforts may come at a cost. This research indicates that students who are diagnosed are perceived as performing worse than their peers, even when this assumption is not warranted. Teachers' inability to accurately assess the abilities of ADHD students implies that a diagnosis may in fact be harming, rather than helping those who are diagnosed. This harm may be due in part to the stereotype surrounding the disability. For example, as noted earlier, ADHD often evokes the image of a hyperactive little boy; this child may be thought of as having difficulty focusing and trouble completing work assigned within the classroom. Such a

stereotype may limit teachers' abilities to see what students with this diagnosis are actually capable of achieving.

In the early 2000's, ADHD rates among whites were highest—likely due to greater access to resources necessary to procure a diagnosis. However, as noted earlier, rates of ADHD diagnosis for black and Puerto Rican children have increased—nearly matching the rates for white children. Given evidence of negative race-based perceptions of student behavior and ability, we might even imagine that rates among minority students may surpass diagnoses among white students. This may be the case as schools become more equipped and efficient in referring students. Should this occur, there is a potential for negative perceptions associated with ADHD diagnoses to become racialized.

In many ways, ADHD shares commonalities with other mental health disorders. Research has documented that individuals who are diagnosed with bipolar disorder, depression, or schizophrenia face similar negative social perceptions (Lee et al. 2005; Lim et al. 2004; Lysaker et al. 2007; Meiser et al. 2007; Michalak et al. 2007; Michalak et al. 2006; Phelan et al. 2000; Sajatovic et al. 2008; Wang and Lai 2008). As that work suggests, there can be consequences for labeled individuals in terms of their abilities to move through social and educational settings.

Similarly, the negative stereotype associated with ADHD youth may set a precedent for what labeled youth can and cannot do, impacting their future educational success (Manuzza et al. 1997; Rogers et al. 2009). As these findings suggest, even at an early age in school, differences in perceptions of developmental disabilities reinforce the principles behind the labeling theory. The labeling of developmental disabilities may thus lend itself to creating a stereotype of the disorder, and a negative one at that. These stereotypes may fuel disparities in access to educational resources, student discipline, and classroom placement.

Improving the success of students diagnosed with a developmental disability may rely on early teacher intervention programs. These interventions must work to improve teacher's abilities to objectively assess student knowledge and capabilities. However, these interventions alone may not be able to combat the stereotypes surrounding developmental disabilities, specifically ADHD. Instead, these interventions should include another component encouraging teachers to participate in self-reflection to think about how their own assumptions might influence their decision making and actions. These two steps will help to increase teachers objectivity in assessment skills, as well as address developmental disability stereotypes troubling classrooms across the nation.

This study has a few limitations. There is a small sample size of ADHD positive diagnoses. Yet, even with a small population of children diagnosed with ADHD, there is a significant relationship between diagnosis and negative teacher ratings. This suggests, if anything, that the finding is particularly robust. In addition, the study does not allow for active observation of teacher behavior, making it difficult to determine if teachers actually act on their perceptions of ADHD students. Yet, as previous research discusses, white teachers are much more likely to unfavorably perceive their black students and these unfavorable perceptions negatively impact these students test performance (Oates 2003). Thus indicating that unfavorable teacher perceptions pose serious implications for student's achievement.

Future research will require far richer data on teacher-student interactions in early education settings. Qualitative data will allow for researchers to ascertain how teachers from varying backgrounds—racial, class, and gender—define developmental disabilities, like ADHD, to gain a better understanding of how they might perceive these students. A much larger sample

of children diagnosed and labeled with ADHD is also needed to recognize national trends that may be leading to the increased prevalence of ADHD in the United States.

In addition, different educational settings may have different impacts on children diagnosed with ADHD. An educational context that supports children's movement, free-play, and outdoor activities, and builds-in assumptions about children as naturally active, may lead teachers to perceive children with ADHD more positively than in contexts where young children are expected to be restrained and spend most of the day at a desk. Going forward, it will also be important to assess the extent to which teachers act on their perceptions, perhaps considering the relationship between ADHD diagnosis and remedial or GATE ability group placement.

This study clearly shows the value of examining teacher perceptions of developmental disabilities. Although, research is lacking on teacher perceptions of the ADHD diagnosis, these patterns are consistent with the research on the impact of teacher perceptions of other marginalized groups (i.e. racial minorities), as well the research on stigma surrounding the ADHD label. Stereotypes can work against students within the classroom, as teachers often use these to assess and interact with their students on a daily basis without realizing the consequences. Ironically, in the case of ADHD, parents are often eager to obtain the very diagnoses that may negatively impact their children's educational experiences.

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TABLES

Table 1. *Early Childhood Longitudinal Study, First Grade Wave Descriptive and Coding Characteristics, ECLS-K:2011 (**N=10,423**)*

Variable	Description and Coding	Mean	SD
Dependent Variables			
Science Grade Level Rating	'Overall, how would you rate this child's academic skills in science, compared to other children of the same grade level?' 0= below; 1= at; 2= above	1.181	.557
Math Grade Level Rating	'Overall, how would you rate this child's academic skills in mathematics, compared to other children of the same grade level?' 0= below; 1= at; 2= above	1.224	.698
Reading Grade Level Rating	'Overall, how would you rate this child's academic skills in reading/literacy, compared to other children of the same grade level?' 0= below; 1= at; 2= above	1.190	.788
Key Independent Variable			
ADHD Diagnosis	Positive diagnosis of ADHD and/or ADD coded as a 1	.032	.177
Key Explanatory Variables			
IRT Literacy Score	Reading item response theory (IRT) score (ranges from 25.49 to 95.13)	71.214	12.514
IRT Science Score	Science item response theory (IRT) score (ranges from 9.54 to 43.41)	27.281	6.466
IRT Math Score	Math item response theory (IRT) score (ranges from 15.53 to 93.996)	64.535	12.668
Student Characteristics			
Female	1 if Female	.499	.500
Race			
White	1 if White	.524	.499
Black	1 if Black	.100	.300
Hispanic	1 if Hispanic	.240	.427
Asian	1 if Asian	.076	.265
Other race	1 if other race	.013	.114
Two or more races	1 if two or more races	.046	.210
Age	Continuous variable of student age measured in months (ranges from 65.23 to	85.542	4.335

	109.4)		
Parent Characteristics	Annual household income (imputed by NCES)		
Income			
$30,000 or less	1 if $30,000 or less	.305	.460
$30,001-$50,000	1 if $30,001-$50,000	.167	.373
$50,001-$75,000	1 if $50,001-$75,000	.167	.373
$75,001-$100,000	1 if $75,001-$100,000	.131	.338
$100,001 or more	1 if $10,001 or more	.230	.421
Education	Highest level of parental education		
Less than HS	1 if less than HS	.084	.277
HS diploma/equivalent	1 if HS diploma/equivalent	.192	.394
Some College/Voc. Prog.	1 if Some College/Vocational program	.298	.458
Bachelor's Degree	1 if Bachelor's Degree	.221	.415
Advanced Degree	1 if Advanced Degree	.204	.403
School Characteristics			
Private	1 if Private School	.112	.316
Region			
Northeast	1 if Northeast	.167	.373
Midwest	1 if Midwest	.207	.406
South	1 if South	.371	.483
West	1 if West	.254	.435

Table 2. *Multinomial Logistic Regression Coefficients for Above Grade Level Science Skills on ADHD Diagnosis and Explanatory Variables, ECLS-K:2011 (**N=10,423**)*

	Base Model	Base Model + IRT Score	Full Model
ADHD	-.879***	-.825***	-.825***
	(.175)	(.179)	(.182)
IRT Score		.115***	.116***
		(.004)	(.005)
Student Characteristics			
Female			-.149**
			(.048)
Race			
Black			.210*
			(.096)
Hispanic			.553***
			(.070)
Asian			.650***
			(.091)
Other race			-.032
			(.231)
Two or more races			.392***
			(.110)
Age			.016**
			(.006)
Parent Characteristics			
Education			
HS diploma/equivalent			-.085
			(.119)
Some College/Voc. Prog.			.041
			(.117)
Bachelor's Degree			.305*
			(.126)
Advanced Degree			.504***
			(.130)
Income			
$30,001-$50,000			.043
			(.080)
$50,001-$75,000			-.011
			(.084)
$75,001-$100,000			-.020
			(.093)
$100,001 or more			-.064
			(.088)
School Characteristics			
Private School			-.119
			(.076)

Region			
Northeast			-.201**
			(.073)
Midwest			-.253***
			(.067)
West			-.144*
			(.064)
Constant	-.900***	-4.211***	-5.760***
	(.023)	(.127)	(.520)

Notes: Omitted categories are White, less than hs, $30,000 or less, and south. Age is in months. Standard errors are in parentheses.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3. *Multinomial Logistic Regression Coefficients for Below Grade Level Science Skills on ADHD Diagnosis and Explanatory Variables, ECLS-K:2011 (**N=10,423**)*

	Base Model	Base Model + IRT Score	Full Model
ADHD	.885***	.905***	.690***
	(.144)	(.155)	(.159)
IRT Score		-.166***	-.162***
		(.007)	(.008)
Student Characteristics			
Female			-.366***
			(.078)
Race			
Black			-.240
			(.130)
Hispanic			-.306**
			(.111)
Asian			-.300
			(.174)
Other race			-.194
			(.319)
Two or more races			.008
			(.209)
Age			.044***
			(.009)
Parent Characteristics			
Education			
HS diploma/equivalent			.095
			(.123)
Some College/Voc. Prog.			-.015
			(.130)
Bachelor's Degree			-.126
			(.169)
Advanced Degree			-.065
			(.196)
Income			
$30,001-$50,000			-.281*
			(.111)
$50,001-$75,000			-.395**
			(.133)
$75,001-$100,000			-.581**
			(.172)
$100,001 or more			-.846***
			(.170)
School Characteristics			
Private School			-.150
			(.165)

Region			
Northeast			.193
			(.121)
Midwest			.261*
			(.113)
West			.389***
			(.102)
Constant	-2.123***	1.797***	-1.663*
	(.038)	(.151)	(.766)

Notes: Omitted categories are White, less than hs, $30,000 or less, and south. Age is in months. Standard errors are in parentheses.

* $p < .05$, ** $p < .01$, *** $p < .00$

Table 4. *Multinomial Logistic Regression of Academic Achievement on ADHD Diagnosis and Explanatory Variables (Relative Risk Ratios), ECLS-K:2011 (**N=10,423**)*

	Above vs. At Grade Level			Below vs. At Grade Level		
Subject	Base Model	Base Model + IRT Score	Full Model	Base Model	Base Model + IRT Score	Full Model
Science	.415***	.438***	.438***	2.423***	2.472***	1.994***
Math	.511***	.636**	.639**	2.878***	2.113***	1.940***
Reading	.438***	.526**	.553**	2.501***	1.808***	1.663**

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$

Appendix

Table 5. *Multinomial Logistic Regression Coefficients for Above Grade Level Math Skills on ADHD Diagnosis and Explanatory Variables, ECLS-K:2011 (**N=10,423**)*

	Base Model	Base Model + IRT Score	Full Model
ADHD	-.672***	-.453**	-.448**
	(.154)	(.169)	(.172)
IRT Score		.097***	.104***
		(.003)	(.003)
Student Characteristics			
Female			-.119*
			(.048)
Race			
Black			.402***
			(.094)
Hispanic			.474***
			(.070)
Asian			.592***
			(.092)
Other race			-.071
			(.221)
Two or more races			.271*
			(.115)
Age			.010
			(.006)
Parent Characteristics			
Education			
HS diploma/equivalent			-.101
			(.111)
Some College/Voc. Prog.			-.076
			(.111)
Bachelor's Degree			.037
			(.12)
Advanced Degree			.107
			(.125)
Income			
$30,001-$50,000			.073
			(.079)
$50,001-$75,000			.049
			(.083)
$75,001-$100,000			-.002
			(.092)
$100,001 or more			-.170
			(.088)
School Characteristics			
Private School			-.157*
			(.076)
Region			

Northeast			-.105
			(.073)
Midwest			-.144*
			(.067)
West			-.048
			(.064)
Constant	-.180***	-6.786***	-8.134***
	(.022)	(.180)	(.536)

Notes: Omitted categories are White, less than hs, $30,000 or less, and south. Age is in months. Standard errors are in parentheses.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6. *Multinomial Logistic Regression Coefficients for Below Grade Level Math Skills on ADHD Diagnosis and Explanatory Variables, ECLS-K:2011 (**N=10,423**)*

	Base Model	Base Model + IRT Score	Full Model
ADHD	1.057***	.748***	.662***
	(.124)	(.144)	(.147)
IRT Score		-.113***	-.117***
		(.003)	(.004)
Student Characteristics			
Female			.036
			(.067)
Race			
Black			-.200
			(.107)
Hispanic			-.269**
			(.091)
Asian			-.420*
			(.170)
Other race			-.496
			(.289)
Two or more races			-.260
			(.180)
Age			.024**
			(.008)
Parent Characteristics			
Education			
HS diploma/equivalent			.173
			(.117)
Some College/Voc. Prog.			.193
			(.120)
Bachelor's Degree			.177
			(.146)
Advanced Degree			.172
			(.163)
Income			
$30,001-$50,000			-.115
			(.096)
$50,001-$75,000			-.182
			(.110)
$75,001-$100,000			-.148
			(.133)
$100,001 or more			-.495***
			(.133)
School Characteristics			
Private School			-.236
			(.127)
Region			
Northeast			.210*

			(.101)
Midwest			.592***
			(.094)
West			.365***
			(.089)
Constant	-1.130***	5.308***	3.287***
	(.030)	(.192)	(.686)

Notes: Omitted categories are White, less than hs, $30,000 or less, and south. Age is in months. Standard errors are in parentheses.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 7. *Multinomial Logistic Regression Coefficients for Above Grade Level Reading Skills on ADHD Diagnosis and Explanatory Variables, ECLS-K:2011 (**N=10,423**)*

	Base Model	Base Model + IRT Score	Full Model
ADHD	-.826***	-.642**	-.592**
	(.165)	(.193)	(.197)
IRT Score		.148***	.155***
		(.004)	(.004)
Student Characteristics			
Female			.113*
			(.053)
Race			
Black			.219*
			(.098)
Hispanic			.534***
			(.078)
Asian			.288**
			(.101)
Other race			.211
			(.238)
Two or more races			.183
			(.127)
Age			.015*
			(.006)
Parent Characteristics			
Education			
HS diploma/equivalent			-.210
			(.126)
Some College/Voc. Prog.			-.202
			(.125)
Bachelor's Degree			-.100
			(.136)
Advanced Degree			.003
			(.141)
Income			
$30,001-$50,000			.016
			(.086)
$50,001-$75,000			.136
			(.091)
$75,001-$100,000			-.008
			(.101)
$100,001 or more			-.099
			(.096)
School Characteristics			
Private School			-.348***
			(.083)
Region			
Northeast			-.090
			(.079)

Midwest			-.052
			(.074)
West			.001
			(.072)
Constant	.222***	-10.976***	-12.815***
	(.023)	(.278)	(.632)

Notes: Omitted categories are White, less than hs, $30,000 or less, and south. Age is in months. Standard errors are in parentheses.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 8. *Multinomial Logistic Regression Coefficients for Below Grade Level Reading Skills on ADHD Diagnosis and Explanatory Variables, ECLS-K:2011 (**N=10,423**)*

	Base Model	Base Model + IRT Score	Full Model
ADHD	.917***	.592***	.509**
	(.126)	(.151)	(.154)
IRT Score		-.134***	-.142***
		(.004)	(.004)
Student Characteristics			
Female			-.096
			(.065)
Race			
Black			-.475***
			(.112)
Hispanic			-.438***
			(.090)
Asian			-.129
			(.148)
Other race			-.203
			(.289)
Two or more races			-.012
			(.169)
Age			.015*
			(.007)
Parent Characteristics			
Education			
HS diploma/equivalent			.140
			(.117)
Some College/Voc. Prog.			.132
			(.120)
Bachelor's Degree			.178
			(.141)
Advanced Degree			.211
			(.156)
Income			
$30,001-$50,000			-.043
			(.096)
$50,001-$75,000			-.057
			(.107)
$75,001-$100,000			.030
			(.126)
$100,001 or more			-.186
			(.122)
School Characteristics			
Private School			-.143
			(.115)
Region			
Northeast			.108

			(.098)
Midwest			.469***
			(.090)
West			.170*
			(.086)
Constant	-.427***	8.101***	7.367***
	(.027)	(.231)	(.688)

Notes: Omitted categories are White, less than hs, $30,000 or less, and south. Age is in months. Standard errors are in parentheses.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 9. *Multinomial Logistic Regression of Science Skills on ADHD Diagnosis and Explanatory Variables (Relative Risk Ratios), ECLS-K:2011 (**N=10,423**)*

	Above vs. At Grade Level			Below vs. At Grade Level		
Variable	Base Model	Base Model + IRT Score	Full Model	Base Model	Base Model + IRT Score	Full Model
ADHD	.415***	.438***	.438***	2.423***	2.472***	1.994***
IRT Score		1.122***	1.123***		.847***	.851***
Student Characteristics						
Female			.862**			.694***
Race						
Black			1.233*			.786
Hispanic			1.739***			.736**
Asian			1.914***			.741
Other race			.969			.824
Two or more races			1.479***			1.008
Age			1.016**			1.045***
Parent Characteristics						
Education						
HS diploma/equivalent			.919			1.099
Some College/Voc. Prog.			1.042			.985
Bachelor's Degree			1.356*			.881
Advanced Degree			1.656***			.937
Income						
$30,001-$50,000			1.044			.755*
$50,001-$75,000			.989			.674**
$75,001-$100,000			.980			.559**
$100,001 or more			.938			.429***
School Characteristics						
Private School			.888			.861
Region						
Northeast			.818**			1.213
Midwest			.777***			1.299*
West			.866*			1.476***
Constant	.407***	.015***	.003***	.120***	6.030***	.190*

Notes: Omitted categories are White, less than hs, $30,000 or less, and south. Age is in months.
* $p < .05$, ** $p < .01$, *** $p < .001$

Table 10. *Multinomial Logistic Regression of Math Skills on ADHD Diagnosis and Explanatory Variables (Relative Risk Ratios), ECLS-K:2011 (**N=10,423**)*

	Above vs. At Grade Level			Below vs. At Grade Level		
Variable	Base Model	Base Model + IRT Score	Full Model	Base Model	Base Model + IRT Score	Full Model
ADHD	.511***	.636**	.638**	2.878***	2.113***	1.940***
IRT Score		1.102***	1.109***		.893***	.890***
Student Characteristics						
Female			.887*			1.037
Race						
Black			1.495***			.818
Hispanic			1.607***			.764**
Asian			1.808***			.657*
Other race			.931			.609
Two or more races			1.311*			.771
Age			1.010			1.025**
Parent Characteristics						
Education						
HS diploma/equivalent			.904			1.189
Some College/Voc. Prog.			.927			1.213
Bachelor's Degree			1.038			1.194
Advanced Degree			1.112			1.188
Income						
$30,001-$50,000			1.076			.891
$50,001-$75,000			1.050			.834
$75,001-$100,000			.998			.862
$100,001 or more			.845			.610***
School Characteristics						
Private School			.854*			.790
Region						
Northeast			.900			1.234*
Midwest			.866*			1.807***
West			1.049			1.441***

Constant	.835***	.001***	.000***	.323***	201.887***	26.752***

Notes: Omitted categories are White, less than hs, $30,000 or less, and south. Age is in months.
* $p < .05$, ** $p < .01$, *** $p < .001$

Table 11. *Multinomial Logistic Regression of Reading Skills on ADHD Diagnosis and Explanatory Variables (Relative Risk Ratios), ECLS-K:2011 (**N=10,423**)*

	Above vs. At Grade Level			Below vs. At Grade Level		
Variable	Base Model	Base Model + IRT Score	Full Model	Base Model	Base Model + IRT Score	Full Model
ADHD	.438***	.526**	.553**	2.501***	1.808***	1.663**
IRT Score		1.160***	1.167***		.874***	.868***
Student Characteristics						
Female			1.120*			.908
Race						
Black			1.245*			.622***
Hispanic			1.705***			.645***
Asian			1.334**			.879
Other race			1.235			.816
Two or more races			1.201			.988
Age			1.015*			1.015*
Parent Characteristics						
Education						
HS diploma/equivalent			.811			1.151
Some College/Voc. Prog.			.817			1.142
Bachelor's Degree			.905			1.195
Advanced Degree			1.003			1.235
Income						
$30,001-$50,000			1.016			.958
$50,001-$75,000			1.145			.945
$75,001-$100,000			.992			1.031
$100,001 or more			.906			.831
School Characteristics						
Private School			.706***			.867
Region						
Northeast			.914			1.114
Midwest			.950			1.598***

West			1.001			1.186*
Constant	1.249***	.000***	.000***	.652***	3297.678***	1582.604***

Notes: Omitted categories are White, less than hs, $30,000 or less, and south. Age is in months.
* $p < .05$, ** $p < .01$, *** $p < .001$