

THE EFFECT OF LABELING BIAS ON DIAGNOSTIC  
DECISION MAKING FOR DEVELOPMENTALLY  
DELAYED CHILDREN

By

SAMUEL PETER EDWARD MASON

Bachelor of Science in Psychology  
Washington and Lee University  
Lexington, Virginia  
2014

Master of Science in School Psychology  
Oklahoma State University  
Stillwater, Oklahoma  
2015

Submitted to the Faculty of the  
Graduate College of the  
Oklahoma State University  
in partial fulfillment of  
the requirements for  
the Degree of  
DOCTOR OF PHILOSOPHY  
July, 2019

THE EFFECT OF LABELING BIAS ON DIAGNOSTIC  
DECISION MAKING FOR DEVELOPMENTALLY  
DELAYED CHILDREN

Dissertation Approved:

Dr. Gary Duhon

---

Dissertation Adviser

Dr. Terry Stinnett

---

Dr. Brian Poncy

---

Dr. Mwarumba Mwavita

---

Name: SAMUEL PETER EDWARD MASON

Date of Degree: JULY, 2019

Title of Study: THE EFFECT OF LABELING BIAS ON DIAGNOSTIC DECISION  
MAKING FOR DEVELOPMENTALLY DELAYED CHILDREN

Major Field: SCHOOL PSYCHOLOGY

Abstract: The purpose of the current study is to determine if labeling a child during the re-evaluation process affects the decision making of school team members, specifically school psychologists, regular education teachers, and special education teachers. It was hypothesized that participants who were exposed to a vignette that labeled a developmentally delayed student as having ODD would report higher likelihood ratings of the presence of ODD symptomology in the student as opposed to participants who were not exposed to a label. Methods consisted of an online survey in which participants were presented a vignette describing a student, either with or without an ODD label, and were asked to rate the likelihood of the student having ODD, ADHD, ID, or No Exceptionality. Findings showed participants who were exposed to the vignette containing the ODD label were more likely to report higher likelihood ratings of the presence of ODD symptomology in the student. This study suggests a need to avoid qualifying a student for the developmentally delay using the criteria of another special education category.

## TABLE OF CONTENTS

Chapter	Page
I. REVIEW OF LITERATURE .....	1
Labeling and Stigma of Mental Disorders .....	1
Negative Impact of Labels .....	1
Labeling and Help-Seeking.....	3
Diagnostic Decision Making and Non-Clinical Influences .....	4
Patient-related Factors .....	4
Physician-related Factors .....	9
Features of the Practice.....	10
Diagnostic Criteria for Mental Disorders .....	11
Oppositional Defiant Disorder.....	11
Attention Deficit Hyperactivity Disorder .....	12
Intellectual Disability.....	13
IDEA Definition of Developmental Delay .....	13
Developmental Delay.....	14
Misdiagnosis of Mental Disorders .....	14
Conclusion .....	16
II. METHODOLOGY.....	17
Purpose.....	17
Participants.....	17
Materials .....	18
Procedure .....	19
III. FINDINGS .....	20

Chapter	Page
IV. CONCLUSION.....	24
Alternate Explanations.....	26
Limitation.....	27
Future Studies .....	27
REFERENCES .....	29
APPENDICES .....	42
APPENDIX A.....	42
APPENDIX B.....	43
APPENDIX C.....	44
APPENDIX D.....	45

## LIST OF TABLES

Table	Page
1. Rated Likelihood of ODD.....	20
2. Rated Likelihood of ADHD.....	21
3. LSD Post Hoc for Rated Likelihood of ADHD.....	21
4. Rated Likelihood of ID.....	22
5. Rated Likelihood of No Exceptionality.....	22

## CHAPTER I

### REVIEW OF LITERATURE

#### **Labeling and Stigma of Mental Disorders**

The recognition and labeling of mental disorders are meant to guide help-seeking and treatment (Dumesnil & Verger, 2009). However, the use of labels has the potential to fuel stigmatizing attitudes towards those with mental disorders. Debate has existed in the literature surrounding the potential harm of labels.

#### **Negative Impact of Labels**

Studies in the literature have examined the association between labeling and stigma related to mental disorders. Specifically, labeling a person with a mental disorder can have a negative impact on the individual and their families. Stigmatizing beliefs are derived from false assumptions of the stigmatized individuals that they are incapable or may cause harm, and should be excluded (Rusch, Angermeyer, & Corrigan, 2005).

Children specifically have negative views of mental disorders and associated behaviors (Hinshaw, 2005). Discrimination of individuals with mental disorders can be expressed overtly rather than indirectly because this discrimination may be seen as acceptable (Hinshaw, 2005). Mak and Cheung (2008) found that stigma among caregivers of children with mental disorders was associated with feelings of stress.

Individuals with mental disorders have been shown to experience rejection or discrimination from others (Corrigan & Watson, 2002; Feldman & Crandall, 2007; Link, Struening, Rahav, Phelan, & Nuttbrock, 1997). They may delay seeking help for their disorder to avoid stigma associated with the label and service (Schomerus & Angermeyer, 2008).

Different labels has shown to result in varying prognostic outlooks for students. In a study performed by Fox and Stinnett (1996), school psychologists, regular and special education teachers, and introductory psychology students read a vignette that described an elementary aged male student with behavior problems. The vignette varied across four labels among participants: conduct disordered, socially maladjusted, serious emotionally disturbed, and no exceptionality. Results showed that participants who were exposed to the serious emotionally disturbed label had a significantly poorer outlook for the student.

**Stigma of ADHD.** Hinshaw (2005) outlines four aspects of ADHD that lead to individuals with the disorder to be stigmatized. First, the disorder is not readily visible. The underlying reasons for an individual's behavior may not obvious to others. Second, the disorder is a lifelong problem which may cause stigmatization of individuals in areas where mental disorders are considered temporary and can be cured. Third, the disorder may be treated negatively in the media. Lastly, surrounding individuals may see behaviors associated with ADHD as controllable.

One study (Martin, Pescosolido, Olafsdottir, & McLeod, 2007) looked at the responses of participants when given vignettes portraying individuals with a variety of mental disorders. ADHD had the highest social rejection rate among participants. A study



performed by Law et al., (2007) had child participants read vignettes about same-age peers with ADHD symptomology and complete self-reports on attitude and behavioral intentions. Results showed an overall negative attitude toward the described peer. For example, the peer was described by the participant as ‘careless’, ‘crazy’, and ‘stupid’.

Teachers with ADHD diagnosed students in their classroom may assume that the students need extra instructional time and may have negative attitudes toward teaching them (Atkinson et al., 1997; Kauffman, Lloyd, & McGee, 1989). Eisenberg and Schneider (2007) found that both teachers and parents perceive the academic skills of students with ADHD negatively. Norvilitis and colleagues (2002) found that stigma among mothers of children with ADHD contributed to increased depression and anxiety symptomology. Hinshaw (2002) showed that negative perceptions held by teachers and parents can affect their interactions with ADHD children and negatively influence the children’s behavior and academic success. This threat of self-fulfilling prophecy can ultimately influence the educational level attained by the child (Madon, Guyll, Spoth, & Willard, 2004).

### **Labeling and Help-Seeking**

Despite the negative effects of labeling shown in the literature, some studies have shown labeling to play a key role in the help-seeking process when those labels are applied accurately. A study done by Wright et al., (2007) showed that accurately applied labels were consistently associated with a preference for recommended forms of treatment. Wright et al., (2011) examined how unprompted labels used by youth to describe individuals with mental disorders were associated with help-seeking intentions.

Results of this study showed that accurate labeling of mental disorders were predictive of a preference for professionally recommended sources of help than inaccurate or non-specific labels. Inaccurate labels such as ‘mental illness’ had weak associations. Non-specific labels such as ‘stress’ or ‘shy’ were predictive of less intention to seek help if the respondent experienced the same problem described in the presented vignette (Wright et al., 2011).

### **Diagnostic Decision Making and Non-Clinical Influences**

There are numerous outside influences that have shown to impact the diagnostic decision making of health care providers. Diagnostic decision making refers to making informed judgments on the diagnoses and treatment based on clinical criteria (Hajjaj et al., 2010). Ideally, these decisions are made objectively with the criteria of the diagnosis in mind. However, clinicians’ judgments may be affected by non-clinical influences. “Non-clinical influences” is a broad term referring influences that are used, whether consciously or not, that affect diagnosis outside of diagnostic criteria. These influences are also sometimes referred to as “non-medical” influences in the literature (McKinlay, Potter, & Feldman, 1966). There are three major categories of non-clinical influences: patient-related factors, physician-related factors, and features of the practice.

#### **Patient-related Factors**

***Socioeconomic status.*** In the United States, patients with low SES may receive poor or non-standard treatment as compared to patients with high SES (Bernheim, Ross, Krumholz, & Bradley, 2008). However, only 18 physicians participated in this study and there was no agreement among physicians on what defined ‘low socioeconomic status’.

This influence may not be as relevant in other health care systems, such as in the UK where free health care is offered (Hajjaj et al., 2010).

Studies have shown SES to play a role in influencing access to health care in Canada. Even with free health care, low SES patients visit specialists less often than high SES patients (Dunlop, Coyte, & McIssac, 2000). Low SES patients with acne were less likely to see a dermatologist (Haider, Mamdani, Shaw, Alter, & Shear, 2006). It is possible that difficulties traveling to a specialist (Ramchandani et al., 2007) or time commitments at work or with children (Cohen, Dreiherr, Vardy, & Weitzman, 2008) may account for these findings.

Cost of medical care may affect patients' treatment plan. High SES patients are more likely than low SES patients to have medical tests because they have the ability to pay for healthcare (Scott, Shiell, & King, 1996). Physicians may change the prescriptions of low SES patients by switching to cheaper drugs or to drugs covered by their patients' insurance (Huttin & Andral, 2000).

SES disparity can reduce healthcare quality to undesirable levels. In the United States, insured patients can access better primary care than uninsured patients. Privately insured patients can access better primary care than publically insured patients (Shi, 2000). Uninsured patients who pay for their medication are less likely to adhere to their treatment plan (Mitchell & Selmes, 2007; Piette, Wagnes, Potter, & Schillinger, 2004). Patients without health insurance receive less in-patient and out-patient services than insured patients (McDavid, Tucker, Sloggett, & Coleman, 2003). The uninsured also receive fewer cancer screenings and have different overall treatments for cancer

(McDavid et al., 2003; Roetzheim, Gonzalez, Ferrante, Pal, van Durme, & Krischer, 2000). Those patients with breast cancer specifically are less likely to receive appropriate screening and standard treatment than insured patients (Herbert-Croteau, Brisson, & Pineault, 2000; O'Malley, Earp, Hawley, Schell, Matthews, & Mitchell, 2001). Uninsured patients are more likely to be diagnosed with late stage cancer (Roetzheim et al., 1999). They also have a higher mortality rate when diagnosed with breast cancer (Roetzheim et al., 2000). These results are suggested to be due to a delay in patients receiving medical care because of the assumed cost of treatment (Hajjaj et al., 2010).

**Race.** Past studies have shown race as a factor in influencing clinical decision-making. In the United States, white patients were more likely to receive zidovudine treatment for HIV infection than patients of other races (Stein, 1991). Black patients were more likely to receive less coronary artery bypass surgery as compared to white patients (Maynard, Fischer, & Passamani, 1986). Black patients were also less likely to receive invasive cardiovascular procedures (Kressin & Petersen, 2001).

Patient's race has been shown to influence the treatment of depression. Out of patients with similar depression symptomology, African-American patients were less likely than white patients to receive antidepressant medication (Waldman et al., 2009).

**Gender.** A patient's gender can affect clinical decision-making. Women receive many more medical services than men including laboratory tests, blood pressure checks, drug prescriptions, and physical examinations (Verbruggei & Steiner, 1981). Women also have more physician visits and return visits per year (Verbruggei & Steiner, 1981).

Physicians sometimes perceive complaints from women as being emotionally influenced and more likely than men to make excessive demands (Bernstein & Kane, 1981).

Diagnosis and treatment of cardiovascular disease may be delayed in women as compared to men because of a tendency among physicians to not recognize angina as a symptom in women (Learner & Kannel, 1986). Women have a higher mortality rate than men during coronary bypass surgery (Khan, Nessim, Gray, Czar, Chaux, & Matloff, 1990; Wegner, 1990). Some studies from different countries contrast these findings. Studies from Israel found no gender differences in the medical care of patients with angina (Ben-Ami, Gilutz, Porath, Sosna & Liel-Cohen, 2005) or depression (Frayne, Skinner, Lin, Ash, & Freund, 2004).

*Age.* The age of a patient can influence physician management decisions. Physicians are more likely to perceive complaints from older patients as normal rather than as symptoms of an illness (Haung & Ory, 1987). They are also less likely to be offered health advice (Little, Slocock, Griffin, & Phillinger, 1999). Among cardiac treatments, older patients receive delayed and fewer diagnostic interventions (Bond et al., 2003), fewer prevention drugs (Stafford & Singer, 1996), and fewer prescriptions (Soumerai, McLaughlin & Speigelman, 1997) as compared to younger patients. A study in Germany, however, found that older patients were more likely than younger patients to be diagnosed with and treated for coronary heart disease (Bonte, von dem Knesebeck, Siegrist, Marceau, Link, & McKinlay, 2007). This study used hypothetical scenarios given to physicians so results may not be generalizable to real world medical practice.

***Adherence to treatment.*** Patients who are suspected by their physician to not adhere to treatment are less likely to be treated. These patients are characterized as having a prior history of non-adherence, homeless, heavy drinkers, injection drug users, or who previously had psychiatric hospitalization (Bogart, Kelly, Catz, & Sosman, 2000).

***Wishes and preferences.*** Even when unnecessary or inappropriate, patients may prefer a particular type of management from their health care provider. Patient's wishes and preferences has been shown in the literature to influence these management decisions. In a study performed by Escher, Perneger, and Chevrolet (2004), 71% of physicians stated that patient's wishes influenced their decision when deciding to admit patients to the intensive care unit. In Iceland, physicians were found to be influenced by patient's wishes to prescribe antibiotics in cases where it was unnecessary (Petursson, 2005). They have also influenced the management decisions of dermatologist consultations (Hajjaj, Basra, Salek, Finlay, 2008). Patients diagnosed with cancer sometimes decline chemotherapy to trade a better chance of survival for better quality of life (Zafar, Alexander, Weinfurt, Schulman, & Abernethy, 2009).

***Attitude and behavior.*** A patient's demeanor can affect diagnostic decision making. Physicians sometimes deal with 'difficult' patients meaning than these patients are violent, aggressive, demanding, rude, or attempt to acquire secondary gain (Steinmetz & Tabenkin, 2005). According to Hahn (2001), approximately 10-20% of general practice physicians deal with 'difficult' patients. These patients visit their physician more frequently and receive more prescriptions (Steinmetz & Tabenkin, 2005). They also have twice the typical prevalence of pathological disorders (De Marco, 2005; Jackson &

Kroenke, 1999). Physicians may attempt to avoid these patients or change their management strategies for treatment in to satisfy them (Hajjaj et al., 2010).

### **Physician-related Factors**

*Physician personal characteristics.* The decisions made by a physician can be influenced by their own characteristics including personality, gender, age, and ethnicity. Physicians who are disease-oriented are more inclined towards immediate action while those who are patient-oriented are likely to observe the situation before treatment (Eisenberg, 1979). As compared to male physicians, female physicians are more likely to be influenced by socioemotional factors during decision making (Tracy, Dantas, Moineddin, & Upshur, 2005). Female physicians are also more likely than male physicians to spend more time with their patients (Bensing, Brink-Muinen, & Bakker, 1993; Franks & Bertakis, 2003). When patients and physicians are the same gender, consultation times are longer (Franks & Bertakis, 2003). Female physicians tend to focus consultation on disease prevention and counseling. Male physicians tend to focus consultation on practical issues and substance abuse discussions (Bertakis, Franks, & Azari, 2003).

Younger physicians are more likely than older physicians to administer tests to their patients (McKinley, Lin, Freud & Moskowitz, 2002). In Germany, older psychiatrists were found to be more likely to adopt newer anti-psychotic medication earlier than younger psychiatrists (Hamann, Adjan, Leuchat & Kissling, 2006).

A study performed by Modi and colleagues (2007) showed how a physician's race can affect decision-making. Among physicians recommending percutaneous endoscopic

gastrostomy (PEG) tube placement for patients suffering from advanced dementia, 13% of Caucasians recommended the tube as compared to 54.3% of Asians and 40% of African-American physicians despite existing evidence that PEG tubes do not benefit patients with advanced dementia.

***Physician's professional interaction.*** Physicians that are more involved in the medical community are more likely to adopt new drugs into their practice (Prosser & Walley, 2003; Feely, Chan, McManus, & O'Shea, 1999). Pharmacological companies can influence the use of their drugs by physicians through interaction with a pharmacological representative from the company (Wofford, 2005), by providing drug samples (Adair & Holmgren, 2005), providing gifts to the physicians (Wazana, 2000), or by providing funding for research (Wazana, 2000).

### **Features of the Practice**

***Private versus public medical practice.*** Physicians who practice in client-dependent practices are more likely to respond to patient wishes and preferences about treatment. Physicians who practice in colleague-dependent practices are likely to respond to influences from their medical peers (Eisenberg, 1979). In Chile, higher rates of Caesarean sections among pregnant women are found in the private sector as compared to the public sector or university hospitals (Murray, 2000).

***Management policies.*** Cost considerations can play a role in physician decision-making. A lack of resources in Intensive Care Units (ICU) can result in releasing patients prematurely and increase mortality rate (Lin, Chaboyer, & Wallis, 2009). Differences in healthcare systems in different countries can also influence management decisions. The



proportion of patients who receive treatment for actinic keratosis is higher in the United States as compared to Australia or Canada (Spencer, 2005).

### **Diagnostic Criteria for Mental Disorders**

Specific criteria must be met for an individual to be diagnosed with a mental disorder. These criteria are outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V). The current study makes use of three disorders found in the DSM-V: Oppositional Defiant Disorder, Attention Deficit Hyperactivity Disorder, and Intellectual Disability.

#### **Oppositional Defiant Disorder**

For a child to be diagnosed with ODD under the DSM-V, a client must meet three criteria. First, the client must show a pattern of irritable mood, defiant behavior, or vindictiveness lasting at least 6 months. Second, the client's disturbance in behavior is associated with distress in their immediate social context or negatively impacts important areas of functioning. Third, present behaviors do not occur exclusively during the course of a psychotic, substance use, depressive, or bipolar disorder. ODD ranges in severity from mild to severe. For a client with mild ODD, symptoms are confined to only one setting. For a client with moderate ODD, symptoms are present in at least two settings. For a client with severe ODD, symptoms are present in three or more settings (APA, 2013).

## **Attention Deficit Hyperactivity Disorder**

For a child to be diagnosed with ADHD under the DSM-V, a client must meet the criteria for inattention, hyperactivity/impulsivity, or both. To meet the criteria for inattention, six or more of the following symptoms must be present for at least 6 months: fails to pay close attention to details, has difficulty sustaining attention, doesn't seem to listen when spoken to directly, fails to follow through on instructions and fails to finish schoolwork or chores, has trouble getting organized, avoids or dislikes doing things that require sustained focus, loses things frequently, easily distracted by others, and forgets things. To meet the criteria for hyperactivity and impulsivity, six or more of the following symptoms must be present for at least 6 months: fidgets with hands/feet or squirms in chair, frequently leaves chair when seating is expected, runs or climbs excessively, trouble playing/engaging in activities quietly, acts "on the go" as if "driven by a motor", talks excessively, blurts out answers before questions are completed, has trouble waiting or taking turns, and interrupts or intrudes on what others are doing. For both inattention and hyperactivity/impulsivity, the symptoms must be inconsistent with the developmental level of the child and have a negative effect on their social and academic activities. If a child meets the criteria for inattention, they can be diagnosed as ADHD Predominantly Inattentive Presentation (ADHD-PI). If a child meets the criteria for hyperactivity/impulsivity, they can be diagnosed as ADHD Predominantly Hyperactive-Impulsive Presentation (ADHD-PHI). If a child meets the criteria for both inattention and hyperactivity/impulsivity, they can be diagnosed as ADHD Combined Presentation (ADHD-C) (DSM-V; American Psychiatric Association, 2013).

A comprehensive diagnostic assessment of ADHD involves multiple reporters (such as teachers and parents) and multiple measures (observations, diagnostic interviews, and behavior rating scales) to determine if a child's behavior and functioning meets the DSM-V criteria (Anastopoulos & Shelton, 2014).

### **Intellectual Disability**

For a child to be diagnosed with Intellectual Disability under the DSM-V, the client must meet three criteria. The first criteria is deficits in intellectual functioning. Intellectual functioning includes various mental abilities including reasoning, problem solving, planning, abstract thinking, judgement, academic learning, and experiential learning. These mental abilities are measured using IQ tests that are standardized and culturally appropriate. A deficit in intellectual functioning is reflected with an IQ score of 70 or below. The second criteria is deficits or impairment in adaptive functioning. Adaptive functioning includes skills such as communication, social skills, personal independence at home or in community settings, and school or work functioning. Deficits in adaptive functioning are measured using standardized and culturally appropriate tests. The third criteria is the deficits in intellectual and adaptive functioning occurred during the developmental period (APA, 2013).

### **IDEA Definition of Developmental Delay**

The purpose of The Individuals with Disabilities Education Act (IDEA) is to ensure that all children with disabilities have access free and appropriate public education in order to address their needs and prepare them for education, employment, and independent living. Before the creation of IDEA, many children with disabilities were

denied access to appropriate public education, placed in segregated classrooms, or not provided adequate support in general education classrooms (Katsiyannis, Yell, & Bradley, 2001; Martin, Martin, & Terman, 1996; Use of “Developmental Delay”, 2007).

### **Developmental Delay**

The developmental delay category under IDEA is used for children younger than nine who experience delays in one or more of the following domains: physical, cognitive, communication, social-emotional, or adaptive. To qualify for special education services, the child must function 1.5 standard deviations below the mean in two of these domains or 2 standard deviations below the mean in one domain. After a child has been placed in the developmental delay category, the child must be reevaluated before the child’s tenth birthday to determine the child’s eligibility under a specific disability category. In Oklahoma, children aged five to nine may also be placed in the developmental delay category should they meet the criteria for another specific disability category (Early Childhood Special Education, 2019).

### **Misdiagnosis of Mental Disorders**

The prevalence rates of mental disorders has shown a worldwide increase over the past 50 years according to data gathered from health insurance providers (Grobe, Blitzer & Swartz, 2013), national health services registers (Moreno, Laje, Blanco, Jiang, Schmidt & Olfson, 2007; Morrow, Garland, Wright, Maclure, Taylor, & Dormuth, 2012), and special education programs (Newshaffer, Falb, & Gurney, 2005).

The misdiagnosis of attention deficit/hyperactivity disorder has been well documented in the literature over the last several decades. Cotuono (1993) reexamined 92

children previously diagnosed with ADHD at a specialized ADHD center. After further evaluations, only 22% of these children were given a primary diagnosis of ADHD and 37% were given a secondary diagnosis. Desgranges and colleagues (1995) found that among 119 school-age clinical referrals for suspected ADHD, only 38% could be confirmed as ADHD cases after further diagnostic evaluation. Similarly, Wolraich et al. (1990) found that among 457 school-age children diagnosed with ADHD, only 72% fit the DSM-III-R criteria based on structured interviews with parents and only 53% based on structured interviews with teachers. More recently, Hartnett, Nelson, and Rinn (2004) brought to light the misdiagnosis of giftedness as ADHD in which students were referred to physicians for exhibiting ADHD-like symptomology that were also characteristic of being gifted. Chilakamarri, Filkowski, and Ghaemi (2011) also found an overdiagnosis of ADHD among patients during reevaluation. A study performed by Bruchmuller and colleagues (2012) showed a significantly higher number of false-positive than false-negative diagnoses of ADHD made by psychotherapists.

Various other mental disorders have been shown as misdiagnosed in the literature. Wiggins et al. (2015) analyzed education and health records from 2000 to 2006 and showed a 4% change in classification of patients from Autism to a non-Autism disorder. Woolfenden et al. (2012) reviewed 23 studies concerning the stability of the Autism Spectrum Disorder across 1466 participants with the disorder. Results showed a significant minority of participants with Autism Spectrum Disorder no longer met diagnostic criteria at follow-up. Krasa and Tolbert (1994) reevaluated the Bipolar Disorder diagnosis of discharged patients from an inpatient psychiatric service. Results showed 28% of patients received a different diagnosis during reevaluation. Chilakamarri

and colleagues (2011) found an underdiagnosis of Bipolar Disorder in a study that reevaluated the diagnoses of former patients in a community primary care mental health setting. A review of past evaluations performed by Pogge and colleagues (2014) suggested a high rate of undetected cases of intellectual disability leading to inappropriate hospitalized treatment. McKenna et al. (1993) showed that among a reevaluation of diagnoses of Schizophrenia given at major academic centers, 73% received a different diagnosis than Schizophrenia. Chilakamarri and colleagues (2011) found both underdiagnosis and overdiagnosis of Major Depressive Disorder among patients during reevaluation.

The literature covering misdiagnosis of mental disorders is well documented and shows a prevalence of misdiagnoses across recent history. This problem still exists in today's current literature leading to inappropriate treatments, as seen by Pogge and colleagues (2014) in which patients with undiagnosed intellectual disability were unnecessarily hospitalized. It is imperative that patients of all ages receive an appropriate diagnosis of their symptomology so that the appropriate treatment is offered.

## **Conclusion**

The literature suggests that it is important that psychologists are accurate in their diagnoses. An accurate diagnosis of a mental disorder can lead to effective treatments. In the cases of those individuals with ADHD, several effective interventions have been developed for treatment (Purdie, Hattie, & Carroll, 2002). However, for these interventions to be effective, a reliable and thorough diagnosis is needed. Giving an inaccurate diagnosis to a client can potentially do more harm than good.

## CHAPTER II

### METHODOLOGY

#### **Purpose**

The purpose of the current study is to determine if labeling a child during the re-evaluation process affects the decision making of school team members, specifically school psychologists, regular education teachers, and special education teachers. It was hypothesized that participants who were exposed to a vignette that labeled a student as having ODD would report higher likelihood ratings of the presence of ODD symptomology in the student as opposed to participants who were not exposed to a label.

#### **Participants**

A total of 81 individuals from Oklahoma participated in this study (39 school psychologists, 20 regular education teachers, and 22 special education teachers). Seven participants were excluded from the study for failing the manipulation check question ensuring that they read the vignette presented to them (5 school psychologists and 2 special education teachers). Participants were recruited via email either through direct email contact with the researcher (with permission from the participant's district) or through a mass email sent through the Oklahoma School Psychological Association (OSPA) or the Oklahoma State Department of Education.

## **Materials**

*Online survey.* An online survey from Qualtrics was used in this study. The survey consisted of two sections. The first section included a series of demographic questions. The second section included a vignette about the symptomology of a 10 year old student up for re-evaluation and questions about the vignette. The symptomology described in the vignette primarily mimicked ADHD symptomology. The survey was randomized so that half of the participants (control groups) received a modified version of Fox and Stinnett's (1996) vignette in which the student would be labelled only as "Developmental Delay" which the other half of participants (experimental groups) received a vignette in which the student was labelled as "Developmental Delay suspected of Oppositional Defiant Disorder". After the participant finished reading their vignette they answered two questions. The first question asked "Did the multidisciplinary team above reach a consensus during his initial evaluation that Jake met the criteria for special education eligibility?" in which participants could answer "Yes" or "No". The purpose of this question is to ensure participants attended to and read the vignette. The second question asked "What is the likelihood that Jake would fall under each disorder?" The participant was then provided with four Likert scales ranging from Very Unlikely to Very Likely. Each Likert scale was attributed to one of the following: Oppositional Defiant Disorder, Attention-Deficit/Hyperactivity Disorder, Intellectual Disability, and No Exceptionality. The order of Likert scales was randomized for each participant. The survey in its entirety took less than 15 minutes to complete.



## **Procedure**

Agreeing participants were send an email to an online survey. Participants would click the link and fill out the survey. When participants were finished with the survey, they would exit out of the window and their data was logged by the researcher.

## CHAPTER III

### FINDINGS

Data gathered from the current study were examined to determine if any significant findings were present. Several two-way ANOVAs were conducted that examined the effect of label presence and profession on the rated likelihood of ODD, ADHD, ID, and No Exceptionality.

Table 1

*Rated Likelihood of ODD*

	Sum of Squares	df	Mean Square	F	Sig
Label	11.452	1	11.452	13.777	.000**
Profession	2.616	2	1.308	1.573	.215
Label*Profession	.107	2	.053	.064	.938
Error	56.523	68	.831		

\* $p < 0.05$

\*\* $p < 0.01$

There was not a statistically significant interaction between the effects of label presence and profession on rated likelihood of ODD,  $F(2, 68) = .064, p = .938$ . However, there was a significant effect between label presence and rated likelihood of ODD,  $F(1, 68) = 13.777, p = .000$ .

Table 2

*Rated Likelihood of ADHD*

	Sum of Squares	df	Mean Square	F	Sig
Label	.094	1	.094	.181	.672
Profession	3.167	2	1.583	3.039	.054**
Label*Profession	4.255	2	2.127	4.083	.021**
Error	35.432	68	.521		

\*p &lt; 0.05

\*\*p &lt; 0.01

Table 3

*LSD Post Hoc for Rated Likelihood of ADHD*

Profession	Profession	Mean Difference	Std. Error	Sig
School Psychologist	Regular Education Teacher	.5000	.20342	.017**
	Special Education Teacher	.3000	.20342	.145
Regular Education Teacher	School Psychologist	-.5000	.20342	.017**
	Special Education Teacher	-.2000	.22827	.384
Special Education Teacher	School Psychologist	-.3000	.20342	.145
	Regular Education Teacher	.2000	.22827	.384

\*p &lt; 0.05

\*\*p &lt; 0.01

There was a statistically significant interaction between the effects of label presence and profession on rated likelihood of ADHD,  $F(2, 68) = 4.083$ ,  $p = .021$ . An LSD post hoc test revealed that the rated likelihood of ADHD was statistically significant between school psychologists and regular education teachers ( $p = .017$ ). There was no statistically significant difference between the school psychologists and special education teachers ( $p = .145$ ), nor the special education teachers and regular education teachers ( $p = .384$ ).

Table 4

*Rated Likelihood of ID*

	Sum of Squares	df	Mean Square	F	Sig
Label	.002	1	.002	.004	.949
Profession	16.646	2	8.323	14.529	.000**
Label*Profession	.406	2	.203	.354	.703
Error	38.954	68	.573		

\*p &lt; 0.05

\*\*p &lt; 0.01

There was not a statistically significant interaction between the effects of label presence and profession on rated likelihood of ID,  $F(2, 68) = .354, p = .703$ . However, there was a significant effect between profession and rated likelihood of ID,  $F(1, 68) = 14.529, p = .000$ .

Table 5

*Rated Likelihood of No Exceptionality*

	Sum of Squares	df	Mean Square	F	Sig
Label	.000	1	.000	.001	.981
Profession	.149	2	.074	.113	.893
Label*Profession	.101	2	.050	.076	.926
Error	44.881	68	.660		

\*p &lt; 0.05

\*\*p &lt; 0.01

There was not a statistically significant interaction between the effects of label presence and profession on rated likelihood of No Exceptionality,  $F(2, 68) = .076, p = .926$ .

Overall, results showed a significant effect between label presence and rated likelihood of ODD, a statistically significant interaction between the effects of label

presence and profession on rated likelihood of ADHD, and the rated likelihood of ADHD was statistically significant between school psychologists and regular education teachers. The next section will discuss the implications of these findings and future directions.

## CHAPTER IV

### CONCLUSION

Results show a statistical significance was found between label presence and the rated likelihood of ODD. Specifically, participants who were exposed to the vignette containing the ODD label were more likely to report higher likelihood ratings of the presence of ODD symptomology in the student.

According to Oklahoma Special Education Law, students aged five through nine can meet the criteria for developmental delay by meeting the criteria of another specific disability category (Oklahoma State Department of Education, 2019). Results of this study suggest that when a child under the special education category of developmental delay is due for re-evaluation, the assumed alternative disability may inappropriately affect the decision making skills of the evaluation team. Student reevaluation eligibility may unintentionally be determined by labeling bias rather than current data.

Findings suggest the need for accurate data during a student's initial evaluation if they are being considered for the special education category of developmental delay. The current study was based on the assumption that the student's initial evaluation was inaccurate as the vignette described ADHD symptomology even though the label was ODD. An accurate initial evaluation would help to bypass the labeling bias seen during

a student's re-evaluation and support appropriate special education services that match student need.

Although students aged five through nine can meet criteria for developmental delay by meeting the criteria of another special education category in Oklahoma, results suggest the alternative method of determining developmental delay would help to avoid the labeling bias. That is, a student may qualify for the special education category of developmental delay by functioning one and a half standard deviations below the mean in two domains or two standard deviations below the mean in one domain. It is imperative that school team members are aware of the labeling bias phenomenon and ensure their decisions are primarily based upon the current functioning of the student.

When looking at the effects of profession on the rated likelihood of ID, results show a statistical significance was found when comparing regular education teachers with both school psychologists and special education teachers. Specifically, regular education teachers overall were more likely to provide higher likelihood ratings of ID than other professions. A statistical significant was also found when comparing the effects of label presence and profession on the rated likelihood of ADHD. When both label and profession are taken into account, regular education teachers who were exposed to the ODD label overall rated higher likelihoods of ADHD as compared to regular education teachers who were not exposed to the label. From these results we can deduce that regular education teachers are not as experienced in mental disorder criteria as compared to other professions who deal with students in special education on a daily basis. In fact, there is evidence in these results that suggest that when regular education teachers are exposed to a label they are at risk of assuming the likelihood of a mental

disorder even if the symptomology does not match the provided label. In a re-evaluation setting, regular education teachers may be at risk of negatively influencing the school team causing a student to receive a special education category that does not fit their needs. This highlights a need for regular education teachers in particular to be provided education in mental disorders either in their schooling or school-wide professional development seminars.

### **Alternate Explanations**

Results of the current study found that participants who were exposed to the vignette containing the ODD label were significantly more likely to reported higher likelihood ratings of the presence of ODD symptomology in the student. This study attempts to address the negative effects of labeling bias, however, it is possible that current results are due to alternative explanations.

First, it is possible that current results are due to how participants approached answering the likelihood of each disability. Participants could have correctly come to the conclusion that the vignette described a student with ADHD symptomology but still choose ODD. In this case, “likelihood” may have been interpreted as the chance that the student would be identified with ODD according to the school team as a whole and not by the participant’s individual standards.

Second, this study was designed using a vignette as the only source of information about the student. In a proper reevaluation, the participant would ideally have access to a detailed developmental history, cognitive scores, academic skills, social/emotional abilities, and any other areas in question that relate to the overall functioning of the



student. It is possible that the labeling bias effect was significant because of the lack of information about the student. More information could have provided better insight into the student's functioning which would allow the participant to make better data based decisions.

### **Limitation**

The current study was designed using DSM-V diagnoses in mind rather than special education categories. The purpose of using DSM-V diagnoses was to examine the knowledge base of participants about DSM-V criteria for mental diagnoses and the ability to distinguish between them effectively. Although DSM-V diagnoses and special education categories have much overlap, the use of special education categories could have resulted in different, and possibly more accurate, outcome.

### **Future Studies**

Several possible future studies may be performed to shed more light onto the effect of labeling bias during the reevaluation of a student with developmental delay. First, a future study looking at the effect the labeling bias among special education categories rather than DSM-V diagnoses may provide more accurate results from participants. Second, providing a full evaluation report instead of a short vignette may allow for more accurate responses from participants in line with how they would actually evaluate a student during a reevaluation situation. Third, follow up studies can examine whether current results can be seen among different disorders (e.g. autism, intellectual disability, etc.). Finally, this study was based in Oklahoma with Oklahoma special education law in mind. Repeating the current study in states other than Oklahoma may

provide insight as to whether the current results can be attributed nation-wide.

## REFERENCES

- Adair R.F., & Holmgren, L.R. (2005). Do drug samples influence resident prescribing behavior? A randomized trial. *Am J Med*, 118(8), 881-884.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5<sup>th</sup> ed.). Washington, DC: Author.
- Anastopoulos, A.D., & Shelton, T.L. (2001). *Assessing attention-deficit/hyperactivity disorder*. New York, N.Y.: Kluwer Academic/Plenum Press.
- Atkinson, I.M., Robinson, J.A., & Shute, R.H. (1997). Between a rock and a hard place: An Australian perspective on education of children with ADHD. *Educ Child Psychol*, 14(1), 21-30.
- Ben-Ami, T., Gilutz, H., Porath, A., Sosna, G., & Liel-Cohen, N. (2005). No gender difference in the clinical management and outcome of unstable angina. *Isr Med Assoc J*, 7, 228-232.
- Bensing, J.M., Brink-Muinen, A., & Bakker, D.H. (1993). Gender differences in practice style: A Dutch study of general practitioners. *Med Care*, 31(3), 219-229.
- Bernheim, S.M., Ross, J.S., Krumholtz, H.M., & Bradley, E.H. (2008). Influence of patients' socioeconomic status on clinical management decisions: A qualitative study. *Ann Fam Med*, 6(1), 53-9.

- Bernstein, B., & Kane, R. (1981). Physicians' attitudes toward female patients. *Med Care*, 19(6), 600-608.
- Bertakis, K.D., Franks, P., & Azari, R. (2003). Effects of physician gender on patient satisfaction. *J Am Med Womens Assoc*, 58(2), 69-75.
- Bogart, L.M., Kelly, J.A., Catz, S.L., & Sosman, J.M. (2000). Impact of medical and nonmedical factors on physician decision making for HIV/AIDS antiretroviral treatment. *J Acquir Immune Defic Syndr*, 23(5), 396-404.
- Bond, M., Bowling, A., McKee, D., et al. (2003). Does ageism affect the management of ischemic heart disease? *J Health Serv Res Policy*, 8, 40-47.
- Bonte, M., von dem Knesebeck, O., Siegrist, J., Marceau, L., Link, C., & McKinlay, J. (2007). Influence of patient's age and gender on doctors' decision making about coronary heart disease. *Dtsch Med Wochenschr*, 132, 2251-2255.
- Bruchmuller, K., Margraf, J., & Schneider, S. (2012). Is ADHD diagnosed in accord with diagnostic criteria? Overdiagnosis and influence of client gender on diagnosis. *J Consult Clin Psychol*, 80(1), 128-138.
- Chilakamarri, J.K., Filkowski, M.M., & Ghaemi, S.N. (2011) Misdiagnosis of bipolar disorder in children and adolescents: A comparison with ADHD and major depressive disorder. *Ann Clin Psychiatry*, 23(1), 25-29.
- Cohen, A.D., Dreiherr, J., Vardy, D.A. & Weitzman, D. (2008). Nonattendance in a dermatology clinic – a large sample analysis. *J Eur Acad Dermatol Venereol*, 22(10), 1178-1183.

- Corrigan, P.W., & Watson, A.C. (2002). Understanding the impact of stigma on people with mental illness. *World Psychiatry*, 1(1), 16-20.
- Cotuono, A.J. (1993). The diagnosis of attention deficit hyperactivity disorder (ADHD) in community mental health centers: Where and when. *Psychology in the Schools*, 30(4), 338-344.
- De Marco, M.A. (2005). Difficulty patients or difficult encounters? *QJM*, 98, 542-543.
- Steinmetz, D., & Tabenkin, H. (2001). The 'difficult patient' as perceived by family physicians. *Fam Pract*, 18, 495-499.
- Desgranges, K., Desgranges, L., & Karsky, K. (1995). Attention deficit disorder: Problems with preconceived diagnosis. *Child and Adolescent Social Work Journal*, 12, 3-17.
- Dumesnil, H., & Verger, P. (2009). Public awareness campaigns about depression and suicide: A review. *Psychological Services*, 60(9), 1203-1213.
- Dunlop, S., Coyte, P.C., & McIsaac, W. (2000). Socio-economic status and the utilisation of physicians' services: results from the Canadian National Population Health Survey. *Soc Sci Med*, 51(1), 123-133.
- Early childhood special education. (2019). Retrieved from <https://sde.ok.gov/early-childhood-special-education>
- Eisenberg, J.M. (1979). Sociologic influences on decision making by clinicians. *Ann Intern Med*, 90, 957-964.

- Eisenberg, D. & Schneider, H. (2007). Perceptions of academic skills of children diagnosed with ADHD. *Journal of Attention Disorders*, 10(4), 390-397.
- Escher, M., Perneger, T.V., & Chevrolat, J.C. (2004). National questionnaire survey on what influences doctors' decisions about admission to intensive care. *BMJ*, 329(7463), 425.
- Feldman, D.B., & Crandall, C.S. (2007). Dimensions of mental illness stigma: What about mental illness causes social rejection? *Journal of Social and Clinical Psychology*, 26(2), 137-154.
- Feely, J., Chan, R., McManus, J., & O'Shea, B. (1999). The influence of hospital-based prescribing in general practice. *Pharmacoeconomics*, 16(2), 175-181.
- Fox, J.D., & Stinnett, T.A. (1996). The effects of labeling bias on prognostic outlook for children as a function of diagnostic label and profession. *Psychology in the Schools*, 33, 143-152.
- Franks, P., & Bertakis, K.D. (2003). Physician gender, patient gender, and primary care. *J Womens Health*, 12(1), 73-80.
- Frayne, S.M., Skinner, K.M., Lin, H., & Freund, K.M. (2004). Effect of patient gender on late-life depression management. *J Womens Health*, 13(8), 919-925.
- Grobe, T.G., Blitzer, E.M., & Schwartz, F.W. (2013). BARMER GEK Arztreport. *Schriftenreihe zur Gesundheitsanalyse*. 18, (160-173).

- Hahn, S.R. (2001). Physical symptoms and physician-experienced difficulty in the physician-patient relationship. *Ann Intern Med*, 134, 897-904.
- Haider, A., Mamdani, M., Shaw, J.C., Alter D.A., and Shear, N.H. (2006). Socioeconomic status influences care of patients with acne in Ontario, Canada. *J Am Acad Dermatol*, 54(2), 331-335.
- Hajjaj, F.M., Basra, M., Salek, S., Finlay, A.Y. (2008). Influences on clinical decision making in dermatology outpatient clinics. *BR J Dermatol*, 159, 49-50.
- Hajjaj, F.M., Salek, M.S., Basra, M.K.A., & Finlay, A.Y. (2010). Non-clinical influences on clinical decision-making: A major challenge to evidence-based practice. *J R Soc Med*, 103, 178-187.
- Hamann, J., Adjan, S., Leucht, S., & Kissling, W. (2006). Psychiatric decision making in the adoption of a new antipsychotic in Germany. *Psychiatr Serv*, 57(5), 700-703.
- Harnett, D.N., Nelson, J.M., & Rinn, A.N. (2004). Gifted or ADHD? The possibilities of misdiagnosis. *Roepers Review*, 26, 73-76.
- Haug, M.R., & Ory, M.G. (1987). Issues in elderly patient-provider interactions. *Res Aging*, 9, 3-44.
- Herbert-Croteau, N., Brisson, J., & Pineault R. (2000). Review of organizational factors related to care offered to women with breast cancer. *Epid Review*, 22, 228-238.

- Hinshaw, S.P. (2002). Is ADHD an impairing condition in childhood and adolescence? In P.S. Jensen & J.R. Cooper (Eds.), *Attention deficit hyperactivity disorder – State of the science – Best practices* (pp. 2-21). Kingston, NJ: Civic Research Institute.
- Hinshaw, S.P. (2005). The stigmatization of mental illness in children and parents: developmental issues, family concerns, and research needs. *Journal of Child Psychology and Psychiatry*, 47(7), 714-734.
- Huttin, C., & Andral, J. (2000). How the reimbursement system may influence physicians' decisions results from focus groups interviews in France. *Health Policy*, 54(20), 67-86.
- Jackson, J.L., & Kroenke, K. (1999). Difficult patient encounters in the ambulatory clinic: clinical predictors and outcomes. *Arch Intern Med*, 159(10), 1069-1075.
- Katsiyannis, A., Yell, M.L., & Bradley, R. (2001). Reflections on the 25<sup>th</sup> Anniversary of the Individuals with Disabilities Education Act. *Remedial and Special Education*, 22(6), 324-334.
- Kauffman, J.M., Lloyd, J.W., & McGee, K.A. (1989). Adaptive and maladaptive behavior: Teachers' attitudes and their technical assistance needs. *The Journal of Special Education*, 23(2), 185-200.
- Khan, S.S., Nessim, S., Gray, R., Czar, L.S., Chaux, A., & Matloff, J. (1990). Increased mortality of women in coronary artery bypass surgery: Evidence for referral bias. *Ann Intern Med*, 112, 561-567.



- Krasa, N.R. & Tolbert, H.A. (1994). Adolescent bipolar disorder: A nine-year experience. *J Affect Disord*, 30(3), 175-184.
- Kressin, N.R. & Petersen, L.A. (2001). Racial differences in the use of invasive cardiovascular procedures: Review of the literature and prescription for future research. *Ann Intern Med*, 135(5), 352-366.
- Law, G.U., Sinclair, S., & Fraser, N. (2007). Children's attitudes and behavioural intentions towards a peer with symptoms of ADHD: Does the addition of a diagnostic label make a difference? *J Child Health Care*, 11, 98-111.
- Lerner, D.J. & Kannel, W.B. (1986). Patterns of coronary heart disease morbidity and mortality in the sexes: A 26-year follow-up of the Framingham population. *American Heart Journal*, 111, 383-390.
- Lin, F., Chaboyer, W., & Wallis, M. (2009). A literature review of organizational, individual and teamwork factors contributing to the ICU discharge process. *Aust Crit Care*, 22(10), 29-43.
- Link, B.G., Struening, E.L., Rahav, M., Phelan, J.C., & Nuttbrock, L. (1997). On stigma and its consequences: Evidence from a longitudinal study of men with dual diagnoses of mental illness and substance abuse. *J Health Soc Behav*, 38(2), 177-190.
- Little, P., Slocock, L., Griffin, S., & Phillinger, J. (1999). Who is targeted for lifestyle advice? A cross-sectional survey in two general practices. *Br J Gen Pract*, 49(447), 806-810.

- Madon, S., Guyll, M., Spoth, R., & Willard, J. (2004). Self-fulfilling prophecies: The synergistic accumulative effect of parents' beliefs on children's drinking behavior. *Psychol Sci*, 15(12), 837-845.
- Mak, W., & Cheung, R. (2008). Affiliate stigma among caregivers of people with intellectual disability or mental illness. *Journal of Applied Research in Intellectual Disabilities*, 21(6), 532-545.
- Martin, E.W., Martin, R., & Terman, D.L. (1996). The legislative and litigation history of special education. *Future Child*, 6(10), 25-39.
- Martin, J.K., Pescosolido, B.A., Olafsdottir, S., & McLeod, J.D. (2007). The construction of fear: American's preferences for social distance from children and adolescents with mental health problems. *J Health Soc Behav*, 48(1), 50-67.
- Maynard, C., Fisher, L.D., & Passamani, E.R. (1986). Blacks in the coronary artery surgery study (CASS): Race and clinical decision making. *Am J Public Health*, 76, 1446-1448.
- McDavid, K., Tucker, T.C., Sloggett, A., & Coleman, M.P. (2003). Cancer survival in Kentucky and health insurance coverage. *Arch Intern Med*, 163(18), 2135-2144.
- McKenna, K., Gordon, C.T., Lenane, M., Kaysen, D., Fahey, K., & Rapoport, J.L. (1994). Looking for childhood-onset schizophrenia: The first 71 cases screened. *J Am Acad Adolesc Psychiatry*, 33(5), 636-644.

- McKinlay, J.B., Lin, T., Freund, K., & Moskowitz, M. (2002). The unexpected influence of physician attributes on clinical decisions: Results of an experiment. *J Health Soc Behav*, 43(1), 92-106.
- McKinlay, J.B., Potter, D.A., & Feldman, H.A. (1996). Non-medical influences on medical decision-making. *Soc Sci Med*, 42(5), 769-776.
- Mitchell, A.J., & Selmes, T. (2007). Why don't patients take their medicine? Reasons and solutions in psychiatry. *Advances in Psychiatric Treatment*, 13, 336-346.
- Modi, S.C., Whetstone, L.M., & Cummings, D.M. (2007). Influence of patient and physician characteristics on percutaneous endoscopic gastrostomy tube decision-making. *J Pall Med*, 10, 359-366.
- Moreno, C., Laje, G., Blanco, C., Jiang, H., Schmidt, A.B., & Olfson, M. (2007). National trends in the outpatient diagnosis and treatment of bipolar disorder in youth. *Arch Gen Psychiatry*, 64(9), 1032-1039.
- Morrow, R.L., Garland, E.J., Wright, J.M., Maclure, M., Taylor, S., & Dormuth, C.R. (2012). Influence of relative age on diagnosis and treatment of attention-deficit/hyperactivity disorder in children. *CMAJ*, 184(7), 755-762.
- Murray, S.F. (2000). Relation between private health insurance and high rates of caesarean section in Chile: Qualitative and quantitative study. *BMJ*, 321, 1501-1505.
- Newschaffer, C.J., Falb, M.D., & Gurney, J.G. (2005). National autism prevalence trends from United States special education data. *Pediatrics*, 115(3).

- Norvilitis, J.M., Scime, M., & Lee, J.S. (2002). Courtesy stigma in mothers of children with Attention-Deficit/Hyperactivity Disorder: A preliminary investigation. *Journal of Attention Disorder*, 6(2), 61-68.
- O'Malley, M.S., Earp, J.A., Hawley, S.T., Schell, M.J., Mathews, H.F., & Mitchell, J. (2001). The association of race/ethnicity, socioeconomic status, and physician's recommendation for mammography: Who gets the message about breast cancer screening? *Am J Public Health*, 91, 49-54.
- Petursson, P. (2005). GPs' reasons for "non-pharmacological" prescribing of antibiotics. A phenomenological study. *Scand J Prim Health Care*, 23(2), 120-125.
- Piette, J.D., Wagner, T.H., Potter, M.B., & Schillinger, D. (2004). Health insurance status, cost-related medication underuse, and outcomes among diabetes patients in three systems of care. *Med Care*, 42(2), 102-109.
- Pogge, D.L., Stokes, J., Buccolo, M.L., & Pappalardo. (2014). Discovery of previously undetected intellectual disability by psychological assessment: A study of consecutively referred child and adolescent psychiatric inpatients. *Research in Developmental Disabilities*, 35, 1705-1710.
- Prosser, H., & Walley, T. (2003). Understanding why GPs see pharmaceutical representatives: A qualitative interview study. *Br J Gen Pract*, 53(489), 305-311.
- Purdie, N., Hattie, J., & Carroll, A. (2009). A review of the research on interventions for attention deficit hyperactivity disorder: What works best? *Review of Educational Research*, 72(1), 61-99.

- Ramchandani, S.R., Mehta, S.H., Saple, D.G., et al. (2007). Knowledge, attitude, and practices of antiretroviral therapy among HIV-infected adults attending private and public clinics in India. *AIDS Patient Care STDS*, 21, 129-142.
- Roetzheim, R.G., Gonzalez, E.C., Ferrante, J.M., Pal, N., van Durme, D.J., & Krischer, J.P. (2000). Effect of health insurance and race on breast carcinoma treatment and outcome. *Cancer*, 89, 2202-2213.
- Roetzheim, R.G., Pal, N., Tennant, C., et al. (1999). Effects of health insurance and race on early detection of cancer. *J Natl Cancer Inst*, 91, 1409-1415.
- Rusch, N., Angermeyer, M.C., & Corrigan, P.W. (2005). The stigma of mental illness: Concepts, forms, and consequences. *Psychiatr Prax*, 32(5), 221-232.
- Schomerus, G., & Angermeyer, M.C. (2008). Stigma and its impact on help-seeking for mental disorders: What do we know? *Epidemiol Psychiatr Soc*, 17(1), 31-37.
- Scott, A., Shiell, A., & King, M. (1996). Is general practitioner decision making associated with patient socio-economic status? *Soc Sci Med*, 42(1), 35-46.
- Shi, L. (2000). Types of health insurance and the quality of primary care experience. *Am J Public Health*, 90, 1848-1855.
- Soumerai, S.B., McLaughlin, T.J., & Spiegelman, D. (1997). Adverse outcomes of underuse of beta-blockers in elderly survivors of acute myocardial infarction. *JAMA*, 277, 115-121.

- Spencer, J.M. (2005). Therapeutic decision making in the therapy of actinic keratosis. *J Drugs Dermatol*, 4, 296-301.
- Stafford, R.S., & Singer, D.E. (1996). National patterns of warfarin use in atrial fibrillation. *Arch Intern Med*, 156, 2537-2541.
- Stein, M.D. Piette, J., Mor, V. et al. (1991). Differences in access to zidovudine (AZT) among symptomatic HIV-infected persons. *J Gen Intern Med*, 6, 35-40.
- Tracy, C.S., Dantas, G.C., Moineddin, R., & Upshur, R.E. (2005). Contextual factors in clinical decision making: National survey of Canadian family physicians. *Can Fam Physician*, 51, 1106-1107.
- Use of “developmental delay” by states and LEAs – Topic Brief. (2007). Retrieved from <https://www2.ed.gov/policy/speced/leg/idea/brief7.html>
- Verbrugge, L.M. & Steiner, R.P. (1981). Physician treatment of men and women patients: Sex bias or appropriate care? *Med Care*, 19(6), 609-632.
- Waldman, S.V., Blumenthal, J.A., Babyak, M.A., et al. (2009). Ethnic differences in the treatment of depression in patients with ischemic heart disease. *Am Heart J*, 157, 77-83.
- Wazana, A. (2000). Physicians and the pharmaceutical industry: Is a gift ever just a gift? *JAMA*, 283(3), 373-380.
- Wegner, N.K. (1990). Gender, coronary artery disease, and coronary bypass surgery. *Ann Intern Med*, 112, 557-558.

- Wiggins, L.D., Levy, S.E., Daniels, J., et al. Autism spectrum disorder symptoms among children enrolled in the Study to Explore Early Development (SEED). *J Autism Dev Disord*, 45(10), 3183-3194.
- Wofford, J.L. (2005). Teaching appropriate interactions with pharmaceutical company representatives: The impact of an innovative workshop on student attitudes. *BMC Medical Education*, 5, 5.
- Wolraich, M.L., Lindgren, S., Stromquist, A., Milich, R., Davis, C., & Watson, D. (1990). Stimulant medication use by primary care physicians in the treatment of attention deficit hyperactivity disorder. *Pediatrics*, 86(1), 95-101.
- Woolfenden, S., Sarkozy, V., Ridley, G., Coory, M., & Williams, K. A systematic review of two outcomes in autism spectrum disorder – epilepsy and mortality. *Dev Med Child Neurol*, 54(4), 306-312.
- Wright, A., Jorm, A.F., Harris, M.G. & McGorry, P.D. (2007). What's in a name? Is accurate recognition and labelling of mental disorders by young people associated with better help-seeking and treatment preferences? *Soc Psychiatry Psychiatr Epidemiol*, 42(3), 244-250.
- Wright, A., Jorm, A.F., & Mackinnon, A.J. (2011). Labeling of mental disorders and stigma in young people. *Soc Sci Med*, 73(4), 498-506.
- Zafar, S.Y., Alexander, S.C., Weinfurt, K.P., Schulman, K.A., & Abernethy, A.P. (2009). Decision making and quality of life in the treatment of cancer: A review. *Support Care Cancer*, 17(2), 117-127.

## APPENDICES

### APPENDIX A

Hello!

My name is Samuel Mason and I am a School Psychology PhD doctoral candidate from Oklahoma State University. I am looking for participants for my dissertation studying re-evaluation decision-making among general education teachers, special education teachers, and school psychologists.

The study is a survey that would take no more than 10 minutes to complete. A link to the survey is provided below:

[https://qtrial2018q1az1.az1.qualtrics.com/jfe/form/SV\\_77pQzJ3sVX9TDXn](https://qtrial2018q1az1.az1.qualtrics.com/jfe/form/SV_77pQzJ3sVX9TDXn)

If you have any questions, please do not hesitate to contact me by email, [masonsp@okstate.edu](mailto:masonsp@okstate.edu), or by phone, 210-303-6411.

Thank you very much for considering participating in the study!

Samuel Mason, M.S.  
School Psychology Doctoral Student  
Oklahoma State University  
[masonsp@okstate.edu](mailto:masonsp@okstate.edu)



## APPENDIX B

1. Gender?
  - a. Male
  - b. Female
2. Profession?
  - a. School Psychologist
  - b. Regular Education Teacher
  - c. Special Education Teacher
3. Years of experience?
  - a. \_\_\_\_\_
4. Are you traditionally certified or alternatively certified?
  - a. Traditionally certified
  - b. Alternatively certified
5. District size?
  - a. Small
  - b. Medium
  - c. Large
6. Work setting?
  - a. Rural
  - b. Urban
  - c. Suburban
7. Race?
  - a. White
  - b. Black or African American
  - c. American Indian or Alaska Native
  - d. Asian
  - e. Native Hawaiian or Pacific Islander
  - f. Other
8. Degree?
  - a. None
  - b. Bachelor
  - c. Masters
  - d. Specialist
  - e. Doctorate

## APPENDIX C

Jake, a 10-year-old boy, was attending fifth grade in a large urban public school district and was up for re-evaluation. During his initial evaluation 3 years ago, the multidisciplinary team found that Jake met the criteria for Developmentally Delayed [suspect of Oppositional Defiant Disorder]\*.

Jake's parents indicated that he has become increasingly more disorganized in the past 12 months. It takes him very long to get ready for school and social events causing him often to be late. Jake has also lost many items of school supplies (binders, folders, ect.). He is reported to be restless and often has difficulty concentrating, even when engaging in activities he is interested in.

Jake's teachers report that Jake has been struggling in his schoolwork and has fallen significantly behind his peers in math and reading. He often misses instructions given by the teacher and is redirected on a consistent basis. On the playground, Jake is often involved in arguments and appears to have difficulty making and keeping friends.

Jake received a comprehensive multidisciplinary re-evaluation.

\*Bracketed section included in experimental version of vignette given to experimental groups

## APPENDIX D

Did the multidisciplinary team above reach a consensus during his initial evaluation that Jake met the criteria for special education eligibility?

-Yes

-No

What is the likelihood that Jake would fall under each disorder?

1. Oppositional Defiant Disorder
  - a. Very Unlikely
  - b. Unlikely
  - c. Somewhat Likely
  - d. Likely
  - e. Very Likely
2. Attention Deficit/Hyperactivity Disorder
  - a. Very Unlikely
  - b. Unlikely
  - c. Somewhat Likely
  - d. Likely
  - e. Very Likely
3. Intellectual Disability
  - a. Very Unlikely
  - b. Unlikely
  - c. Somewhat Likely
  - d. Likely
  - e. Very Likely
4. No Exceptionality
  - a. Very Unlikely
  - b. Unlikely
  - c. Somewhat Likely
  - d. Likely
  - e. Very Likely

VITA

Samuel Peter Edward Mason

Candidate for the Degree of

Doctor of Philosophy

Dissertation: THE EFFECT OF LABELING BIAS ON DIAGNOSTIC DECISION  
MAKING FOR DEVELOPMENTALLY DELAYED CHILDREN

Major Field: School Psychology

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in School Psychology at Oklahoma State University, Stillwater, Oklahoma in July, 2019.

Completed the requirements for the Master of Science in School Psychology at Oklahoma State University, Stillwater, Oklahoma in 2015.

Completed the requirements for the Bachelor of Science in School Psychology at Washington and Lee University, Lexington, Virginia in 2014.

Experience:

School Psychology Intern, Avondale Elementary School District (2018 – 2019)

External Consultant, Oklahoma Tiered Intervention System of Support (2018 – 2019)

Professional Memberships:

Member of the National Association of School Psychology (2014 – Present)

Member of the Oklahoma State Psychological Association (2014 – Present)